



Universiteit
Leiden
The Netherlands

The perception of employers and the processes of hiring and firing employees in the Netherlands

Sman, Ferry van der

Citation

Sman, F. van der. (2021). *The perception of employers and the processes of hiring and firing employees in the Netherlands*.

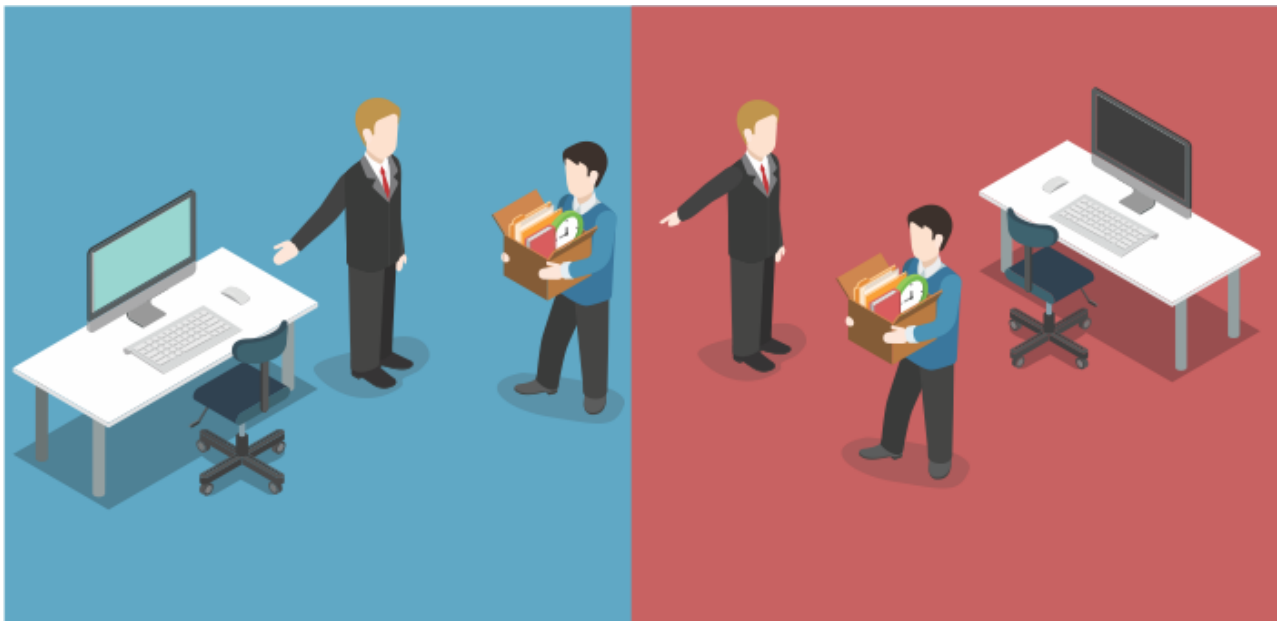
Version: Not Applicable (or Unknown)

License: [License to inclusion and publication of a Bachelor or Master thesis in the Leiden University Student Repository](#)

Downloaded from: <https://hdl.handle.net/1887/3239744>

Note: To cite this publication please use the final published version (if applicable).

The perception of employers and the processes of hiring and firing employees in the Netherlands



Source: <https://medium.com/@roy.aparajita29/hiring-firing-c00adf78884b>

Name: Ferry van der Sman

Purpose: Master Thesis Public Administration

Mentor: Marike Knoef

Second reader: Eduard Suari

Subject: Socio-economics

Date: June 11th

Words: 13.077

Table of contents

Abstract	4
1. Introduction.....	5
1.1. Motivation	5
1.2. Relevance	6
1.3. Data & Methods	6
1.4. Main findings.....	7
1.5. Reading guide.....	7
2. Theoretical framework.....	8
2.1. Theorizing hiring and firing.....	8
2.1. Perceptions of employers.....	9
2.1.1. Perception of leadership	9
2.1.2. Perception of learning ability	9
2.1.3. Perception of productivity.....	10
2.1.4. Perception of effort	10
2.1.5. Perception of illness	11
2.2. Vignette characteristics.....	11
2.2.1. Age.....	11
2.2.2. Work experience	12
2.2.3. Wage costs and pension premiums	12
2.3. Business, job and employer characteristics	13
2.3.1. Business composition	13
2.3.2. Employer age.....	13
2.3.3. Education level	14
3. Methods	15
3.1. Vignettes.....	15
3.2. Method for regressions	16
4. Data	17
4.1. Survey data.....	17
4.2. Sample.....	17
4.3. Hiring and firing.....	19
4.4. Business composition and employers' age	20
4.5. Perceptions of employers on young and older employees.....	20
5. Results	22

5.1.	Introduction to the regressions.....	22
5.2.	Hiring employees.....	22
5.3.	The effects of business-, employer- and job offer characteristics on hiring.....	23
5.4.	The effects of employers' perceptions on hiring	25
5.5.	Firing employees	26
5.6.	The effects of business-, employer- and job offer characteristics on firing.....	27
5.7.	The effects of employers' perceptions on firing chances	29
6.	Conclusion & Discussion.....	31
	References.....	33

Abstract

This paper investigates the effects of applicant/employee characteristics, business characteristics and perceptions of employers on hiring & firing chances, mainly focussing on age effects. We arrive at employers' hiring and firing decisions by using a survey based on vignettes, calculating the effects by performing multiple (sub-)regressions. We find that age has a negative effect on hiring chances and a positive effect on firing chances, although the age effects in firing are smaller in comparison to hiring. Still, a 30 year old employee has 39% less chance of getting fired in comparison to a 60 year old employee. This age effect could be neutralized by the 30 year old having 10.000 extra annual wage costs. Most certainly, younger workers have a head start on the labor market in comparison to older cohorts. By positively stimulating employers' perceptions of old employees, this inferior position of older people on the labor market might be significantly minimized.

1. Introduction

1.1. Motivation

There are multiple short- and long term trends that affect the Dutch labor market for young and old people. At first, the aging of the Dutch population and the uneven distribution in demography has caused a stressed system of solidarity regarding pensions. An all-time low share of the population in the workforce has to provide pensions for the retired population. Therefore in 2013, the Dutch government decided to counter the long-term trend and increase the public pension age (or the age at which elderly can retire and apply for their pension). This however didn't completely fix the problem, and recently the Dutch CBS and NIDI published research that interpreted future demographic scenario's, and concluded that the Netherlands either get more migrants to their country to contribute to the workforce or that elderly should simply work even longer to uphold the solidarity system (CBS & NIDI, 2021).

A second short-term trend that negatively impacts the labor market is the pandemic that is caused due to the coronavirus outbreak. The outbreak caused economic downfall due to the policies that were enacted in response to the spread of the virus which made many businesses temporarily close (Ministry of General Affairs, 2021). These businesses had a decreasing revenue and had to diminish their fixed costs to survive the pandemic. Even though the Dutch government implemented a subsidy (the NOW) to relieve businesses from their revenue loss and wage obligations, the unemployment still rose from 3 to 4.6% (CBS, 2021).

Both long-term and the short-term affect employers and employees and thus the labor market. Historically in the Netherlands, youth unemployment is low in comparison to other OECD countries (OECD, 2021). However, these young workers often have temporary jobs, which means that in times of economic downfall this specific group is relatively most affected. Older workers also face several problems on the Dutch labor market. The labor force participation among older workers in the Netherlands has been historically low in comparison to younger cohorts, although previously discussed policies partially reduced this gap (CBS Statline, 2020). When older workers do participate on the labor market, for example because of the increase public pension age, they often face age discrimination. For example, in an assessment of employers' perceptions, older workers have less productivity, flexibility, creativity and worse new technological skills (van Dalen et al, 2009). This creates a market-wide problem for older workers, since it's harder for them to find a new job. This also means that the increase of the public pension age might increase unemployment among old people on the labor market. This is an underlying problem, especially since perceptions are hard to point out in the processes of hiring and firing and are even harder to change. Therefore, our research question is: ***"how do employers' perceptions on young and old employees influence the chance of an applicant or employee getting fired?"***.

This research tries to examine these underlying perceptions and connects them with the chances of hiring and firing for young and older employees. This quantitative research is based on a vignettes survey that was distributed over respondents that were involved in the processes of hiring and firing. The hypothetical vignettes included basic characteristics of applicants and employees like age, wage, work experience, the type of premium and severance pay. Besides these characteristics, subregressions were created on the basis of employer's perceptions and business- & job

characteristics to examine potential influences on the chances of hiring and firing of specific age groups.

1.2. Relevance

This research contributes to science since most previous research has focussed on the hiring process instead of the firing process. It also adds some information on the labor market, adding the perceptions of employers to the processes of hiring and firing which hasn't been done before. This is interesting, considering the long- and short-term trends that affect the labor market in combination with historical problems on the Dutch labor market. This paper builds upon previous research, to begin with Knoef et al, whom investigated the direction of the same variables used in this research in the chance of an applicant getting hired (Knoef et al, 2020). Besides that, they also heavily explored the influence of the different pension premiums in the vignettes and the effect it has on the labor market. This research will add perceptions to the equation and investigate the role of certain business-, job offer- and employer characteristics in the processes of hiring and firing. Another paper which is closely related to this research is one that focusses on perceptions of employers versus other characteristics that may influence the choice of hiring someone (Heyma et al, 2016). The research also used vignettes to highlight the employers' trade-off between the relation of productivity and wage, personnel policy, job history, the employers' perceptions and other relevant factors. Heyma et al's main findings were that perceptions and prejudices by employers are of close to zero impact to the process of hiring a certain applicant. This research will add knowledge in the way that we can measure differences in hiring trade-offs between young and older applicants in relation with the different perceptions from employers. If these differences are substantial, we can reject the idea that perceptions aren't relevant in the hiring process.

Besides the scientific relevance and the knowledge gap we're trying to fill, this research also has societal relevance. By knowing the general perceptions of employers on young and old employees, we can find out whether older applicants have higher chances of getting hired by applying on jobs where the employers' perception is more positive on them. The other way around could also be interesting social-wise, for instance when young applicants have better chances of getting hired in certain jobs because of the perceptions that play a role there. For example, if employers perceive that young employees are more enthusiastic, they could have better chances of getting hired in jobs that require enthusiasm. In addition to that, if we know particular perceptions and their respective effects on the labor force, we might actually do something about it to improve efficiency in the labor force. This research could add general knowledge about the labor market, the employees on it and the applicants who are willing to join the labor market. This research might also be interesting for policy makers, in a way that makes them able to increase efficiency and allocation on the labor market and perhaps stimulate the position of elderly in the labor market.

1.3. Data & Methods

Research data are taken from two surveys among employers or employees that are involved in the processes of hiring and firing employees or applicants. The survey was distributed over two different panels, the LISS-data panel and the Kiendata panel. The respondents all answered questions about who to hire or fire, including hypothetical applicants and employees. The characteristics the hypothetical applicants or employees are defined with are age, wage, pension premium, work experience and severance pay (only in case of the firing process).

In total, respondents answered six questions about both hiring and firing employees including three applicants or three employees in each hypothetical question or “vignette”. Besides data on the hypothetical vignettes, there is data included about employers’ characteristics, the composition of employees in their business regarding age, perceptions on young and older employees and information about the type of applicant employers want to fill the position with. By calculating the differences between applicants or employees, regressions are performed that track the direction and magnitude of all the different characteristics in the vignettes.

1.4. Main findings

There are three main findings. At first, regarding age, the results suggest that young employees will always have a head start in the hiring process in comparison to old employees (age 60). Other characteristics play a relative small role in the chances of hiring. The second main finding is that the same goes for the process of firing, although the head start is far less substantial than in the process of hiring. This suggests that there are more reasons for employers than just simple employee characteristics as used in our vignettes. The third main finding is that perceptions of employers can help in substantially decreasing or increasing this head start, but it will never close the gap that the age effect created. Even when employers favor old employees in their productivity or favor working with them, they will still favor young employees in both processes.

1.5. Reading guide

At first, I will start with a theoretical framework of my main contributions, which are the the perceptions of employers, the vignette characteristics and business characteristics on both the hiring and firing process. Second, I will present the methods that were used to eventually arrive at the multivariate regressions. Third, I will analyse the dataset starting with a description of where the data has come from. After that I will introduce some tables and graphs of the sample. Fourth, I will present and analyse those regressions starting with the regressions for hiring and ending with the regressions for firing. Fifth, I will discuss and conclude the findings of this research. By doing that, I will add limitations of the research and recommend for further research.

2. Theoretical framework

2.1. Theorizing hiring and firing

The information in the vignettes on which employers judge candidates are presumably the main characteristics that are under review for applications and dismissals and hopefully the ones that resumes are judged on. They are all very objective and rational to review. We can see these characteristics as the main blocks in the hiring- and firing process. There were four characteristics in the vignettes for the process of hiring: age, wage, type of pension premium and the work experience. There's one added characteristic for the process of firing in the vignettes: severance pay. I will leave out wage and severance pay of the theorizing section, since simple economic reasoning leads me to believe both characteristics have a negative effect with the chance to hire, and a positive effect with the chance of firing. Besides the vignette characteristics, I will also theorize and discuss the influences of business characteristics and employer perceptions on the processes of hiring and firing.

Figure 1 shows the different effects that employers experience when deciding on the chances of hiring and firing someone as used in this study. At the left side of this figure, in green, are the vignette characteristics: age, wage, work experience, pension type and severance pay. These are most basal and easiest to point out in the process. At the top side of this figure, in orange, we have business characteristics, such as business composition age-wise, minimal educational level for the job offer and employer age. These are already going a bit deeper and aren't something the applicant or employee can change, but might still influence their chances of getting hired or fired. At the right side of this figure, in red, we can find the underlying perceptions. These are views and conceptions employers have about certain types of applicants and employees. These perceptions can influence the process while being unnoticed by both employee and employer, and might even unintentionally affect the employer's decision. They are hard to point out and maybe even harder to change.

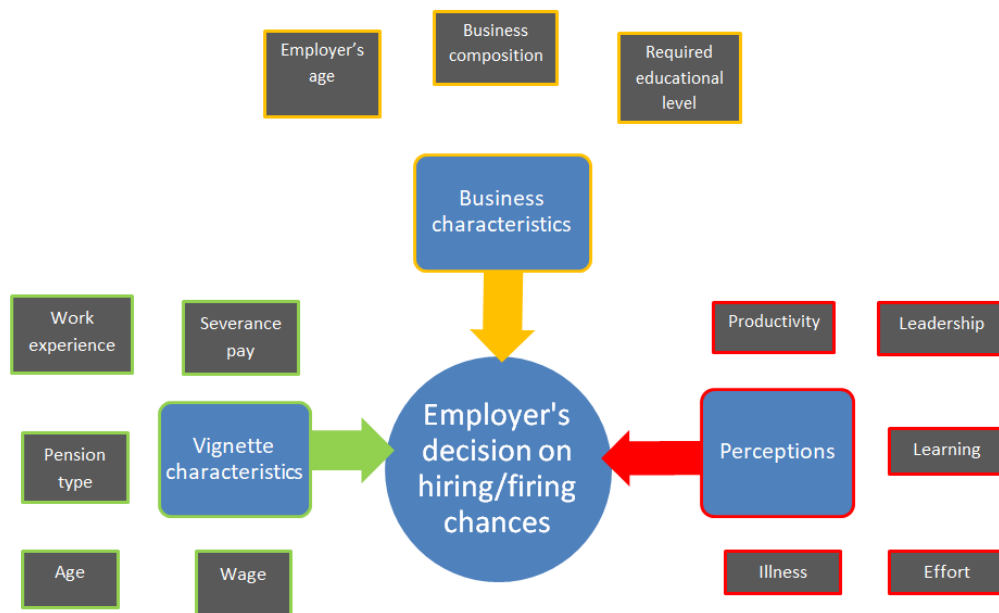


Figure 1. Scheme visualizing the influences on the hiring and firing chances of employees as used in this research.

2.1. Perceptions of employers

The perceptions of employers construct the underlying mechanism in the hiring- and firing processes. Perceptions are very subjective, hard to point out in for example applications and differ per person. That's why it's hard to convert these underlying influences to just basic numbers: the employer usually has assumptions, underlying reasoning and in general perceptions about the applicant. Due to the subjectivity and underlying character of perceptions it's hard for policy makers to come up with appropriate policies that for example stimulate employers' perceptions of older employees.

In this research we included the perceptions of employers in the surveys by asking them who they perceive to be better at a certain subject, older or younger people. There are five different subjects included: leadership, learning ability, productivity, effort and illness. I will theorize them all individually.

2.1.1. Perception of leadership

There hasn't been much research on the perception of leadership and which group, young or old, is perceived better to be working with as a leader. To avoid any confusion, the question in the survey was: "who do you prefer working with as a leader?". In the Norwegian Senior Policy Barometer, 750 managers out of both the public and the private sector were asked who they prefer working with (Solem, 2010). Similarly to employees, managers especially like to work with young employees. The preference becomes even more substantial by age: older managers like to work with even younger employees. This relation was measured from 2003 to 2008 to make better use of the Norwegian older workforce, since age discrimination is also a problem in Scandinavian countries. Young employees are often perceived to be more flexible and easy going regarding their social skills. This leads me to think that employers favor young people on the survey question of who they like to lead as a leader.

2.1.2. Perception of learning ability

Learning ability is something that is often associated with young aged individuals that are still in school because of the peak in brain capabilities on a young age. This is also the case in the workplace, for example when we focus at training performance. Older employees need on average more time to complete certain workplace trainings and remember plus master less of the training thereafter (Kubeck et al, 1996). This declining competency in learning is age-related and is therefore hard to reject due to the nature of the problem. The primary deteriorating component of learning competency due to aging seems to be the processing speed of information (Baltes et al, 2006). Other components that also deteriorate while aging are filtering of relevant information and the capacity for working memory.

However, Schulz and Robnagel conducted a more recent controversial research that also focussed on the workplace: they examined if learning competence varied across age differences in an informal workplace (Schulz & Robnagel, 2010). The research was conducted by a survey among employees of a German mail company. The results indicated that learning competence wasn't related with age: there was mixed success for individuals and their learning competence in the informal workplace, independent of an individuals' age. But due to the setup of the research and the workplace being mainly informal, results are easy to be challenged and disputed. Therefore, my expectations are that employers perceive younger workers as being more competent in learning.

2.1.3. Perception of productivity

Dutch research on the perception of productivity of employers divided the perception of productivity in two different dimensions or skill-types (van Dalen et al, 2010). The first skill was called the "soft skill". This included more subjective skills like commitment, social skills, accuracy and reliability. Their sample concluded that older employees were more likely to have stronger soft skills in comparison to younger employees. The other dimension, "hard skills", are the more objective skills like technological skills, physical capacity and creativity. Their sample indicated that younger people were more likely to have better hard skills in comparison to their older co-workers. Finally, they compared the perception on soft and hard skills to which one is more important for their final judgment in who is more productive. Both employees and employers noted that hard skills were more important for their perception on which age group is more productive, favoring younger employees in a business.

Another Dutch survey which included about a thousand employers was more focussed on the relationship between the perception of productivity and the hiring process (Erken et al, 2014). An important relation in their research was the relation between productivity and wage demands of older applicants. They analysed the chances of a 62 year old, a 45 year old and a 35 year old getting hired for a certain job. The 62 year olds had significantly less chance of getting hired in an application process: about 31% less than a 45 year old and 38% less than a 35 year old. The researchers reasoned that the main reason for employers not hiring older applicants was because of the skewed ratio between productivity and wage demands. Younger applicants were found to be more restrained in their wage demands and had a higher productivity in the opinion of employers. This also verifies previous research that concluded that the perception of productivity is more determined by hard, more objective, skills. I expect the same outcome for this survey, predicting that employers will favor younger employees when it comes to their perception of who is more productive.

2.1.4. Perception of effort

Unlike the scarce literature concerning the perception of leadership, there has been lots of research concerning the relationship between effort or motivation and age. However, there isn't a general consensus for the perception of effort and the related age: does it go down with age or not? In contrary, there has been much consensus about the way effort is extracted from young employees in comparison to older employees. Older employees are more generally intrinsically motivated, which means that they get motivation from the task or job itself (Inceoglu et al, 2012). Younger employees are rather motivated by extrinsic types of motivation, which could be an increase in wage, promotion or an extra day off for example. Another reason for it being hard to find a certain effect between age and effort is that there is no clear conceptualization for effort. Inceoglu et al find that younger employees put more effort in competition, personal growth and commercial outlook: a negative trend along age. A positive trend is found when effort is about level of activity, achievement and especially power. This means that older employees put more effort in topics regarding power and achieving success. This leaves the topic of effort to be multi-dimensional and it remains unclear what the general direction and strength of the relationship between effort and age is. The perception-side of effort is also non-existent in the literature and is mostly about motivation. This makes me expect that employers are indifferent in their perception of which age category puts in more effort during work.

2.1.5. Perception of illness

The last perception that is included in the survey is the perception of which age category has more sick days. To be clear, the question in the survey was: “who is more often absent?”. This “variable” or perception might be the most objective one out of all the perception subjects, since sick days are simple to measure for employers. They simply have to check the sick reports in their business once in a while, which I expect most employers to do. Therefore I also check the gross data of days off due to sickness. The Dutch National Survey Working Conditions measures all kinds of working conditions, including the amount of days people call in sick (CBS, 2020). Young employees call in sick to office more often than older employees, and there are several explanations for it. At first, women in younger age categories take more days off due to sickness than women in older age categories because of pregnancies. Second, even when women aren’t sick themselves due to their pregnancies, their recently born kids might be. This results in higher absenteeism among young parents in comparison to older individuals. At third, there is a psychological factor that affects younger employees into taking more days off due to sickness (Houtman et al, 2019). This psychological factor is that younger people are more negatively influenced by stress. They experience stress more often and are more vulnerable towards stress. Older employees are thus less often absent, however the same research shows that when older employees are sick, they are absent for a longer period of time. Like I said before, I expect employers to be well-informed on this matter. This should reasonably result in a perception which is similar to the facts: employers favoring older employees in their perception of absenteeism.

2.2. Vignette characteristics

2.2.1. Age

This is the characteristic for the hypothetical applicants and employees in the vignettes whose influence is most controversial. Scientists don’t have one undisputed explanation of what age does to someone’s chances on the labor market. An important consideration of the influence of age is that it often goes hand-in-hand with work experience, since older people obviously have more work experience in general. Therefore, theorizing the effect of age on labor market success should be done without the side-effect of work experience. This is exactly what is done in a paper called “*Hard lessons for lifelong learners? Age and experience in the graduate labor market*”. The English researchers compared young- against old graduates on their success on the labor market from 1990 to 2004 (Purcell et al, 2007). They found that old graduates had more difficulties entering the graduate labor market in comparison to their younger fellow graduates. In contrary, older graduates did start on a higher wage on average. This might be one of the few positives older graduates experienced, since older graduates were also lacking in wage growth over time and job quality in general. These negative effects in hiring chances for older graduates are partially explained by the social role theory (Eagly, 1987). The social role theory holds that certain social groups are stereotyped and only fit well in their stereotyped work settings. Mismatches in gender but also in age from those stereotyped expected work settings result in a lower quality rating for that mismatched social group. In that regard, older employees are stereotyped as having more soft skills and younger employees to have more hard skills. Overall, old employees’ hard skills aren’t perceived as important as young employees’ hard skills, which leads to the perception that old employees are lower status which affects hiring chances.

More recent Israeli research also examined job transitions and the differences between young and old (Stier & Endeweld, 2015). They find that older workers have more stability in their working career in comparison to younger workers and thus exit jobs less frequently. But, when eventually faced with instability, older workers seem to be more disturbed: they experience more difficulties than young workers in finding new employment. However, job instability can't be solely attributed to involuntarily leaving jobs. This leaves the effect of age on involuntary leaves on the labor market unclear. Nevertheless, there is a base theory that suggests a negative effect between age and involuntary job exits: the human capital theory (Unger et al, 2011). This theory holds that older employees have more accumulated experience, loyalty towards the company and specific knowledge that all help in retaining their jobs. The downside of this theory is that it doesn't separate the effects of experience and age. Therefore, I expect older applicants or employees to have a lower chance of being hired. I expect age not to be of a big influence in the process of firing.

2.2.2. Work experience

Work experience is closely related to human capital: employees are expected to learn during their working days and that makes them more useful to the company because of their increased skills. Therefore, work experience can be seen as a resource to companies. This makes it less surprising that there is a positive relationship between work experience and wage. The human capital theory, like we briefly discussed above, notes that employers favor employees with more human capital or in other words: work experience (Unger et al, 2011). These employees have more specific knowledge of the company or the sector in general. Besides these obvious factors, employees with work experience might have expressed more loyalty towards the company. Employers might value loyalty since they know these certain employees will support this company throughout good and bad times, something less experienced co-workers couldn't have proven yet. Other factors that employers indirectly value out of work experience are professionalism and the reliable feeling of knowing the employee. These valuable employer views are certainly not things to be overlooked.

Recent research even claimed that 12% of the wage-gap between men and women is due to the timing of their work experience (Light & Ureta, 1995). Timing is conceptualized in this study as the frequency, duration and placement of non-work spells. This clarifies the importance of work experience in the labor market. German researchers examined the relation between work experience and entry on the labor market (Weiss et al, 2014). They found that early relevant work experience for graduates resulted in an easier entry and integration on the labor market. This only applies to the entry on the labor market, and had no significant effects on a more favorable position in the labor market or a higher wage in the early years of employment. In our case the hypothetical applicants and employees are divided by ages 30, 45 and 60. Due to the human capital theory, the effect of work experience might have a positive effect with hiring chances. Therefore, I expect applicants or employees with more work experience to have a higher average chance of getting hired, and a lower average chance of being fired.

2.2.3. Wage costs and pension premiums

Pension premiums are used to fund the additional pension in the Netherlands, which is also called the second pillar. The payment of the premium is often divided between the employer and the employee, but the particular distribution varies. Employers usually pay their Besides the distribution in percentages between employer and employee, there are three possible programs that determine how the second pillar is constructed (Knoef et al, 2020). The newest pension agreement in the

Netherlands is a flat premium, which means that the premium is independent of age and thus will be the same for every age category. Young employees will have a bigger potential with their pension investments, since the investments can grow over a longer period of time. Another contract could be a progressive pension, which would mean that older employees pay a higher premium. This contract doesn't rely that much on solidarity between young and old in society like it does for flat premiums. However, wages go up for older employees which could make them less attractive to companies. A third premium option is simply no pension program. This has many obvious negative effects for the pension of employees, but does make employees more attractive since companies don't have to pay any percentage of the premium. Therefore, I expect applicants without a pension contract to have a higher chance of getting hired, following people with a flat premium and last people with a progressive premium. The opposite applies to the chance of getting fired, where I expect employees with no premium contract to have the lowest chance of getting fired.

2.3. Business, job and employer characteristics

Besides the obvious possible effects that wage costs, employer age, severance pay and pension premiums may have on the employers' decision in the processes of hiring and firing, there are also deeper mechanisms that can affect applicant or employees chances. In this study, we've added business-, job (offer)- and employer characteristics to the equation to catch as many as possible influences on the employers' choice.

2.3.1. Business composition

In previous Dutch research the effect of business composition on permanent contract chances has been investigated (Oude Mulders, 2019). By measuring the percentage of old workers in an organization, Oude Mulders tried to find an effect that this older composition may have. Although he found some slightly negative effects which an older business composition may have on the option of giving younger employees a permanent contract and a more positive effect for older employees, the results weren't significant. In our sample, employee compositions were divided by three categories: below 40, between 40 and 55 and above 55. Respondents filled those categories in with percentages, leading to a comparable situation. Oude Mulders' research leads me to believe that there might be positive effects on the chance of older applicants (>55) getting hired when there is an older business composition age-wise. Regarding the firing process, not much has been researched on so far which leads me without expectations.

2.3.2. Employer age

Oude Mulders also investigated the effect of employer age on the willingness to train an employee. Even though training and hiring an employee are two different things, more willingness to train a specific age-related employee might indicate a more overall willingness to hire and invest in that specific employee age group. The main findings on the effect of employer age on willingness to train a specific age-related employee were that older employers slightly favor elderly to train and invest in them. However, results were just slightly significant. In our sample, employer age categories were also divided in three categories: below 40, between 40 and 50 and above 50 (for comparable reasons). Therefore, previous research might indicate that in our sample the 50 year and older category for employers favors hiring older employees.

2.3.3. Education level

Social role theory, like previously discussed, holds that younger employees are perceived to be of a higher status than older employees (Eagly, 1987). However, this may not hold for every type of job in society. For example, positions like judges, CEO's, politicians and surgeons are mostly perceived to be jobs for elderly people. These high level occupations therefore might indicate a flaw of the social role theory, and could mean that job offers with a higher minimal educational level are more favored towards the social group that fits in these stereotyped positions: elder workers. Minimal educational levels for job offers in our sample are divided in three categories: low, medium and high. A low educational level holds that there is no required educational level or just a primary school requirement. A medium educational level holds that applicants have at least finished high school. A high educational level holds that applicants have at least a scientific degree. This all leads me to believe that employers that have job offers with a high required educational level might be more favored towards older applicants.

3. Methods

3.1. Vignettes

Making an experiment that would come as close to a real-life experiment is hard when it comes to the hiring- and firing process for multiple reasons. At first, because hiring and firing comes with different needs from employers out of different sectors. We narrowed those needs down by asking the respondents what kind of characteristics were involved in the job offer: was it physical work or more mental, does it require experience or learning capability and what is the requirements education-wise? Second of all, applicants can be hired or employees can be fired for multiple, countless reasons. In an experiment it's hard to account certain behavior to particular factors because of the multi-dimensional nature of hiring and firing. Therefore, a hypothetical environment of applicants and employees with limited information, or in other words vignettes research, makes it possible to examine the effect of these few factors we're interested in. In table 1 below you can find a vignette, similar to the ones we've used in our research while data in this particular vignette are random.

Table 1. Example of a vignette as used in our research¹

	Candidate 1	Candidate 2	Candidate 3
Age	30	45	60
Relevant work experience (in years)	2	7	2
Total wage per year (includes pension premium paid by employers)	72.000	75.000	69.000
Pension agreement	No pension	Yes, flat pension	Yes, progressive pension
Severance pay ²	17.000	20.000	19.000
Chance in percentages	30	50	20

Note 1. Style and values of the vignette are similar to previous research by Muns & Knoef, 2020.

Note 2. Severance pay only used in case of vignettes for firing.

Similarly as the values we've used for age in the example in table 1, age had three gradations: age 30, 45 and 60. Work experience has two gradations, these were 2 and 7 years of relevant work experience. The total wage per year was first based on a question in the survey regarding the expected approximate wage costs per year for the particular job. Based on five categories where category 3 (60.000 – 79.999 euros) was the reference point, 20.000 or 40.000 euros got either subtracted or added to the vignettes for a realistic view. The pension agreement options were similarly to Muns et al (in the theoretic section) in 3 gradations: either no pension, a flat one or a

progressive one (Knoef & Muns, 2020). Severance pay was based on the total wage per year in the vignette, calculated by the formula: $\text{severance pay} = (\text{wage} - 3000) / 19.000 * 14.000 + 1000^1$.

3.2. Method for regressions

As has been said before, 671 respondents answered 6 hypothetical vignettes on both the hiring- and firing process resulting in 4026 observations. These 4026 observations were later on doubled, since we measured the difference between candidate 1 and 3, and candidate 1 and 2, resulting in 8052 observation. Both the content of the vignettes and the chances of hiring were put in a Stata database. To see which differences in the vignettes shaped the respondents' answers and corresponding chances, we have to subtract one hypothetical candidates' or employees' characteristics from the other candidate from the same vignette. Therefore, candidate 1 could be subtracted by candidate 3 and candidate 2 could be subtracted by candidate 3, with candidate 1 in comparison to 2 being the reference point. The dependent variable was shaped by dividing the chance of applicant 1 getting hired by the chance of applicant 3 getting hired as was introduced by Koşar et al (Koşar et al, 2020).

$$\begin{aligned} \text{Log} \left(\frac{P_i}{P_k} \right) = & C_0 + C_1 [1_{\text{age (i)=30}} - 1_{\text{age (c) = 30}}] + C_2 [1_{\text{age (i) =45}} - 1_{\text{age (c)=45}}] + \\ & C_3 [1_{\text{work experience (i)=2}} - 1_{\text{work experience (c)=2}}] + C_4 [1_{\text{no premium (i)}} - 1_{\text{no premium (c)}}] + \\ & C_5 [1_{\text{progressive premium (i)}} - 1_{\text{progressive premium (k)}}] + b[\text{wage costs(i)} - \text{wage costs (c)}] + \\ & (\varepsilon_i - \varepsilon_c) \end{aligned}$$

Equation 1. Method used for the regression²

Equation 1 visually shows the method that was used in order to make the regression, equal to the one that was used by Knoef, Muns & Soest in previous research. However, these 8052 observations from 671 respondents look like independent observations, which they obviously aren't. Since a respondent answered 6 questions it most likely might be affected by the individual respondents' preferences, and therefore these observations are dependent on one another. To make up for this dependency of data in our regressions we have clustered the standard error on the individual level.

¹ Both the numbers 14.000 and 1000 in the formula were dependent on the answer of the respondent regarding the expected approximate wage for the particular job.

² Source: Knoef, Muns & Soest (2020).

4. Data

4.1. Survey data

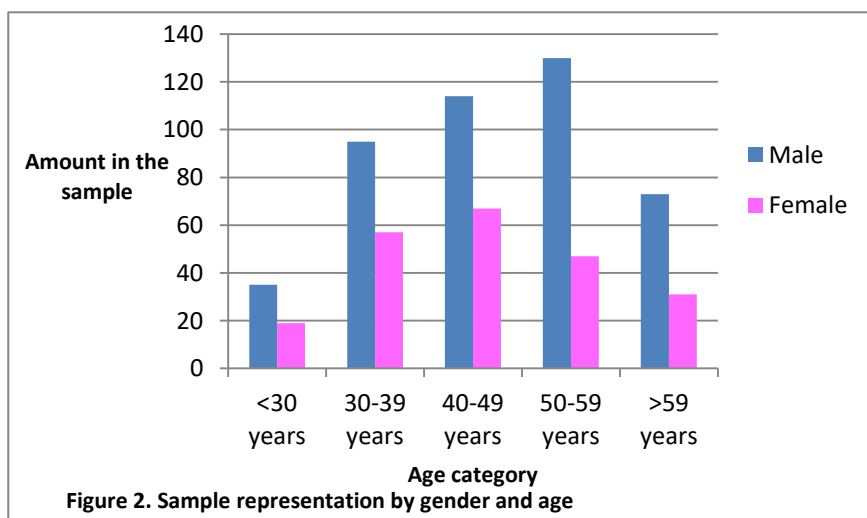
The survey data was retrieved by two panels, PanelWizard Direct and the “Long-term Internet Studies for the Social sciences-panel”, or LISS-panel. At first, the LISS-panel, which includes about 5000 Dutch respondents (LISS panel, 2021). All of these respondents are randomly selected by Statistics Netherlands (CBS). The panel answers questions about all kinds of topics from the social sciences, and releases them for scientists to conduct research. Our survey was distributed over 1634 respondents, had a response percentage of 66%³ and was validly returned to our standards by 385 respondents. The respondents’ data were filtered by completeness and by the question if respondents were involved in the hiring and firing process of their respective firms. Second, PanelWizard Direct, which includes about 33.000 respondents (PanelWizard, 2021). The survey wasn’t distributed over all the respondents, but carefully selected on the fact if respondents were involved in the hiring or firing process and in the end distributed over 388 respondents. In the end, we received 286 validly returned surveys with a response percentage of 62%. These two panels thus combined 671 validly returned surveys.

Respondents answered six questions on both the chance of hiring certain hypothetical applicants and the chance of firing certain hypothetical employees. All things considered, the dataset contains 8052 observations on both the hiring- and the firing process regarding employers’ preferences. Besides the observations on the hiring- and firing process, respondents answered questions about their own characteristics (gender, age, education), their perceptions on young and older employees, the requirements of the hypothetic job they’re hiring for, plus some indicators of what their composition of internal staff looks like.

4.2. Sample

Our sample of respondents is visualized by age and gender in figure 2 below. Our sample is pretty diversified within the working age categories. Age category wise there are relatively few respondents whom are below the age of 30, but that is to be expected when it comes to staff that is involved in hiring employees. Also our sample of respondents older or equal to 60 is relatively small, but this representation is equal to that of the real world Dutch society (CBS, 2008). Gender wise, men are almost twice as represented in comparison to women in our sample. When we look at the data from real-life gender equality in executive positions, we see that this representation is rather similar to that of the real-life situation (CBS, 2008). Sadly there is still a gap in leadership positions between men and women, and there is no simple misrepresentation in this sample. However, we do assume that leadership positions are equally distributed concerning being involved in hiring and firing employees, which isn’t necessarily 100% accurate. In our sample, it’s remarkable that the gap between men and women starts in the beginning years of the working age. The peak is clearly in the age category of 50-59 years, where not only most respondents fit in, but where men are also more than twice as represented as women.

³ Response percentage isn’t equal to validly returned surveys since we further filtered respondents by completeness and being involved in the hiring- and firing process.



Our sample also includes categorization by the minimal required education level that was set by the employer or employee that was in charge of filling the specific job offer, and the corresponding wage. In table 2 below, we see that employers and employees involved in the job offer primarily looked for either an MBO-level minimum or an HBO-level minimum⁴. Far more than half of our job offers that were visualized when answering the vignettes were formed by this educational standard of MBO or HBO. The distribution of wage costs isn't totally even either, since most job offers included wage costs that were either lower than 40.000 per year or in the category of 40.000 to 59.999. Further, we can notice that wage increases along educational levels. This is particularly noticeable in the wage category of less than 40.000 per year whose amount is declining along the educational levels. The distribution may not be even, but that could be the case due to the arbitrary categories of wage costs that were formed for comparative reasons. Besides, the average gross wage per year in the Netherlands is about 36.000 euros. When we add employers costs, which are supposed to be about 25%, our average wage costs equal 45.000 (Papaya Global, 2021). In that regard, our sample looks representative for jobs in the Netherlands.

Table 2. relation between wage costs and minimal required educational level for the job offer

Minimal educational level	Less than 40.000	40.000-59.999	60.000-79.999	80.000-99.999	More than 100.000	Total	Share of sample
No minimal level	61,11%	16,67%	5,56%	11,11%	5,56%	100%	0,05%
Elementary school	100%	0%	0%	0%	0%	100%	0,001%
VMBO	66,04%	20,75%	5,66%	1,89%	5,66%	100%	0,08%
MBO	50,19%	36,58%	7,39%	2,33%	3,50%	100%	38,30%
HBO	22,52%	41,98%	24,43%	6,49%	4,58%	100%	39,05%
WO	14,55%	34,55%	25,45%	18,18%	7,27%	100%	0,82%
Different	57,14%	28,57%	14,29%	0%	0%	100%	0,01%
Total	100%	100%	100%	100%	100%	-	100%
Share of sample	38,45%	36,07%	15,35%	5,66%	4,47%	100%	-

⁴ All educational levels are Netherlands-specific.

4.3. Hiring and firing

Figure 3 shows four boxplots that show how respondents answered in their chances to hire or fire someone based on their age or work experience. At the top left, we notice that once an applicant gets older he or she has less of a chance to get hired. If we compare applicants that are 30 with applicants that are 60, we see that the younger age group of applicants almost has double the chance to get hired in comparison to the older age group of applicants. When we compare these results with the chance of an employee getting fired in relation with their age, we see roughly similar results. The difference between younger and older employees seems to be smaller, but there still is a noticeable difference: older employees seem to have a bigger chance of getting fired.

When we look at the relation between work experience and the chance of getting hired or fired, our results seem less clear. Between applicants with 2 years of work experience and applicants with 7 years of work experience, the difference seems to be about 5% in their median in their chances of getting hired. This small difference is remarkably in the favor of applicants with less work experience. When it comes to the chance of getting fired, the median is again 5% higher for applicants with less work experience. In conclusion, applicants with 2 years of work experience seem to have slightly higher chances in both getting hired and fired.

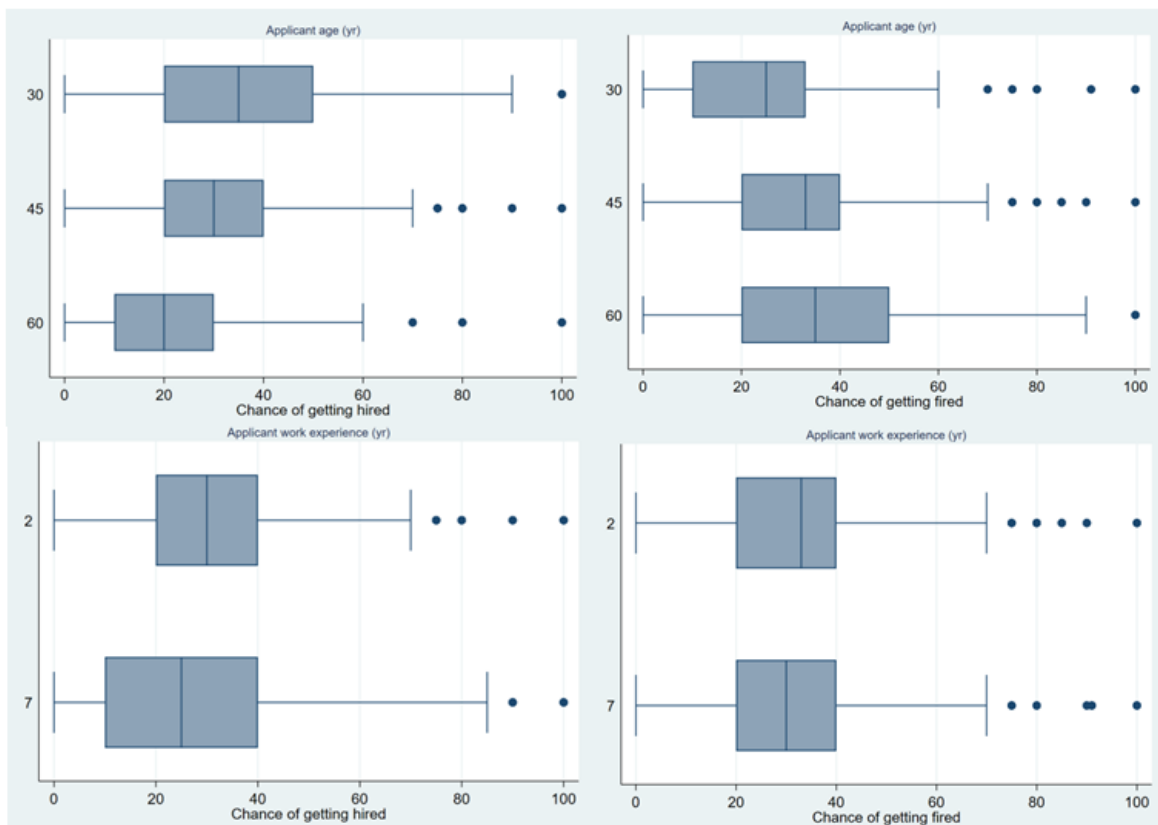


Figure 3. Boxplots including the chance of getting hired or fired for different age categories and years of work experience

4.4. Business composition and employers' age

Table 3 illustrates the amount of employers that are represented in our sample by age category, and the distribution of employees age-wise for those specific employers. The distribution of employers again equals figure 2, in which the sample distribution initially was shown. In the first age category for employers, businesses are mainly composed out of young employees (<40). Young business owners or employers therefore on average have a fairly big amount of young employees. When we go to the second age category which includes 40 to 50 year old employers, the amount of young employees even increases. Maybe more surprising is that the amount of old employees (>55) also decreases. When looking at the oldest age group of employers, we especially see an increase of employees in the 40-55 year old category. However, there isn't a general increase of older employees since there isn't a clear increase in the >55 year old employee age category. Therefore, based on table 3, there doesn't seem to be a certain trend or direction in how employers' businesses are composed based on age. As discussed in the analysis of figure 2, the representation of employers differs per age category. This also explains the slightly larger standard deviations in the young employers category (<40).

Table 3.
Business employee age distribution by employers' age

Employers' age	Employee age category	Mean	Observations
Younger than 40	<40 years old	55.32%	516
	40 to 55 years old	27.23%	516
	>55 years old	17.44%	516
Between 40 and 50	<40 years old	63.74%	1752
	40 to 55 years old	24.10%	1752
	>55 years old	12.16%	1752
Older than 50	<40 years old	40.82%	1956
	40 to 55 years old	40.95%	1956
	>55 years old	18.22%	1956

Note. Employers' age might in some cases be the employees' age that is involved in the processes of hiring and firing.

4.5. Perceptions of employers on young and older employees

In figure 4 below we can visually see what respondents answered on questions like "who has a bigger productivity" or "who shows most effort". At first glance, we notice that for all questions there are a significant amount of respondents that answer with "no difference". For all perceptions except learning ability, at least 40% of the respondents were indifferent between young and old employees. The most one-sided perception is the one of "who has the bigger learning ability". Young employees are clearly favored, and this can be due to the simple nature of the brains which function and absorb information better at a young age. Employers' perceptions might be influenced by this well-known fact. Another remarkable result is that of leadership, where more respondents favor working with young employees instead of old employees. This remarkable point is counterbalanced by the significant amount of respondents that answered with "no difference", which seems to be almost 60%.

Which group has

(a) better:

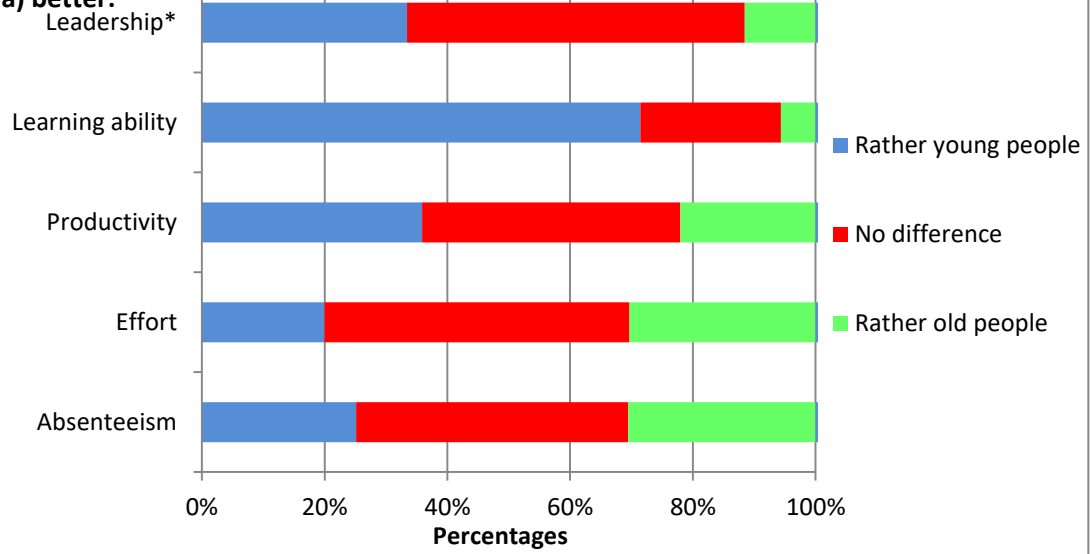


Figure 4. Perception of employers on young and old employees

*= Who do employers prefer leading?

5. Results

5.1. Introduction to the regressions

In all of the regressions below, the dependent variable is the chance of getting hired or fired. The independent variables are for every regression ages 30 and 45, work experience of 2 years, wage costs (measured per 1000 euros), having no pension arrangement, having a progressive pension arrangement and in case of the firing process, severance pay is added (also measured per 1000 euros). The variables of age, work experience and pension type are relative to the corresponding reference categories, which are age 60, having 7 years of work experience and having a flat pension arrangement. The interpretation of variables with reference categories goes as follows: when the coefficient of age 30 is equal to .50, a 30 year old applicant has 50% more chance of getting hired in comparison to a 60 year old applicant. For the other variables, for example wage costs, a coefficient of -.05 means that for every 1000 euros extra wage costs, an applicant has 5% less chance of getting hired.

First we will start with the introduction of the baseline regression of hiring employees. Thereafter, we will show and analyze the subsamples of business characteristics and subsequently, to address the research question, the subsamples of the perceptions of employers. The same order goes for firing employees which we will analyze after the regressions for the progress of hiring. The observations per category of subsamples may differ from the standard of 8052 observations, this is due to respondents not answering on these specific questions for the subsamples.

5.2. Hiring employees

In table 4 below, we notice at first that age indeed does matter considerably when it comes to the hiring chances of applicants. In comparison to the reference category of 60 years, hypothetical applicants that were 30 in the vignettes had 74% more chance of getting the job than the applicants that were given age 60. Hypothetical applicants who were 45 in the vignettes also had a head start in comparison to the older age category, the younger applicants had 68% more chance of getting hired for the job offer than the older applicants. Age also seems to be the biggest influence on the decision employers make, since the coefficient is by far the largest among all variables. These findings are highly statistically significant.

The same thing applies to the significance of the relation between wage costs and the chance of an applicant getting hired. The relation is negative, which means that if wage costs are higher the chance of getting hired declines. However, the coefficient is quite small and although the coefficient for wage costs is per 1000 euros, the effect remains small. To illustrate, the benefit of an applicant being 45 against an applicant being 60 years of age is equalized by the 60 year old applicant having at least 22.000 euros less wage costs for the firm.

Work experience also has a negative influence on the chance of getting hired, with a negative coefficient of .38. This negative coefficient is expected, since an applicant with 2 years of work experience has 38% less chance than the exact same applicant with 7 years of work experience. The effect isn't as big as the difference in age, but remains quite influential.

In contrary to previous variables, pension types do not have a significant effect on the chance of being hired. Although the coefficients are the direction we expected them in in the theory, we can't be sure if this was due to coincidence or not. Having no pension contract seems to have a positive

influence on the chance of being hired in comparison to a flat premium. While having a positive premium has a negative influence on the chance of being hired. Both coefficient are very small.

The R² in this regression is quite low: 11.41%. This means that just a small portion of the variation in respondents' answers on the survey can be explained by the characteristics in the vignettes. The small R² thus refers to respondents having underlying reasons for their way of answering the chance of hiring. Therefore it is important to figure out these underlying reasons, which we divided in job offer characteristics, business composition, employer age and various perceptions .

Table 4.
Standard regression of hiring employees

Dependent	Coefficient	Clustered Standard error	t-value	p-value
Age 30	.74	.05	16.25	0.000
Age 45	.68	.04	17.45	0.000
Wage costs	-.03	.003	-9.28	0.000
2 years of work experience	-.38	.03	-11.84	0.000
No pension arrangement	.04	.03	1.16	0.245
Progressive pension arrangement	-.04	.03	-1.32	0.188
Constant	.01	.02	0.30	0.763

Respondents=671, Observations=8052, R²=0.1141

Reference groups: Age 60, 7 years of work experience, flat premium

5.3. The effects of business-, employer- and job offer characteristics on hiring

In table 5 below we find the regressions over the different subsamples of business composition, employer age and the minimal educational level that is required for the job offer.

Looking at the youngest subsample of business composition (<40), a 30 year old has double the chance of getting hired in comparison to the reference group, which is a 60 year old. A 45 year old has 80% more chance of getting hired in comparison to a 60 year old. When we look at businesses that are dominated by older age categories, we see that the edge younger applicants have over older applicants starts to gradually decrease. Eventually both for ages 30 and 45, the lead they had over 60 year olds diminishes by 50% for businesses that are dominated by old employees. The three variables for every composition are for both age 30 and age 45 statistically significant different from each other. The coefficients for age 30 and age 45 are also statistically significant different from the main regression, thus the average. The significance for variables age 30 and age 45 is smaller when it comes to the older business compositions (>55), but may have to do with the smaller amount of observations (792). The other vignette variables, work experience and wage costs, have the expected directions but do not clearly gradually diminish or increase when the business composition changes. The only thing which is statistically significant different from the others, is that business that are dominated by 55 year olds have a stronger preference towards more experienced applicants (-.27

against -.42 & -.33). Businesses dominated by 40 to 55 year olds have a stronger preference for applicants that do not have a pension contract.

When it comes to the subsamples for employers' age, employers below 40 seem to prefer 30 year old applicants over 60 year old applicants more than employers above the age of 50 (.83 versus .54). The employers' age category of 40 to 49 favors 30 year old applicants even more than both the older and younger employer categories (.92). Interestingly, the age effect of applicants on hiring chances for different employers' age categories isn't visible for the variable "Age 45": employers do not seem to differ, based on their age, in their preference for 45 year old applicants in comparison to 60 year olds. Analyzing the variable "work experience", when an employer becomes older he seems to gradually favor work experience more for applicants. When we're looking at the pension types, older employers more strongly dislike progressive pensions. Young employers seem to be indifferent for progressive pension arrangements, while applicants with a progressive pension arrangement applying at an employer over the age of 50 have on average 9% less chance of getting hired.

In the last columns, where subsamples are divided by the minimal required educational level for the job offer, the medium subsample stands out. Applicants of the age of 30 on average have more chance of getting hired when it comes to a low required educational level (1.13) in comparison to a high required educational level (.76). The same goes for applicants with the age of 45 (.99>.72). However, the medium subsample seems off with coefficients being both lower than the low and high educational levels for both age categories. This result affects generalization, since we don't have a direct reason for the odd coefficients. The variables "wage costs" and "2 years of work experience" are still all significant in deciding purposes, but not significantly different from each other. Pension types don't seem to play a role in these specific subsamples of minimal educational levels.

Table 5.
Regressions over subsamples divided by business, employer and job offer characteristics in the process of hiring employees

	Business dominated category	composition (>40%)	mainly by age	Age of employer or staff involved in hiring			Minimal educational level required for job offer		
	<40	40-55	55>	<40	40-49	>50	Low	Med	High
Age 30	1.00***	.64***	.47*	.83***	.92***	.54***	1.13***	.67***	.76***
Age 45	.80***	.76***	.38**	.62***	.77***	.67***	.99***	.59***	.72***
Wage costs	-.03***	-.03***	-.05***	-.03***	-.04***	-.03***	-.05***	-.03***	-.03***
2 years of work experience	-.33***	-.42***	-.27**	-.33***	-.38***	-.41***	-.43***	-.29***	-.45***
No pension arrangement	.07	.18**	-.10	.07	.08	-.02	-.16	.06	.05
Progressive pension arrangement	.02	-.03	-.19	.00	-.01	-.09*	-.15	-.03	-.04
Constant	.00	.02	.04	.04	-.02	.00	.05	.03	-.02
N	3540	2040	792	2508	2172	3372	444	3720	3804
R ²	.1634	.1260	.0539	.1396	.1303	.1030	.1771	.1015	.1194

Note. *= $p < .05$ **= $p < .01$ ***= $p < .001$

Reference groups: Age 60, 7 years of work experience, flat premium

5.4. The effects of employers' perceptions on hiring

Table 6 below shows the subsamples on perceptions of employers⁵. In the first subsamples, employers answered the question: "who do you prefer working with as a leader?". Almost one third of the leaders favored working with young employees over old employees. Employers or employees in leadership positions that favor working with young employees have 104% more chance of hiring a 30 year applicant over a 60 year old applicant. The same goes for 45 year old applicants, having 76% more chance of getting hired in comparison to 60 year old applicants. Surprisingly, respondents that favor working with old colleagues still favor younger applicants in hiring chances (38% more chance for age 30 and 44% more chance for age 45). When leaders favor working with older employees, wage costs are just half of the influence on hiring chances in comparison to leaders that favor working with young employees. It seems like employers make a trade-off between their preference of working with older employees and the often higher wage costs those older employees bring to the company. The coefficient for work experience also gradually falls, but isn't significantly different from each other. Employers that favor working with old employees also seem to strongly dislike progressive premiums, since the coefficient for it is -.21, three times as big as when an employer is indifferent in working with a specific age category.

In the second subsamples, employers answered the question: "who has better learning ability?". Most employers favored young employees in this, leaving three uneven distributed subsamples. The age effect is also apparent here. Employers that favor young employees in their learning ability also have 83% more chance of hiring a 30 year old in comparison to a 60 year old applicant. This lead for 30 year olds is halved when an employer favors old employees in their learning ability. The effect for 45 year old applicants is considerably smaller. Both variables of wage costs and work experience have coefficients that are hard for interpretation, due to mild significance and non-gradual decreases.

In the subsamples for productivity, employers answered the question: "who is more productive?". This is one of the more even distributed subsamples, with employers slightly favoring young employees on average. Employers that favor younger employees in their productivity also have 98% more chance of hiring a 30 year old in comparison to a 60 year old applicant. Even the employers that favor old employees in their productivity have 59% more chance of hiring the 30 year old applicant instead of the 60 year old with a supposedly higher productivity. The same employers that favor old employees in their productivity also strongly dislike progressive premiums, applicants with progressive premiums have 14% less chance of getting hired in comparison to applicants with flat premiums by these particular employers.

In the subsamples for effort, employers answered the question: "who puts in more effort?". This is one of the two questions that is favored towards older employees. When favoring older employees effort-wise, employers on average give 30 year old applicants 61% more chance of getting hired in comparison to 60 year old applicants. This is one of the highest coefficients for employers that favor older employees in a specific perception. The difference between ages 30 and 45 for employers favoring older employees effort-wise is small, just like in previous subsamples. Employers favor younger employees in comparison to 60 year old applicants, but seem to be indifferent between 30

⁵ Perceptions were measured on a scale of 1-5, with 1 being in favor of young employees and 5 in favor of old employees. For generalisation purposes, 1 and 2 were taken together as "rather young" and 4-5 as "rather old".

year old and 45 year old applicants since coefficients are quite similar. Employers that favor older employees in their effort also value applicants without a pension agreement (12% more chance).

In the last subsamples, employers answered the question “who has less absenteeism?”. Employers on average are more favorable towards older employees when it comes to who is less absent on a yearly basis, which is in line with the actual facts and numbers outlined in the theoretic framework. However, younger applicants still have a lead in comparison to 60 year old applicants. Despite that, absenteeism doesn’t seem to play a deciding role in the hiring chances of young- versus old applicants. When employers are indifferent on which age category is less often absent, work experience also seems to play less of a role. These indifferent employers give applicants with just 2 years of work experience about 10% more chance in comparison to employers that have a clear favorite in absenteeism. This “indifferent effect” of giving applicants with less work experience more chance also seems to be apparent in previous subsamples, for example the subsamples of learning and effort.

To summarize, perceptions do certainly matter in the hiring process. Applicants of the ages 30 and 45 have an even bigger lead over 60 year old applicants when the employer favors them in a specific perception. Surprisingly, even when employers favor working with older employees or favor them productivity-wise, they still have a higher chance of hiring younger employees.

Table 6.
Regressions over subsamples divided by employer’s perceptions on employees in the process of hiring employees.

	Leadership			Learning			Productivity			Effort			Illness		
	Young	No diff	Old	Young	No diff	Old	Young	No diff	Old	Young	No diff	Old	Young	No diff	Old
Age 30	1.04***	.65***	.38***	.83***	.54***	.43**	.98***	.62***	.59***	1.03***	.69***	.61***	.99***	.66***	.66***
Age 45	.76***	.70***	.44***	.73***	.56***	.55**	.78***	.62***	.65***	.86***	.67***	.60***	.73***	.68***	.65***
Wage costs	-.04***	-.03***	-.02**	-.03***	-.04***	-.02*	-.03***	-.03***	-.04***	-.03**	-.03***	-.04***	-.03***	-.03***	-.03***
2 years of work exp	-.40***	-.38***	-.35***	-.42***	-.28***	-.38**	-.34***	-.38***	-.45***	-.44***	-.36***	-.38***	-.41***	-.33***	-.43***
No pension arrangement	.02	.04	.04	.02	.07	.10	.00	.05	.05	.03	-.01	.12*	.03	.03	.05
Progressive pension arrangement	.07	-.06	-.21**	-.02	-.05	-.07	-.01	.00	-.14*	.00	-.04	.00	-.05	-.01	-.08
Constant	.05	-.02	.00	.00	.04	-.07	-.07*	-.05	.00	.06	-.01	.00	.02	.03	-.03
N	2640	4344	1068	5640	1812	600	2832	3324	1896	1572	3912	2568	1968	3468	2616
R ²	.1581	.1175	.0578	.1355	.0805	.0735	.1614	.1025	.0936	.1671	.1113	.0952	.1418	.1111	.1070

Note. *= $p < .05$ **= $p < .01$ ***= $p < .001$

Note. Samples were created by dividing respondents on their views as illustrated in figure 4

5.5. Firing employees

The regressions for the process of firing are performed in the same way as the regressions for the hiring process. However, negative coefficients now indicate that for a specific characteristic, an applicant has less chance of getting fired. For example, when the coefficient for age 30 is -.50, a 30 year old employee has 50% less chance of getting fired in comparison to a 60 year old employee.

Table 7 below shows the main regressions for firing employees. At first, age seems to be less of a head start for younger employees in comparison to the hiring process. 30 year old and 45 year old employees have just 39% and 37% less chance of getting fired in comparison to 60 year old employees. The effect of having 5 more years of work experience (30%) almost has the same effect as being 30 or 15 years younger. Significance is quite similar to the main regression for hiring, only having a progressive pension arrangement is significant on a high level whereas previous in the regressions for hiring it wasn’t. More wage costs still hold a higher chance of getting fired, when a

higher severance pay holds a lower chance of getting fired. Both coefficients are almost similarly big, which could indicate that the decision of the employer is more based on the short-term since wage costs are a bigger cost on the long-term, but not being of a significant bigger influence on the chance of getting fired. Looking at the R^2 , less of the variation can be explained in this model of firing employees in comparison to the model of hiring employees. This might indicate that employers find the vignette characteristics less important when firing employees, and other characteristics playing more of a role.

Table 7.
Standard regression of firing employees

Dependent	Coefficient	Clustered Standard error	t-value	p-value
Age 30	-.39	.05	-7.30	0.000
Age 45	-.37	.04	-8.20	0.000
Wage costs	.04	.003	8.45	0.000
2 years of work experience	.30	.03	8.79	0.000
No pension arrangement	-.05	.03	-1.55	0.121
Progressive pension arrangement	.14	.03	4.71	0.000
Severance pay	-.03	.004	-6.59	0.000
Constant	.07	.02	3.27	0.001

Respondents=671, Observations=8052, $R^2=0.0549$
Reference groups: Age 60, 7 years of work experience, flat premium

5.6. The effects of business-, employer- and job offer characteristics on firing

In the subsamples for business-, employer- and job offer characteristics we see the same thing happening to the R^2 . In most subsamples, the R^2 is significantly smaller than in the process of hiring. In addition to that, significance in general is smaller for most coefficients. In contrary, the influence of having a progressive pension arrangement is now significant in most cases.

In the subsamples for business composition, the age effect is still apparent for employers that have a business that is mostly dominated by <40 year olds or 40 to 55 year olds. There isn't a clear favorite between 30 year and 45 year olds in staying with the business when there are lay-offs, but they are both in favor in comparison to 60 year old employees in young dominated businesses. Whenever a business has more older employees, wage costs are also increasingly more important (.04>.05>.07). This could be due to the fact that businesses with older employees already have higher average wage costs, being it more of a topic to consider. These same businesses are also more favorably towards more experienced employees. Young dominated businesses seem to put more weight on age when considering who to fire in comparison to other variables such as pension type and wage costs. The

effect of severance pay is slightly less important in comparison to wage costs. Overall, insignificance in the subsample of old business compositions may be due to the relative low amount of observations in it.

In the subsamples divided by employer age, older employers have a lower chance of firing 60 year old employees. The age effect which favors 30 year old applicants in their chances of not getting fired is more than halved when the employer is above the age of 50. These older employers also put more weight on work experience. In contrary, older employers put less weight on severance pay: exactly half the effect it has when the decision of firing is made by employers who are below the age of 40 or between 40 and 49. Other variables such as wage costs and pension types do not differ much between employers' age categories.

In the subsamples divided by the minimal required educational level for the job offer, higher educational levels for the job offers generally indicate less chance for younger employees to get fired. When it comes to a high required educational level, 30 year old applicants have 16% less chance of getting fired when it comes to a high required educational level in comparison with a medium one. In addition, most coefficients for a low educational level are not statistically significant. Employers with a low educational job offer do however seem to dislike firing employees with higher severance pays. These specific employees have 6% less chance of getting fired for every 1000 euros extra severance pay in comparison to the 3% of medium and high educational levels.

Table 8.
Regressions over subsamples divided by business-, employer- and job offer- characteristics in the process of firing employees

	Business composition mainly by age			Age of employer or staff involved in hiring			Minimal education level required for job offer		
	Business dominated category	composition (>40%)	by age	<40	40-49	>50	Low	Med	High
Age 30	-.55***	-.37***	.02	-.56***	-.46***	-.22**	-.22	-.33***	-.49***
Age 45	-.43***	-.40***	-.29	-.37***	-.44***	-.34***	-.36	-.32***	-.43***
Wage costs	.04***	.05***	.07***	.04***	.04***	.04***	.05*	.04***	-.05***
2 years of work experience	.28***	.26***	.39**	.27***	.23***	.36***	.32	.23***	.34***
No pension arrangement	-.04	-.15*	-.07	.03	-.06	-.11*	-.03	-.06	-.03
Progressive pension arrangement	.09*	.15**	.25*	.11*	.19***	.13**	.19	.11**	.17***
Severance pay	-.03***	-.03***	-.02	-.04***	-.04***	-.02**	-.06*	-.03***	-.03***
Constant	.06	.00	.08	.09	.03	.00	-.03	.09	.05
N	3512	2026	786	2490	2152	3334	444	3706	3744
R ²	.0604	.0650	.0616	.0657	.0573	.0597	.0452	.0380	.0809

Note. *=p<.05 **=p<.01 ***=p<.001

5.7. The effects of employers' perceptions on firing chances

In table 9 below we start with the subsamples of leadership on the left side. Employers that prefer leading young employees give those same young(er) employees an edge in their chances of not getting fired. These employers also put more weight onto wage costs than other employers: for every 1000 dollars an employee earns more than another colleague, he has 5% more chance of getting fired. For employers that favor leading old employees, this effect is just 2% although weakly significant. Employers who choose old employees or are indifferent on who to lead don't have a certain preference on who to fire between 30 and 45 year old employees.

In the subsamples of learning, employers that believe that young employees have a better learning ability have a smaller chance of firing these exact same young employees. 30 year old employees have 45% less chance of getting fired in comparison to 60 year old employees, while 45 year olds have 39% less chance of getting fired. Concerning work experience, employers that either choose for young or old employees rate having 5 more years work experience higher in comparison to indifferent employers. A progressive premium seems to be of a positive effect again, rising employees' chances of getting fired when having such a premium.

In the subsamples for productivity, employers who believe that young employees have a relatively high productivity have 72% less chance of firing a 30 year old employee in comparison to a 60 year old. This same big effect goes for 45 year olds (48%). In comparison to the other perceptions, the perception of productivity has a considerable large effect. Evidence for the effect is the difference between $-.72$ and $-.13$, leaving a difference of 59% depending on the employers' perception. Whenever an employer favors old employees productivity-wise, his chances of getting fired decline by 59% in comparison to employers that favor young employees in this regard. In conclusion, the perception of which age category is more productive does have a considerable impact on the decision of firing.

In the last subsamples of effort and illness, the coefficients for age 45 aren't significantly different from each other. The coefficients for age 30 are more of a difference, especially for employers that favor young employees on either their effort or absenteeism in comparison for employers that do not favor the younger employee category. However, in comparison to other subsamples these differences are still relatively small. Employees with a progressive premium still have about 10% more chance of being fired.

Looking at this regression and the influences of perceptions on firing chances, the findings are still in line with the two previous regressions of firing chances: age is of a relative smaller influence, progressive pension arrangements are (more) significant and severance pay is also mostly of a significant influence on firing chances of employees. Similarly to the influences of perceptions in the hiring process, young employees still have a head start even when the employer favors old employees in his perception on a certain subject.

Table 9.

Regressions over subsamples divided by employer's perceptions on employees in the process of firing employees.

	Leadership			Learning			Productivity			Effort			Illness		
	Young	No diff	Old	Young	No diff	Old	Young	No diff	Old	Young	No diff	Old	Young	No diff	Old
Age 30	-.60***	-.31***	-.15	-.45***	-.28**	-.15	-.72***	-.25***	-.13	-.53***	-.47***	-.20*	-.58***	-.30***	-.36***
Age 45	-.38***	-.39***	-.28*	-.39***	-.29***	-.38*	-.48***	-.28***	-.34**	-.35**	-.43***	-.29***	-.44***	-.34***	-.37***
Wage costs	.05***	.04***	.02*	.04***	.03**	.05***	.05***	.04***	.03**	.03**	.04***	.05***	.04***	.04***	.05***
2 years of work exp	.29***	.33***	.23**	.34***	.08	.52***	.28***	.31***	.31***	.41***	.26***	.27***	.33***	.26***	.33***
No pension arrangement	-.04	-.09*	.03	-.01	-.18**	.01	-.03	-.05	-.08	.03	-.03	-.09	.00	-.06	-.08
Progressive pension arrangement	.15**	.13**	.08	.15***	.05	.25*	.15**	.15***	.09	.14*	.14**	.13**	.16*	.05	.23***
Severance pay	-.03**	-.03	-.01	-.03***	-.03**	-.05**	-.04***	-.03***	-.02	-.03**	-.03***	-.03***	-.02*	-.03***	-.03***
Constant	.09*	.05	.07	.07**	.07	.05	.13***	.04	-.02	.07	.09**	.03	.13**	.04	.04
N	2616	4302	1058	5578	1800	598	2798	3296	1882	1558	3864	2554	1940	3440	2596
R ²	.0677	.0630	.0244	.0676	.0367	.0557	.0957	.0546	.0345	.0719	.0697	.0427	.0717	.0407	.0726

Note. *= $p < .05$ **= $p < .01$ ***= $p < .001$

Note. Samples were created by dividing respondents on their views as illustrated in figure 4

6. Conclusion & Discussion

In this vignettes study we analyzed the role of age in the processes of hiring and firing, and added perceptions of employers on young and old employees to the equation. The vignettes survey was distributed over Dutch respondents that were involved in these processes of hiring and firing. Subregressions were made based on their perceptions and other business characteristics.

In all different compositions of subsamples in the regressions, 60 year old applicants have a disadvantage in hiring chances in comparison to younger age categories. This means that older workers on the labor market have considerably more trouble in finding a job and are likely to need more time to find a job. Older workers on the labor market with a positive effect of having more work experience (5 years more) can only partially lower this disadvantage and not fully turn it in an advantage. Wage costs aren't very influential in that regard: when two applicants are 45 and 60, the 60 year old needs about 25.000 euros less annual wage costs to fill the gap that was created by the age effect. Practically, this seems like an unrealistically big gap to fill for older workers. Pension types do not seem to influence hiring decisions.

However, this disadvantage for older workers when applying on the labor market is minimized at businesses that are already dominated by older employees (>55) and job offers that require a high minimal level of education.

When it comes to the firing process, the age effect is still apparent: young employees have lower chances of getting fired in comparison to older employees. However, the effect is almost half of what it was when it came to the hiring process. The negative effect of having a big severance pay weighs up to the positive effect of wage costs on the chances of getting fired, indicating employers fire with a view on the short-term. A progressive pension arrangement does seem to positively influence the chance of getting fired. A limitation of the regressions for the firing process is that the R^2 is considerably smaller than the R^2 in the regression for the hiring process. This hints at employers having more dimensional characteristics that influence their decision of who to fire, and less influence of the vignette characteristics.

Regarding business characteristics, old employees (>55) have a relatively lower chance of getting fired when their employer is also above 50 years old. Perceptions also still matter, however not as much as in the process of hiring.

To answer our research question "*how do employers' perceptions on young and old employees influence the chance of an applicant or employee getting fired?*": perceptions of employers can either decrease the gap between hiring and firing chances of young and old employees, or increase them whenever they are in favor of young employees. In extreme cases, the right perception can double the chances of young applicants or diminish the gap in hiring or firing chances for old employees to just 38% or 15% respectively in comparison to 30 year old employees. However, perceptions of employers are never able to fully close the gap that was created by the age effect. In addition to that, even when employers favor old employees in their productivity, they still give a head start to young employees regarding hiring or firing chances.

A strength and a limitation of the entire research is the use of vignettes. On one side, the vignettes create a controllable and measurable experiment of the real world. On the other side we have the simplistic nature of the vignettes, which is confirmed by the small R^2 in the hiring process and even more in the firing process. This leads me to think that there are a lot of influences in both processes that aren't measured. All things considered, there is a trade-off between catching all effects in the processes of hiring and firing and simplicity of the experiment. Another limitation of the research is the use of perceptions. In most cases, we are not sure how they are formed and especially how they change due to the underlying nature of it. Perceptions are thus very complex.

Recommendations for future research are based on these limitations. At first, it would be interesting to create a database of hiring and firing chances which is based on real-life applications and lay-offs. Second, it would be interesting for policy makers to investigate how perceptions are formed and to make it more practical: how policy makers are able to change these perceptions since they certainly influence peoples' chances of getting hired or fired.

References

- Baltes, P. B., Lindenberger, U., & Staudinger, U. M. (2007). Life span theory in developmental psychology. *Handbook of child psychology, 1*.
- CBS. (2008). *Ontwikkelingen op de arbeidsmarkt*. Retrieved from <https://www.cbs.nl/nl-nl/achtergrond/2008/47/ontwikkelingen-op-de-arbeidsmarkt>
- CBS. (2020). *Nationale Enquête Arbeidsomstandigheden 2020*. Retrieved from <https://www.monitorarbeid.tno.nl/nl-nl/onderzoeken/nea/>
- CBS. (2021). *Arbeidsdeelname en werkloosheid per maand*. Retrieved from <https://www.cbs.nl/nl-nl/cijfers/detail/80590ned>
- CBS & NIDI. (2021). *Bevolking 2050 in beeld: opleiding, arbeid, zorg en wonen*. Eindrapport verkenning bevolking 2050. Den Haag: NIDI p.45. Retrieved from https://nidi.nl/nl/nieuws_events/bevolking-2050-in-beeld/
- CBS Statline. (2020). *Arbeidsdeelname in kerncijfers* [Dataset]. Retrieved from <https://opendata.cbs.nl/statline/#/CBS/nl/dataset/82309NED/>
- Eagly, A. H. (1987). *Sex differences in social behavior: A social-role interpretation*. Hillsdale, NJ: Lawrence Erlbaum Associates, Inc.
- Erken, H., Klokkenburg, L., & van der Werff, S. (2014). Kan arbeidsmarktbeleid de positie van ouderen veranderen?. *TPEdigitaal, 8*.
- Heyma, A., van der Werff, S., Sloten, G., & Nauta, A. (2016). *Werkende perspectieven voor oudere werknemers* (2016–26). SEO Economisch Onderzoek. Retrieved from <https://www.seo.nl/publicaties/werkende-perspectieven-voor-oudere-werknemers/>
- Houtman, I., Kraan, K., & Venema, A. (2019). *Oorzaken, gevolgen en risicogroepen van burn-out*. Retrieved from <https://www.rijksoverheid.nl/documenten/rapporten/2019/12/13/oorzaken-gevolgen-en-risicogroepen-van-burn-out>

- Inceoglu, I., Segers, J., & Bartram, D. (2012). Age-related differences in work motivation. *Journal of Occupational and Organizational Psychology*, 85(2), 300-329.
- Knoef, M., Muns, S., & van Soest, A. (2020). Arbeidsmarkteffecten van de pensioenpremiestematiek.
- Koşar, G., Ransom, T., & van der Klaauw, W. (2020). Understanding Migration aversion using elicited counterfactual choice probabilities. CESifo: working papers 8117/2020.
- Kubeck, J. E., Delp, N. D., Haslett, T. K., & McDaniel, M. A. (1996). Does job-related training performance decline with age?. *Psychology and aging*, 11(1), 92.
- Light, A., & Ureta, M. (1995). Early-career work experience and gender wage differentials. *Journal of labor economics*, 13(1), 121-154.
- LISS panel. (2021). *LISS panel homepage | LISS panel*. Retrieved from <https://www.website.lisspanel.nl/>
- Ministry of General Affairs. (2021). *General information for NOW3 (From 1 October 2020 - 1 July 2021)*. Retrieved from <https://www.rijksoverheid.nl/onderwerpen/coronavirus-financiele-regelingen/overzicht-financiele-regelingen/now/algemene-informatie-over-now3-vanaf-oktober-2020>
- OECD. (2021). *Youth unemployment rate*. Retrieved from <https://data.oecd.org/unemp/youth-unemployment-rate.htm>
- Oude Mulders, J. (2019). Employers' age-related norms, stereotypes and ageist preferences in employment. *International Journal of Manpower*.
- PanelWizard. (2021). *Market research via PanelWizard - Our panel*. Retrieved from <https://www.panelwizard.com/over-ons-panel>
- Papaya Global. (2021). *Netherlands: Mandatory Benefits, Payroll & Taxes Info*. Retrieved from <https://papayaglobal.com/countrypedia/country/netherlands/>
- Purcell, K., Wilton, N., & Elias, P. (2007). Hard Lessons for Lifelong Learners? Age and Experience in the Graduate Labour Market. *Higher Education Quarterly*, 61(1), 57–82.

- Schulz, M., & Roßnagel, C. S. (2010). Informal workplace learning: An exploration of age differences in learning competence. *Learning and Instruction, 20*(5), 383-399.
- Solem, P. E. (2010). *Changes for seniors in the working life from 2003 to 2008* (NOVA Rapport 5/10). Oslo Metropolitan University. Retrieved from <https://oda.oslomet.no/oda-xmlui/handle/20.500.12199/3323>
- Stier, H., & Endeweld, M. (2015). Employment transitions and labor market exits: Age and gender in the Israeli labor market. *Research in Social Stratification and Mobility, 41*, 93–103.
- Unger, J. M., Rauch, A., Frese, M., & Rosenbusch, N. (2011). Human capital and entrepreneurial success: A meta-analytical review. *Journal of business venturing, 26*(3), 341-358.
- Van Dalen, H. P., Henkens, K., & Schippers, J. (2009). Dealing with older workers in Europe: a comparative survey of employers' attitudes and actions. *Journal of European social policy, 19*(1), 47-60.
- van Dalen, H. P., Henkens, K., & Schippers, J. (2010). Productivity of Older Workers: Perceptions of Employers and Employees. *Population and Development Review, 36*(2), 309-330.
- Weiss, F., Klein, M., & Grauenhorst, T. (2014). The effects of work experience during higher education on labour market entry: learning by doing or an entry ticket? *Work, Employment and Society, 28*(5), 788–807.