The consequences of tightening the job search requirements: A Dutch perspective

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Abstract

This thesis studies the effect of the *'Besluit passende arbeid WW en ZW'* on alcohol and tobacco use of the unemployed who were treated by this reform. It is expected that the unemployed will increase their alcohol and tobacco use due to the increased stress caused by the reform. The study uses a difference-in-difference with fixed effects to estimate the causal effect. The results show that there is an overall higher chance of suffering from stress and that the treated female unemployed have a higher chance of smoking. The results do not indicate an effect on men or alcohol consumption. All in all, there are some indications that the reforms leads to smoking but further research is necessary.

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Introductory

Becoming unemployed has several adverse effects. One negative effect is that the income of the unemployed individual drops (McDowell et al., 2012). Income itself is crucial to be able to provide for essential goods. Another adverse effect not directly associated with it is that becoming unemployed could lead to a deterioration of the individual's health. Jin, Shah, and Svoboda (1995) found in their meta-analysis, conducted on studies regarding Western countries, that longer-term unemployed individuals have a higher mortality rate than short-term unemployed and employed individuals. Moreover, being unemployed increases the chances of suffering from cardiovascular diseases, which could indicate that unemployed individuals experience an increase in stress. Lastly, as it turned out in the meta-analysis, there is some evidence that the unemployed have a higher chance of admission to psychiatric hospitals.

Following Murphy and Athanasou (1999), job loss also leads to decreased mental well-being. Joblessness is a predictor of depressive affect, and the transition from unemployment to employment reduces the perceived psychological stress. According to Turner (1995), unemployment leads to more stress. Moreover, joblessness could also affect the self-concept of the individual. Multiple studies, for instance, by Popovici and French (2013) and Henkel (2011), found that the unemployed are more likely to consume more alcoholic beverages and to increase the number of cigarettes smoked in comparison to the employed population. The labour market and health are closely connected.

Meanwhile, the Dutch institutional setting regarding the labour market is changing. In 2015, the job search requirements for the unemployed were tightened by former minister Asscher (2014) in the reform *'Besluit passende arbeid WW en ZW'*. New rules regarding suitable job offers were implemented: individuals who became unemployed after 1 July 2015 were obliged to apply for and accept every job after six months instead of after 12 months. Every job is considered as suitable after six months. The reform implies that the unemployed need to find a job that fits the individual profile in a shorter period and that the job search requirements are tightened.

In a recently published paper by Rutten, Knoef, and Van Vuuren (2023), the authors found that a shortening of the duration of unemployment benefits leads to less medicine use in the long term. It suggests that the shortening of the duration positively affects health after re-employment. Nevertheless, this study does not consider what happens during the period of unemployment. As stated by Turner (1995), joblessness leads to stress, but how do unemployed individuals cope with this stress and what will unemployed individuals do when there is more

pressure to find a job? The research question in this thesis combines the policy reform *'Besluit passende arbeid WW en ZW'* with potential health effects, which will be broken down into effects for men and women. The question that will be answered in this thesis is *"Which effect has the reform of the 'Besluit passende arbeid WW en ZW' on alcohol and tobacco use of the unemployed?".* Microdata retrieved from the LISS Panel is used to study this research question.

The scientific relevance of this thesis lies in the fact that there is limited known research conducted on the reform *'Besluit passende arbeid WW en ZW'*. Even though a lot is known regarding unemployment and health, there is limited information on whether tightening job search requirements strengthen this adverse effect. Testing the relationship between the job search requirements and health gives the unique opportunity to fill this knowledge gap. Moreover, the Dutch institutional setting is also unique within the OECD countries. According to Immervoll and Knotz (2018), no other OECD country, except the Netherlands, has rules as strict as described in the *Besluit passende arbeid WW en ZW'* considering suitability. This thesis is even in the international context, studying an uncommon policy.

Societally, this thesis is also relevant. Now more than ever, there is more emphasis on preserving public health, which led to a Dutch *'preventieakkoord'* (Van Ooijen, 2022), which intends, among others, to stop Dutchmen from drinking heavily and smoking cigarettes. Moreover, the Dutch labour market is tightening and needs more labour (CBS Statline, 2023). In this perspective, the reform *'Besluit passende arbeid WW en ZW'* should not lead to unintended consequences for the unemployed or contradict other policy objectives. Possible results could give the policymakers information that could be used in future policy-making to avoid possible adverse effects of policy.

The next chapter explores the theoretical framework of the relationship between unemployment and health, with extra detail on the stress process from the unemployment perspective. The theoretical framework delves into the institutional context concerning the labour market. In the research design, the thesis discusses the method of analysis, the *'difference-in-difference'*, used for the quantitative analysis and the operationalization of the used concepts. The empirical analysis expands over the descriptives and parallel trend assumption. Moreover, the results of the *'difference-in-difference'* will be discussed. The thesis ends with a conclusion, where a short answer to the research question is formulated. Some policy recommendations are made, and a reflection on the research method can be found.

Theoretical framework

Institutional background

Unemployment benefits provide unemployed individuals with a replacement for their lost income. The benefits are provided by the government and paid for with social premiums of the working population. Unemployment benefits aim to smoothen the available means for consumption in the transition from employment to unemployment (Ministerie van Sociale Zaken, 2023). The unemployed are only eligible for unemployment benefits if they contribute via social premiums. The duration of the entitlement period depends on how long the unemployed paid these social premiums. Moreover, one is only eligible for the benefits if laid off involuntarily (Grubb, 2001).

The reservation wage, the wage that a job at least needs to offer to be accepted by the unemployed depends on the replacement rate and the entitlement period. If the replacement rate is high and the entitlement duration is long, there is no need to find a job quickly, which implies a high reservation wage (Katz & Meyer, 1990 & Addison, Centeno & Portugal, 2009). Over time, the replacement rate and the entitlement duration decline. Two effects can be seen, according to Mortensen (1977). Firstly, a lower replacement rate means less income derived from the unemployment benefits, which leads to a lower reservation wage. A lower reservation wage increases the job acceptance rate. Secondly, job search efforts will intensify if the entitlement period is reduced. This leads to a higher job arrival rate and a higher probability of re-employment.

The Dutch institutional context regarding unemployment benefits is changing. Unemployed individuals who receive unemployment benefits must comply with multiple job search requirements. These are, for example, the obligation to actively look for job openings and apply for them, inform the Dutch Public Employment Service, the UWV, about the activity regarding job search and a change in the financial situation, and accept suitable jobs. Not complying could lead to a benefit sanction (UWV, 2016). In the *'Besluit passende arbeid WW en ZW',* it was decided that since July 1, 2015, unemployed individuals have had less time to find a suitable job. The time to accept a suitable job is reduced from 12 to 6 months, implying stricter job search requirements (Asscher, 2014).

The theoretical justification of this policy reform taps upon the reservation wage. According to Hohmeyer and Wolff (2018), job search requirements make unemployment benefits less attractive since the unemployed have to comply with requirements. Less value is attached to the unemployment benefits, and therefore, the reservation wage declines, which leads to faster

re-employment. Moreover, the job search requirements aim to activate job seekers by forcing them to search for jobs.

Three criteria in the *'Besluit passende arbeid WW en ZW'* (Asscher, 2014) explain what a suitable job is. Firstly, a job is suitable if the individual is qualified for it. That means that the unemployed studied for the degree and, therefore, is qualified or has similar work experience. The second criterion considers the level of income out of labour. A job is suitable if the individual will earn at least 70 per cent of the old income before unemployment. The third criterion is that the daily commute time for the job does not take more than 2 hours. This criterion ensures that the unemployed do not have to move in for a new job.

Since 1 July 2015, these criteria do not apply after six months of unemployment: the unemployed are not allowed to apply exclusively for jobs fulfilling the three requirements. This means that the job can be below the skill level of the unemployed, the job's income can be lower than the 70 per cent threshold, and the commuting time is not limited to two hours. The UWV (2016) adds that the individual will be sanctioned by means of a reduction in unemployment benefits if it does not search for or accept a job. The fact that every job is suitable leads to a larger scope of possible jobs, which should result in a higher job-finding rate.

This *'Besluit'* was part of a more extensive reform regarding the Dutch labour market. The *'Wet Werk en Zekerheid',* implemented over an extended period, intended to adjust the labour market to the labour market trends. The law gave flex workers more rights and intended to incentivize employers to give more employees permanent contracts. Moreover, existing contracts could be terminated more easily. Under restrictions, the maximum entitlement period of unemployment benefits was reduced from 38 to 24 months (AWVN, n.d.). Less employment protection could cause faster re-employment, according to Andersen and Svarer (2007), and hence, could benefit the unemployed.

Labour market and health

The relationship between labour market status and health has been studied since the 1930s. According to Wilson and Walker (1993), the first publications concerned the disadvantage that the unemployed and their families have: they suffer from a reduction in their mental and physical health. In contrast, being employed, following Ross and Mirowsky (1995), leads to being physically and mentally in good shape for both men and women.

The unemployed are, on average, unhealthier in comparison to the employed. Schmitz (2011) distils three pathways that could explain the difference in health between both groups. Firstly, unhealthy employees are less productive and, therefore, more likely to become unemployed. The second pathway is that unhealthy people are less employable, leading to a longer unemployment spell duration. Both are known as the selection effect. Thirdly, becoming unemployed might lead to the deterioration of health. The third path is the path this thesis will follow, although there is academic consensus that all these paths are causally relevant (Janlert, 1997).

According to the literature review by Jin and colleagues (1995), being unemployed is related to multiple worse health outcomes. Unemployment is related to higher mortality rates, especially the longer-term unemployed. Elaborating, a primary driver of the higher mortality rate is cardiovascular diseases. Unemployment induces stress, and therefore, cardiovascular diseases occur more often. Jin and colleagues also found that depending on specific circumstances, unemployment, especially in the long term, leads to a higher consumption of alcohol.

According to the meta-analysis by Paul and Moser (2009), unemployment leads to a decline in mental health. Based on the work of Jahoda (1981), Paul and Moser found that the unemployed lack the five main components that preserve mental health. Work gives structure, leads to social contact, implies status within a group, leads to being active and entails contributing to a collective purpose. The meta-analysis of Paul and Moser finds that anxiety, depression, subjective well-being and self-esteem are negatively affected by being unemployed. However, none of these are more affected by unemployment than the other. These results can be rhymed with the five components that the unemployed miss in their daily life. The results change slightly when Paul and Moser (2009) control for other aspects. Adverse effects on mental health are attenuated for women, white-collar workers and unemployed individuals in countries which are experiencing economic growth.

Unemployment and stress

Stress is one of the primary adverse health outcomes of unemployment that kick-starts other negative health outcomes (Popovici & French, 2013; Conway et al., 1981; Wilson & Walker, 1993). According to Pearlin and colleagues (1981), stress occurs around eventful experiences. Life is structured, and an eventful experience could imbalance this equilibrium. Readjusting to the imbalance takes time and is exhausting, which causes stress. Moreover, as argued by Pearlin and colleagues, a step that could accelerate the occurrence of stress is when an eventful experience affects the self-concept. Becoming unemployed is a perfect example of an eventful

experience that also affects the self-concept: the structure of working disappears, and, for example, self-esteem is affected.

Besides the lack of the five components that preserve mental health (Jahoda, 1981), unemployment also leads to a lack of financial resources. When becoming unemployed, income earned from work dries up (Winkelmann & Winkelmann, 1998). Even though the unemployment benefits will smoothen consumption, income will drop. Simultaneously, expenses cannot be reduced: a household has a fixed amount of expenses per month, and other activities that involve the day-to-day life of the household depend on financial resources as well (Nibud, 2018). Following the line of reasoning by Pearlin and Radabaugh (1976), this lack of resources is likely to lead to stress as well. Additionally, Turner (1995) argues that this stress is strengthened by the business cycle. During economic hardship, the chances of finding a job decline, so the financial situation remains stressful. Moreover, Turner states that for the lower socioeconomic classes, unemployment implies more financial strain; hence, unemployment is experienced as a stressful period.

The mechanism between unemployment and stress corresponds with the article of Pearlin and colleagues (1981). Becoming unemployed is a major life event and an eventful experience. The financial strain caused by unemployment and the negative effect on the self-concept leading to stress are key components of the occurrence of stress.

Unemployment and alcohol and tobacco use

According to Pearlin and colleagues (1981), stress is considered to be a response of the human body to certain conditions that are experienced as harmful to the human body itself. It is unclear which part of the body reflects this reaction the most. Stress appears in multiple forms, in physical and psychological ways. Stress is also coped with via a change in behavioural patterns. Conway and colleagues (1981) state that a change in a behavioural pattern could be beneficial in the short term due to its reinforcing effect. The changes in pattern examined by Conway et al. are smoking, drinking alcoholic beverages, drinking coffee and overeating. Despite the support that these might give in the short term, the adverse effects in the long term outweigh the short-term benefits.

Popovici and French (2013) argue that there is a relationship between unemployment and alcohol consumption. The argument is that unemployment leads to stress due to the financial strain. To cope with this stress, the unemployed consume more alcohol. The results that were found by Popovici and French (2013) state that unemployed men consume more alcohol daily

referred to as binge drinking, in comparison to employed men and unemployed women. Unemployed women are more likely to become more alcohol dependent, which is that they consume alcohol more frequently. Both the unemployed men and women have more binge drinking days in comparison to their employed counterparts. Janlert (1997) summarizes that male long-term unemployed have a higher intake of alcohol in comparison to short-term male unemployed. Female long-term unemployed, on average, decreased their alcohol intake, which is explained by the fact that women in long unemployment spells gave birth to a child. A study on the Dutch labour force by Mangot-Sala, Smidt and Liefbroer (2021) looked into the differences in alcohol consumption for different 'groups' of unemployed. Their results are mixed and, therefore, interesting to discuss. Short-term and first-time unemployment are not related to an increase in alcohol consumption. However, they found that individuals who have become unemployed more recently consume more alcohol since the eventful experience is more recent. Long-term unemployed both drink more in terms of frequency and binge drinking.

Janlert (1997) describes that the unemployed smoke more than the employed individuals, even when controlled for determinants such as education and socioeconomic status. The argument made by Janlert is that the unemployed are attracted to smoking. This attraction, as described by Jarvis (2004), is that smoking calms the human body. Nicotine, the element of the cigarette that causes the addiction, leads to the release of dopamine, which is essential for the individual's mood. The stress, perceived through the eventful experience of unemployment, is modified by smoking. Especially for the unemployed, smoking could offer a way out of their misery. In a study conducted by Montgomery and colleagues (1998) on young unemployed in the United Kingdom, it was found that longer-term unemployed were more likely to smoke in comparison to employed individuals. Moreover, if individuals are long-term unemployed at a younger age, the chances of smoking increase. A study conducted by Vogli and Santinello (2005) in Italy found that being unemployed significantly affects whether the individual smokes. This result was found even when they controlled for psychosocial factors. However, they conclude that having mechanisms such as unemployment benefits could attenuate the effect of unemployment on smoking.

Gender and stress

Both men and women are represented in the Dutch labour market. Assuming that both cope the same with stress would be wrong since both men and women react differently to stress (Matud, 2004). The reason that this is the case is, according to Matud, that gender influences the whole

stress process: there is a difference in whether a situation is perceived as an eventful experience. Also, women cope differently with stress than men.

There are two primary explanations. Almeida and Kessler (1998) state that gender roles could explain why women cope with stress in ways that do not necessarily solve the solution, while men are expected to cope with stress in a problem-solving way. Banyard and Graham-Bermann (1993) argue that women are in less favourable positions than men and, therefore, have a less supportive environment to cope with stress. Women turn to other means to cope with stress. Mckee and colleagues (2003) found that women were more likely to continue smoking when stress occurred following a financial eventful experience. Following the literature review by Peltier and colleagues (2019), stress is an important determinant of alcohol consumption among women. It should be kept in mind that women cope differently with stress than men and turn more often to means such as alcohol and tobacco.

Suitable jobs and stress

Several main arguments explain that the reform *'Besluit passende arbeid WW en ZW'* could lead to stress, additional to the higher stress level that unemployed already experience. Firstly, the Dutch practice implies that if the unemployed do not find a job in the first six months, the prospect is that they might end up with a job that is not suitable for them. The job might require a lower skill set and offer a lower wage, as theorized by Dieckhoff (2011), which could lead to skill depreciation and is irreversible. Climbing the career ladder becomes more difficult. Moreover, the commuting time may increase following the reform. According to Chen and Rosenthal (2008), this could lead to removals of the newly re-employed to another region to reduce commuting time. From the perspective of the unemployed, the stakes of finding a suitable job within the first six months of unemployment are high. Otherwise, the consequences of not finding a job within the first six months could be severe and perceived as eventful.

Secondly, the reform entails that the Public Employment Service threatens with a stick: if the unemployed do not find a job within the first six months, then every job is suitable and must be applied for. Moreover, non-compliance is sanctioned. This stick makes the unemployed extrinsically motivated, as Vansteenkiste and colleagues (2004) described. Complying with demands, when they are externally imposed and internally experienced, makes individuals feel they have no choice. It means that their behaviour is controlled through external factors. Vansteenkiste et al. (2004) theorize that job search motivated by controlled motivation is positively related to stress. The results from the study of Vansteenkiste et al. (2004) show the negative effect of controlled motivation on the negative experiences of unemployment, life

satisfaction and health, measured using the general health questionnaire, constructed by Goldberg (1972), where stress is a major part of. Hence, controlled motivation in job search might have unintended consequences regarding the individual's health via stress.

The third argument takes into account the difficulty of finding a job. Searching for a job of good quality takes time: the unemployed must know what the next step in their career will be, where to find job openings, look for the best fit and the process of job application (Reid, 1972). According to Kreemers, Van Hooft and Van Vianen (2018), searching for a job means something other than that the unemployed makes progress. There is a lack of guidance, there is no clear strategy which leads to a job offer, and a rejection is often not combined with feedback. Hence, the progress made is unclear, and the job search can be experienced as a black box. Moreover, searching for a job can be perceived as a negative experience. Job search naturally comes with being rejected, having little control over the process, and not finding any suitable vacancies. Kreemers and colleagues conclude that *'the more time people spend on their job search, the more negative job search experiences they encounter, the more distress they feel'*, while there already might be external demands on unemployed individuals regarding the job search.

The reform implies a higher workload since the unemployed have less time to find a suitable job. According to MacDonald (2003), a higher workload means that individuals are given fewer means to do the same or more. The idea behind it is that there is a misfit between the demands on the individual and what the individual can do. The study by MacDonald found that employed individuals with a higher workload have a higher stress level. The translation can be made to unemployed individuals. The reform implies less time to find a job, which increases the workload. The combination of a higher workload in the challenging environment of job search could lead to an increase of stress.

Alternative arguments

Other arguments state that the unemployed consume less alcohol and tobacco. The first argument considers that the unemployed have less time to consume alcohol or use tobacco. The reform indicated stricter job search requirements. Mortensen (1977) described that the value of the unemployment benefits and the reservation wage depends on multiple determinants. Following Petrongolo (2009), stricter job search requirements lead to a declining reservation wage since the requirements are too burdensome. A decline in the value of the reservation wage is inversely related to job search intensity: a lower reservation wage implies an increase in job search efforts, as theorized by Krueger and Mueller (2010). Krueger and Mueller state that

when unemployment benefits become less valuable, the job search effort increases, reflected in a higher daily number of minutes searched for a job increases. This implies that less time is available for other activities, such as drinking and smoking. Moreover, according to Saks (2006), increased job search efforts positively relate to having job interviews. Preparing for and having a job interview also requires at least a reduction in alcohol consumption or smoking since that would increase employability (MacDonald & Shields, 2004; Prochaska et al., 2016).

Another theoretical argument that counters the relationship between unemployment and alcohol and tobacco use are the available financial means of the unemployed. Unemployed have less financial means, and the prospect of accepting a non-suitable, low-paying job could incentivize them to reduce their alcohol and tobacco use to save up financial resources. Alcohol and tobacco products can be seen as normal goods, which, according to Mankiw (2016), are goods whose demand strongly depends on income. When the individual's income decreases, demand will decrease as well. The unemployed have a lower disposable income, which will be used for essential goods. Normal goods concern the relative price of the products. A study by Cerdá, Johnson-Lawrence, and Galea (2011) on lifetime income found that short-term low income is related to a higher chance of abstinence. This would imply that alcohol consumption indeed depends on the financial resources available. In the long term, alcohol consumption was also found to be dependent on the available financial resources: lower incomes have higher chances of abstinence, which is in line with alcoholic beverages being a normal good. In a study by Townsend, Roderick, and Cooper (1994), it was found that the number of cigarettes smoked depends on the income of young adults. They argue that a large share of young adults' income is spent on non-necessity goods. Young adults can alter their behavioural patterns and could reduce the number of cigarettes smoked more easily if income drops.

Lastly, reverse causality could also be the case in the relationship between unemployment and alcohol and tobacco use. This relates to the first paragraph under the heading *'labour market and health'* framework. The selection effect, as described by Stauder (2019), states that individuals with bad health, which could be caused by alcohol and tobacco use, are more likely to become unemployed. Employees with lousy health are less productive and, therefore, less employable. This comes from the fact that the individual is often absent, is less productive during working hours or arrives at work in a physically lousy state. Moreover, those with bad health are less likely to become re-employed when unemployed. The health of the unemployed might already be worse, which is not due to becoming unemployed.

Theoretical mechanisms and hypothesis

It has become clear that unemployment could have severe health effects on the physical and psychological parts of the human body. Unemployed could have an adverse health effect: unemployment could lead to stress. The combination of the eventful experience, financial hardship and the depreciating self-concept are the main drivers of the process that leads to stress. Stress can be observed by changes in behavioural patterns. There is a vast amount of literature which found an increase in alcohol consumption after becoming unemployed. Moreover, there are some reasonable indications that tobacco use also increases after unemployment.

I argue that the *'Besluit passende arbeid WW en ZW'* leads to a higher level of stress, coped with using alcohol and tobacco products. The prospect of accepting a job that is not suitable can be seen as an eventful experience. Job search is a demanding process, and it does take some time before the individual finds a job. Giving the unemployed individual less time for a job search combined with the difficulty of finding a job could increase perceived stress. In addition, searching for a job where motivation is controlled might also induce more stress.

Nevertheless, arguments that there is an effect of alcohol and tobacco use on unemployment cannot be ignored either. The selection effect, which states that individuals with bad health are more likely to become unemployed, is a plausible and tested argument. Moreover, the lack of financial means and an increase in job search intensity also indicate that the unemployed consume less alcohol and tobacco.

The causal mechanisms is shown in figure 1.

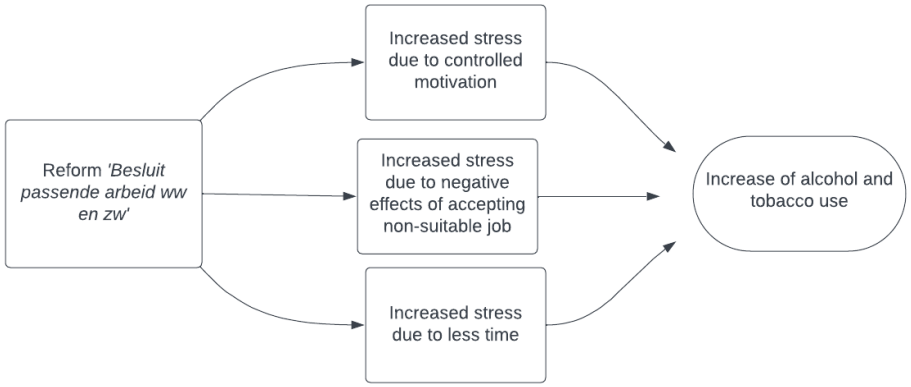

Figure 1: causal mechanism

The hypotheses for alcohol consumption:

H_0: The reform *'besluit passende arbeide ww en zw'* has no effect on the alcohol consumption of the individuals who have become unemployed after 1 July 2015

H_1: The reform *'besluit passende arbeide ww en zw'* leads to an increase of alcohol consumption for the individuals who have become unemployed after 1 July 2015

The hypotheses for tobacco use:

H_0: The reform *'besluit passende arbeide ww en zw'* has no effect on the tobacco use of the individuals who have become unemployed after 1 July 2015

H_1: The reform *'besluit passende arbeide ww en zw'* leads to an increase of tobacco use for the individuals who have become unemployed after 1 July 2015

Research design

Data collection

LISS Data

The data used to analyse the causal mechanisms between unemployment and alcohol and tobacco use is retrieved from the LISS panel. The LISS panel is a longitudinal data set comprising approximately 5000 Dutch household respondents, including all layers of Dutch society, and is a representative data set. The same respondents answer on multiple topics throughout the year. The data set contains data from 2007 until 2023. The data is characterised as panel data (LISS panel, n.d.). The studied period is from 2011 until 2019, so observing the trends needed for the difference-in-difference method with multiple time periods is possible (Callaway & Sant'Anna, 2021).

The 'Health' and 'Work and Schooling' LISS core studies and the background study is used for the operationalization. All studies are answered at different times and are sent out in different months. Table 1 reflects when the questionnaires were open for response. The dependent variables are measured in the 'Health' core study, which does not exist for 2014. It is assumed that the health study of 2013, which is answered in the last months of the year, also holds for 2014 to some extent. The missing data is a limitation of the dataset.

Table 1: When was Study conducted

Year	Background*	Health	Work and Schooling
2011	December	November-December	April - May
2012	December	November-December	April - May
2013	December	November-December	April - May
2014	December	*Does not exist*	April - May
2015	August	July - August	April - May
2016	December	November-December	April - May
2017	December	November-December	April - May
2018	December	November-December	April - May
2019	December	November-December	April - May

*: open for response every month, but only the December and August answer are used.

All the data is downloaded from the LISS website. The analytical program Stata is used to merge all the datasets and to perform the statistical analysis.

Operationalization dependent and independent variables

The dependent variable in the research question is alcohol and tobacco use, which are answered in the 'health' core study. Alcohol use is operationalized in three ways. Firstly, alcohol consumption is operationalized using the question: *"Did you have a drink containing alcohol during the last seven days (excluding today)?"*. Here, 1 reflects 'yes' and 2 reflects 'no'. This is transformed in Stata: 1 indicates 'no' and 2 indicates 'yes' to interpret it more easily. This is a binary ordinal variable. Secondly, alcohol consumption is operationalized via *"On how many of the past seven days did you have a drink containing alcohol?"*. Respondents can answer on a scale of 1 to 7 and only answer if they did consume alcohol in the previous seven days (Centerdata, 2011-2019-b). These measures tap upon the frequency of alcohol consumption.

Lastly, alcohol consumption is operationalized as the amount of alcohol units consumed and measures the amount of alcohol consumed: binge drinking. The LISS measures are used to calculate the total amount of consumed alcohol units, a drink with 10 grams of pure alcohol (Trimbos Instituut, n.d.-a). The first column of Table 2 displays the categories of alcoholic beverages as operationalized in the LISS Health study (Centerdata, 2011-2019-b). The alcohol percentages are added following the information from the Trimbos Instituut (n.d.-a). The second column of Table 2 reflects the quantity of the drinks in centilitres. The quantity of the different sizes of the beers is determined by an educated guess: a standard glass of beer is 25 cl, as specified by the Trimbos Instituut (n.d.-a). A pint contains 56,8 cl, as specified by the NHS (2022). The quantity of a large can or bottle is determined as 50 cl, and a small can or bottle is 33 cl, which are standard quantities of beer found in grocery stores. A premix is often a 25 cl can with 5% alcohol (Albert Heijn, n.d.).

The Trimbos Instituut (n.d.-a) states that one alcohol unit equals a standard glass of beer, a drink of strong spirit, wine and champagne and sherry and martini. A premix contains the same alcohol percentage and cl as a glass of beer, which also equals one alcohol unit. The alcohol units of the other (strong) beer measurements can be calculated following the information given by the Trimbos Instituut (n.d.-a). To transform the consumed glasses, pints, small and large cans into alcohol units, it is multiplied by the alcohol units in Stata. All alcohol units are added up, giving the total consumed alcohol units.

Table 2: Types of measurements and alcohol units

Alcoholic beverage	Measurement	Alcohol units	Calculation
Normal beer - <6%			
	Glasses – 25 cl	1	
	Pints – 56,8 cl	2,27	1 / 250 * 568 =
	Large cans – 50 cl	2	1 / 250 * 500 =
	Small cans – 33 cl	1,32	1 / 250 * 330 =
Strong beer - > 6%			
	Glasses -25 cl	1,52	1 / 330 * 250 =
	Pints – 56,8 cl	3,44	1 / 330 * 568 =
	Large cans or bottles – 50 cl	3,03	1 / 330 * 500 =
	Small cans or bottles – 33 cl	2	
Strong spirits – 40%	Drink – 1,5 cl	1	
Wine and champagne -12%	Drink – 10 cl	1	
Sherry and Martini – 15%	Drink – 5 cl	1	
Premix – 5%	Drink – 25 cl	1	

The alcohol percentages for strong spirits, wine and champagne, and sherry and martini are retrieved from Trimbos Instituut (n.d.). The alcohol percentages for the regular beer and strong beer are provided by the LISS Health Study. The different alcohol categories are measured in 'drinks' for the bottom four. Beer is divided in different sizes. The quantity of a single drink for strong spirits, wine and champagne, and sherry and martini is retrieved from Trimbos Instituut (n.d.). The quantity in centilitres for the beer measures can be determined when looking at the beers sold in grocery stores. The Trimbos Instituut does not provide information on premixes. To determine the alcohol unit of a premix an example will be used. A Bacardi Cola can is 250 cl and contains 5% alcohol. One premix equals one alcohol unit.

The question operationalizes tobacco use is: *"Do you smoke now?".* The possible answer are 1 meaning *"yes"* and 2 meaning *"no, I stopped"*. This is transformed in Stata: 1 indicates 'no, I stopped' and 2 indicates 'yes' to interpret it more easily. This is a binary ordinal variable. The amount of tobacco products is also operationalized via the number of cigarettes and rolling tobacco that is smoked, using the question: *"How many cigarettes/rolling tobacco do you smoke on average per day?"*. This is an interval variable (Centerdata, 2011-2019-b).

As briefly mentioned before, the analysis will contain a difference-in-difference method. To perform a difference-in-difference, a (non-) treated treatment and a control group are needed, which should be comparable. The 'belbezig' variable from the LISS background study will be used. Two variables are created. The first variable indicates, called general occupation, is 1 if

the respondent's primary occupation is *'job seeker following job loss'* and 0 is the primary occupation is *'paid employment'*. Only these primary occupations are included since they must be eligible for unemployment benefits. The second variable is the policy dummy, which indicates 1 if a respondent's primary occupation is *'job seeker following job loss'* after 1 July 2015. The general occupation and policy dummy are specified for men and women using the variable *'geslacht'* from the LISS background study to control the difference between men and women (Centerdata, 2011-2019-a).

Mediating variable

As illustrated by Figure 1 in the causal mechanism, stress is the mediating variable between unemployment and alcohol and tobacco use. MacKinnon (2015) explains that an independent variable could affect the dependent variable running through the mediating variable. Controlling for the mediating variable allows us to measure the indirect and direct effect of becoming unemployed after 1 July 2015 on alcohol and tobacco use. The stress measures will also be used as dependent variables to examine the direct effect of the treatment on stress.

Therefore, the analysis should also include the mediating variable stress. According to Lazarus (1990), stress can be measured in various ways via psychological stress scales. These are the objective measurements. Stress can also be measured subjectively, meaning that respondents are asked what they felt and how they coped with it. The LISS panel only consist of subjective measures.

As discussed before, stress can occur in multiple ways. An indicator of stress is sleeping problems. According to Sanford, Suchecki, and Meerlo (2014), stress causes sleeping problems. Moreover, as argued by Kocalevent and colleagues (2011), individuals' perceived stress level is related to fatigue. Nash and Thebarge (2006) state that stress can start and accelerate the process of having a primary headache, which is a headache unrelated to other diseases. Following Schiffrin and Nelson (2010), stress and happiness are inversely related: an increase in stress leads to a decrease in happiness. Hammen (2005) argues that stressful life events could also cause depression. To operationalize sleeping problems, fatigue and headaches the LISS Health core study is used. Respondents are asked whether or not they suffer from all kinds of physical discomforting ailments. The questions asked of respondents are: *"Do you regularly suffer from headache"*, *"Do you regularly suffer from sleeping problems"* and *"Do you regularly suffer from fatigue"*. The possible answers are *'yes'*, reflected in 1 and *'no'*, reflected in 0. These variables can be described as nominal variables (Centerdata, 2011-2019-b).

The LISS Health study is also used to operationalize happiness and depression as proxies of stress. Here, respondents are asked if they felt happy or depressed and gloomed the past month. The questions asked to the respondent are *"This past month I felt happy"* and *"This past month I felt depressed and gloomy".* The answers are on a scale of 1-6, where 1 is *'never'* and 6 is *'continuously'*. This variable can be characterized as an ordinal variable since the answers can be ranked (Centerdata, 2011-2019-b).

Control variables

Several control variables are included to mitigate the risk of omitted variable bias. One main factor that affects alcohol and tobacco use is education. Huerta and Borgonovi (2010) argued that better-educated drink less alcohol since they can access better information and act upon it. Huerta and Borgonovi also argued that higher educated could also consume more alcohol due to a work environment where consuming alcohol is expected, and the availability of financial means gives the opportunity. All in all, the results are mixed. Some papers find that the lower educated consume more (Van Oers and colleagues, 1999), and some papers find that the higher educated consume more alcohol (Huerta and Borgonovi, 2010). Regarding the relationship between education and smoking, statistical analyses suggest mainly that the less educated smoke more in comparison to higher-educated individuals, as found by Cavelaars and colleagues (2000).

The level of education is operationalized using the background study of the LISS panel. Respondents are asked what their level of education is via the variable 'oplcat'. The categories range from *'primary school'* to *'university'*. The variable can be characterized as an ordinal variable since the levels can be ranked (Centerdata, 2011-2019-a).

The second control variable takes into account current labour market trends. Autor (2015) describes that routine-based jobs are disappearing due to the automation of tasks. The (former) routine-based workers are less employable due to their lack of sufficient skills and non-suitable jobs given their skill set. Combined with the shorter period given for finding a new suitable job, it could be hypothesized that the less employable, routine-based workers will experience more stress when they become unemployed since their job-finding rate will be lower.

The 'Work and Schooling' core study is used to operationalize if someone is a routine-based worker. The question asked to the respondent is: *"It is/was uncertain whether my job will/would continue to exist."* Possible answers are on a scale of 1-4, where 1 is *"disagree entirely"* and 4

is *"agree entirely"*. This is an ordinal variable since the answers can be ranked (Centerdata, 2011-2019-c).

Another possible determinant of alcohol and tobacco use is the socioeconomic status of the respondent. According to Van Oers and colleagues (1999), a lower socioeconomic status is related to more frequent alcohol consumption and more excessive drinking. According to the literature review of Hiscock et al. (2012), individuals with lower socioeconomic status are more likely to smoke due to less supportive means when they try to quit smoking.

The socioeconomic status of individuals is operationalized by looking at the individual's income. The background studies will be used. The net monthly income is measured here, and the respondents can fill in the exact amount. The variable can be characterized as an interval ratio variable: a zero has a meaning (Centerdata, 2011-2019-a).

Another characteristic of individuals that could influence alcohol consumption and tobacco use is one's age. Mathers and colleagues (2006) state that the habit of smoking is more easily formed when someone is younger. Moreover, it is not likely that the elderly who did not smoke before start smoking at a higher age. Concerning alcohol consumption, Wilsnack and colleagues (2009) found that there is no difference in age groups when it comes to the frequency of alcohol consumption. There is a difference in consuming alcohol more heavily: older age groups consume alcohol more extensively. Age is operationalized using the background study, where respondents are asked what their age is (Centerdata, 2011-2019-a).

It could be argued that non-varying factors, such as culture and gender, could influence alcohol consumption and tobacco use as well (Wilsnack et., 2000). Fixed effects, which are discussed later, are used to control for these non-varying factors.

Method

Difference-in-difference

The difference-in-difference (DID) method with multiple time periods is used to estimate the group-time average causal effect of the policy reform (Callaway & Sant'Anna, 2021). DID are used when the studied event is a natural experiment. This natural experiment automatically assigns individuals to the treatment group (Sieweke & Santoni, 2020.). The DID is often used for measuring a policy effect that only affects a specific part of the population. To perform a DID, three groups are needed: the control group, the non-treated treatment group and the treated treatment group (Lechner, 2011). These are already operationalized in sub-paragraph 'operationalization dependent and independent variables'.

There are three key assumptions for the DID (Angrist & Pischke, 2014). The first is the parallel trends assumption, the driving idea behind this empirical strategy. Both non-treated treatment and control groups follow the same trend over time. The policy does not affect the control group, and therefore, its trend is unaffected. After the reform, the original trend of the pre-treatment treatment group cannot be observed anymore. Assuming parallel trends implies that the non-treated treatment group would have followed the same trend as the control group. If the policy reform affects the treated treatment group, the trend will also be affected and change compared to the trend of the non-treated treatment group. The difference between the trends of the treated treatment group and the non-treated treatment group is the causal effect of the treatment (Lechner, 2011).

The (non-)treated treatment group consists of the *'job seekers following job loss'* and the control of the *'paid employment'*. Using the *'paid employment'* as a control group is more common in academic research, for instance, by Gebel and Voßemer (2014) and Brydsten, Hammarström and San Sebastian (2016). A sensitivity analysis will be applied by adding control variables (Rambachan & Roth, 2019).

The second assumption is the 'exogeneity of the reform' assumption, meaning that a possible different trend can only be caused by the reform itself and not by other developments. This assumption seems to be met as well. According to the Dutch Trimbos-institute (n.d.-b), there were no changes in the 'Alcoholwet', the law which aims to restrict alcohol use in the Netherlands, that could only affect one of the included groups. The Dutch institutional setting also does not provide explanations for a possible increase or decrease in tobacco use. The centre of expertise Jellinek (n.d.), states that there were no significant policy reforms regarding the *'tabakswet'*, the Dutch law that should reduce tobacco use, which could affect the treated group. Possible price increases would affect both groups.

The third assumption is that the treatment could not be anticipated and avoided. This assumption is also met. Although the reform was announced six months before the actual date the reform was implemented, the reform cannot be anticipated. It can be assumed that individuals who potentially can become unemployed have little influence on whether or not they will become jobless before or after 1 July 2015. If they have influence, then it would be the question of whether the laid-off individual is eligible for unemployment benefits (UWV, 2014-a).

The regression specification used for the difference-in-difference, following Woolridge (2016), is:

$$Y_{it} = \eta_1 + \boldsymbol{\alpha_i dn_t} + \gamma_i + \beta w_{it} + \boldsymbol{X_{it}\varphi} + a_i + u_{it}, t = 1, 2, 3 \ldots$$

Here the Y represents the outcome variable, the *i* represents the respondent and the t indicates the time. The η_1 is the intercept. The $\boldsymbol{\alpha_i dn_t}$ is the vector of coefficients of the time dummies, which reflect the general trend. The γ_i is the coefficient of the *'job seekers following job loss'*, which is the average difference with the *'paid employment'*. The βw_{it} is the coefficient of the policy dummy. The $\boldsymbol{X_{it}\varphi}$ is the vector of the coefficients of the control and mediating variables. The a_i represents the fixed effects. The u_{it} indicates the error term.

Linear regression

For the dependent variables 'number of days of alcohol consumption', 'alcohol units' and 'number of cigarettes', the least squares dummy variable regression is applied, an extension of a simple OLS. The least squares dummy variable regression can estimate different groups' effects on the outcome variable. (Data Science for Public Service, n.d.). The least squares dummy variable method tries to estimate the average effect of the explanatory variable (Chumney & Simpson, 2006).

The implementation of fixed effects characterizes the least squares dummy variable method. Fixed effects models control for unobserved heterogeneity by controlling for the effect of factors that remain constant over time but affect the outcome variable (Brüderl & Ludwig, 2015). By using a fixed effects model, the time-consistent variables will be taken out of the estimation of the independent variable. Following the line of reasoning from Brüderl and Ludwig (2015), it is possible to use individual- and time-specific fixed effects since the dataset is characterized as panel data and the cases consist of individual respondents. Individual-specific fixed effects control for time-consistent individual characteristics. Time-specific fixed effects control for unobserved time-specific characteristics. These characteristics affect all individuals the same during a specific period.

For the binary variables 'consumed alcohol in the last seven days', 'does smoke now', and the stress measures that are used as the dependent variables, the linear probability model is used. The advantage of using a linear probability model is that it could be easily interpreted: the coefficient indicates the change in percentage points of chance. The disadvantage is that this is a linear model, which does not make sense for a dependent variable with only two outcomes.

Robust standard errors are applied since the error term here is always heteroscedastic (Hanck et al., 2023).

The research design should ensure that the main explanatory variable has an unbiased effect on the outcome variable. Hence, the explanatory variable must be independent of other variables, which is called exogeneity (Woolridge, 2016). Two main potential threats could lead to a bias in the estimate of the independent variable. One of the main sources of bias in the estimate is the omitted variable bias (Woolridge, 2016). Omitted variable bias occurs when a relevant variable that affects the outcome variable and is correlated with the independent variable is not included in the analysis. It implies that the estimate of the independent variable measures the effect of the independent variable itself and includes the effect of the omitted variable. Another possible threat to the estimate's precision could be the simultaneity problem. As Antonakis and colleagues (2014) stated, simultaneity occurs when the treatment variable affects the outcome variable and vice versa. If simultaneity occurs, the estimate of the treatment variable will be biased, and therefore, it can be difficult to make causal claims. To control for both biases, control variables are added to the model, which entails variables that vary over time. Another way to ensure exogeneity is by applying fixed effects, which control for time-consistent variables.

Validity and Reliability

According to Neuman (2014), validity is how well the indicators that are supposed to measure the concept fit together. The better the fit between the operationalization of the concept and the real concept, the higher the validity. Face validity is achieved since the operationalizations of alcohol and tobacco use are common in the literature (Lee et al., 1990; Montgomery, 1998). Content validity, do the indicators measure the whole concept, is partially achieved. Some papers (for instance, Popovici & French, 2013) have measured alcohol consumption over extended periods. The LISS Panel only provides precise data over the past seven days. The current smoking measurements could be complemented with data concerning when the respondent started smoking, which is used in Hiscock et al. (2012). The construct validity, how different operationalizations complement each other, is complied with. For both alcohol and tobacco use, it is measured if the respondent smokes or drinks and is complemented with how much is consumed and smoked.

Reliability means, following Neuman (2014), that the way the analysis is done can be repeated, and it will obtain the same results. Neuman states that there are three types of reliability. The first is stability reliability, which implies that the measurement on a different period would

deliver the same answers. The results would remain stable if the questionnaires were open to response in the same period every year. Sending out the questionnaire irregularly would include seasonal patterns, such as months when people try to quit smoking, which could bias the estimate. The second type is representative reliability, which means that yielded results could be generalized to other groups of society. This concerns the Law of Large Numbers. If the LISS Panel is large enough and representative of society, the results can be generalized to other groups, not included. The LISS Panel claims that it is representative. Lastly, equivalence reliability is multiple indicators that measure the same (Neuman, 2014). This is arguably for both alcohol and tobacco use. For example, the measurements regarding alcohol consumption, when stated that the respondent consumed alcohol in the past seven days, always answered the number of days when alcohol was consumed.

Empirical Analysis

Descriptives

Table 3 contains the descriptives for the independent variable: job seekers following job loss and the paid employed. The average rate of job seekers following job loss is 2,12%, which is lower than the unemployment rate according to CBS Statline (2023), which can be explained by the fact that not all the unemployed are included in the treatment group. Hence, the LISS Panel is a representative sample of society. The same argumentation holds for the individuals who are paid employed. Here, other occupation categories that would be included in the official employment rate are not included.

Table 3: primary occupation

Year	Paid employment	Job seeker following job loss
2011	4536	195
	39,40%	1,69%
2012	3955	207
	38,38%	2,01%
2013	3923	263
	37,10%	2,49%
2014	4360	319
	37,15%	2,72%
2015 – juni	4094	315
	37,05%	2,85%
2015 - augustus	4056	298
	37,11%	2,73%
2016	3611	226
	37,89	2,37%
2017	4462	218
	38,60%	1,89%
2018	3922	167
	38,79%	1,65%
2019	3882	135
	38,99%	1,36%
Average	36440	2023
	38,15%	2,12%

Table 4 contains the descriptives for alcohol consumption, divided into job seekers and paid employed. The first column contains information on whether or not someone consumed alcohol in the past seven days. The first number is the percentage of individuals, and the second reflects the absolute number of individuals. In 2012 and 2013, relatively more unemployed consumed alcohol in the last seven days in comparison to the employed. From 2015 onwards, it is the other way around. Column two reflects the number of days on which alcohol was consumed in the previous seven days. It can be observed that the unemployed have a higher average of days on which alcohol is consumed in comparison to the employed. The third column of Table 4 contains the average number of alcohol units consumed. In the years 2011-2013, the job seekers

following job loss consumed, on average, more alcohol units than the paid employed. In the years 2015-2017, the opposite was the case.

Table 4: Descriptives alcohol measures

Year & occupation	Last seven days	How many days?	Alcohol Units
2011 & job seeker	74,26% 75	3,95	1,946
2011 & paid employment	69,72% 1444	3,26	1,344
2012 & job seeker	73,33% 99	3,42	2,151
2012 & paid employment	70,76% 1643	3,16	1,587
2013 & job seeker	69,44% 100	3,55	1,773
2013 & paid employment	71,09% 1463	3,12	1,587
2015 & job seeker	72,33% 115	3,75	1,649
2015 & paid employment	74,27% 1741	3,3	1,931
2016 & job seeker	70,08% 89	3,82	1,660
2016 & paid employment	68,47% 1418	3,01	1,704
2017 & job seeker	61,74% 71	3,56	1,447
2017 & paid employment	69,81% 1593	2,94	1,544
2018 & job seeker	67,42% 60	3,83	1,767
2018 & paid employment	67,14% 1385	2,89	1,562
2019 & job seeker	65,75% 48	3,27	1,472
2019 & paid employment	66,98% 1276	2,82	1,464

Table 4 represents tobacco use, divided into the job seekers and the paid employed. The first column contains the descriptives for individuals who have ever smoked. The first number indicates the percentage of current smokers, and the second is the absolute number of smokers. There are relatively more current smokers among the job seekers in comparison to the paid employed. There is a declining trend for both groups: fewer people smoke every year. The second column contains the mean number of cigarettes smoked for each group. The job seekers smoke, on average, more cigarettes than the paid employees, with a spike in 2017 and 2018.

Table 5: descriptives tobacco use

Year & occupation	Smokes now	cigarretes
2011 & job seekers	55,56% 45	14,78
2011 & paid employment	38,10% 490	12,83
2012 & job seeker	54,37% 56	13,95
2012 & paid employment	36,38% 513	12,88
2013 & job seeker	39,22% 40	14,96
2013 & paid employment	33,25% 408	12,93
2015 & job seeker	56,10% 69	12,75
2015 & paid employment	35,06% 474	11,41
2016 & job seeker	46,73% 50	13,28
2016 & paid employment	31,68% 357	11,18
2017 & job seeker	48,35% 44	16,06
2017 & paid employment	31,34% 398	11,50
2018 & job seeker	45,83% 33	16,16
2018 & paid employment	30,16% 326	11,25
2019 & job seeker	45,10% 23	13,16
2019 & paid employment	27,58% 278	11,80

Table 5 represents the prevalence of stress indicators for individuals, divided into job seekers following job loss and paid employment. The first number reflects the relative number of respondents suffering from it, and the second is the absolute number. Column 1 contains the descriptives for headaches. Both groups suffer approximately equally from headaches, except for 2015, where relatively more job seekers suffered from headaches than the paid employed. Contrastingly, the number of job seekers who suffer from fatigue differs over the years. The number of experienced fatigues increased by twelve percentage points in 2015 compared to 2013. The overall trends for both groups differ when looking at the prevalence of sleeping

problems. Between 2012 and 2019, there is at least a ten percentage point difference in sleeping problems between job seekers and paid employees.

Table 6: descriptives stress indicators

Year & occupation	Headache	Fatigue	Sleeping problems
2011 & job seekers	14,78%	26,96%	20,87%
	17	31	24
2011 & paid employment	18,28%	28,94%	16,28%
	420	665	374
2012 & job seeker	21,52%	34,18%	29,75%
	34	54	47
2012 & paid employment	18,44%	29,03%	16,69%
	474	746	429
2013 & job seeker	19,05%	25,00%	26,79%
	32	42	45
2013 & paid employment	18,42%	28,78	16,89%
	423	661	388
2015 & job seeker	21,94%	37,24%	31,63%
	43	73	62
2015 & paid employment	16,41%	27,83%	15,93%
	418	709	406
2016 & job seeker	18,47%	28,03%	32,48%
	29	44	51
2016 & paid employment	17,11%	29,32%	16,99%
	393	675	391
2017 & job seeker	16,55%	31,65%	34,53%
	23	44	48
2017 & paid employment	16,99%	30,48	18,12%
	437	784	466
2018 & job seeker	15,18%	29,46	32,43%
	17	33	36
2018 & paid employment	16,41%	30,40%	16,96%
	386	715	399
2019 & job seeker	16,47%	29,41%	29,41%
	14	25	25
2019 & paid employment	16,83%	30,24%	17,74%
	370	665	390

Statistical analysis

Parallel trends assumption

Before performing the difference-in-difference in Stata, the parallel trends must be checked. The reform, represented by the vertical line, is implemented just before the data for the 'Health' core study of the LISS Panel is collected. In Figure 1, a comparable trend can be observed for

the whole studied period, except for 2017, where the observed mean for the job seekers is 0,1 lower compared to the paid employed. This figure implies that if the reform does affect the job seekers, the effect occurred in 2017 and led to a decrease in alcohol consumption in the last seven days: the opposite of what is expected.

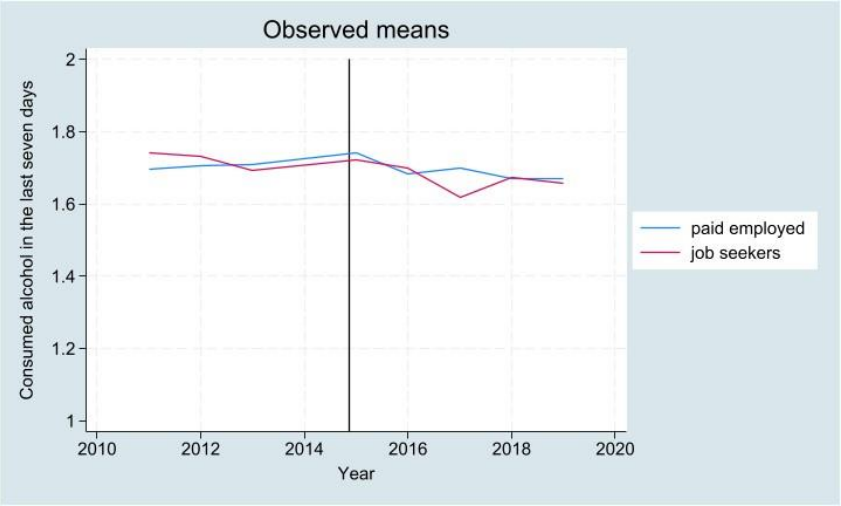

Figure 1: observed means 'consumed alcohol in last seven days'

Figure 2 might give a clearer indication of a possible treatment effect. From 2012 until 2015 both trends evolved simultaneously. The paid employed trend is declining after 2015, where the trend increases until 2016 for the job seekers.

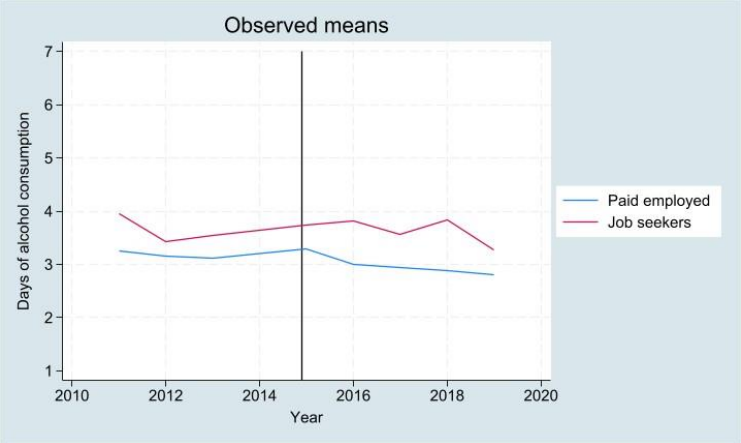

Figure 2: Observed means 'days of alcohol consumption'

Figure 3 displays the observed means for consumed alcohol units. Both trends seem to be parallel in the whole studied period. Both observed means do indicate a clear parallel trend.

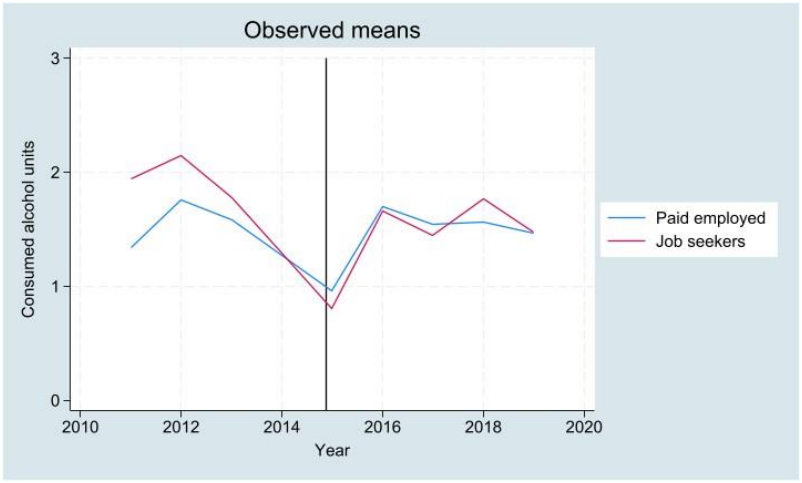

Figure 3: observed means 'consumed alcohol units'

Figure 4 displays the observed means for 'Does smoke now'. The trends seem to be parallel after the reform. The observed means of smoking before 2015 for job seekers fluctuated a bit.

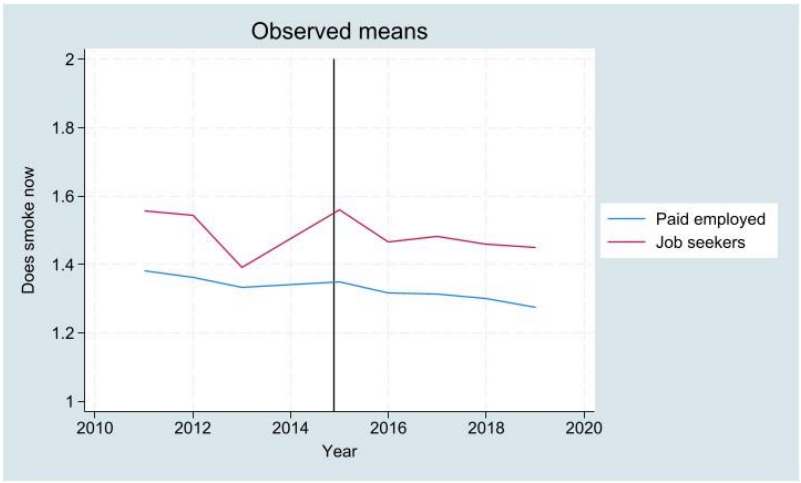

Figure 4: Observed means 'smoke now'

Figure 5 reflects the trend for the number of cigarettes smoked per day. A parallel decreasing trend can be observed for both the treatment and control groups between 2013 and 2015. After 2015, the trend for the paid employed remained stable. The trend of job seekers increased excessively after 2015. The average of cigarettes consumed increased by three up until 2018. Hereafter, a large decrease in the number of cigarettes consumed in 2019 can be observed, ending at the 2015 level. The trends before 2015 are not parallel.

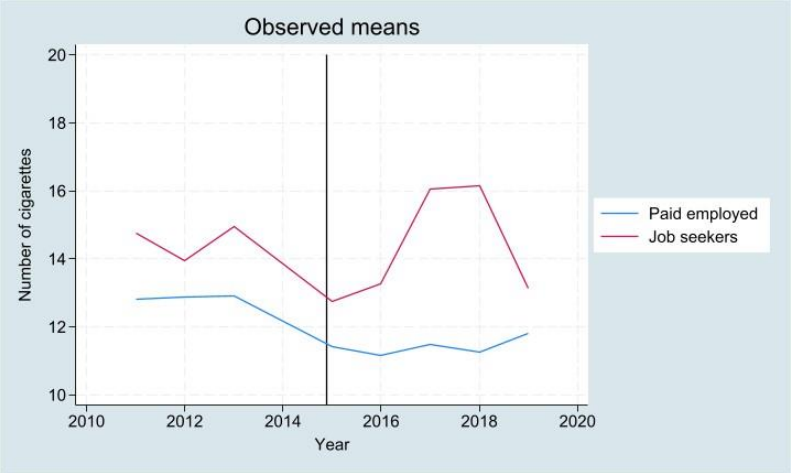

Figure 5: Observed means 'Amount of cigarettes'

What can be concluded from the graphs above is that the studied trends before 2015 are parallel, except for the observed means in Figure 4. With some caution, the parallel trends assumption is complied with. Possible results must still be interpreted carefully since an increase or decrease could also be influenced by other factors: there could be a bias in the estimates. Therefore, control variables will be added.

Results

Model 1 is the basic model where only the difference-in-difference is applied. In Model 2, the control variables are applied. In Model 3, the control and mediating variables are added. Model 4 divides the job seekers into men and women with the control and mediating variables. In Table 7, the relevant studied variables are displayed: The coefficients with standard errors for 'job seekers following job loss', which is the difference between 'paid employment', and the 'policy dummy' indicates the average treatment effect. The number of observations is displayed as well. More detailed regression results can be found in the appendix.

Column 1 contains the results for alcohol consumption in the previous seven days. There are no significant results that show that the treated unemployed have a higher chance of consuming alcohol in the previous seven days in comparison to when they were not treated. Column 2 contains the results for on how many days alcohol was consumed. There are no statistically significant results that show that the treated unemployed consume alcohol on more days in comparison to a situation where they were not treated. The third column contains the results for alcohol units consumed. One statistically significant result can be observed: the coefficient for 'job seekers following job loss' is slightly significant in Model 1. This can be interpreted that the job seekers following job loss consume 0,253 alcohol units more on the day the most alcohol

was consumed in comparison to the paid employed. However, this effect disappears in the other models.

Column 4 contains the results for 'does smoke now'. In Model 1, the policy dummy is slightly significant, meaning that the treated job seekers following job loss have a 5,2 percentage point higher chance of smoking now compared to what would have been the case if the reform did not treat them. In Model 4, the female policy dummy is statistically significant as well. This means that the treated female job seekers have a 13 percentage point higher chance of smoking in comparison to what would have been the case if the reform did not treat them. This is in line with the alternative hypothesis for smoking. Column 5 displays the results for the number of cigarettes smoked. There are no statistically significant results that show that the treated unemployed smoke more cigarettes per day in comparison to what would have been the case if they were not treated.

Table 7: main variables Model 1, 2, 3 and 4

	Consumed alcohol in last seven days	Number of days of alcohol consumption	Alcohol units	Does smoke now	Number of cigarettes
Model 1					
Job seekers following job loss	0,008	0,134	0,253*	-0,019	-0,454
	(0,027)	(0,111)	(0,151)	(0,029)	(0,563)
Policy dummy	-0,005	0,098	-0,232	0,052*	-0,007
	(0,031)	(0,125)	(0,169)	(0,029)	(0,633)
N	18059	12620	34054	10491	5349
Model 2					
Job seekers following job loss	-0,037	0,101	0,372	-0,003	0,367
	(0,033)	(0,135)	(0,246)	(0,039)	(0,759)
Policy dummy	0,052	0,188	-0,237	0,045	0,812
	(0,042)	(0,166)	(0,302)	(0,045)	(0,970)
N	15002	10509	19009	8695	4164
Model 3					
Job seekers following job loss	-0,037	0,096	0,156	0,000	0,366
	(0,033)	(0,136)	(0,235)	(0,039)	(0,766)
Policy dummy	0,053	0,188	-0,059	0,036	0,680
	(0,042)	(0,167)	(0,287)	(0,045)	(0,981)
N	14897	10419	16777	8646	4123
Model 4					
Male job seekers following job loss	-0,044	0,088	0,332	0,046	1,180
	(0,038)	(0,177)	(0,448)	(0,051)	(1,350)
Male policy dummy	0,058	0,289	-0,079	-0,063	1,264
	(0,051)	(0,228)	(0,575)	(0,066)	(1,854)
N	7622	5795	8288	4375	2065
Female job seekers following job loss	-0,035	0,071	0,032	-0,059	-0,190
	(0,055)	(0,212)	(0,230)	(0,057)	(0,778)
Female policy dummy	0,048	0,101	0,005	0,130**	0,399
	(0,067)	(0,248)	(0,273)	(0,062)	(0,948)
N	7275	4624	8489	4271	2058

*Note: *p<0,1; **p<0,05; ***p<0,01*

Mediating variables as dependent variable

In Model 5, the difference-in-difference with control variables is applied to the dependent stress measures headaches, fatigue and sleeping problems. It is divided into the standard policy dummy and male and female. Table 8 displays the relevant studied variables: the coefficients with standard errors for job seekers following job loss and the policy dummy. The number of observations is displayed as well. More detailed regression results can be found in the appendix.

Column 1 contains the results for headaches. The standard policy dummy is statistically significant and positive, meaning that the treated job seekers, in general, have a 0,9 percentage point higher chance of suffering from headaches compared to what would have been the case if they were not treated. This effect cannot be seen when the policy dummy is divided into males or females. Column 2 contains the results for fatigue. There are no statistically significant results indicating that the reform affected fatigue. In Column 3, the results are displayed for sleeping problems. The standard policy dummy is statistically significant and positive, indicating that the treated job seekers, in general, have a 0,5 percentage point higher chance of suffering from sleeping problems in comparison to what would have been the case if the reform had not treated them.

Table 8: main variables Model 5

	Headaches	Fatigue	Sleeping problems
Model 5			
Job seekers following	-0,001	-0,018	-0,012
job loss	(0,019)	(0,027)	(0,028)
Policy dummy	0,009*	-0,001	0,005**
	(0,005)	(0,003)	(0,002)
N	16793	16793	16793
Male job seekers	-0,022	-0,005	-0,005
following job loss	(0,019)	(0,035)	(0,037)
Male policy dummy	-0,010	-0,061	0,027
	(0,028)	(0,049)	(0,049)
N	8293	8293	8293
Female job seekers	0,018	-0,026	-0,020
following job loss	(0,034)	(0,042)	(0,041)
Female policy dummy	-0,014	0,028	0,051
	(0,041)	(0,049)	(0,050)
N	8500	8500	8500

*Note: *p<0,1; **p<0,05; ***p<0,01*

Analysis of results

When looking at the main results in Table 7, a few conclusions concerning the policy dummy can be made. The results do not show that the treated job seekers did not drink significantly more in comparison to what would have been the case if they were not treated by the reform.

This holds for both the frequency of alcohol consumption and the amount of alcohol consumed. There is an indication that the treatment did lead to a higher chance of smoking now: female-treated job seekers have a higher chance of smoking in comparison to what would have been the case if they were not treated. There is no indication that the treated job seekers smoked more cigarettes.

Following these results, it can be stated that the consumption of alcohol and smoked cigarettes did not increase. This can be explained by the three listed arguments in the paragraph *'alternative arguments'*. Job search intensity could have increased since the unemployment benefits are less valuable, and therefore, the treated job seekers have less time to consume alcohol or smoke more cigarettes: the treated unemployed cannot fail in their job search activities. The prospect of needing to accept a non-suitable job with a lower wage after the first six months could incentivize the treated job seeker to engage in less excessive alcohol consumption or smoking of cigarettes to save financial means. Not engaging in heavy consumption could spare the necessary financial means when the financial situation is more severe. Lastly, the selection effect could be at play as well. The health of the treated unemployed is already bad; therefore, they are laid off and less employable: more consumption is not due to the treatment.

The treatment leads to a higher chance of smoking among the women. This result is in line with the formulated theoretical framework, which states that due to an increase in stress following the policy reform, tobacco use increases, which is reflected in a higher chance of smoking. It is also in line with the theory concerning the difference in coping with stress between men and women. The result that treated female job seekers have a higher chance on smoking and not smoking more cigarettes can coexist. It could be imagined that female job seekers light up a cigarette in order to cope with the stress but do smoke excessively more cigarettes.

As discussed earlier, the theoretical framework includes a mediating variable: stress. Table 8 shows that the treated job seekers have a significantly higher chance of suffering from headaches and sleeping problems. These results align with the theoretical framework's first part: the policy reform leads to more stress. As discussed, the mediating variable possibly absorbed the whole effect, and therefore, few statistically significant effects could be observed for the alcohol and tobacco measures. Moreover, increased stress could be coped with in multiple other ways. That there is no statistically significant increase in alcohol and tobacco use does not tell the whole story of the possible effect that the reform has. The theoretical mechanism only

partially reflects the actual mechanisms at play. At least the mechanism between the reform and increased stress does hold to some extent. There is some evidence that the reform affects alcohol and tobacco.

Coming back to the hypothesis formulated in the theoretical framework.

H_0: The reform *'besluit passende arbeide ww en zw'* has no effect on the alcohol consumption of the individuals who have become unemployed after 1 July 2015

H_1: The reform *'besluit passende arbeide ww en zw'* leads to an increase of alcohol consumption for the individuals who have become unemployed after 1 July 2015

Following the results, there is not enough evidence to reject the null hypothesis concerning alcohol use.

H_0: The reform *'besluit passende arbeide ww en zw'* has no effect on the tobacco use of the individuals who have become unemployed after 1 July 2015

H_1: The reform *'besluit passende arbeide ww en zw'* leads to an increase of tobacco use for the individuals who have become unemployed after 1 July 2015

Here, the null hypothesis can be rejected when considering the measure for smoking now for women. Regarding the measure for number of cigarettes smoked, the null hypothesis cannot be rejected.

Conclusion

The relationship between unemployment and health is a topic that has been studied for a longer period. Studying this relationship has become more important in recent years due to increasing health costs and the tightening of the labour market. Therefore, labour market policies must not lead to unintended consequences that increase healthcare costs or further tighten the labour market. This thesis studied the possible unintended consequence of the policy reform *'Besluit passende arbeid WW en ZW'* implemented on July 1 2015, and is one of the first to break down its effects on the health of the treated unemployed. The research question that is answered in this thesis is *"Which effect has the reform of the 'Besluit passende arbeid WW en ZW' on alcohol and tobacco use of the unemployed?".*

In the theoretical framework, it was explained that the unemployed generally have worse health than the employed. Becoming unemployed is an eventful experience: the work-private balance is distorted, there are financial strains, and the self-concept diminishes, all leading to stress. Stress itself can be coped with in multiple ways, for instance, by consuming alcohol or tobacco. The theoretical mechanism following the theoretical framework states that the policy reform led to an increase in experienced stress in multiple ways: detrimental effects of accepting a non-suitable job, being externally motivated to comply with job search requirements and the increased workload caused by the reform. The increase in stress will lead to an increase in alcohol and tobacco use by the treated unemployed.

The data used to perform the analysis is retrieved from the LISS Panel, a Dutch dataset that contains detailed information about approximately 5,000 Dutch households. The method of analysis is a difference-in-difference. This method is suitable since the studied reform entails a natural experiment: individuals are automatically assigned to the treatment. Due to the nature of the dependent variables, the least squares dummy variable regression and the linear probability model are applied. Following the theoretical background, the causal mechanism entails a mediating variable, stress. Therefore, proxies of stress are added.

The empirical results are mixed and do not answer the question clearly. These results do not indicate that the treated unemployed are likely to engage in more alcohol consumption in both the measures regarding the frequency as for the measure of binge drinking. However, there are some clear indications that treated female job seekers have a higher chance of smoking now. This could mean that female job seekers are more prone to suffer from an increase in stress

following the policy reform. As a result, the treated female job seekers alter their behaviour to cope with this increase of stress by smoking. Nevertheless, this is not reflected in an increase in smoked cigarettes in comparison to what would have been the case if they were not treated by the reform. Lastly, there are some indications that the whole population of treated job seekers have a slightly higher chance of suffering from headaches and sleeping problems, which suggests that the policy reform indeed leads to more stress.

The answer to the research question *"Which effect has the reform of the 'Besluit passende arbeid WW en ZW' on alcohol and tobacco use of the unemployed?"* is that the policy reform leads to a higher chance that female job seekers smoke in comparison to what would have been the case if they were not treated. The null hypothesis for smoking can be rejected. There is no effect on the alcohol consumption measures, so the null hypothesis cannot be rejected for alcohol consumption. Moreover, it appeared that the policy reform has a small effect on the occurrence of stress.

These results could have some implications for the policies as well. Claiming that the *'Besluit passende arbeid WW en ZW'* should be undone, based on the results, the results indicating that treated women have a higher chance of smoking is like throwing the baby out with the bathwater. The reason for having this reform and making the job search requirements stricter, that is, the activation of the unemployed, could be seen as necessary.

Nevertheless, as shown, some job seekers could respond differently than expected, leading to the unintended consequence of a higher chance of smoking. What could be done to mitigate these unintended consequences is to give Public Employment Service employees more discretion to tailor the policy more to the individual unemployed. Reducing the period after which the unemployed must accept every job could have positive effects on some of the unemployed, leading to a higher job search intensity and a higher job-finding rate. Other unemployed might get stressed due to the possibility of needing to accept every job. Following this, it could be argued that the rules should be relaxed for female job seekers.

Another policy solution, which could attenuate the effects of the policy reform, concerns sickness during the unemployment benefits. According to the UWV (2014-b), sick individuals with unemployment benefit rights are still obliged to apply for jobs. If the unemployed have become sick or stressed out due to the job search requirements imposed by the Public Employment Service, these rules could be loosened: on the days that the job seeker is sick, it is

not obliged to apply for jobs. This makes it possible for treated unemployed to blow off steam without feeling the pressure of the job search requirements.

The methodology of this thesis can be criticized. The first problem of the causal mechanism studied is the mediating variable's presence. The literature states that the stress could be coped with in multiple ways and is not only reflected in an increase in alcohol and tobacco use. Moreover, the mediating variable stress could absorb the effect of the policy reform, which could have led to no measured effects for the alcohol measurements.

Additionally, the mediating variables are subjective measures, which are all individual snapshots of stress. Cohen, Kamarck and Mermelstein (1983) argue that subjective measures of stress do not capture the specific effect that an event could have on stress. Cohen and colleagues proposed an objective measure: the Perceived Stress Scale, which measures the exact effect of an event on stress. The Perceived Stress Scale measures the reform's effect more precisely and hence gives a better estimate. This thesis uses data retrieved from the LISS Panel, which lacks an objective measure. The thesis is, therefore, somewhat data constraint concerning the stress operationalizations.

Secondly, it could be argued that the angle of research is incorrect. There are two schools of doing research: deductive and inductive research. This thesis can be characterized as deductive: a theory is tested in a different context. As stated before, it is one of the first times that this reform has been studied in the light of the health of the unemployed. Such a topic would be suitable for inductive research: start with a few cases, here the treated job seekers, and build a theory from there: what happens with the treated job seekers. The theory formulated by prior research focuses on the relationship between unemployment and health in general, not explicitly bound to a reform. Conducting a small-scale, in-depth study would yield richer data, which could then be used to formulate a theory. A theory-testing study could be conducted later on a larger scale.

Lastly, there are some problems with the data in general. The health study for 2014 is non-existent, and therefore, interpreting the parallel trends should be done with more caution. The data that is used could be biased. According to Van de Mortel (2005), people tend to present a favourable picture of themselves. In the light of this study, respondents are asked about subjects that could be interpreted as negative behaviours. The respondents might, therefore, underreport their alcohol and tobacco consumption. The actual consumption could be higher. This is called the response bias.

The recommendation is that future research concerning this topic should be from a more inductive angle. I suggest conducting interviews with the treated job seekers and street-level bureaucrats of the Public Employment Service. Doing this would also allow the implementation of the Perceived Stress Scale to measure the exact effect of the policy reform and how the respondents coped with this possible stress. The results following the inductive research could be used to formulate a more precise theoretical mechanism and hypothesis, which can be tested on a larger scale using quantitative methods of analysis.

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Appendix

The regression output in more detail

Table 9: Model 1

	Consumed alcohol in last seven days	Number of days of alcohol consumption	Alcohol units
Constant	1,699***	3,109***	1,618***
	(0,008)	(0,032)	(0,042)
Job seeker following job loss	0,008	0,134	0,253*
	(0,027)	(0,111)	(0,151)
Time dummies			
2012	0,005	-0,041	0,219
	(0,011)	(0,041)	(0,056)
2013	0,004	-0,059	0,080***
	(0,011)	(0,043)	(0,058)
2015	0,046***	0,264***	0,329***
	(0,011)	(0,043)	(0,060)
2016	-0,007	-0,040	-0,023
	(0,012)	(0,045)	(0,062)
2017	-0,003	-0,066	-0,156**
	(0,012)	(0,045)	(0,061)
2018	-0,022*	-0,120***	-0,236***
	(0,012)	(0,046)	(0,063)
2019	-0,039***	-0,156***	-0,315***
	(0,013)	(0,048)	(0,065)
Policy dummy	-0,005	0,098	-0,232
	(0,031)	(0,125)	(0,169)
Observations	18059	12620	34054
R^2	0,002	0,007	0,001

*Note: *p<0,1; **p<0,05; ***p<0,01*

Table 10: Model 1

	Does smoke now	Number of cigarettes
Constant	1,410***	11,849***
	(0,009)	(0,220)
Job seeker following job loss	-0,019	0,454
	(0,029)	(0,563)
Dummy time		
2012	-0,011	0,454
	(0,009)	(0,281)
2013	-0,037***	0,751**
	(0,011)	(0,297)
2015	-0,041***	0,328
	(0,012)	(0,302)
2016	-0,080***	0,159
	(0,013)	(0,319)
2017	-0,112***	0,257
	(0,014)	(0,319)
2018	-0,139***	0,222
	(0,015)	(0,342)
2019	-0,161***	0,157
	(0,015)	(0,296)
Policy dummy	0,052*	-0,007
	(0,029)	(0,633)
Observations	10491	5349
R^2	0,005	0,004)

*Note: *p<0,1; **p<0,05; ***p<0,01*

Table 11: Model 2

	Did consume alcohol last seven days	Number of days of alcohol consumption	Alcohol units
Constant	1,262***	1,729	0,553
	(0,219)	(1,278)	(2,589)
Job seeker following job loss	-0,037	0,101	0,372
	(0,033)	(0,135)	(0,246)
Dummy time			
2012	-0,009	-0,043	-0,143
	(0,012)	(0,052)	(0,105)
2013	-0,013	-0,116*	-0,167
	(0,016)	(0,069)	(0,153)
2015	0,007	0,180*	-0,055
	(0,022)	(0,105)	(0,245)
2016	-0,060**	-0,160	-0,623
	(0,028)	(0,138)	(0,324)
2017	-0,062*	-0,205	-0,807**
	(0,033)	(0,163)	(0,385)
2018	-0,098***	-0,299	-0,894**
	(0,037)	(0,187)	(0,446)
2019	-0,119***	-0,323	-0,965*
	(0,043)	(0,213)	(0,509)
Policy dummy	0,052	0,188	-0,237
	(0,042)	(0,166)	(0,302)
Education			
Intermediate vocational education	0,084	0,472*	-0,189
	(0,061)	(0,258)	(0,487)
Higher vocational education	-0,035	0,440*	-0,665
	(0,062)	(0,260)	(0,502)
University	-0,025	0,720**	0,227
	(0,077)	(0,309)	(0,604)
Net monthly income	0,000**	0,000***	0,000
	(0,000)	(0,000)	(0,000)
Age	0,009*	0,018	0,056
	(0,005)	(0,026)	(0,062)
Observations	15002	10509	19009
R^2	0,008	0,054	0,000

*Note: *p<0,1; **p<0,05; ***p<0,01*

To increase the clarity of the table, some of the control variables are omitted in the table. The omitted variables are insignificant. The number without brackets is the coefficient and the number within the brackets is the standard error.

Table 12: Model 2

	Does smoke now	Number of cigarettes
Constant	1,612***	19,984
	(0,024)	(20,582)
Job seeker following job loss	-0,003	0,367
	(0,039)	(0,759)
Dummy time		
2012	-0,012	0,723
	(0,010)	(0,597)
2013	-0,034***	1,248
	(0,013)	(1,050)
2015	-0,038**	1,168
	(0,015)	(1,830)
2016	-0,059***	1,117
	(0,018)	(2,495)
2017	-0,107***	1,591
	(0,020)	(2,977)
2018	-0,126***	1,568
	(0,022)	(3,471)
2019	-0,140***	1,887
	(0,024)	(3,964)
Policy dummy	0,045	0,812
	(0,045)	(0,970)
Observations	8695	4164
R^2	0,025	0,043

*Note: *p<0,1; **p<0,05; ***p<0,01*

To increase the clarity of the table, all the control variables are omitted in the table. They are all insignificant. The number without brackets is the coefficient and the number within the brackets is the standard error.

Table 13: model 3

	Did consume alcohol last seven days	Number of days of alcohol consumption	Alcohol units
Constant	1,093***	1,601	2,873
	(0,215)	(1,157)	(0,243)
Job seeker following job loss	-0,037	0,096	0,156
	(0,033)	(0,136)	(0,235)
Dummy time			
2012	-0,011	-0,046	-0,050
	(0,012)	(0,052)	(0,099)
2013	-0,014	-0,123*	(0,017)
	(0,015)	(0,070)	(0,142)
2015	0,002	0,165	0,195
	(0,021)	(0,106)	(0,226)
2016	-0,066**	-0,187	-0,195
	(0,027)	(0,139)	(0,299)
2017	-0,068**	-0,232	-0,186
	(0,031)	(0,164)	(0,354)
2018	-0,105***	-0,336*	-0,266
	(0,036)	(0,189)	(0,410)
2019	-0,127***	-0,362*	-0,324
	(0,040)	(0,216)	(0,468)
1.Policy dummy	0,053	0,188	-0,059
	(0,042)	(0,167)	(0,287)
Education			
Intermediate vocational	0,074	0,439*	-0,064
education	(0,062)	(0,261)	(0,463)
University	0,036	0,684**	0,226
	(0,078)	(0,312)	(0,567)
Net monthly income	0,000	0,000***	0,000
	(0,000)	(0,000)	(0,000)
Happiness			
2	0,101*	-0,109	0,485*
	(0,053)	(0,197)	(0,276)
3	0,144***	0,018	0,542**
	(0,051)	(0,192)	(0,268)
4	0,151***	-0,017	0,633**
	(0,051)	(0,192)	(0,267)
5	0,147***	-0,067	0,627**
	(0,051)	(0,193)	(0,268)
6	0,151***	-0,006	0,491*
	(0,053)	(0,201)	(0,293)
Observations	14897	10419	16777
R^2	0,012	0,061	0,005

*Note: *p<0,1; **p<0,05; ***p<0,01*

To increase the clarity of the table, some of the control and mediating variables are omitted in the table. They are insignificant. The number without brackets is the coefficient and the number within the brackets is the standard error.

Table 14: Model 3

	Does smoke now	Number of cigarettes
Constant	1,586***	23,693
	(0,160)	(20,920)
Job seeker following job loss	0,000	0,366
	(0,039)	(0,766)
Dummy time		
2012	-0,013	0,731
	(0,010)	(0,603)
2013	-0,034***	1,338
	(0,013)	(1,061)
2015	-0,037***	1,403
	(0,015)	(1,852)
2016	-0,058***	1,430
	(0,018)	(2,526)
2017	-0,107***	1,888
	(0,020)	(3,014)
2018	-0,126***	1,902
	(0,023)	(3,513)
2019	-0,140***	2,273
	(0,025)	(4,013)
Policy dummy	0,036	0,680
	(0,045)	(0,981)
Observations	8646	4123
R^2	0,020	0,040

*Note: *p<0,1; **p<0,05; ***p<0,01*

To increase the clarity of the table, all the control and mediating variables are omitted in the table. They are all insignificant. The number without parentheses is the coefficient and the number within the parentheses is the standard error. The first column contains robust standard errors.

Table 15: Model 4 men

	Consumed alcohol in last seven days	Number of days of alcohol consumption	Alcohol units
Constant	1,243***	1,203	4,183
	(0,191)	(1,261)	(3,673)
Male job seekers following job loss	-0,044	0,088	0,332
	(0,038)	(0,177)	(0,448)
Dummy time			
2012	-0,020	-0,051	-0,168
	(0,015)	(0,066)	(0,177)
2013	-0,035*	-0,128	-0,013
	(0,017)	(0,082)	(0,232)
2015	-0,022	0,164	0,138
	(0,021)	(0,118)	(0,346)
2016	-0,097***	-0,171	-0,386
	(0,000)	(0,151)	(0,448)
2017	-0,083***	-0,321*	-0,440
	(0,028)	(0,177)	(0,528)
2018	-0,115***	-0,373*	-0,483
	(0,032)	(0,203)	(0,609)
2019	-0,147***	-0,453*	-0,690
	(0,036)	(0,231)	(0,693)
Male policy dummy	0,058	0,289	-0,079
	(0,051)	(0,228)	(0,575)
Education – University	-0,261*	0,852	-0,178
	(0,137)	(0,542)	(1,232)
Age	0,011***	0,037	0,004
	(0,004)	(0,028)	(0,084)
Happiness			
3	0,113*	0,192	0,719
	(0,063)	(0,225)	(0,453)
4	0,140**	0,206	0,821*
	(0,062)	(0,224)	(0,450)
5	0,133**	0,205	0,793*
	(0,062)	(0,225)	(0,450)
6	0,132**	0,326	0,694
	(0,064)	(0,235)	(0,480)
Observations	7622	5795	8288
R^2	0,001	0,044	0,002

*Note: *p<0,1; **p<0,05; ***p<0,01*

To increase the clarity of the table, some of the control and mediating variables are omitted in the table. The omitted variables are insignificant. The number without brackets is the coefficient and the number within the brackets is the standard error.

Table 16: Model 4 men

	Does smoke now	Number of cigarettes
Constant	1,539	19,655
	(0,179)	(35,471)
Male job seeker following job	0,046	1,180
loss	(0,051)	(1,350)
Dummy time		
2012	-0,025*	1,018
	(0,013)	(1,013)
2013	-0,048***	1,729
	(0,017)	(1,778)
2015	-0,048**	1,530
	(0,019)	(3,120)
2016	-0,062***	1,612
	(0,020)	(4,227)
2017	-0,117***	1,883
	(0,022)	(5,057)
2018	-0,145***	2,182
	(0,023)	(5,888)
2019	-0,172***	1,938
	(0,025)	(6,733)
Male policy dummy	-0,063	1,264
	(0,066)	(1,854)
Depression – 4	1,902*	-0,024
	(1,075)	(0,033)
Observations	4375	2065
R^2	0,015	0,035

*Note: *p<0,1; **p<0,05; ***p<0,01*

To increase the clarity of the table, the control and mediating variables are omitted in the table. The omitted variables are insignificant. The number without brackets is the coefficient and the number within the brackets is the standard error.

Table 17: Model 4 women

	Consumed alcohol in last seven days	Number of days of alcohol consumption	Alcohol units
Constant	0,670	9,766	-2,545
	(1,057)	(4,126)	(4,657)
Female job seekers following job loss	-0,035	0,071	0,032
	(0,055)	(0,212)	(0,230)
Dummy time			
2012	-0,009	0,132	-0,048
	(0,032)	(0,120)	(0,140)
2013	-0,006	0,225	-0,108
	(0,055)	(0,208)	(0,244)
2015	0,003	0,786	-0,066
	(0,096)	(0,363)	(0,426)
2016	-0,065	0,626	-0,499
	(0,130)	(0,490)	(0,576)
2017	-0,092	0,886	-0,546
	(0,154)	(0,586)	(0,688)
2018	-0,141	0,875	-0,716
	(0,180)	(0,681)	(0,801)
2019	-0,163	1,101	-0,775
	(0,206)	(0,780)	(0,917)
Female policy dummy	0,048	0,101	0,005
	(0,067)	(0,248)	(0,273)
Education			
Intermediate secundary education	0,020	1,356***	0,389
	(0,099)	(0,397)	(0,484)
Intermediate vocational education	0,097	1,006***	0,140
	(0,092)	(0,364)	(0,454)
Net monthly income	0,000**	0,000	0,000**
	(0,000)	(0,000)	(0,000)
Age	0,016	-0,165	0,082
	(0,026)	0,097*	(0,114)
Happiness			
3	0,215**	-0,526	0,299
	(0,089)	(0,388)	(0,320)
4	0,198**	-0,624	0,381
	(0,091)	(0,389)	(0,320)
5	0,199**	-0,742*	0,366
	(0,091)	(0,391)	(0,322)
6	0,207**	-0,799**	0,115
	(0,094)	(0,404)	(0,335)
Observations	7275	4624	8489
R^2	0,025	0,086	0,001

*Note: *p<0,1; **p<0,05; ***p<0,01*

To increase the clarity of the table, some of the control and mediating variables are omitted in the table. The omitted variables are insignificant. The number without brackets is the coefficient and the number within the brackets is the standard error.

Table 18: Model 4 women

	Does smoke now	Number of cigarettes
Constant	2,572	23,793
	(0,975)	(21,767)
Female job seeker following job	-0,059	-0,190
loss	(0,057)	(0,778)
Dummy time		
2012	0,021	0,335
	(0,028)	(0,631)
2013	0,025	0,675
	(0,050)	(1,114)
2015	0,056	0,798
	(0,084)	(1,940)
2016	0,059	0,672
	(0,114)	(2,662)
2017	0,039	1,157
	(0,138)	(3,169)
2018	0,048	0,672
	(0,160)	(3,697)
2019	0,071	1,616
	(0,184)	(4,217)
Female policy dummy	0,130**	0,399
	(0,062)	(0,948)
Observations	4271	2058
R^2	0,017	0,016

*Note: *p<0,1; **p<0,05; ***p<0,01*

To increase the clarity of the table, all of the control and mediating variables are omitted in the table. The omitted variables are insignificant. The number without brackets is the coefficient and the number within the brackets is the standard error.

Table 19: Model 5 – standard

	Headaches	Fatigue	Sleeping problems
Constant	-0,232	0,344	-0,126
	(0,199)	(0,135)	(0,121)
Job seeker following job	-0,001	-0,018	-0,012
loss	(0,019)	(0,027)	(0,028)
Time dummies			
2012	-0,006	0,013	0,009
	(0,007)	(0,007)	(0,007)
2013	-0,009	0,012	0,014
	(0,011)	(0,010)	(0,009)
2015	-0,044**	0,015	0,008
	(0,019)	(0,013)	(0,012)
2016	-0,052**	0,030	0,016
	(0,025)	(0,017)	(0,015)
2017	-0,060**	0,033	0,012
	(0,030)	(0,020)	(0,018)
2018	-0,080**	0,034	0,003
	(0,034)	(0,022)	(0,020)
2019	-0,095**	0,034	-0,001
	(0,039)	(0,025)	(0,022)
1.Policy dummy	-0,010	-0,011	0,039
	(0,025)	(0,034)	(0,035)
Age	0,009*	-0,001	0,005**
	(0,005)	(0,003)	(0,002)
Observations	16793	16793	16793
R^2	0,003	0,003	0,008

*Note: *p<0,1; **p<0,05; ***p<0,01*

To increase the clarity of the table, all insignificant control variables are omitted in the table. The number without the parentheses is the coefficient and the number within the parentheses is the robust standard error.

Table 16: Model 5 – men

	Headaches	Fatigue	Sleeping problems
Constant	-0,386	0,183	-0,110
	(0,101)	(0,130)	(0,131)
Male job seeker	-0,022	-0,005	-0,005
following job loss	(0,019)	(0,035)	(0,037)
Time dummies			
2012	-0,011	0,006	-0,000
	(0,006)	(0,008)	(0,008)
2013	-0,010	0,000	0,002
	(0,008)	(0,11)	(0,010)
2015	-0,046	0,010	0,005
	(0,011)	(0,013)	(0,012)
2016	-0,061	0,022	0,011
	(0,014)	(0,015)	(0,015)
2017	-0,067	0,039**	0,009
	(0,016)	(0,017)	(0,017)
2018	-0,089	0,023	-0,001
	(0,018)	(0,018)	(0,018)
2019	-0,106	0,028	-0,002
	(0,020)	(0,021)	(0,019)
Male policy dummy	-0,010	-0,061	0,027
	(0,028)	(0,049)	(0,049)
Age	0,013***	-0,000	0,004**
	(0,002)	(0,002)	(0,002)
Job exist - 3	0,014*	0,009	-0,012
	(0,008)	(0,012)	(0,010)
Observations	8293	8293	8293
R^2	0,001	0,000	0,004

*Note: *p<0,1; **p<0,05; ***p<0,01*

To increase the clarity of the table, some of the control variables are omitted in the table. The number without the parentheses is the coefficient and the number within the parentheses is the robust standard error.

Table 17: Mediating variables as dependent variable

	Headaches	Fatigue	Sleeping problems
Constant	0,927	0,780	-0,244
	(0,532)	(0,640)	(0,643)
Female job seeker	0,018	-0,026	-0,020
following job loss	(0,034)	(0,042)	(0,041)
Time dummies			
2012	0,024	0,027	0,015
	(0,017)	(0,019)	(0,019)
2013	0,040	0,036	0,021
	(0,028)	(0,034)	(0,034)
2015	0,045	0,043	0,001
	(0,049)	(0,059)	(0,060)
2016	0,077	0,070	0,006
	(0,067)	(0,080)	(0,081)
2017	0,090	0,066	-0,002
	(0,080)	(0,096)	(0,096)
2018	0,096	0,092	-0,013
	(0,093)	(0,111)	(0,112)
2019	0,107	0,093	-0,022
	(0,106)	(0,127)	(0,128)
Female policy dummy	-0,014	0,028	0,051
	(0,041)	(0,049)	(0,050)
Observations	8500	8500	8500
R^2	0,011	0,014	0,015

*Note: *p<0,1; **p<0,05; ***p<0,01*

To increase the clarity of the table, all control variables are omitted in the table. The number without the parentheses is the coefficient and the number within the parentheses is the robust standard error.