

Chapter 1

The labour market impacts of ill-health

This chapter looks at the labour market impacts of chronic diseases and related behavioural risk factors, including obesity, smoking, and harmful alcohol consumption. Chronic diseases lead to the premature death of more than 550 000 people aged 25 to 64 each year across EU countries, resulting in the loss of some 3.4 million potential productive life years. Chronic diseases such as cardiovascular diseases, respiratory problems, diabetes, and serious mental health problems also have important labour market impacts for people living with these conditions: reduced employment, earlier retirement, and lower income. Using the latest data from the SHARE survey (Survey of Health, Ageing and Retirement in Europe), this chapter shows that the employment rate of people aged 50-59 who have one or more chronic diseases is lower than that of people who do not suffer from any disease. The same is true for people who are obese, smokers, or heavy alcohol drinkers. The labour market impacts of mental health problems such as depression are also large: across European countries, people aged 50-59 suffering from severe depression are more than two times more likely to leave the labour market early. The burden of ill-health on social benefit expenditures is huge: 1.7% of GDP is spent on disability and paid sick leave each year on average in EU countries, more than what is spent on unemployment benefits. Greater efforts are needed to prevent chronic diseases among the working-age population, and better integration is needed between health and labour market policies to reduce the detrimental labour market impacts of ill-health, and thus contribute to better lives and more inclusive economies.

Introduction

Health and work are interrelated in many ways: health problems can reduce labour market participation and income, and conversely, bad employment conditions or unemployment can negatively affect physical and mental health.

This chapter assesses the labour market outcomes of people with chronic (non-communicable) diseases (such as cardiovascular diseases, diabetes, cancer, musculoskeletal diseases, and mental health conditions) and related behavioural risk factors (such as obesity, tobacco and harmful alcohol use). Chronic diseases and related behavioural risk factors may result in the premature death of people still in their working age or reduce their employment prospects and earnings. Ill-health can cause recurrent sick leave or long-term absence from work, and increases the probability of early exit from the labour force. This can result in increased welfare payments for disability, sick leave, unemployment, or early retirement.

Preventing chronic diseases through properly designed public health and prevention policies may lead to substantial economic and employment benefits via a healthier and more active workforce. Through closer integration, health policies and labour market policies can also play an important role in reducing the detrimental labour market impacts of ill-health, and contribute to better lives and more inclusive economies.

This chapter reviews the latest evidence on the impacts of chronic diseases and related behavioural risk factors on labour market outcomes in European countries, building on previous OECD work (Devaux and Sassi, 2015). Eurostat data on mortality are used to estimate the number of potential productive years of life lost due to non-communicable diseases (NCDs) among the working-age population. The chapter also analyses the latest results from the Survey of Health, Ageing and Retirement in Europe (SHARE) to assess the labour market impacts of people living with chronic diseases and related risk factors. Labour market outcomes include employment status, productivity measures such as absence from work due to sickness and wages, and early exit from work.

Chronic diseases cause many premature deaths and a huge loss in potential productive life years

This section provides some estimates of the number of premature deaths due to NCDs among the working-age population and how this translates into the loss of potentially productive life years. The approach is based on some fairly simple and crude calculations, not accounting for all the productive life years lost due to greater morbidity and disability (which is discussed in the following sections, using a different dataset).

In the European Union, about 555 000 people aged 25 to 64 died from major NCDs (cardiovascular diseases, cancers, respiratory diseases, and diabetes) in 2013. This corresponds to a rate of about 200 per 100 000 population in this age group (Table 1.1). Premature mortality rates from NCDs among the working-age population were particularly high in Bulgaria, Hungary and Latvia (with a rate at least two-times greater than the EU average).

Assuming that these people would have been employed until age 65 at the same employment rate as the rest of the population, the associated potential loss for the economy is estimated to be around 3.4 million potentially productive life years across the 28 EU countries in 2013. This

Table 1.1. Premature deaths and potential productive life years lost related to non-communicable diseases among people aged 25-64, EU countries, 2013

	Premature NCD deaths		Potential productive life years lost	
	Number	Rate per 100 000 population	Number	Rate per 100 000 population
EU28 total	555 065	201	3 412 060	1 236
Austria	7 736	165	47 694	1 018
Belgium	10 307	173	62 115	1 042
Bulgaria	16 828	410	103 766	2 527
Croatia	6 894	293	40 015	1 701
Cyprus	558	116	3 786	789
Czech Republic	14 711	244	79 195	1 316
Denmark	5 177	178	29 755	1 023
Estonia	2 013	280	11 230	1 562
Finland	4 961	174	27 997	980
France	57 318	169	355 707	1 046
Germany	86 545	195	522 522	1 179
Greece	11 325	188	76 390	1 270
Hungary	22 947	411	129 389	2 319
Ireland	3 564	143	24 014	966
Italy	48 231	147	312 026	952
Latvia	4 439	400	29 731	2 682
Lithuania	5 910	372	39 220	2 466
Luxembourg	450	147	2 961	969
Malta	368	159	2 063	889
Netherlands	15 618	173	94 067	1 042
Poland	67 050	305	378 167	1 722
Portugal	9 827	170	66 294	1 147
Romania	40 621	361	247 952	2 203
Slovak Republic	9 148	289	53 324	1 685
Slovenia	2 380	200	13 384	1 122
Spain	38 003	142	256 969	960
Sweden	6 726	138	40 104	821
United Kingdom	55 410	166	362 228	1 084

Note: Non-communicable diseases include cardiovascular diseases (ICD-10: I00-I99), cancers (C00-C97), respiratory diseases (J40-J47), and diabetes (E10-E14). Potential productive life years have been calculated as the difference between the age of death and age 65, using the EU28 average of employment rates for the population aged 25-54 years and 55-64 years.

Source: OECD estimates based on Eurostat data.

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corresponds to a rate of 1 236 productive life years per 100 000 population in that age group. Based on the average annual earnings of workers in EU countries of about EUR 33 800, this amounts to EUR 115 billion in potential economic loss each year (or 0.8% of GDP in the European Union).

Most premature deaths due to NCDs were for people aged 45-64. In 2013, about 508 000 people aged 45-64 died from NCDs in the EU. This corresponds to a loss of some 2.5 million potentially productive life years.

Chronic diseases and related behavioural risk factors reduce employment

In most cases, people of working age do not die from chronic diseases, but continue to live with them for several years (sometimes for the rest of their lives), with more or less severe levels of morbidity and disability. This section focuses on the employment impacts of chronic diseases and related risk factors such as obesity, smoking, and heavy alcohol drinking. Descriptive analyses are supplemented with econometric analysis of longitudinal survey data when possible to address at least partly possible reverse causal links (Box 1.1).

Box 1.1. **Assessing the impact of nonfatal health outcomes of chronic diseases on labour market outcomes: Methodological challenges and data sources**

The link between health and work is complex and difficult to explore because of its two-way causal relationship. The rest of this chapter illustrates this relationship using the latest data available for a large number of European countries, and aims to measure the impacts of health on labour market outcomes using econometric analysis to partly control for reverse causal links where possible.

Longitudinal data with information on both health (diseases and behavioural risk factors) and labour market outcomes were used for the causal analysis. The analysis used the two most recent waves of the Survey of Health, Ageing and Retirement in Europe (SHARE) in 2011 and 2013. The SHARE collects information on employment, retirement, chronic diseases diagnosed by a doctor (such as high blood pressure, diabetes, cancer, chronic lung disease, heart problems, stroke, arthritis, and ulcer), and health behaviours (such as obesity, smoking and alcohol drinking) among people aged 50 and over. The analysis is restricted to the population aged 50-59.

An econometric analysis based on longitudinal data from the SHARE assesses the impact of ill-health on labour market outcomes, at least partly addressing the endogeneity issue due to reverse causality. Logistic and negative binomial regression models accounting for clusters by country are used to assess the effect of lagged health outcomes (in 2011) on current labour market outcomes (in 2013). The control variables include: behavioural risk factors, age, age squared, marital status, education level, and country fixed effects. Further details (e.g. definition of variables, sample size) are provided in endnotes.

The rest of this chapter also provides some insights on the value of production potentially lost from illness due to adverse labour market outcomes. The evidence comes from many national or international studies using different definitions and valuation methods. The results are therefore not always strictly comparable across countries.

People with chronic diseases have lower employment rates

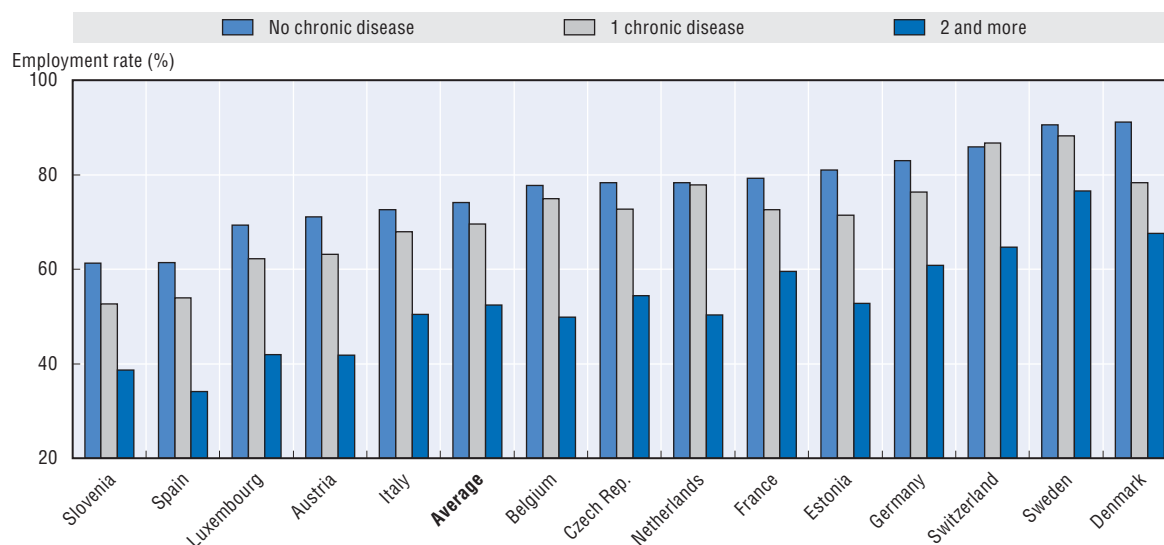
People with chronic diseases have reduced employment prospects, in part because they leave employment earlier or have greater difficulties re-entering the job market. Figure 1.1 shows that among people aged 50-59, 70% of those with one chronic disease and 52% of those with two or more chronic diseases¹ were employed in 2013, versus 74% of those with no chronic disease, on average across 14 European countries. Similar patterns are observed in virtually all 14 European countries.

Figure 1.2 shows significant differences for both men and women in the probability of being employed in 2013 depending on their chronic disease status in 2011. All things being equal, among people aged 50-59 in 2013, 83% of men without any chronic disease in 2011 were employed in 2013 compared to 74% of men with one chronic disease and 61% of those with two or more chronic diseases (respectively, 72%, 63%, and 48% among women).

Evidence for the effect of specific chronic diseases on employment is scarce in the economic literature, with some exceptions for diabetes, cancer, musculoskeletal diseases, and mental illness.

Diabetes is generally associated with a lower probability of employment. A recent cross-country study found that diabetes is associated with a 30% increase in the rate of labour-force exit across 16 European countries; at the national level, this association is significant in nine out of these 16 countries (Rumball-Smith et al., 2014). The impact of diabetes on employment depends heavily on the severity of the disease.

Figure 1.1. **Employment rate among people aged 50-59, with and without chronic diseases, 14 European countries, 2013**

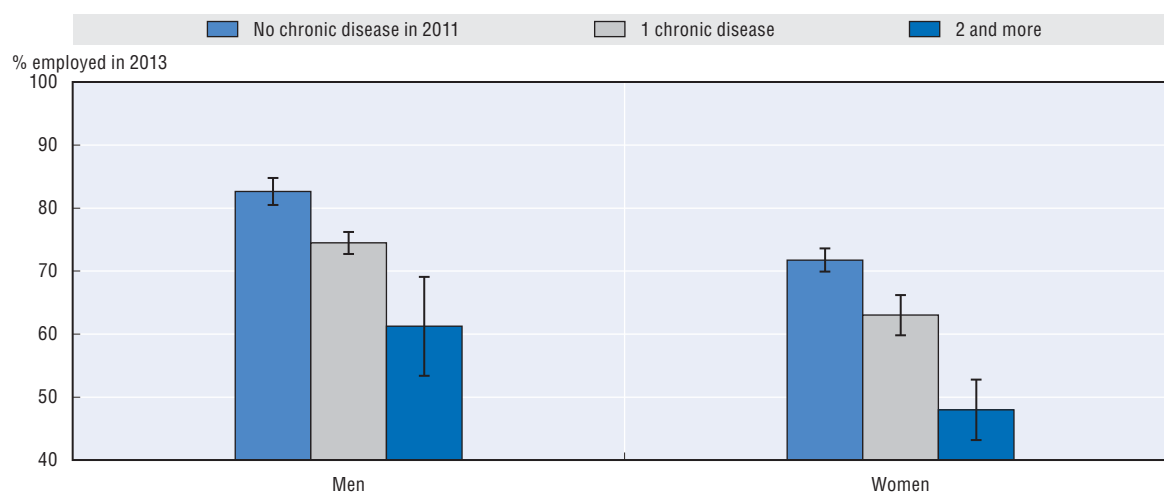


Note: N = 17 666 in the 14 countries studied. See the Statlink for further details on the methodology.

Source: OECD estimates based on SHARE data (wave 5).

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Figure 1.2. **Probability of being in employment among people aged 50-59 in 2013, by chronic diseases in 2011, aggregate results for 13 European countries**



Note: Excludes Luxembourg because it was not included in SHARE wave 4. N = 1 813 for men and N = 2 606 for women. 95% confidence intervals represented by H. See the Statlink for further details on the methodology.

Source: OECD estimates based on SHARE data (waves 4 and 5).

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As expected, cancer has a negative impact on employment probability. In Denmark, the probability of exiting the labour force increases by 5 to 10 percentage points three years after diagnosis among people with cancer compared to cancer-free people (Heinesen and Kolodziejczyk, 2013). Similarly, in France, 77% of people remained in employment two years after a cancer diagnosis compared to 94% of people without cancer (INCa, 2014).

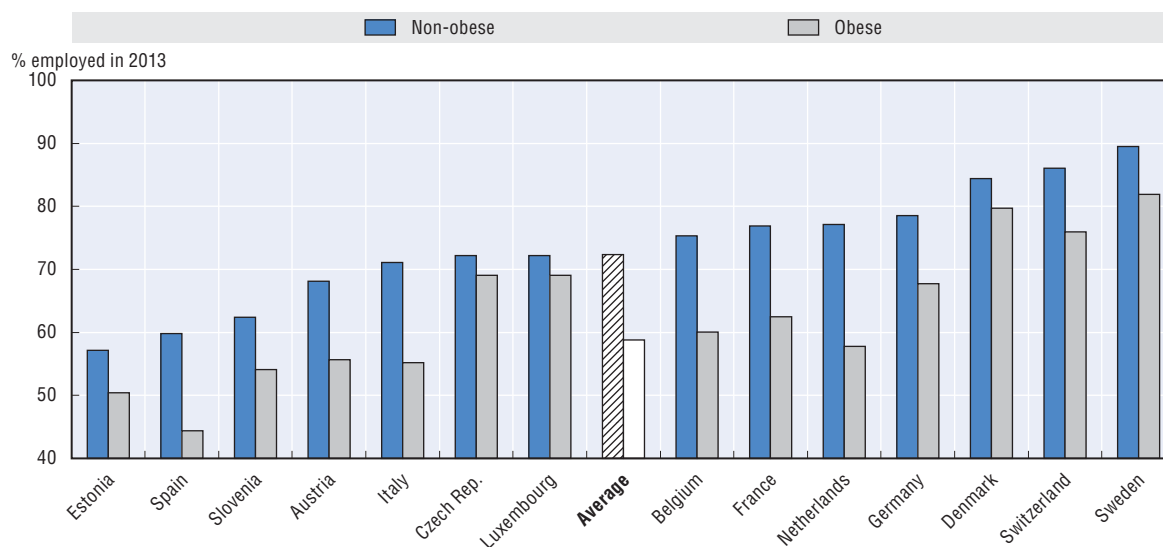
People with musculoskeletal diseases generally have lower employment rates and are more likely to leave employment early compared to people without such musculoskeletal problems. For example, a cohort study in the United Kingdom shows that a third of people who had symptoms of arthritis left work due to ill health (Oxford Economics, 2010).

People with mental health problems face a considerable employment disadvantage, are much less likely to be employed, and face much higher unemployment rates than people without mental health problems. The employment rate of people with severe mental disorders is 30 percentage points lower and the rate of those with mild-to-moderate mental health problems 10-15 percentage points lower (OECD, 2012). Unemployment rates of people with severe mental health problems are three to four times larger than those for people with no mental disorder. For people with mild-to-moderate disorders, this rate is on average almost twice the rate for people with no mental disorder (OECD, 2012).

Obese people are less likely to be employed than normal-weight people

Obese people are less likely to be employed than normal-weight people, although the association between obesity and labour market outcomes varies by gender and job characteristics (such as jobs requiring social skills or contact with clients and other types of occupations). Obese women are generally more penalised than obese men (e.g. Mosca, 2013 for Ireland; Lundborg et al., 2010 for Sweden). Figure 1.3 shows that among people aged 50-59, 59% of those obese were employed in 2013 versus 72% of those non-obese, on average across 14 European countries. Lower proportions of employment among obese people are consistently observed in all the countries studied.

Figure 1.3. Employment rate among people aged 50-59, by obesity status, 14 European countries, 2013



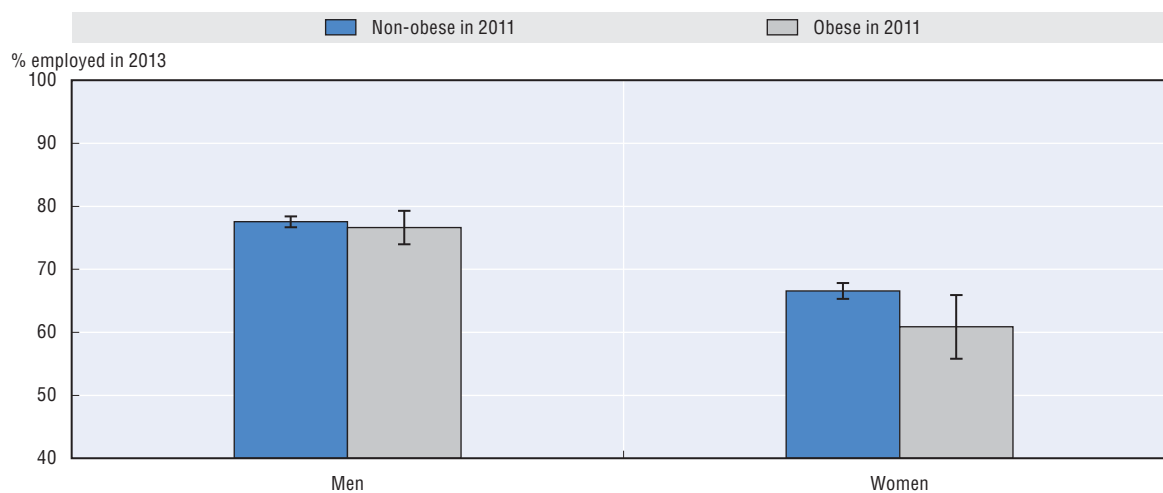
Note: N = 17 398 in the 14 countries studied. See the Statlink for further details on the methodology.

Source: OECD estimates based on SHARE data (wave 5).

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An econometric analysis² exploring the impacts of obesity on employment in 2013, net of the impacts of smoking and chronic diseases, shows that being obese in 2011 contributed to lower probabilities of employment in 2013 in men and women, although the relationship is not significant in men (Figure 1.4). All things being equal, 77% of men and 61% of women who were obese in 2011

Figure 1.4. **Probability of being employed among people aged 50-59 in 2013, by obesity status in 2011, aggregate results for 13 European countries**



Note: Excludes Luxembourg because it was not included in SHARE wave 4. N = 1 813 for men and N = 2 606 for women. 95% confidence intervals represented by H. See the Statlink for further details on the methodology.

Source: OECD estimates based on SHARE data (waves 4 and 5).

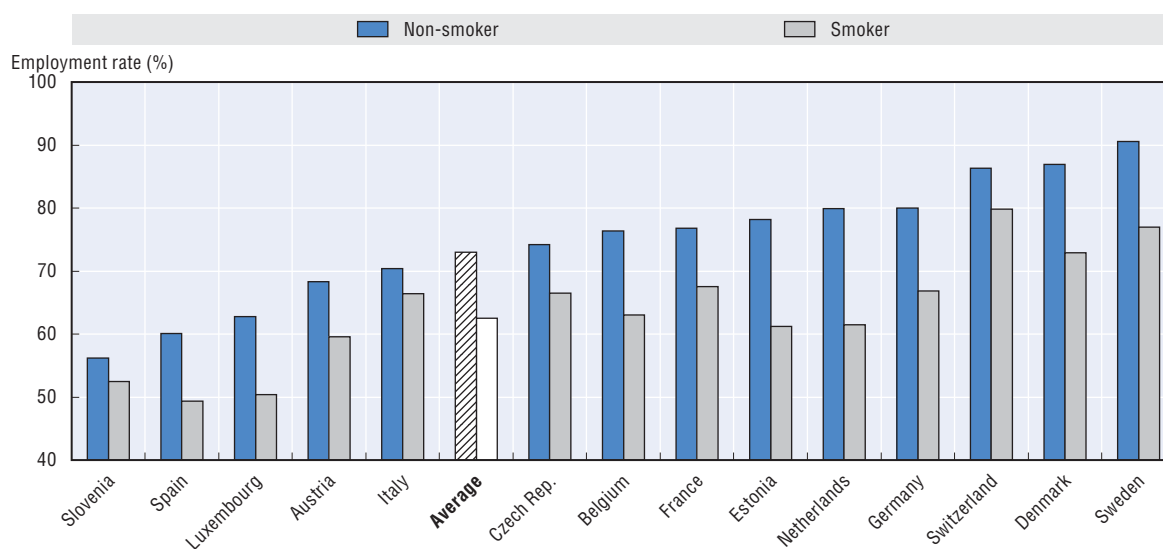
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were employed in 2013 compared to 78% of men and 67% of women of normal weight. Among these people, some remained in employment and others re-entered the labour market. Obesity negatively affects both job retention and job return, but the relationship is not statistically significant.

Smokers have lower employment rates than non-smokers

Smoking is likely to affect employment status because of the well-known adverse health effects. Figure 1.5 shows that among people aged 50-59, 62% of current smokers were employed in 2013 versus 73% of non-smokers, on average across 14 European countries.

Figure 1.5. **Employment rate among people aged 50-59, by smoking status, 14 European countries, 2013**



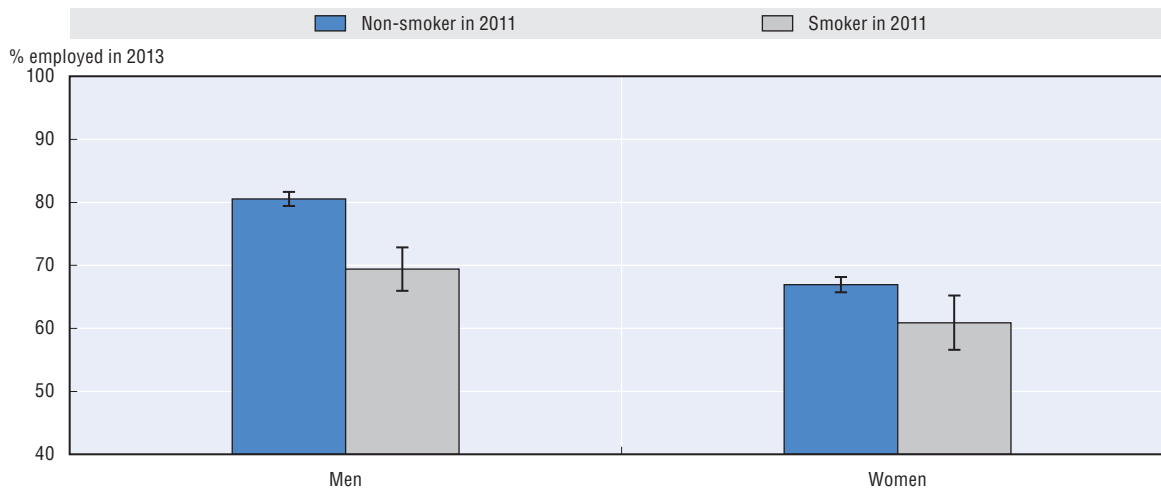
Note: N = 17 514 in the 14 countries studied. See the Statlink for further details on the methodology.

Source: OECD estimates based on SHARE data (wave 5).


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Using data from the SHARE (see endnote 2), Figure 1.6 shows significant differences in employment in 2013, by smoking status in 2011, for both men and women, suggesting that smoking contributes to lower employment opportunities. However, other studies only find a fairly small negative effect of smoking on the probability of employment (Schunck and Rogge, 2012) except for heavy smokers (Jusot et al., 2008). It is worth noting that differences by smoking status do not significantly affect whether one remains in employment or returns to employment.

Figure 1.6. Probability of being in employment among people aged 50-59 in 2013, by smoking status in 2011, aggregate results for 13 European countries



Note: Excludes Luxembourg because it was not included in SHARE wave 4. N = 1 813 for men and N = 2 606 for women. 95% confidence intervals represented by H. See the Statlink for further details on the methodology.
Source: OECD estimates based on SHARE data (waves 4 and 5).

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Heavy alcohol drinkers are less likely to be employed than light-moderate drinkers

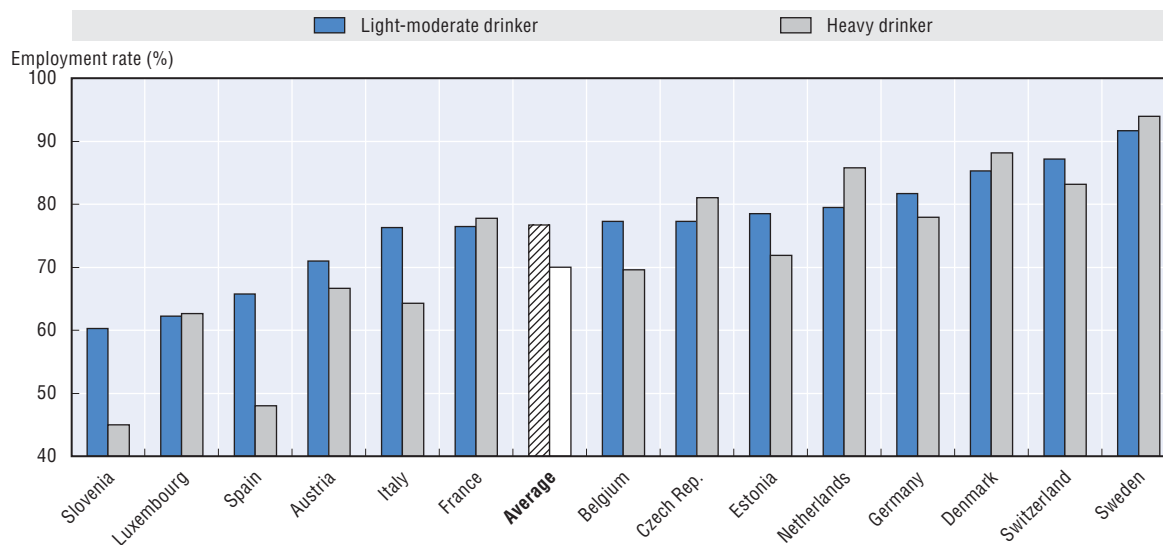
The impact of alcohol consumption on labour market outcomes is strongly affected by the quantity consumed and the pattern of consumption. The relationship between problematic alcohol consumption and employment is complex, with possible reverse causality as unemployment may cause alcohol problems.

Overall, evidence suggests that heavy alcohol users have reduced employment opportunities (MacDonald and Shields, 2004), although some studies found no significant relationship between alcohol abuse and employment (Asgeirsdottir and McGeary, 2009). Light drinkers are more likely to be working compared to long-term heavy drinkers, former drinkers, and abstainers (Jarl and Gerdtham, 2012). Evidence of positive effects of light-moderate drinking is, however, debated due to possible measurement error and classification of past drinking in studies (Stockwell et al., 2016; Jarl and Gerdtham, 2010).

Figure 1.7 shows that among people aged 50-59, the employment rate in 2013 is, on average across 14 European countries, about 70% for heavy drinkers compared to 77% for light-moderate drinkers. Eight out of 14 countries display lower employment rates among heavy drinkers, while six countries display the reverse relationship.

An econometric analysis (see endnote 2) exploring the impact of heavy drinking in 2011 on employment in 2013, based on SHARE data, controlling for obesity, smoking, and chronic diseases, shows a significant association between heavy drinking and lower employment in women only (Figure 1.8). All things being equal, among people aged 50-59, 63% of women (79% of men) who drank heavily in 2011 were employed in 2013 compared to 73% of women (82% of men) who drank moderately.

Figure 1.7. **Employment rate among people aged 50-59, by alcohol-drinking status, 14 European countries, 2013**

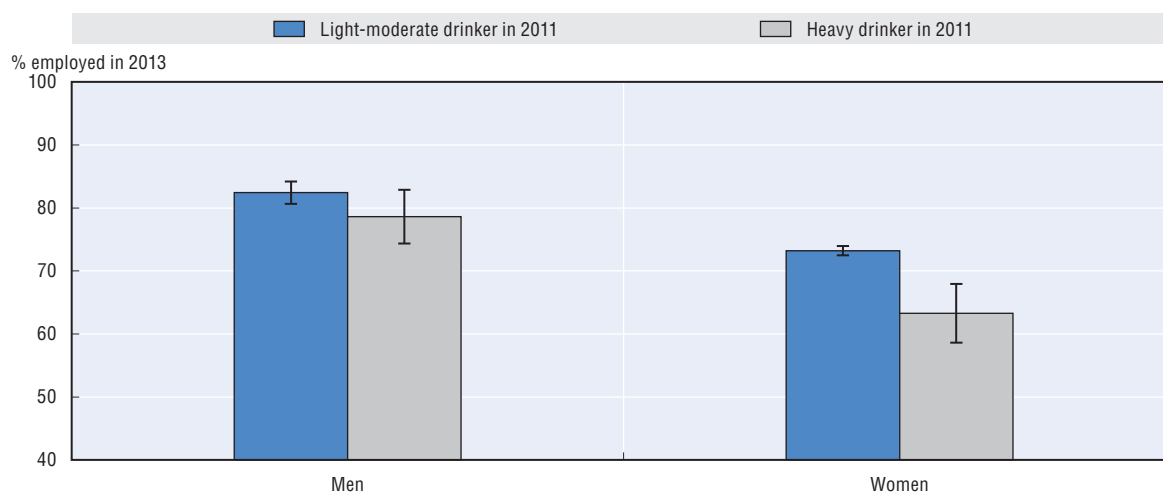


Note: N =13 318 in the 14 countries studied. See the Statlink for further details on the methodology.

Source: OECD estimates based on SHARE data (wave 5).


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Figure 1.8. **Probability of being in employment among people aged 50-59 in 2013, by alcohol-drinking status in 2011, aggregate results for 13 European countries**



Note: Excludes Luxembourg because it was not included in SHARE wave 4. N = 1 497 for men and N = 1 777 for women. 95% confidence intervals represented by H. Non-drinkers are excluded. See the Statlink for further details on the methodology.

Source: OECD estimates based on SHARE data (waves 4 and 5).

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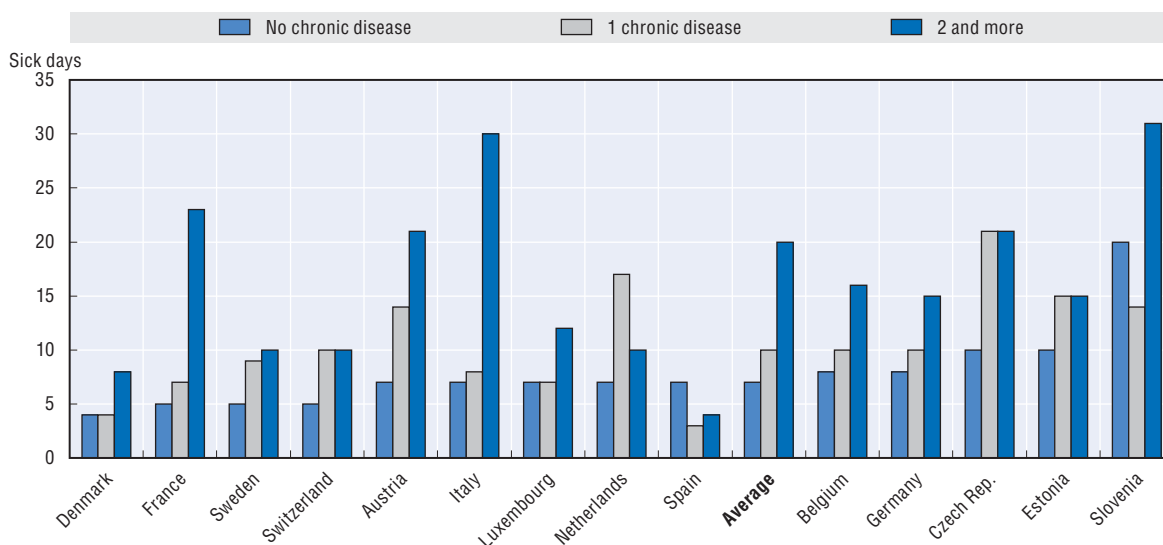
Chronic diseases and related behavioural risk factors also lead to lower productivity, hours worked and wages

Labour productivity can be measured in several ways, including rates of absenteeism from work or “presenteeism” at work (that is, being at work while sick, resulting in reduced performance), reduced work hours, and lower levels of wages. This section examines productivity losses due to chronic diseases and their risk factors.

People with chronic conditions work and earn less

Figure 1.9 shows that people with chronic diseases have more sick days than people without any chronic diseases in all countries but Spain. Among people aged 50-59 who were employed in 2013 and who reported absence from work in the past 12 months, the median number of sick days is 7 in people without chronic disease, 10 in people with one chronic disease, and 20 in people with two or more chronic diseases, on average across these 14 European countries.

Figure 1.9. **Number (median) of sick days in the last 12 months among employed people aged 50-59, by chronic diseases, 14 European countries, 2013**



Note: N = 12 228 in the 14 countries studied. See the Statlink for further details on the methodology.

Source: OECD estimates based on SHARE data (wave 5).

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Chronic diseases reduce hours worked and wages. For instance, in the United States, men and women with chronic diseases worked about 6% and 4% fewer hours than healthy men and women, respectively, and earned about 6% and 9% less (Pelkowski and Berger, 2004).

Looking at the impact of specific chronic diseases, diabetes may affect the number of hours worked and the choice of full- or part-time work (Saliba et al., 2007). Evidence on US data shows that diabetes increases the number of work-loss days by two days per year in women (Tunceli et al., 2005). Diabetic people also generally earn less than nondiabetic workers (Minor, 2013).

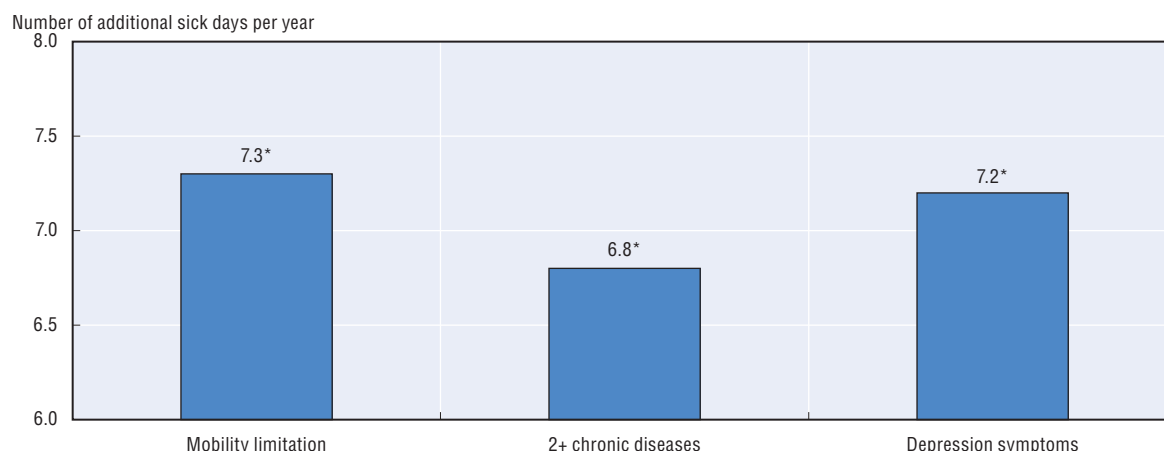
The effect of cancer on hours worked is also significant, with a difference of three to seven hours less per week for people with cancer compared to cancer-free people (Moran et al., 2011). Cancer increases work absence. In Canada, 85% of women diagnosed with breast cancer were absent from work for a four-week or longer period compared to 18% for healthy women (Drolet et al., 2005).

Musculoskeletal diseases are associated with lower productivity. In the United Kingdom, musculoskeletal problems accounted for 30.6 million days lost, which represented almost a quarter of the total days lost due to sickness absences in 2013 (Office for National Statistics, 2014).

Mental illness is responsible for a high incidence of sickness absence and reduced productivity at work (OECD, 2015a). Poor mental health reduces workers' marginal productivity when they are at work (presenteeism) and increases the rate of absence or reduces the numbers of hours worked (sickness absence). US workers lose an average of 1 hour per week owing to depression-related absenteeism and four hours per week due to depression-related presenteeism (Stewart et al., 2003).

Mental health problems are a predictor of both short- and long-term sickness absence, increasing the probability of short-term leave by 10% and of long-term leave by 13% for severe disorders and by 6% for mild-to-moderate disorders (OECD, 2012). Also, depression symptoms have a significant and large effect on sick-leave duration, since they account for an additional seven days of annual sick leave, more so than having two or more chronic diseases, as shown in Figure 1.10 (Knebelmann and Prinz, forthcoming).

Figure 1.10. **Additional days in annual sickness absence among workers aged 50-59 due to depression symptoms, European countries, 2013**



Note: N = 13 096.

* 0.1% significance level. See the Statlink for further details on the methodology.

Source: Knebelmann and Prinz (forthcoming). Authors' estimates based on SHARE data.

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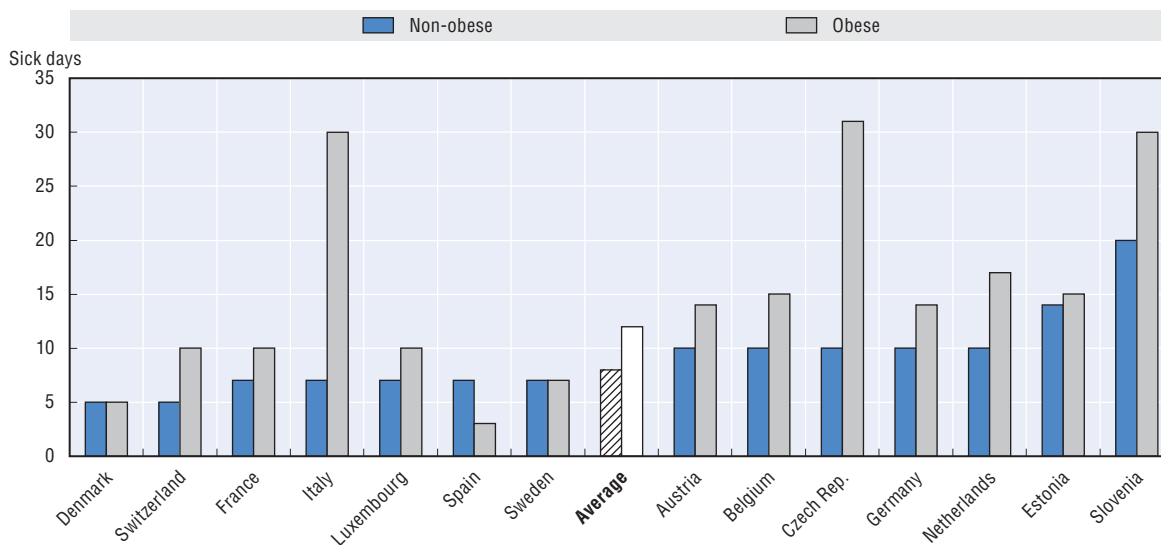
The negative labour market outcomes of chronic diseases amplify social inequalities on the labour market. Women and people with a low education level and blue-collar workers are more affected by the negative outcomes of chronic diseases on employment (Saliba et al., 2007). Lower autonomy and higher job demands increase the association of several chronic health problems (mental illness, circulatory diseases, musculoskeletal diseases, diabetes) with sickness absence.

The total costs of mental illness for society at large are estimated at 3-4% of GDP in the European Union (Gustavsson et al., 2011). Most of these costs are caused by people with mild-to-moderate mental illness, the majority of whom are employed. The large bulk of these costs are not direct costs borne by the health sector and related to medical treatments, but indirect costs due to loss of productivity and potential output, sick pay, and long-term inactivity – costs borne by employers and social benefits systems.

Obese people are more frequently absent from work and earn less than non-obese people

Obesity increases the likelihood of worker absence, especially for women (Cawley et al., 2007; Coudin and Souletie, 2016). Figure 1.11 shows that among people aged 50-59 who were in employment in 2013, more than half of obese people reported taking 12 sick days or more in the last 12 months, compared to eight days for non-obese people. Moderately and severely obese manufacturing workers have lower labour productivity because they experience greater difficulties with job-related physical tasks and with completing tasks on time compared to normal-weight workers. In the United States, obese workers' productivity was estimated to be about 12% lower compared to that of normal-weight workers (Goetzel et al., 2010).

Figure 1.11. **Number (median) of sick days in the last 12 months among employed people aged 50-59, by obesity status, 14 European countries, 2013**



Note: N = 12 091 in the 14 countries studied. See the Statlink for further details on the methodology.

Source: OECD estimates based on SHARE data (wave 5).

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The cost of productivity potentially lost due to obesity is high. Obese US workers cost an estimated USD 42.3 billion in lost productive time, an excess of USD 11.7 billion compared with normal-weight workers (Ricci and Chee, 2005). The loss of productivity associated with presenteeism is even larger than that associated with absenteeism, accounting for up to two-thirds of the monetary value of total productivity losses (Ricci and Chee, 2005).

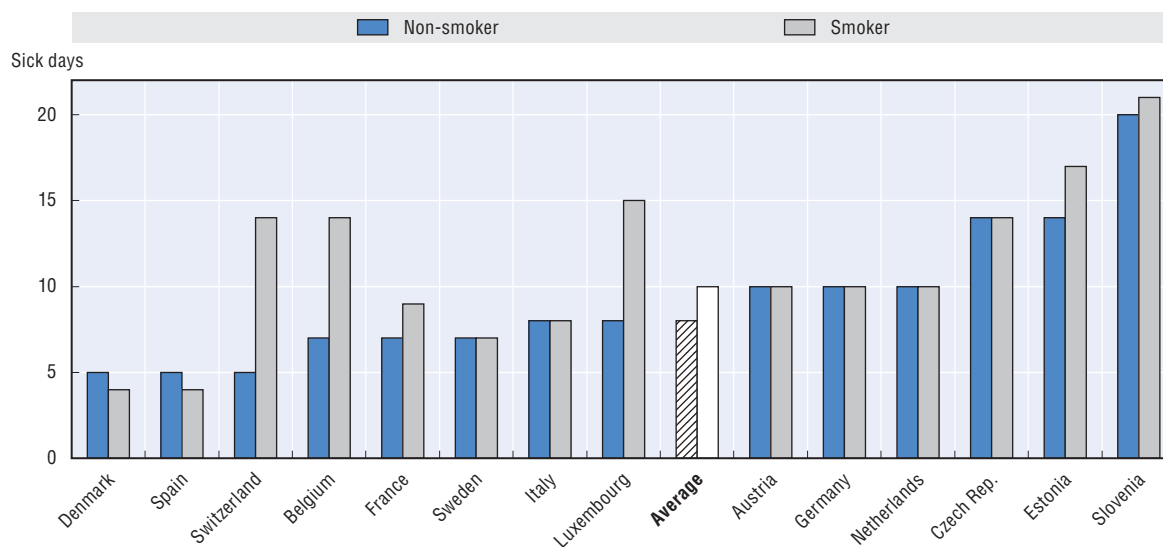
A review of the evidence covering 18 international studies highlighted that obese people earn about 10% less than normal-weight people (Sassi, 2010). This result was also found in a recent analysis of the 2012 German Socio-Economic Panel survey: among white-collar workers in Germany, obese women earn about 10% less on an hourly basis than non-obese women (Devaux and Sassi, 2015). In Sweden, a study of 450 000 men found an exceptionally large 18% wage penalty associated with obesity (Lundborg et al., 2010). More recently, in Finland, research concluded that a one-unit increase in BMI is associated with 6.6% lower wages and 1.7% fewer years employed (Böckerman et al., 2016).

Smokers are less productive and earn less than non-smokers

Smoking increases both the risk and duration of work absenteeism. For example, in Sweden, a 2007 study found that smokers were absent from work up to 8-10 days more per year compared to never-smokers (Lundborg, 2007). In a meta-analysis of 29 studies including OECD countries in Europe and outside Europe, current smokers were found to be 33% more likely to be absent from work than non-smokers (Weng et al., 2012). High costs of lost productivity are associated with smoking, in particular due to illness and smoking breaks, higher insurance premiums, increased accidents during work time, negative effects on non-smoking colleagues, and early retirement. Figure 1.12 shows that among people aged 50-59 who were employed in 2013, smokers reported ten days of absence due to sickness compared to eight days for non-smokers.

A comparison between current smokers and ex-smokers showed that quitting smoking can substantially reduce the risk of work absence (Weng et al., 2012). Smoking cessation can increase workers' productivity through reduced absenteeism and enhanced performance at work, and it has positive impacts on wages (Brune, 2007).

Figure 1.12. **Number (median) of sick days in the last 12 months among employed people aged 50-59, by smoking status, 14 European countries, 2013**



Note: N = 12 157 in the 14 countries studied. See the Statlink for further details on the methodology.

Source: OECD estimates based on SHARE data (wave 5).

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Several studies have found that smokers suffer from wage penalties (e.g. van Ours, 2004, for the Netherlands). Cumulative lifetime cigarette consumption is also associated with lower long-term earnings. For instance, in Finland, reducing tobacco consumption by five pack-years could be associated with a 5-7% increase in wages (Böckerman et al., 2014). The relationship between tobacco use and wage gaps among workers is often explained by smokers' lower labour productivity, including frequent smoking breaks, absences due to sickness, and poorer health, resulting in lower wages (Berman et al., 2013).

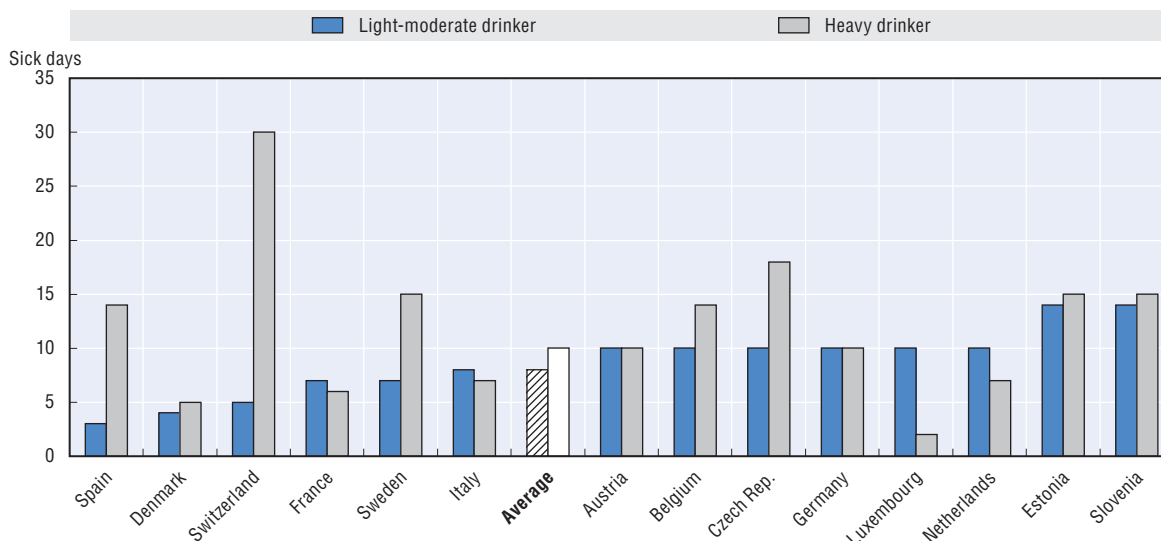
Smoking imposes a significant burden on the economy and society through such productivity loss. In France, the lost production related to tobacco smoking was estimated at around EUR 8.6 billion in 2010, about the same as for alcohol consumption (Kopp, 2015).

Heavy drinkers are less productive at work and earn less than light-moderate drinkers

Light-moderate drinkers have less absences from work compared to former and heavy drinkers as well as lifetime abstainers, partly because they are generally in better health. For instance, in Finland, medically certified absences from work were 20% higher among lifetime abstainers, former drinkers, and heavy drinkers compared with light drinkers (Vahtera et al., 2002). Similarly, in Sweden, absences from work were 10% higher among long-term heavy drinkers compared to long-term light drinkers (Jarl and Gerdtham, 2012). Figure 1.13 shows that among people aged 50-59 who took sick leave in the past 12 months, light-moderate drinkers reported eight sick days versus ten days for heavy drinkers, with variations across countries.

Moderate drinkers have higher wages than heavy drinkers and abstainers. The wage gap between moderate drinkers on one hand, and former and heavy drinkers on the other hand, is estimated at around 20% in Finland (Böckerman et al., 2015). Moderate drinkers spend more time with their colleagues out of work and they tend to be in good health, which positively influences their wages. They have a higher degree of life satisfaction than abstainers and have stronger social networks. Social and networking skills are important factors in the labour market and can have a big impact on wages.

Figure 1.13. **Number (median) of sick days in the last 12 months among employed people aged 50-59, by alcohol-drinking status, 14 European countries, 2013**



Note: N = 9 927 in the 14 countries studied. See the Statlink for further details on the methodology.

Source: OECD estimates based on SHARE data (wave 5).

StatLink  <http://dx.doi.org/10.1787/888933428406>

In France, production losses related to alcohol were estimated at around EUR 9 billion in 2010 (Kopp, 2015). In the European Union, alcohol accounted for an estimated EUR 59 billion worth of potential lost production through absenteeism, unemployment, and lost working years through premature death in 2003 (Anderson and Baumberg, 2006).

Ill-health leads workers to premature labour market exit, resulting in increased expenditures on social benefits

People with chronic conditions are more likely to enter in disability, unemployment or early retirement schemes

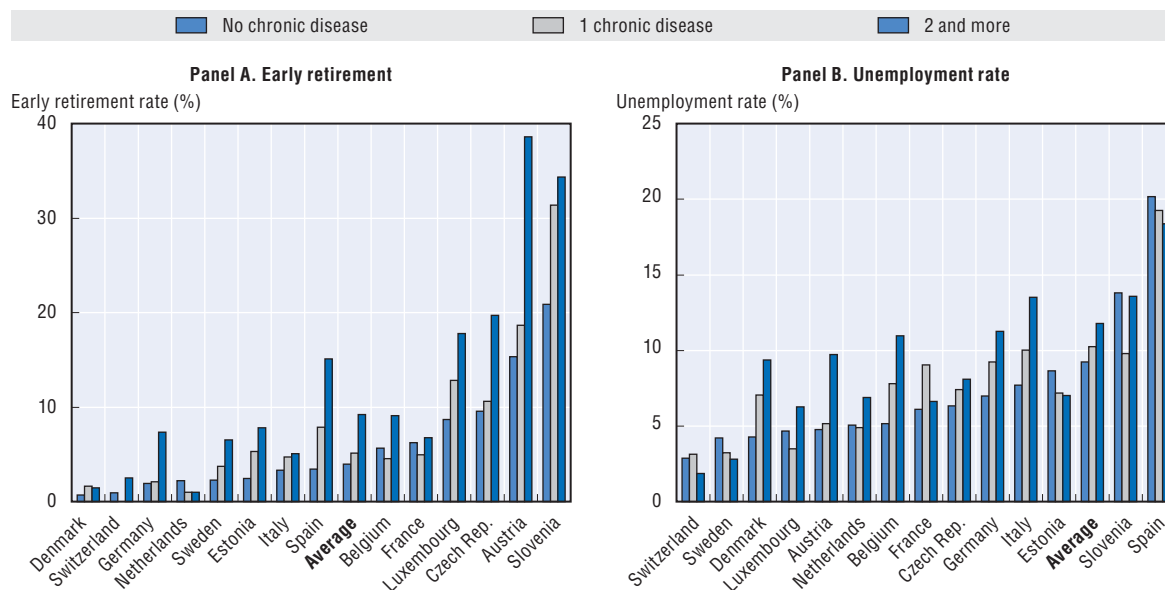
This section examines premature exit from work due to NCDs, through disability pension, unemployment, or early retirement.

Several European studies, focusing on self-assessed health as an indicator for ill-health and diseases, have shown that poor health status tends to lead to an early exit from work due to disability, unemployment, and early retirement (van den Berg et al., 2010). Similarly, having chronic diseases is a significant risk factor for transition from employment into disability pension or unemployment (van Rijn et al., 2014).

Based on SHARE data, out-of-work people can be identified as retired, unemployed and beneficiaries of disability benefits. Figure 1.14 shows the proportion of early retired and unemployed among people aged 50-59 by the number of chronic diseases they reported in 2013. Generally, the greater the number of chronic diseases, the more likely people were to have retired early or to be unemployed. Large variations in levels exist across countries, suggesting that the main reasons for receiving early retirement benefits are not driven so much by the intrinsic health condition, but more by the design of these programmes and prevailing labour market conditions.

An econometric analysis³ examined the impacts of chronic diseases in 2011 on early retirement and unemployment in 2013, adjusting for behavioural risk factors. Results show that chronic diseases significantly lead to higher early retirement and unemployment among people aged 50-59. Figure 1.15 Panel A shows that, all things being equal, 16% of men (13% of women) aged 50-59 with

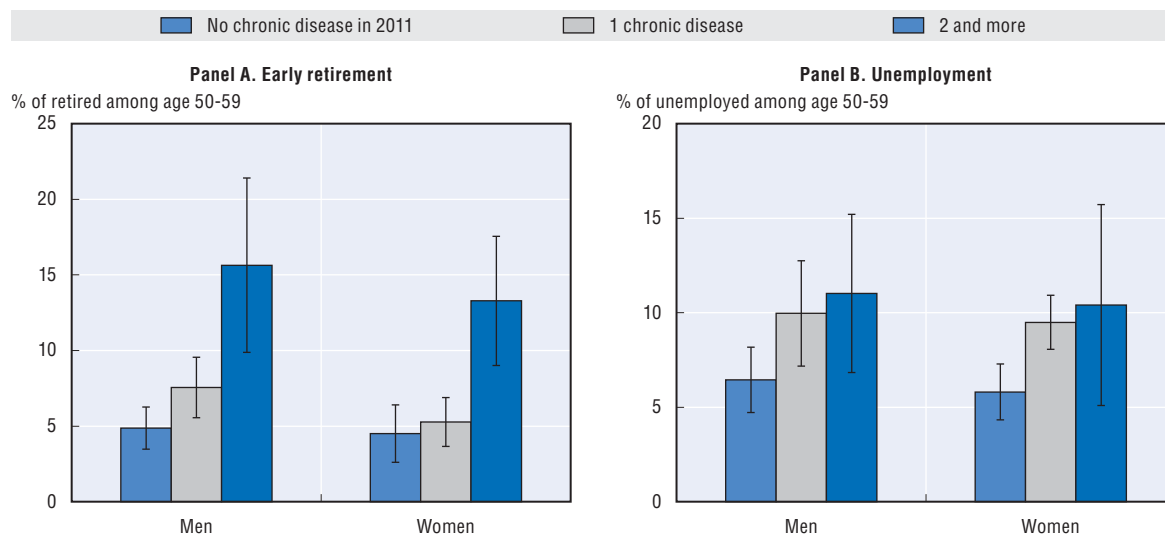
Figure 1.14. **Early retirement and unemployment rates among people aged 50-59, by chronic diseases, 14 European countries, 2013**



Note: N = 17 666 in the 14 countries studied. See the Statlink for further details on the methodology.
 Source: OECD estimates based on SHARE data (wave 5).

StatLink <http://dx.doi.org/10.1787/888933428413>

Figure 1.15. **Probability of being unemployed or retiring prematurely among people aged 50-59 in 2013, according to chronic diseases in 2011, 13 European countries**



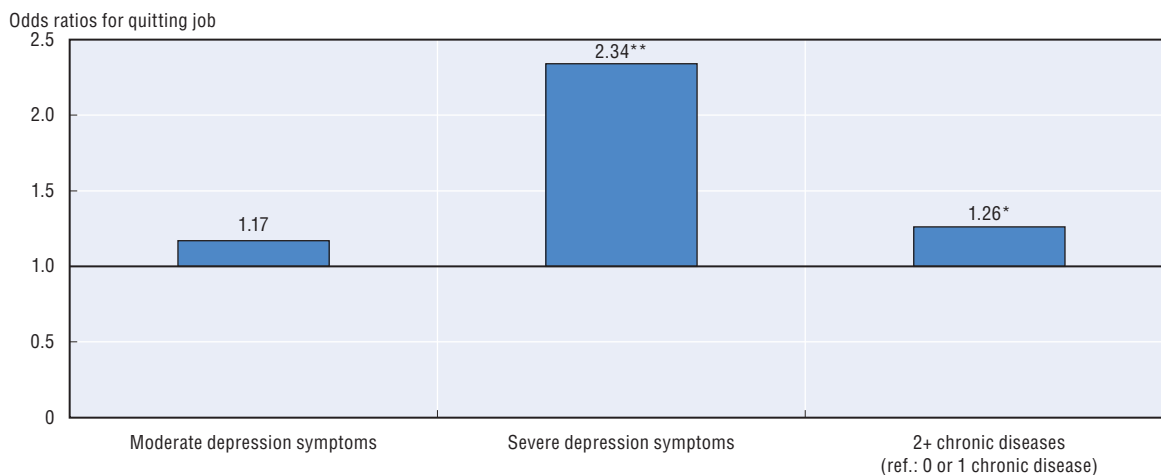
Note: Excludes Luxembourg because it was not included in SHARE wave 4. N = 1 510 for men and N = 1 907 for women. 95% confidence intervals represented by H. See the Statlink for further details on the methodology.
 Source: OECD estimates based on SHARE data (waves 4 and 5).

StatLink <http://dx.doi.org/10.1787/888933428424>

two or more chronic diseases are retired compared to 5% of men (5% of women) who have no chronic disease. Panel B shows that 11% of men (10% of women) with two or more chronic diseases are unemployed compared to 6% of men (6% of women) without any chronic disease.

Long-term mental health problems are a major reason for labour market exit, including early retirement and entering disability schemes (OECD, 2012). In Germany, mental health problems have been the leading cause of early retirement since 1996 (McDaid et al., 2008). Across European countries, severe depression more than doubles the odds of labour market exit, after controlling for other factors (Knebelmann and Prinz, forthcoming) (Figure 1.16). This is the case especially for older people with more severe depressive symptoms, who are more than twice as likely to exit employment within four years. No significant difference exists between the impact for men and women.

Figure 1.16. **Exit from employment among people aged 50-59 as a function of depression symptoms, European countries**



Note: N = 3 485.

* 5% significance level; ** 1% significance level. See the Statlink for further details on the methodology.

Source: Knebelmann and Prinz (forthcoming). Authors' estimates based on SHARE data.

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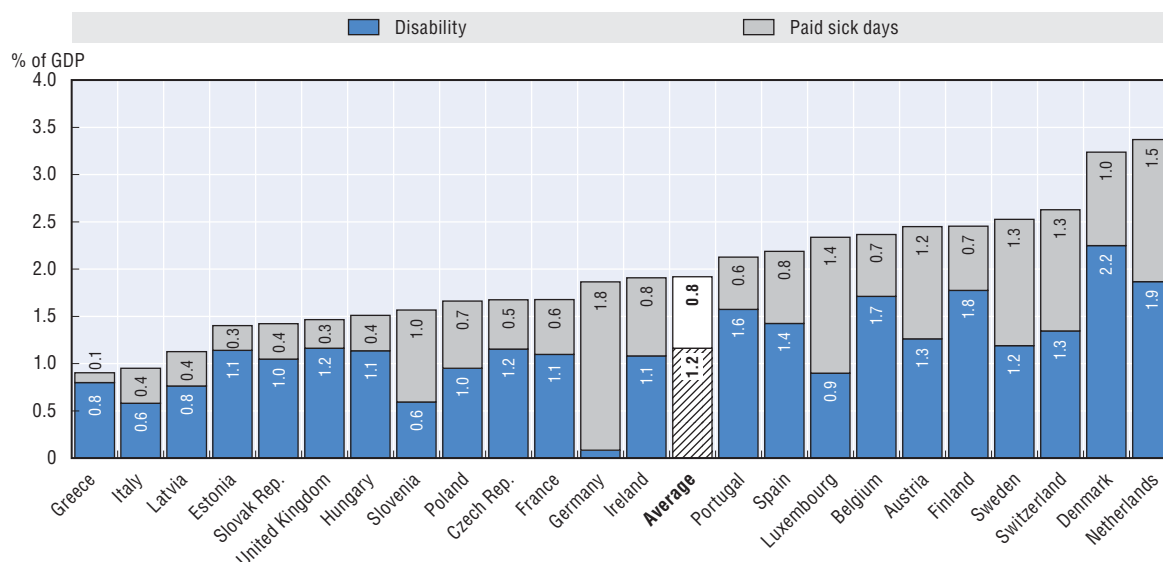
Social expenditures on disability and paid sick leave are greater than unemployment benefits

People suffering from chronic diseases or adopting unhealthy behaviours are more likely to prematurely exit the labour force to go into disability pension, unemployment, or early retirement. This transition out of the labour market has a cost for governments through higher payments of disability benefits, sick leave benefits, unemployment compensation, and early retirement pension.


The burden of ill-health on social spending is important. Incapacity-related spending is higher than unemployment-related spending. Public expenditure on disability and paid sick leave represented 1.7% of GDP on average across European countries, compared to 1.2% of GDP spent on unemployment benefits in 2013.

While expenditure on early retirement and unemployment caused by diseases cannot be identified from national aggregate data sources, data on expenditure on disability benefits and paid sick leave collected in the *OECD Social Expenditure Database* illustrate part of the burden of social expenditure related to ill-health. Combined public and mandatory private expenditure on disability benefits and paid sick leave represented 1.2% and 0.8% of GDP, respectively, in 2013, on average across European countries. Figure 1.17 shows the variation across countries in the share of public and mandatory private expenditure dedicated to disability benefits and paid sick days as a percentage of GDP.

Figure 1.17. **Combined public and mandatory private expenditure on disability benefits and paid sick leave, percentage of GDP, European countries, 2013**



Source: OECD Social Expenditure Database (2016).

StatLink  <http://dx.doi.org/10.1787/888933428448>

Conclusions and policy implications

This chapter highlights the important effects of chronic diseases and related risk factors such as obesity, smoking, and harmful alcohol consumption on labour market outcomes. Non-communicable diseases such as heart attack, stroke, diabetes, cancer and respiratory diseases result in the premature death of more than 550 000 people of working age each year across the 28 EU countries. This represents a loss of about 3.4 million potential productive life years, assuming that these people would have had the same employment rate as the rest of the population. This amounts to a loss of EUR 115 billion each year (or 0.8% of the EU GDP).

Chronic diseases and related risk factors also have an important economic and labour market impact by reducing the employment rate and productivity of people living with these conditions. Based on data from the 2013 SHARE survey, the employment rate of people aged 50-59 who have one or more chronic diseases is lower than that of those who do not have any. The same is also true for people who are obese, smokers or heavy alcohol drinkers. The labour market impacts of mental health problems such as depression are also large: across European countries, people aged 50-59 suffering from severe depression are more than two times more likely to leave the labour market early. Given the higher prevalence of such chronic diseases and unhealthy behaviours among people with less education and lower socio-economic status, the negative labour market consequences of chronic diseases and unhealthy behaviours likely exacerbate social inequalities.

Health and labour market policies can play an important role in reducing the detrimental labour market impacts of ill-health, and thus contribute to better lives and more inclusive economies. Public health policies that prevent chronic diseases, and health care policies that are designed to better manage chronic diseases when they occur, can provide important benefits not only for individuals but for the economy at large (Devaux and Sassi, 2015). Yet today, EU member states allocate only around 3% on average of their health budget to public health and prevention (see the indicator on “Health expenditure by function” in Chapter 5). Further investment in prevention policies targeting chronic diseases and associated risk factors could help make the workforce healthier and more productive, leading to substantial economic benefits. Governments can use a wide range of prevention policies to improve both the health of the population and their labour market outcomes,

many of which can deliver effective results at a low cost (Sassi, 2010; OECD, 2015b). Some policies can even raise some revenues for governments, such as taxation of alcohol, tobacco, and sugar-sweetened beverages.

Labour market policies can facilitate access to paid work for people with physical limitations or disabilities by: encouraging firms to remove physical barriers to work; providing equal training opportunities for people with some forms of disabilities; reinforcing employment protection regulations; and offering work flexibility for early return-to-work. Rehabilitation and training programmes dedicated to newly disabled people can favour return to work (Weathers and Bailey, 2014). Employment protection policies to limit dismissal and redundancy can counteract the labour market disadvantages faced by sick or disabled people in Europe (Reeves et al., 2014). Experience rating of employers for worker compensation schemes can encourage firms to improve occupational health and safety, for instance through better prevention of musculoskeletal disorders (Lengagne and Afrite, 2015), but there is need to carefully design such schemes so that they do not provide a disincentive for employers to recruit employees with higher health risks and to recognise that some sectors have inherently higher risks. There is also evidence of positive effects from early return-to-work programmes offering flexibility and appropriate facilities at the workplace to allow people to continue their usual activities as much as possible following a health problem or disability (Waddell and Burton, 2004).

Although health and labour market policies are often formulated independently of one another, this chapter has shown the need for greater intersectoral collaboration. Both labour market and health outcomes would greatly benefit from improved policy integration.

Notes

1. The list of chronic diseases in the SHARE data includes: high blood pressure, diabetes, cancer, chronic lung disease, heart problems, stroke, arthritis, and ulcer.
2. This econometric model focuses on the effects of chronic diseases, obesity, smoking, and heavy alcohol drinking in 2011 on employment in 2013 among people aged 50-59. A logit model was used on data from SHARE waves 4 and 5 including 13 countries (Luxembourg was not present in wave 4), and accounting for clusters by country. Employment status is dichotomised as follows: employed versus non-employed (including unemployed, retired and permanently disabled). Control variables included: age, age squared, marital status, education level, and country fixed effects. Figures show the predicted probabilities with 95% confidence intervals derived from the model. Results by country cannot be displayed because of too small sample size.
3. The econometric model focuses on the effects of chronic diseases in 2011 on unemployment and early retirement in 2013 among people aged 50-59. Unemployment status is dichotomised as unemployed versus employed, and similarly for early retirement – retired versus employed. A probit model was used on data from SHARE waves 4 and 5 including 13 countries (Luxembourg was not present in wave 4), and accounting for clusters by country. Control variables included are: obesity, smoking, and heavy drinking in 2011, age, age squared, marital status, education level, and country fixed effects. Figures show the predicted probabilities with 95% confidence intervals derived from the model. Results by country cannot be displayed because of too small sample size.

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