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The role of income and social protection for inequalities in health, evidence and policy implications

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Executive summary

The starting point for our work on income and social protection, as for the DRIVERS project as a whole, are the social determinants of health (SDH). Three of the most important resources for health are addressed in DRIVERS, namely childhood conditions/early development, working life/working conditions, and income and *economic resources*. These areas of life constitute important resources for health and health inequalities, and are at the same time also targets for major policy areas and efforts. Families and individuals draw on economic resources that they generate themselves, but also on collective resources provided through the welfare state. The supply and quality of these collective resources will likely influence people's ability to sustain their health and wellbeing, and the less people have in terms of individual resources, the more important it is that they can draw on collective resources.

The work has therefore been centred on welfare states, social protection policies, incomes and health in different social strata. A general methodological and conceptual issue is how to best capture the types and strengths of welfare state efforts. The empirical research undertaken focuses on two broad issues, namely 1) how income and poverty are related to health and mortality, and 2) the importance of different aspects of social protection policies for health in different social groups over the life course. Also, we address the economic consequences of poor health and the extent to which these consequences can be buffered by the welfare state. New data sources have been employed to assess the importance of poverty, income and income inequalities on health inequalities and to explore how social policy institutions are linked to health inequalities across the EU Member States.

Findings

A conceptual and methodological finding is that the welfare regime approach often used to capture welfare state characteristics is too crude to produce stable and policy relevant findings. Rather, approaches based on social expenditures or the institutional characteristics of programmes should be used for analyses of how different features of social protection policies can affect health and inequalities in health. Here, the latter of these two have been the main approach.

When it comes to substantial findings, it is important to point out that poverty, primarily in relative terms (as those who fall below a specific cut-off point in the national income distribution) but to some extent also in fixed terms (as those below a fixed amount of money), is still related to mortality among infants, children and adults.

Most importantly, we can conclude that the design and extent of social protection programmes are indeed linked with health and health inequalities. However, these links are complex. One such complexity is that our findings clearly indicate that there are cases where all groups appear to benefit. While this is positive in terms of average health levels, it also means that no major reductions of inequalities are achieved in those cases. It also points to the importance of the insurance aspect of social protection for population health; when the employed also have better health in societies with better coverage and higher replacement rates, it is likely to be a result of the higher security offered by such systems, and not the better benefits themselves.

Another important finding from our work, which adds to the complexity, is that programme components can interact. In the case of unemployment benefits a high coverage is of primary importance. With a low coverage the replacement rates are not of importance for health, but with high coverage higher replacement rates are linked with better health, primarily so among the low educated.

In addition, we show that the level of minimum income benefits is important for mortality levels. Findings presented here also point to the importance of active labour market policies (ALMPs) for health and inequalities, underscoring the significance of investment in human capital as a way to improve health and reduce health inequalities.

Conclusions and recommendations

In general terms, this work underscores and supports the overarching conclusion of the Task Group report on social protection to the Review of Social Determinants and the Health Divide in the European Region that was recently launched; health is better, and health inequalities generally smaller, with larger efforts in terms of social protection policies. Hence, countries who do little can initiate something, countries that have some social protection can do more, and countries that already do a lot can probably do better.

The *policy* messages from our results are that doing more and doing better can, and probably should, include several things. We suggest that a multi-layer universalism that entails different types of programmes for different types of risks probably offers the best collective resource. This includes cash transfer programmes of different kinds – both contributory and minimum income benefits – as well as welfare services of good quality such as active labour market programmes. In particular, we see an increased coverage of unemployment protection as one way of doing more and better, as well as improved replacement levels when coverage is already high. However, health inequalities are about both the gradient and the margin – and these different positions require different policy solutions. One way of doing more and better for those in the margin is potentially to increase the levels of minimum income benefits.

One *methodology* message from our work is that there is a constant need to critically evaluate the concepts and tools we use; in particular, how the welfare state provisions are best conceptualised and captured. For clearer and more policy relevant work in this field, an institutional or expenditure approach to capture welfare state performance is recommended. Different welfare state regime typologies may be illustrative but are not analytically useful when focusing on the outcomes of the welfare state.

The institutional approach has allowed for more refined analyses where it has been possible to disentangle the coverage and replacement rate dimensions of social policies, and analyse their independent and combined importance for health in different educational groups. Continued work should explore these possibilities further.

A key feature of most analyses undertaken is that data on different levels have been combined in order to analyse the importance of policy-level features and individual-level health outcomes in different educational groups. However, this approach requires good data on key determinants and conditions at both the individual and societal level, and such data need to be supported on a long-term basis both nationally and on the European level.

Finally, our work also provides a basis for a theoretical reflection. The social determinants framework is mainly focused on the conditions and resources in different spheres of life that impact on health. These include the early childhood conditions, employment and working conditions, and the income and economic resources addressed as key drivers of health inequalities in the DRIVERS project. While this framework has proven essential for a wider understanding of health and health inequalities, it needs to be developed in order to better understand persistent inequalities in health. We suggest that one fruitful way to do this is to create more room for human agency within the social determinants framework. This is

because people are not simply exposed to a range of conditions, and their life chances cannot solely be understood as the resources they control. Rather, it is the case that people act, react and adapt in different ways and to different extents in different social strata. In order to gain a better understanding of persistent health inequalities, not least in some of the wealthier and more egalitarian countries in Europe, we believe that this has to be incorporated to a larger extent in further work in this field. Thereby, a more complete understanding can be reached on how to tackle inequalities in a better way, and also among the most ambitious welfare states in Europe.

Introduction

The starting point for this work on income and social protection, as for the DRIVERS project as a whole, are the social determinants of health (SDH). These are essentially the welfare resources necessary to lead a good life. Welfare, defined in terms of command over resources, was developed in the Nordic welfare research tradition of the late 1960s and 1970s (see Johansson, 1970; Erikson & Uusitalo, 1987; Erikson, 1993; Fritzell & Lundberg, 2007). Important welfare resources include a range of living conditions, but three key resources for health are addressed in DRIVERS, namely childhood conditions/early development, working life/working conditions, and income and economic resources. These resources are not only important for wellbeing, health and inequalities, they are also targets for major policy areas and efforts.

Economic resources can easily be transformed into a range of further resources that in turn can be important for health. However, economic resources are clearly linked directly to health through material, social and psychological factors. Families and individuals draw on economic resources that they themselves generate, mainly through incomes from gainful work. In addition to this source, there are also collective resources provided through the welfare state that can be drawn upon. Such collective resources include social insurances and income transfers (the 'cash' side of the welfare state) and health and welfare services subsidised or free of charge (the 'care' side of the welfare state). It is reasonable to assume that if income and economic resources are of importance for health, then not only will market incomes be important, but also the supply and quality of collective resources will be likely to influence people's ability to sustain their health and wellbeing. In addition, the less people have in terms of individual resources, the more important it is that they can draw on collective resources.

Hence, it is important to study general policy areas that affect people's resources, such as social protection policies, and to do so in relation to health and health inequalities. When attempting to do this there are several important choices to be made. One key issue is how the quantity and quality of the collective resources should be captured. There are at least three different levels of 'policy abstraction' that more quantitative analyses can aim for, namely 1) the welfare regime approach, where countries with similar profiles in their welfare policies are grouped into clusters, 2a) the social rights approach and 2b) the social expenditure approach, where the efforts and ambitions of welfare states are measured either as the legislated rights or the money spent on social protection, and 3) an intervention evaluation approach, where specific policy changes and/or interventions are analysed for effects. In addition, there is a fourth alternative, namely to study in detail the more subjective lived realities of the people that are drawing and/or are depending on the collective resources.

In the current literature the large majority of studies have used a welfare regime approach. While this is an effective way to describe and summarise differences between large sets of countries, diverging and inconsistent findings make the literature difficult to build on. Based on our earlier experiences and a review and analysis of the current literature, we have aimed mainly for a social rights approach where we have focused on the relationships between welfare state ambitions and the health in different social strata. In addition to that, however, the case studies undertaken will shed light on the lived experiences in a set of key countries across Europe.

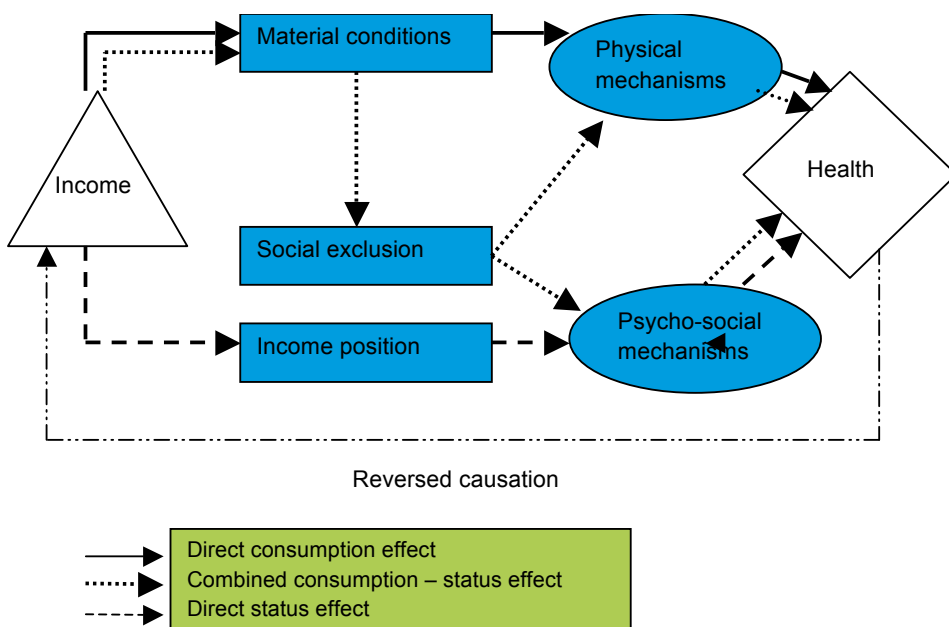
Income as a key resource

Of all resources important for health and wellbeing, economic resources occupy a special position because they can easily be transformed into other types of resources. In his work on the factors that help us to stay healthy (General Resistance Resources, GRRs), Antonovsky (1979) starts with economic resources: “Access to money, the symbolic equivalent of resources, is, I suggest, an important GRR in all societies ... Not only does money directly facilitate coping with stressors; but, linked to the acquisition of other GRRs, it is also indirectly powerful.” (Antonovsky 1979, p.106).

Research on income and health has to a large extent been focused on the issue of whether income inequality *as such* has an impact on health, independently of absolute levels of income. Despite a large number of studies, the interpretation of these is highly debated. Where Wilkinson and Pickett (2006, 2009) see clear evidence for income inequality *as such* as the key driver behind health (and other) inequalities, others see merely methodological problems and highly mixed results (Deaton, 2003; Lynch et al., 2004). Furthermore, most existing studies use a cross-sectional design only, and few have looked at effects on health inequalities (see, however, Kondo et al., 2009).

However, it can be argued that income redistribution will reduce health inequalities anyway as long as there is a curvilinear relationship between income and health on the individual level (as shown by e.g. Åberg Yngwe & Lundberg, 2007; Deaton, 2003; Ecob & Davey Smith, 1999; Fritzell, Neramo & Lundberg, 2004; Mackenbach et al., 2005), and that at least part of the relationship is causal. Still, the way in which such an effect is generated is of importance, in other words which mechanisms are active.

Figure 1. Model for pathways and mechanism linking income and health. Source: Lundberg et al., 2010.



Also, in modern welfare states with high average incomes, there are likely to be several pathways linking income to health (Lundberg et al., 2010). Income and economic resources are likely to influence health through material, social and psychological factors in ways that are summarised in Figure 1 (see further

Marmot, 2004, 2005; Fritzell, Lennartsson & Lundberg, 2007). The relative importance of the three pathways suggested (direct consumption effects, direct status effects and combinations of these) is, however, largely unknown. For example, if income ranking as *such* is highly important, a compression of the income distribution would not have large effects on health inequalities, while the opposite is true if the distances between positions are also important.

Hence, the relationship between income and health is complicated and certainly not a simple issue of 'more is better', but rather an issue of poverty as well as a gradient (although most likely with diminishing returns). Therefore, there is a need to clarify what we know and where knowledge is still inconclusive when it comes to income as a social determinant of health, in particular with regard to whether it is income distribution as such or poverty/purchasing power problems that is important for health and health inequalities.

Income as a target for policy

Income is not only a central resource to ensure good living conditions, but also a central object for political interventions through a range of existing welfare state institutions and programmes that provide families and individuals with resources. That social protection policies can create a buffer against income loss and redistribute income both over the life course and between individuals is of course central in this respect (Fritzell & Ritakallio, 2010). In addition, provision of services at low costs or free of charge, e.g. education and health care, play an important role for health and wellbeing. At the same time, income in general and poverty in particular are clearly linked with a range of health outcomes. Policies that reduce risks of poverty or, more generally, contribute to better family incomes are therefore likely to contribute to better public health. Hence, income is an important nexus linking major policy tools with health inequalities through a key resource and social determinant of health on the micro level.

It goes without saying that a range of conditions and processes are of importance for the relations between different policies, family incomes and health. Macro-economic processes will affect the labour market, which will in turn affect employment, market incomes and tax revenue, and thereby the economic basis for policies. Educational policies are of key importance for human capital and people's abilities to become gainfully employed. Also, with a more narrow focus, there are complex links and interdependencies. A more generous social protection system requires high employment rates and high taxation levels. This means that social protection policies are not merely costs, they are in many cases also important social investments that provide the social infrastructure necessary for high employment rates (Morel et al., 2012). Family policies, for example, can be designed to promote high labour market participation among women. This, in turn, will affect family incomes but also gender relations in the market and in families.

While welfare state policies can be viewed as investments in a social infrastructure, a common counter-argument has been that the welfare state undermines productivity, efficiency and economic growth through crowding-out, reduced competition and other unwanted mechanisms that have been assumed to follow more generous social protection policies. This is often referred to as a trade-off between efficiency and equality. Recent empirical and historical research contradicts this assertion, however. Instead, new findings indicate that large welfare states do not hamper economic growth. On the contrary, the welfare state may even increase economic wealth (Garfinkel et al., 2010; Lindert, 2004). The key issue here is probably not size, but rather how particular policies and welfare arrangements are designed to foster economic growth at the same time as human wellbeing and social equality. Among the reasons for this is

that when citizens' resources are increased, there is also an improvement in their sense of security, economic flexibility and stability, willingness to take risks, social solidarity, and wellbeing.

Social policies over the life course

Some stages across the life course are more important than others from a social policy perspective. The cycles of poverty were described by Rowntree (1901), where he concluded that the risk of becoming poor for a working class family was particularly high when forming a new family and retiring. Therefore, the childhood years, family formation years and labour market exit years have been a particular focus also for social policy interventions. These periods are also essential from a Social Determinants of Health perspective. In today's social, economic and labour market environment, we might add the years of labour market entry as another crucial period during the life course.

Social protection may be key to reducing poverty risks at these crucial stages over the life course, allowing economic growth to trickle down and benefit the poor. As discussed above, redistribution of incomes, vertically as well as horizontally, can affect health and wellbeing through at least two main pathways (Lundberg et al., 2010). The first pathway recognises the significance of economic resources for living conditions more generally. It stresses the role of consumption patterns, where income is linked to health by strengthened purchasing capacity of individuals. Increased material living conditions are here expected to affect health directly, for example, by allowing poor people to purchase better and more nutritious food, acquire more adequate housing and afford staying in areas that are safer and less polluted. This consumption effect is expected to occur even after basic material needs have been fulfilled (Lynch et al., 2004), although health impacts are lower at higher income levels (Kawachi, 2000; Rodgers, 1979). The generosity of minimum income benefits should here affect health by providing poor people economic resources that can be invested in products and activities that are beneficial for health.

The second pathway is less direct and recognises the role of status differentials and other psycho-social processes of health. Social protection operates here mainly through redistribution of economic resources as income differences in society affect health through mechanisms that go beyond material living conditions at individual level (Wilkinson, 1992). Empirically, it is difficult to separate these two pathways. As Fritzell and Lundberg (2007) note, command over resources includes both the material and the intangible, and lack of material resources may often lead to psycho-social processes. Experiences of poverty therefore involve both direct and indirect pathways, where lack of possibilities to consume may lead to feelings of shame (Smith, 1776). Social protection may thus influence health through a combined consumption and status effect (Lundberg et al., 2008a). One example is people who cannot participate in society because lack of purchasing power.

The research questions

The overarching research objectives include a conceptual and methodological development regarding how and to what extent social protection and income maintenance policies affect health in different social strata; the application of new data sources to assess the importance of poverty, income and income inequalities on health inequalities; and to explore how social policy institutions are linked to health inequalities across the EU Member States. These objectives can be broken down into a set of research questions that relate to income and social protection, namely:

1. What is the present knowledge on the role of welfare state characteristics for health and inequalities, and can diverging findings be understood in terms of methodological and conceptual differences across studies?
2. What are the links between poverty, policy and mortality?
3. How do different aspects of social protection policies affect incomes and health across the life cycle?
 - a. Social protection, unemployment, exclusion and health among youth
 - b. Social protection and health among adults – replacement rates and coverage
 - c. Social protection of health and incomes at labour market exits

These questions are studied in 10 separate scientific papers. In this report we summarise the key questions and findings from these papers, and provide more general discussions on how these papers contribute to the general questions addressed in our work on income and social protection and in the DRIVERS project as a whole.

Results

The empirical work is centred around 1) income and poverty and how these are related to health and mortality, and 2) the extent to which the welfare state, through social protection policies, can mitigate and compensate for income loss and/or low incomes across the life course in a way that improves health and reduces health inequalities. Our work is therefore clearly linked to early child development and working life conditions, the other two main drivers of health (in)equalities that the DRIVERS project focus on. In particular, the social protection systems are closely connected to labour market participation, since many social protection schemes are constructed to compensate for income losses linked to inability to work and earn a market income.

However, the relation to the labour market is rather different at different stages of the life course. Among youth and young adults it is critical to get into the labour market and secure a permanent foothold there. During adult ages it is important to have decent earnings and working conditions, but also a good protection against income loss due to illness or unemployment. During older years it becomes more important to remain in the labour market, and if that is difficult or impossible, to have access to early retirement and disability pension schemes that keep income at a decent level. The importance for health of different social protection policies is evaluated at different stages of the life course and from different angles in a series of analyses by different teams of researchers.

How could welfare state characteristics best be captured?¹

How to best capture the types and strengths of welfare state efforts is an important issue in itself, and is therefore studied through an analytical review. The past decade has witnessed a growing body of research on welfare state characteristics and health inequalities, but despite this the picture is inconsistent. One problem appears to be that there is a lack of consistency across studies in the ways welfare state efforts and output is conceptualised and measured. It is therefore possible that theoretical and methodological differences in how the welfare state is captured can at least in part explain these mixed findings regarding the effects of welfare states on health.

Three main approaches to comparative welfare state research are identified; the Regime approach, the Institutional approach, and the Expenditure approach. Comparative health research has been dominated by the *Regime approach*, in which classifications of countries based on various political elements are used. Those who support this approach have argued that certain countries cluster together in 'welfare state regimes' based on similar ideologies, policies or political traditions. One cluster of countries may, for example, support universal access to different services, while another operates on the individual's private responsibility to take care of and handle one's own welfare, and that only the most poor qualify for social support. The general idea is that by specifying ideal types it is possible to assess the underlying commonalities and principles of social structures and welfare institutions (Dahl & van der Wel, 2013). In addition, the Regime approach comes in a variety of versions that differ both in terms of theoretical and empirical foundations and the countries included. By design, these ideal types will not fit the complex reality perfectly and might therefore give a rather crude result. Hence, this approach might be less useful in capturing mechanisms that generate inequalities in health. To complement the picture it may be important to also look at characteristics of social, health and labour market policy (Dahl & van der Wel, 2013).

¹ This section is based on a review paper by Bergqvist et al. (2013).

Another common approach is the *Expenditure approach* which focuses on welfare state effort and generosity by concentrating on public spending on social protection and services. The spending on social protection and services is often expressed in terms of percentage of the Gross Domestic Product (GDP). The rationale for this is that ‘the government should be transferring relatively the same level of social expenditure as other nations in order to be considered as providing an equivalent degree of generosity and protection’ (Gilbert, 2009). The Expenditure approach has been criticised for its inability to differentiate between effort and need – a large spending on unemployment benefits and programmes may simply reflect a larger share of unemployed and not a higher ambition in terms of coverage or replacement rates (Kangas & Palme, 2007). Recent studies have tried to overcome this problem by weighting procedures (Dahl & van der Wel, 2013), and their analyses also suggest that different choices regarding the spending variable (gross/net, absolute/relative) have little impact on the results.

A third approach is the *Institutional approach* which focuses more on how welfare institutions and specific social policies and programmes are designed and how these translate into population health. The Institutional approach addresses the characteristics of policy programmes for aspects such as pensions, sickness pay, unemployment benefit, family policies and work accidents. These characteristics may, for example, be qualifying criteria, replacement rates, duration and coverage. Several international comparative databases (e.g. the Social Citizenship Indicator Programme, SCIP) provide historical information on such characteristics including policy programmes. In order to construct relevant programme features, the databases apply a number of assumptions regarding, for example, age and family situation of a ‘standard worker’ (Kangas & Palme, 2007). This could be problematic if there are important groups that fall outside the living situations captured by these type of cases.

The Regime approach is the most common in studies of welfare states, health and health inequalities. However, regardless of which regime theory is employed, the results from these studies are diverse and contradictory. When stratifying this group of studies according to other features, such as type of outcome, not much added clarity is achieved. The few studies using the Expenditure approach find that social and health spending is associated with increased levels of health and smaller health inequalities in one way or another. The Institutional approach shows more consistent results; generous policies and benefits seem to be associated with health in a positive way for all people in a population, not only those who are directly affected or targeted.

Based on earlier reviews and our results, we suggest that future research should focus less on welfare regimes and health inequalities and more on analyses of social spending and social rights in different policy areas and how these are linked to health in different social strata. We also need more detailed evaluation of specific programmes or interventions, as well as more qualitative analyses of the experiences of different types of policies among the people and families that need to draw on the collective resources.

Income, poverty and public health

Reducing poverty is one of the five headline targets of EU2020. As such, it is obvious that combatting poverty remains a key topic for the welfare state in the 21st century. The main reasons for this are, of course, the high prevalence and negative consequences of poverty.

Since international comparisons on poverty almost exclusively rely on an operationalisation that is relative to general living standards, most often to average income, it is perhaps less self-evident that

poverty rates would be linked to mortality rates among more affluent countries. Relative poverty is commonly calculated as the proportion of the population with incomes below a certain fraction of the median income. In European research and in many EU-documents, the threshold is typically set at 60 per cent of the median. An often raised critique against such relative poverty calculation is the missing link to absolute living standards among the poor. On the other hand, those arguing in favour of a relative poverty approach start off from the perspective that human beings are socially embedded and that poverty must therefore be related to social circumstances. Accordingly, measurements of poverty must be based on the overall living standards and lifestyles within the prevailing society, as so forcefully articulated by Townsend (1979). To be poor is to lack the possibility to participate fully in the society in which one lives. Therefore, it is likely that relative poverty leads to ill-health or increased mortality risk. Since the theoretical dispute about an absolute or relative conception of poverty might be insoluble, it is perhaps even more interesting, both from a pure scientific and a policy perspective, to disentangle the importance of relative and absolute poverty on population health.

Long-lasting economic growth can certainly improve living conditions and produce positive health effects. Yet, long-term prosperity seems to be no more than a necessary, but not sufficient, condition for improvements in population health, indicated not least by reduced health returns of economic growth at higher levels of prosperity (Kangas, 2010). The relationship between economic development and mortality at single cross-sections disappears among affluent countries when we move into the 21st century (Kawachi & Kennedy, 2002; Wilkinson & Pickett, 2009). However, limited economic resources, and poverty in particular, still appear to be strongly linked to health and mortality on the individual level among wealthier nations. While the reasons for and possible interpretations of this are still debated, the relationship is robust (see e.g. Fritzell et al., 2013).

Relative poverty, absolute poverty and mortality²

Economic resources, income and poverty can also be assumed to affect health in wealthier societies, although it is still debated to what extent the empirical relations found can be claimed to be causally generated and, if so, which of the mechanisms produce poorer health in lower income layers. This is also an issue of definitions of poverty. Is poverty (in Western societies) best defined as low income in relation to the average in a specific society, or should poverty be understood as a more absolute state, and if so, what are the goods and conditions that a person should have in order to be in or out of poverty? In comparative research, poverty is almost always measured as a relative concept, typically as those having incomes below a certain fraction of the median.

In a new study two different poverty measures were analysed simultaneously; one fixed measure based on the US poverty threshold and one relative measure. These were calculated for each included country and each included year, separately for two age groups: children (aged 0–17) and adults (aged 18–64). In all poverty calculations the disposable income of each household was used, i.e. income after taking into account transfers and taxes. This fixed measure (US poverty threshold) was transformed into each country's national currency, by using purchasing power parities (PPP) for the respective year. This procedure allows direct comparisons of 'absolute' or 'fixed level' poverty rates between countries and over time.

Death rates based on the yearly number of deaths and population sizes in each country for each year were calculated for three age groups: infants (aged <1 year), children (aged 1–19 years) and adults

² This section is based on Fritzell et al. (2014).

(aged 20–64 years). To allow for comparability of death rates across countries and time points, age-standardised death rates (ASDR) for each age group were calculated, using the direct standardisation method and the European standard population as the base.

For infant mortality, the results indicate that a 1% increase in the fixed child poverty rate corresponds to a 0.7% increase in infant mortality rate, while a 1% increase in the relative child mortality rate corresponds to a 1.5% increase in the infant mortality rate (Table 1). However, when adjusting for logged GDP per capita the estimate of fixed poverty comes close to zero; the estimate for relative poverty, on the other hand, only changes marginally.

Table 1. Associations between logged infant (aged <1) and logged age-standardised child (aged 1–17) mortality rates and explanatory factors. Results of pooled cross-sectional time series analyses. Standard errors in parenthesis. Number of observations (countries*time-points): 149

	Infant mortality rate			Child mortality rate		
	A	B	C ^a	A	B	C ^a
Relative child poverty rate ^b	0.015 (0.004)		0.011 (0.003)	0.013 (0.002)		0.010 (0.001)
Fixed child poverty rate ^c		0.007 (0.001)	0.001 (0.002)		0.004 (0.001)	-0.001 (0.001)
GDP per capita			-0.442 (0.107)			-0.340 (0.114)

^a Model C also control for wave.

^b Headcount ratio at 60% of median income.

^c Headcount ratio at US poverty line, adapted to national currencies using purchasing power parities.

For child mortality the story for the fixed poverty is quite similar to the results for infant mortality. The stronger association of mortality with relative poverty than with fixed poverty is seen already in the crude models, and changes relatively little when adjusting for logged GDP per capita (and also for welfare regime type, analyses not shown).

Among adults there is only a positive significant association between relative poverty rates and mortality rates in the final model where welfare regime type is also included; a finding that bears a close resemblance to findings from earlier studies. The fixed poverty rate has a stronger association with adults' mortality risks compared to children, the estimates are substantially reduced (by about half) once adjusting for logged GDP per capita, and even more so when taking welfare regime type into account.

In line with earlier findings, there are also clear differences between groups of countries (welfare regimes) on top of the poverty effects on mortality. In some cases the regime differences are even more evident when taking GDP as well as relative and fixed poverty into consideration. Furthermore, these differences, by clusters of countries, are also vastly different when looking at infants, children and adults. The outcomes are particularly negative in the post-socialist countries for children and adults (but not for

infants); the most obvious positive deviant case for adults being the cluster of Southern European countries.

In sum, there are clear links between countries' levels of poverty and the levels of mortality at different ages, but more clearly so for relative poverty and among infants and children. This finding also holds for rich and well-developed welfare states in Western Europe, and clearly suggests that income maintenance policies of different kinds are also important from a public health perspective.

Social protection, unemployment, exclusion and health among youth³

A number of different transitions can be identified from childhood to adulthood and these are often associated with major life course events. The transition from education to employment is one of the most critical because it often has a great impact on and/or shapes individual careers and life chances. This transition has become more uncertain, diverse and less clear-cut than previously. Young adults⁴ are now participating in post-compulsory education to a larger extent, a trend that is probably a response to the labour market conditions, changing skill requirements, and an increased tendency of their peers (and competitors) to stay in education and training. The number of typical 'entry' occupations has been reduced over time due to changes in industrial and occupational profiles. The labour market for young adults is also characterised by relatively high unemployment rates and these rates remain high relative to adult unemployment rates in the EU. The ongoing recession has led to a rise in unemployment rates and young people have been hit particularly hard, although there are important differences among the European countries. Young adults are disproportionately influenced by the economic cycle since they are overrepresented in the labour market's unstable and time-limited jobs, which are also often part time. This highlights the fact that inequality-producing processes in society often hit this group the hardest. Many young adults are also less likely to possess individual and social resources that can buffer the adverse effects of potentially harmful hurdles during this stage in life.

It is well established that having a job is positive for people's wellbeing and health, and that being out of work is negative (Jahoda, 1982; Warr, 1987; Paul & Moser, 2007). Besides providing an income and contributing to financial autonomy, there are many beneficial effects of employment, including various psychological functions and establishing and developing different skills. Employment can also provide an important foundation for forming a vocational identity as well as being a part of and having a stake in society and adults' institutions (Giuliano & Spilimbergo, 2009). It also serves as a platform to establish social contacts with co-workers which might extend networks and encourages sharing of experiences with people outside one's family. These work-related circumstances/conditions are not only related to an actual salary but also to the routines and structures of what employment entails. The difficulties associated with labour market establishment are therefore multifaceted and can affect people in many ways.

³ This section is based on studies by Nordenmark et al. (2013) and Sjöberg (2014).

⁴ It is important to note here that although young adults or youths are commonly defined by his/her age, the age ranges vary between empirical studies due to various theoretical and/or practical reasons (for example, 18-30 years in Sjöberg (2014) and 15-24 in Nordenmark et al. (2013)). Practical reasons include data related issues such as restricted sample sizes. Theoretical reasons include, for example, a delayed and lengthened phase of labour market establishment.

Labour market marginalisation and inactivity has been found to be related to poor health status. Even though the youth years are assumed to be healthier than the adult years, young adults seem to be more affected by the negative health consequences of unemployment, including mental ill-health, than adults. *Short term consequences* of unemployment for the health of young adults are relatively well established. There is an association between unemployment and mental health problems, mainly in the form of internalised symptoms (anxiety, distress, depression). Unemployed people often lack control and influence over central aspects of their lives and levels of stress and social isolation are often higher among the unemployed. Research shows that there is a dose-response association between time in unemployment as a young adult and poor mental health.

Long term consequences of a weak sense of labour market connection are a risk factor for future social exclusion/alienation. Young adults experiencing difficulties in establishing themselves in the labour market have an increased risk of having a weak attachment to the labour market and also worse career developments in adulthood. Research shows that unemployment or feeling excluded from the labour market in young adulthood may have long-lasting effects, often termed '*scarring effect*', on the individual. Difficulties in labour market establishment may leave long-term scars in terms of lower levels of wellbeing, worse wage trajectories and distrust in basic social institutions (Bell & Blanchflower, 2011). Several theories explaining the possible pathways of the scarring effects of unemployment have been proposed. One is the human capital theory (Becker, 1964; Darity & Goldsmith, 1993) which argues that unemployment may affect the accumulation of human capital negatively and in the long run even cause depreciation of such capital due to the destruction of skills and/or deterioration of self-confidence and motivation. Another pathway proposed is that spells of unemployment may wear down the social capital that might be essential for finding not only the first but also subsequent jobs, and feelings of alienation have been shown to be a consequence of youth unemployment (Atkinson et al. 1986; Winefeld et al. 1991; Blanchflower & Bell, 2011). All this is potentially detrimental, not only in terms of career and wage developments, but might also lead to even poorer health.

The number of young people disconnected from both education *and* the labour market has increased during the last decades (Kassman & Fransén, 2005; Morell et al., 1998). These are young adults who after compulsory school fail to find employment, training or further educational opportunities, for various reasons. This group can be categorised into various types of NEET (Not in Employment, Education or Training). Five main subgroups have recently been identified (Eurofound, 2012) and these are characterised by varying levels of labour market marginalisation and inactivity. The *Unavailable* have family responsibilities or are sick and/or disabled. The *Voluntary* may travel or are engaged in art, music, etc. The *Opportunity-seekers* are actively seeking work but are waiting for the right job that fits their skills and status (probably relatively highly educated and have substantial resources). The *Conventionally unemployed* – who form the largest sub-group of NEET – are seeking a job and are normally registered at an unemployment office. Lastly, the *Disengaged* group can be assumed to be inactive and relatively marginalised from the labour market.

Health consequences will most probably vary between the categories of NEET. One can therefore not take for granted that all unemployed young adults in general will experience social exclusion and poorer health compared to young adults in employment (or education/training). The Conventionally unemployed can be assumed to be a vulnerable group because their unemployment is involuntary and they are looking for a job. The Disengaged category is probably the most vulnerable group and many of these young adults may have given up on finding a job and feel marginalised in the labour market. These two

groups are probably at higher risk of experiencing inactivity, social isolation, economic deprivation and health problems.

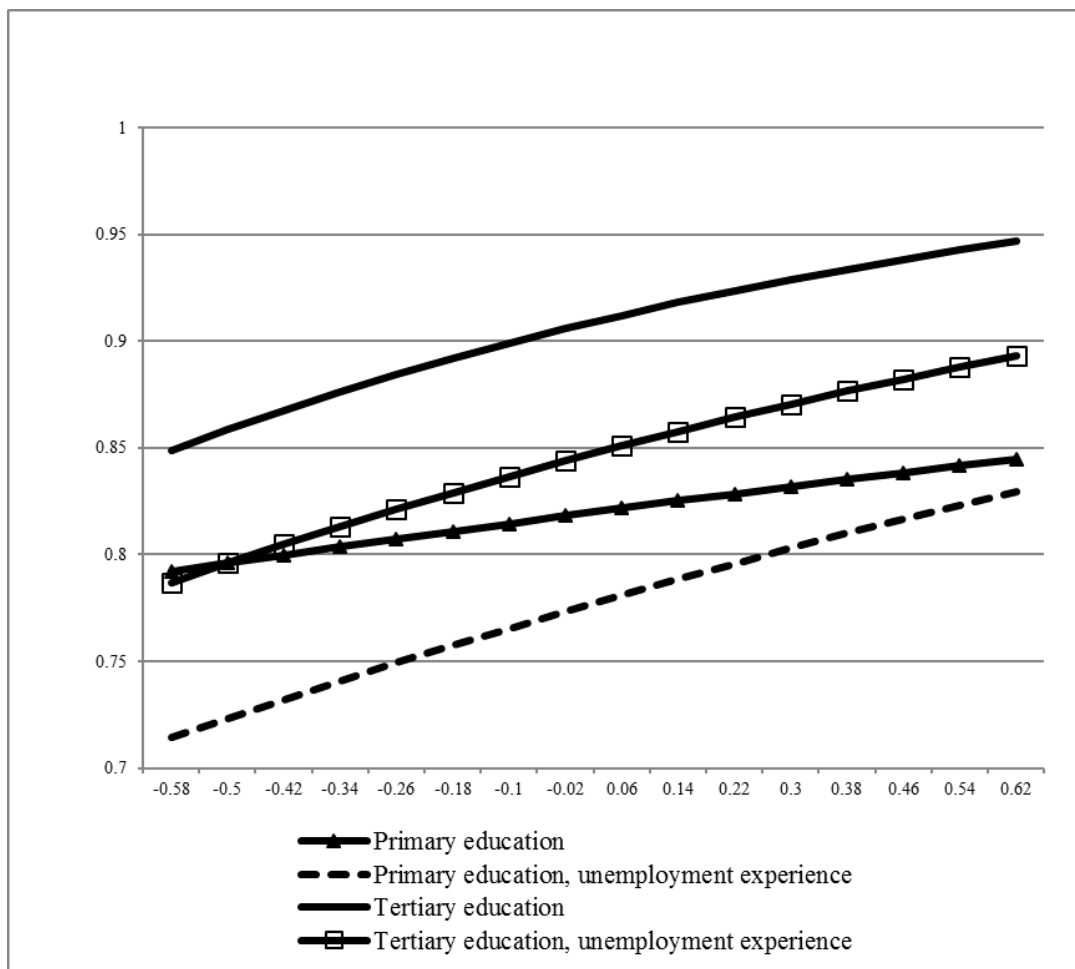
The importance of different aspects of labour market policies for health in young adults

Various labour market policies can be found in most countries and these exist to buffer not only against the economic consequences of unemployment, but to a certain extent also against the negative health effects that come with unemployment. *Unemployment benefits* primarily serve as economic support to the unemployed. These benefits may also, besides providing economic resources to the unemployed, also decrease the fear of unemployment by reducing the perceived negative economic consequences of unemployment and, as a consequence, lessen the negative effects of job insecurity on subjective wellbeing. To be entitled to regular unemployment benefits, one must as a rule fulfil certain eligibility conditions (e.g. to have had a certain period of paid work prior to unemployment). These regular unemployment benefits are in many countries also supplemented with programmes aimed at particular groups, such as youths with no or insufficient employment experience. The benefits associated with such programmes are normally lower than regular unemployment benefits. Another form of unemployment policy is *active labour market measures* which are designed to increase the probability of an unemployed person finding a job. Various measures are used to, on the one hand, increase the human capital and skills of the individual and, on the other hand, improve the matching of workers to jobs. Examples of these policies are job centres which help the unemployed improve their job search effort, training schemes such as classes/courses and internships, and employment subsidies, which help the unemployed to build up work experience. Active labour market programmes may provide the unemployed with similar functions as regular employment by maintaining and expanding human and social capital (Strand, 2001). They may also increase the employability of low-educated individuals because of the signals they send to employers regarding the applicant's basic skills, and therefore their training potential (Solga, 2002; Abrassart, 2012).

Using data from the European Social Survey (2002-2010) and institutional data on labour market policy, Sjöberg (2013) has looked at the generosity (i.e. the replacement level and duration of benefits and the period of work necessary to qualify for these benefits) of regular unemployment benefits and those specially targeted at young adults, and the extensiveness of active labour market programmes (i.e. the proportion of unemployed participating, and expenditure per participant) and whether these two central labour market institutions are linked to self-rated health and educational differences in self-rated health among young adults aged 18-30 in Europe.

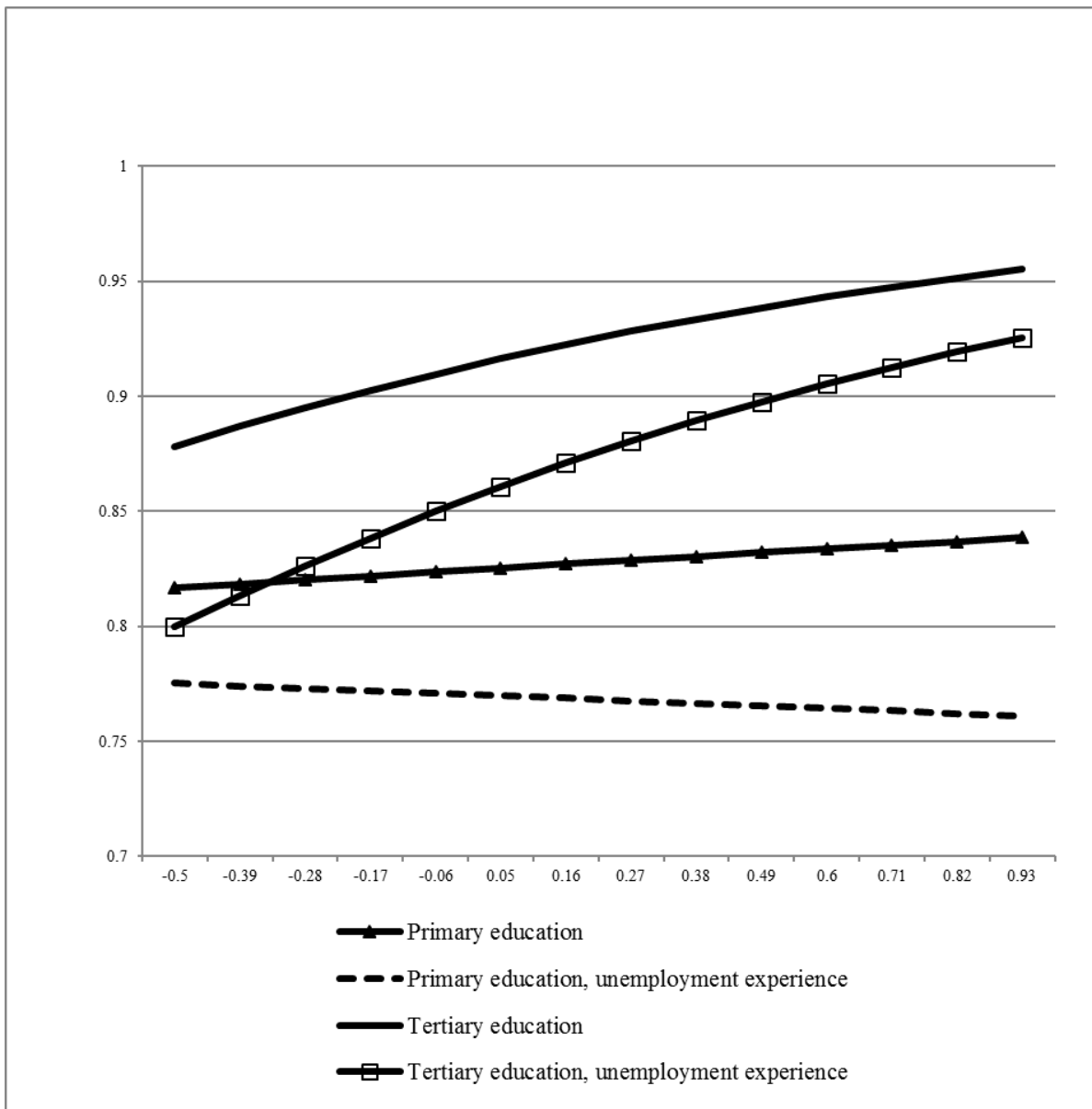
The three specific labour market policy measures looked at – active labour market programmes, regular unemployment benefits and specific unemployment benefits for young adults – generally appear to have a positive effect on the subjective health for young adults with primary education (with or without unemployment experience) and tertiary education (with or without unemployment experience). There are, however, some important exceptions to these findings.

Figure 2. Predicted values on subjective health according to education, labour market status and extensiveness of active labour market programmes. Source: Sjöberg (2013).



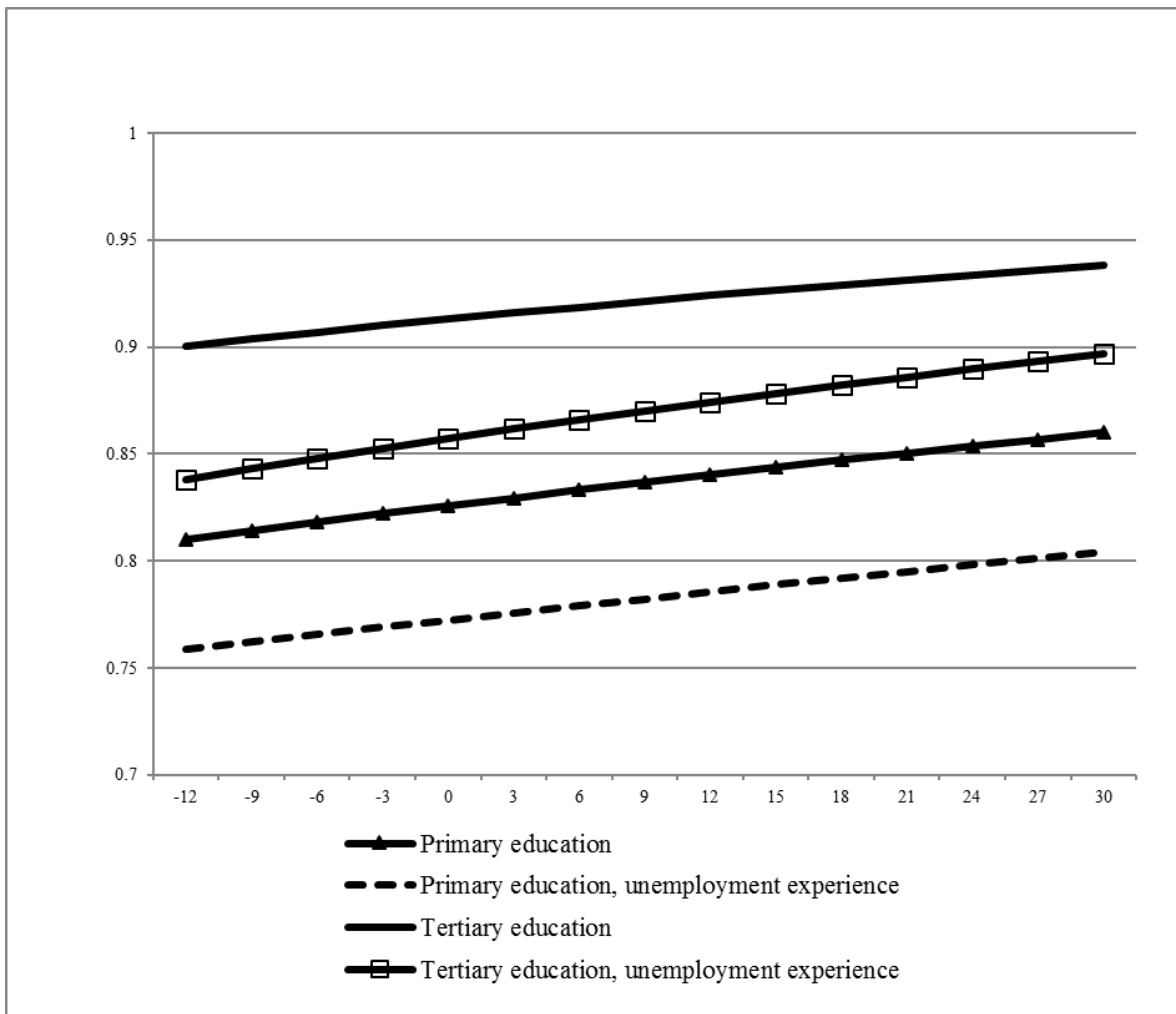
The extensiveness of active market labour programmes has a positive effect on the health of all young adults, but the effect on low-educated young adults without unemployment experience is less pronounced (Figure 2). In contrast, regular unemployment benefits have different effects on young adults depending on their educational background (Figure 3). Young adults with tertiary education (particularly those with unemployment experience) appear to get health benefits from regular unemployment benefits indicating that such benefits reduce distress related to economic uncertainties. For young adults with primary education with unemployment experience, the level of generosity of regular unemployment benefits has a small negative effect on self-rated health. This might be explained by the low probability of this group actually qualifying for regular unemployment benefits, which might lead to an increased sense of social exclusion. For those without unemployment experience there seems to be no effect, which supports the explanation that regular unemployment benefits are of limited importance to this group.

Figure 3. Predicted values on subjective health according to education, labour market status and generosity of regular unemployment benefits. Source: Sjöberg (2013).



The replacement rate of *specific* unemployment benefits for young adults appears to have a beneficial effect of a similar magnitude on the health of young adults in all four groups considered (Figure 4).

Figure 4. Predicted values on subjective health according to education, labour market status and generosity of unemployment benefits for youths. Source: Sjöberg (2013).



Even though the three unemployment policies (regular unemployment benefits, specific unemployment benefits for young adults and active labour market programmes) seem to be positive for the health of young adults, they do little to address and reduce educational differences in self-rated health since they have rather similar effects on all educational groups of young adults (in the age-range under study). What seem to have the smallest effect on the health of young adults are the regular unemployment benefits. These benefits have no effect on the health for young adults with primary education. The generosity of regular unemployment benefits are only associated with better self-rated health among young adults with higher educational attainment. The policy with the strongest effect for the most vulnerable group (young adults with primary education and an unstable position on the labour market) are active labour market programmes. These programmes have an impact on the health of all groups of young adults and seem to reduce educational inequalities slightly.

Unemployment protection and health among adults – coverage and replacement rates

Theoretical reasoning as well as a growing body of research suggests that that more extensive and ambitious welfare state provisions are linked to better health and also, to a certain degree, more narrow health inequalities. However, there is still a limited amount of evidence on which parts of the welfare state are most important in this respect, and what types of programmes and institutional set-up may generate these effects.

As discussed above, the regime approach commonly used to capture welfare state characteristics is not likely to contribute more knowledge on this ‘what works’ issue. This approach identifies clusters of qualitatively distinct welfare state types, and the social policy model of a particular country is therefore assumed to be something more and qualitatively different than the sum of individual policies and programmes. While this has proven useful, not least when the growth and development of the welfare state is analysed, it has become obvious that broad and analytically fairly blunt groupings of nations into welfare clusters is not very useful when the outcomes or results of different types of welfare states are studied (Brennenstuhl et al., 2012; Bergqvist et al., 2013). In order to draw theoretically and empirically valid conclusions about the mechanisms linking macro-level characteristics to individual-level outcomes, we need to study specific programmes and policies and their characteristics and qualities (Lundberg, 2008). This is important not least because different programmes and policies often are organised along different principles within countries. Countries belonging to the same welfare state model may therefore display a high degree of variation with regard to how specific programmes are organised.

As discussed above, there are two other approaches that better allow a more detailed analysis, although both of these have their drawbacks too. By using one of these, the social expenditure approach, Dahl, van der Wel and colleagues have provided highly important insights (Dahl & van der Wel, 2013; van der Wel, Dahl & Thielen, 2011). On the basis of European comparative data on living conditions they have been able to show that higher levels of social expenditure (controlling for need and GDP) are linked to better health, but more so among the low educated. Hence inequalities in health also tend to be smaller when social expenditures are larger (Dahl & van der Wel, 2013). However, larger social expenditures are also linked with lower levels of non-employment, in particular among the low educated and those with long-standing health problems (van der Wel, Dahl & Thielen, 2011). Hence the positive influence on levels and inequalities in health that social expenditure appears to have is probably linked in part to higher employment rates among more vulnerable groups.

However, while these studies have broken new ground in several respects they do not tell us much about *what it is* about larger social expenditures that can be beneficial for employment and health and contribute to smaller inequalities. Here, the institutional approach may contribute. Building on earlier studies of the impact of institutional characteristics of welfare states on health and inequalities (see e.g. Kangas 2010; Ferrarini & Sjöberg 2010; Ferrarini & Norström, 2010), new work has been undertaken to study the impact of different dimensions of the institutional arrangements of unemployment insurance for health inequalities between educational groups across European countries.

The relative importance of coverage and replacement rates⁵

First, two central aspects of unemployment benefit programmes – replacement and coverage rates – are analysed in relation to self-assessed health and educational differences in self-assessed health among the working-age population in 23 European countries. The effect on self-assessed health for individuals with different educational attainment was analysed using individual-level data from the EU-SILC for 23 countries and institutional and expenditure data on unemployment benefit schemes from the SPIN data base. SPIN is an ongoing research infrastructure at Stockholm University providing high-quality comparative data on major social benefit programmes, currently covering 34 countries (for more information, see: <http://www.sofi.su.se/spin>). To allow for comparisons across countries, replacement rates reflect the benefits an average worker would receive in case of unemployment. This average worker is thirty years of age, has worked for ten years all in all, has not been unemployed for the last two years (before the present unemployment spell) and earns an average production worker's wage. Benefit levels are expressed as net replacement rates, i.e. the ratio between the net benefit and the after-tax wage. The average of two periods of duration in receipt of benefits is used: one week and 26 weeks. Replacement rates vary between 0.15 and 0.78 with a mean of 0.55. Coverage refers to the proportion of the labour force that is covered by unemployment benefit schemes. Coverage rates vary between 0.50 and 1.00 with a mean of 0.73. In the multi-level models and in the graphical presentation – the three-way cross-level interaction between replacement rate, coverage and educational attainment (Figures 5 and 6 below) – coverage has been divided into three groups: low (containing eight countries, with values ranging from 0.50 to 0.68 and with a mean of 0.60), medium (containing nine countries, with values ranging from 0.74 to 0.86 and with a mean of 0.81), and high (containing six countries, with values ranging from 0.90 to 1.00 and with a mean of 0.97). These splits are made at natural discontinuities in the data – the average distance in coverage rates between two adjacent values is 0.022, the distance between adjacent values separating low and medium and medium and high values is 0.065 and 0.047 respectively.

The results indicate that breaking down unemployment benefit programmes into two main dimensions – the proportion in the labour force covered by such programmes and the replacement rate received in case of unemployment – provides further insights into institutional mechanisms linking macro-level social policies to individual-level health outcomes. Coverage in isolation has a positive impact on the self-assessed health of both low- and high-educated individuals, but has little impact on educational differences in health. In contrast, replacement rates appear to have no, or even a slightly negative, effect on the self-assessed health of individuals with primary and tertiary education alike.

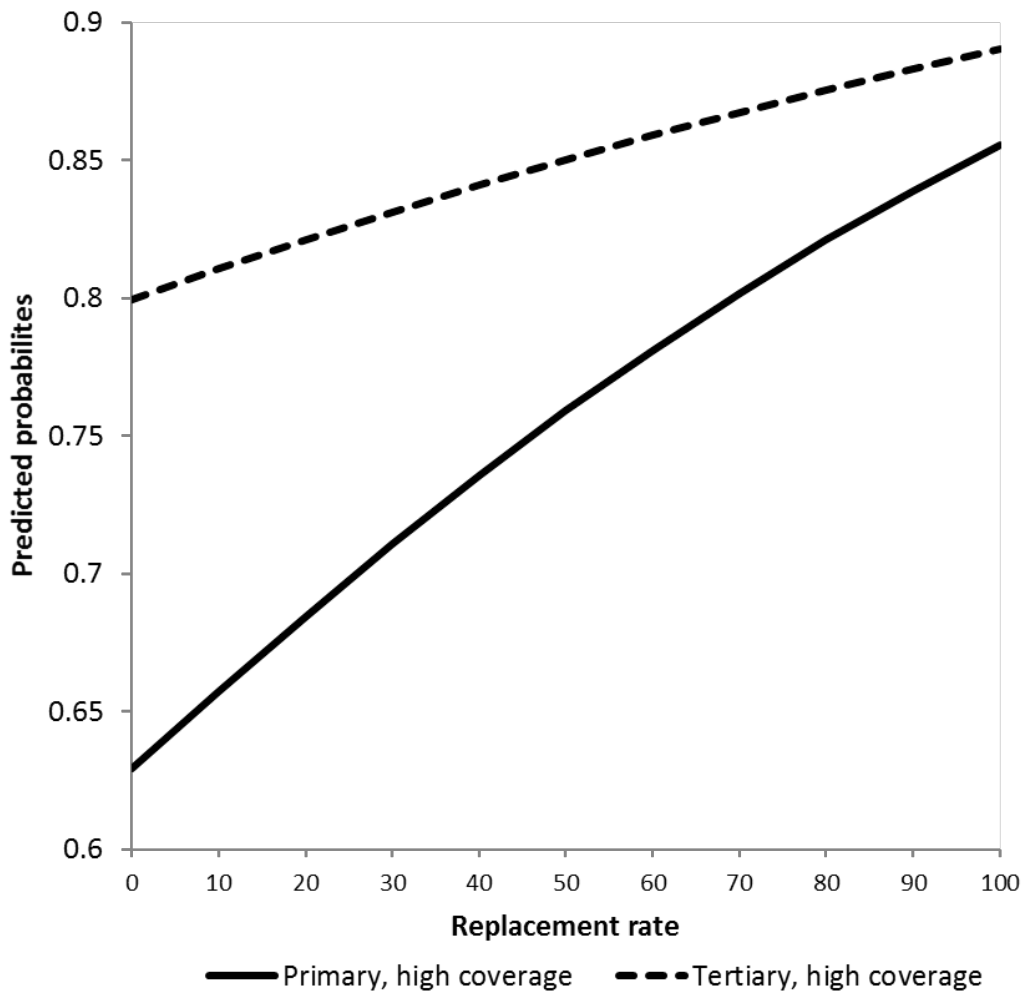
Intuitively it could be argued that high replacement rates will matter little for citizens and their health if the programmes in question do not cover them. Unemployment insurance coverage, on the other hand, is also likely to have an effect on self-assessed health at low levels of replacement rates, since it will decrease the likelihood that individuals fall into acute poverty. However, to ensure that individuals can uphold a socially acceptable standard of living, the drop in income and consumption cannot be too large during times of unemployment. This implies that coverage rates will have the largest impact on health when it is combined with high replacement rates and, therefore, the existence of an interaction effect between coverage and replacement rates.

As is evident from Figure 5 and 6, there is just such an interaction effect between the two dimensions of institutional set-up. Moreover, this interaction effect is more pronounced for individuals with primary

⁵ This section is based on Ferrarini, Nelson & Sjöberg (2014a).

education. In countries with high coverage rates (Figure 5), higher replacement rates increase the probability of reporting good health faster for individuals with primary education (the solid line), and hence higher replacement rates in combination with high coverage rates tend to decrease educational differences in self-assessed health.

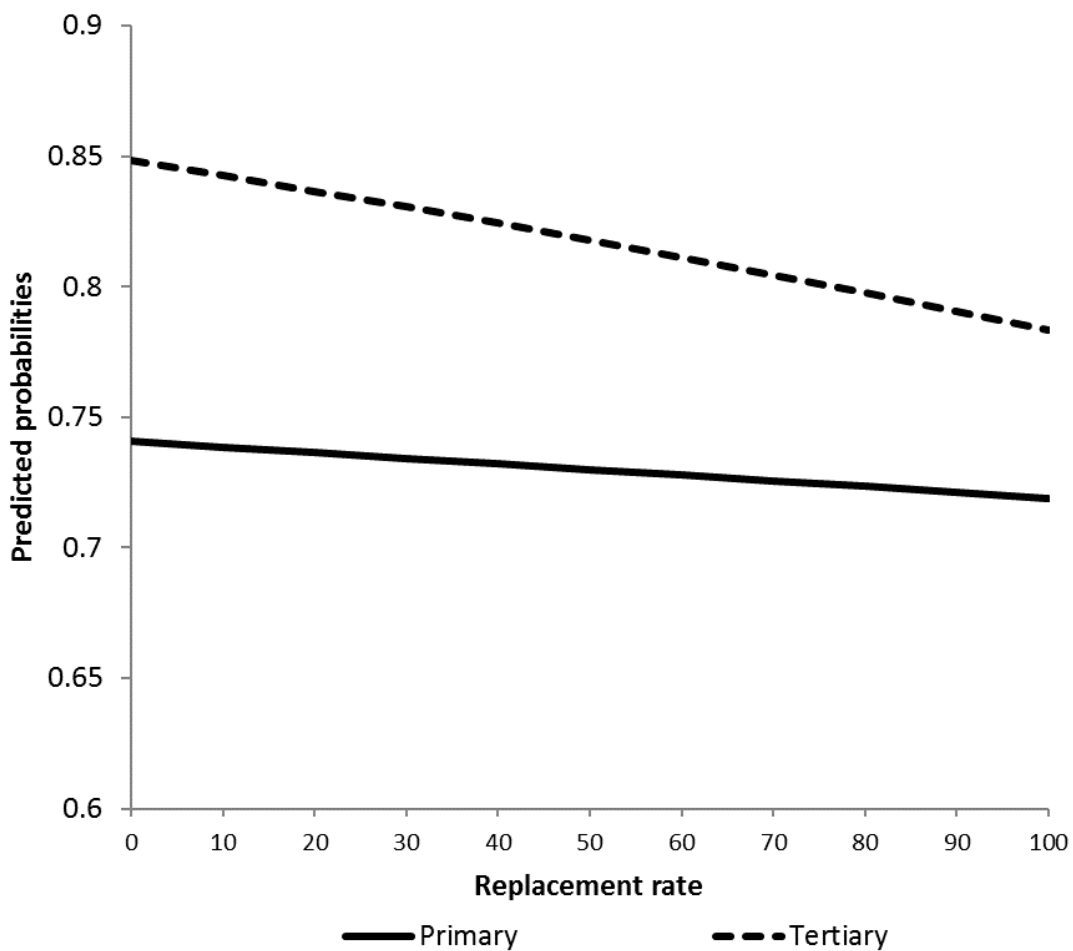
Figure 5. Predicted probabilities of having good health for respondents with primary and tertiary education in countries with high coverage along values of unemployment replacement rates. Source: Ferrarini et al. (2014a).



In contrast, in countries with low coverage rates the effect of replacement rates is negligible for the self-assessed health of respondents with both primary and tertiary education (Figure 6). Countries with medium levels of coverage display patterns very similar to those for countries with low coverage (not

shown). The results presented here are insensitive to alternative operationalisations and model specifications. Specifically, changing the size of the group of countries defined as having high coverage has little effect on the results presented. Also, when the group of countries defined as having high coverage is increased to include up to three more countries, the pattern presented here is clearly present.

Figure 6. Predicted probabilities of having good health for respondents with primary and tertiary education in countries with low coverage along values of unemployment replacement rates. Source: Ferrarini et al. (2014a).



Unemployment insurance and health deterioration⁶

These findings regarding the importance of unemployment benefits for health inequalities are clearly in line with the results presented by Dahl and van der Wel (2013), but given that they may reflect a causal relationship they also provide a better basis for policy change. To achieve improved health and smaller health inequalities the primary concern should be to obtain full (or very high) coverage, and then to increase replacement rates.

Since these analyses are linking macro-level phenomena (the legislated rights to unemployment insurance) with individual-level outcomes, the general inability to draw causal inference from cross-sectional studies do not necessary apply. The coverage and replacement levels in a country are part of the larger context that is not directly influenced by individual's health status. Even so, an analysis of change would provide a better basis for causal inference.

The empirical analyses by Ferrarini, Nelson and Sjöberg (2014b) combine longitudinal panel data on self-rated health from the 2009 release of the European Union Statistics on Income and Living Conditions (EU-SILC) and country-level data on unemployment insurance from the Social Policy Indicator database (SPIN). In EU-SILC, selected households remain in the survey for four years, before being replaced by another sampled household. Thus, we can here analyse the same individuals in 2006 and 2009. Across the participating countries the share of re-interviewed persons is around 83%. The analysed sample is restricted to respondents aged 18–64 years in 2006 and observed once again in 2009. Fully imputed cases in EU-SILC are excluded. In total, we analyse about 48 000 valid respondents.

The countries in this study are Austria, Belgium, Bulgaria, the Czech Republic, Cyprus, Denmark, Estonia, Finland, France, Greece, Hungary, Ireland, Latvia, Lithuania, Malta, the Netherlands, Norway, Poland, the Slovak Republic, Slovenia, Spain, Sweden and the UK. A few countries in EU-SILC had to be excluded from the analysis. Portugal has a history of inadequate sample sizes in EU-SILC and fails to meet Eurostat's minimum effective sample size for the longitudinal panel. Luxembourg is excluded due to its extremely high level of economic development, which does not necessarily reflect the real wealth of residents. Iceland and Italy are dropped because of missing policy data.

The analysis focuses on transitions into less-than-good health (here denoted ill-health), based on dichotomised scores for the same respondent in 2006 and 2009. A change for the worse on the dichotomised measure is coded as 1, all other instances are coded as 0. Thus, the focus is on transitions into self-rated ill-health, disregarding the amount of change in health. Again, the core independent variables are the coverage and the net replacement rates of unemployment insurance in 2006. The coverage rate is the number of insured persons according to national insurance registers, measured as a share of the total labour force. The net replacement rate shows the size of benefits after income taxation as a proportion of an average production worker's after-tax wage. This replacement rate data is based on model family estimation techniques, where entitlements for stylised households are calculated based on national legislation (Bradshaw et al., 1993). In order to avoid confusion with other types of benefits that people may receive, the social rights data has been calculated for a single-person model family with earnings corresponding to an average production worker's wage, using two periods of benefit duration; a

⁶ This section is based on Ferrarini, Nelson & Sjöberg (2014b).

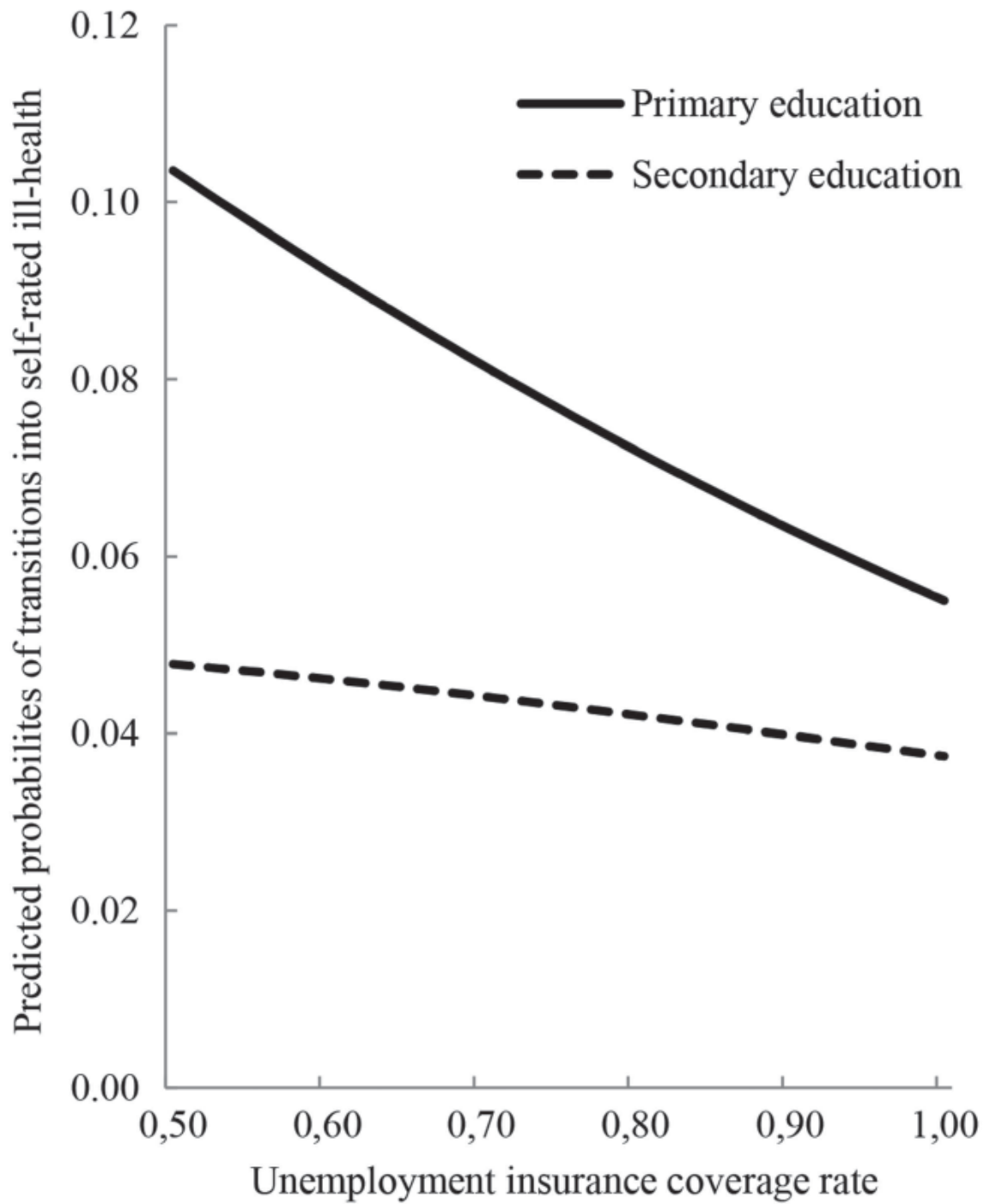
single week and 26 weeks (Ferrarini et al., 2013). Net replacement rates range between 0.14 and 0.93 among our countries, whereas coverage varies between 0.51 and 1.

The analysed period (2006-2009) covers the global financial crisis, but still the changes in legislated rights have been small. The average changes in coverage and net replacement rates between 2006 and 2009 in the countries studied are less than -0.02 and -0.01 , respectively. Although reforms to unemployment insurance have been salient in a few countries, for example in the Czech Republic and in Sweden, it is stability rather than change in the legislated rights that is the general rule. This has prompted the use of conditional change models for the statistical analysis. Conditional change models are common in epidemiology as baseline adjustments of initial health status improves efficiency of results, reduces problems of confounding effects, and avoids bias caused by bounded measurements in health status. Because individuals are nested within countries, hierarchical logistic conditional change models have been used. This means, among other things, that self-rated health status at first year of observation (2006) is included among the independent, explanatory variables.

As for the analyses, the key finding is that unemployment coverage is of primary importance, and even more so for low educated. Figure 7 shows predicted probabilities of people with primary and secondary education at different levels of unemployment insurance coverage. The adverse health effects of educational attainment evidently level off as coverage increases. The interaction effect is particularly pronounced for primary education, but also appears for individuals with secondary education. Predicted probabilities are nearly halved for people with only primary education when coverage increases from 0.50 to 1.00, whereas probabilities are reduced by about one-fifth for those with secondary education.

This finding strengthens the findings presented in Figure 5 and 6. The unemployment insurance and, in particular, the coverage rate is related not only to the levels of health but also to the rate of deterioration of health. People with low education have poorer health and are more likely to experience deteriorating health over a three-year period in relation to those with more education. However, in countries with full unemployment coverage this difference between educational groups is less pronounced, and hence health inequalities tend to be smaller.

Figure 7. Predicted probabilities of transitions into self-rated ill-health by educational attainment at different levels of unemployment insurance coverage in 23 European countries. Source: Ferrarini et al. (2014b).



Minimum income benefits and mortality⁷

Although population health is widely believed to reflect the living conditions in society, surprisingly few comparative studies systematically assess policy impacts of anti-poverty programmes. In this analysis the influence of minimum income benefits on mortality is estimated using institutional data for 18 countries 1990-2009. Included are all major non-contributory benefits that low-income households may receive.

The analysis is based on a refined analytical approach where programme-level effects are in focus, thus moving research beyond the black box of welfare state regimes and expenditure patterns (Bergqvist et al., 2013; Pega et al., 2013). The purpose is to study determinants of population health in comparative perspective and to explore effects of minimum income benefits on mortality in affluent countries. These minimum income benefits are often exclusively designed to improve living conditions by providing income transfers to poor people who have no earned income and lack access to contributory benefits. The hypothesis is that minimum income benefits are positively related to population health and contribute to healthier societies in terms of lower death rates and improved longevity. A cross-sectional time-series regression approach is used to analyse the influence of minimum income benefits on population health in terms of mortality outcomes.

A number of factors may influence the relationship between minimum income benefits and mortality. Among confounding variables GDP per capita based on OECD data and measured in thousands of purchasing power adjusted \$US is included. Also the poverty rate was included, measured according to the definition adopted by the European Union and corresponding to the number of individuals living in households with an equalised disposable income below 60 percent of the national equalised disposable median income, and expressed as percentage of total population.

One particular challenge in comparative analyses of minimum income benefits is that countries have organised programmes differently. Whereas some countries use a single means-tested and non-contributory social assistance benefit that covers nearly the entire population, other countries rely on categorical social assistance benefits for different population sub-groups. In some countries poor people may also receive additional benefits that are granted outside of social assistance. In order to allow meaningful comparisons across countries, benefit levels are based on model family estimation techniques (Bradshaw et al., 1993), where available minimum income benefit packages are calculated based on national (sometimes regional) legislation for three family types; a single person, a lone parent and a two-parent family with two children, respectively. The minimum income benefit packages include all non-contributory benefits that low-income households may receive according to programme regulation, including social assistance, housing allowances, child benefits, and refundable tax credits, where applicable. The model families are thus assumed to have no other means of income, including work income or access to contributory social insurance benefits. Benefits are expressed net of taxes and converted into purchasing power adjusted \$US.

⁷ This section is based on Nelson & Fritzell (2014).

Table 2. Fixed effects regression estimates with standard errors for minimum income benefit levels on age-standardised mortality per 100 000 in 18 OECD countries 1990-2009. Source: Nelson & Fritzell (2014), Table 4.

	<u>Women</u>		<u>Men</u>	
	Estimate	SE	Estimate	SE
Univariate model	-21.86**	3.13	-42.38**	6.83
Full model ^a	-11.32**	2.58	-14.54*	5.22

**) p<0.001, *) p<0.05

a) Full model include. Minimum income benefit level, relative poverty rate (as % below 60% of median household income), GDP, Social expenditure as % of GDP, % Public financing in health expenditures, Health employment, numbers per 100 000, Alcohol consumption (litres per capita 15+), Tobacco consumption in hundreds of grams per capita

The general pattern indicates that mortality and minimum income benefits are related. Countries that are grouped in the highest category of minimum income benefits on average tend to have better population health. The results on links between minimum income benefits and mortality are also remarkably robust in terms of confounding effects of other possible determinants of population health, although caution should be raised in terms of potential bias resulting from time-varying confounding effects and possible omitted variables. The major exception to the general pattern is life expectancy among men, which on average is highest among countries with intermediate benefit levels. Thus, the association between minimum income benefits and mortality is far from perfect and some countries deviate from the overall pattern.

The exact pathways linking minimum income benefits to mortality and population health needs to be investigated further. Although the curvilinear relationship between income and health at individual level may be sufficient to produce effects of poverty and income inequality on mortality at country level, it is difficult to establish a causal relationship between anti-poverty programmes and population health. One reason is because mortality is a result of a multitude of factors, where social protection is only one likely determinant.

Social protection of health and incomes at labour market exits⁸

The transition from paid work to retirement is a critical phase in many people's lives that can have important consequences on their health and wellbeing. The 'decision' to retire is however also very complex. In countries employing flexible pension age, it may be a voluntary decision based on rational calculations where the benefits of continued work are weighted against the benefits of being a pensioner. For others, the decision to retire is not voluntary, either because there is a statutory pension age or because limitations in people's health effectively rule out continued work.

For society, extending working careers is crucial in light of ageing populations, low fertility rates and delayed entry into and establishment in the labour market. The need to finance welfare expenditures under increasing demographic pressure makes the extension of working lives a prioritised policy area also at the EU level. In many countries, reforms such as increasing the statutory pension age, restricting eligibility for pre-retirement and disability/invalidity pension, and increasing the number of work-years required for pension entitlements have been implemented or proposed.

For most people, the transition to retirement involves a reduction in income, and even the risk of falling into poverty, which lowers their consumption possibilities and restricts their sense of control over their lives and may negatively affect their health. Paid work also has other important latent functions for people. It may, for example, provide people with a sense of participation in a collective purpose and effort; it is an important source of status and identity in modern society; and it contributes to psychological wellbeing by virtue of being a required, regular activity. Accordingly, for many disability and old age pensioners, their situation has a permanency which may impact on both their incomes and identity, and this relative permanency – the prolonged exposure to pension circumstances – is also of interest when analysing their situation as to income and health.

The welfare state and the health of older workers in Europe

Public pension rights have the potential to affect the health and wellbeing among pensioners mainly through three mechanisms. Firstly, pension benefits may be invested in goods and activities that improve health and wellbeing of benefit recipients. Secondly, more generous pension systems may reduce income differences and poverty amongst the elderly (Norström & Palme, 2010). There are findings suggesting that lower income differences are associated with better health and lower mortality (Wilkinson, 1992), although the evidence is far from conclusive (Deaton, 2003). Thirdly, social benefits may not only have a beneficial effect on those receiving them, but also for working and healthy persons by reducing the stress related to the risk of economic insecurity through times when unable to provide for oneself in the market (Sjöberg, 2010).

In their analyses of the health of individuals that are approaching the 'standard' retirement age (i.e. people between 50 and 64 years of age), Esser and Palme (2014) use data from five rounds (2002-2010) of the European Social Survey. Their measure of health is self-rated health ("*How is your health in general...?*"). They argue that using this measure in an absolute way may produce biased results, as the health of older workers may have been shaped during the entire life course within a country-specific context. As a complement, they also use a relative measure – *excess health* – defined as the ratio of

⁸ This section is based on studies by Esser & Palme (2014), Elstad & Dahl (2013a) and Elstad & Dahl (2013b).

health of the persons aged 50-64 divided by the average health of the corresponding persons aged 25–49 within each respective country (by gender).

When analysing the health of individuals that are approaching the 'standard' retirement age (i.e. people between 50 and 64 years of age) we are dealing with a group that have a different composition across countries. The proportion working full-time (as indicated by respondents themselves when asked about their main activity the week before the interview) is especially high in the Nordic countries, particularly among women. In these countries, the proportion retired is also relatively low. In contrast, in the Central and East European countries the proportion among persons aged 50-64 working full-time is significantly lower, and the proportion retired is higher.

Three social insurance programmes are the focus of the analyses: unemployment insurance benefits, sickness cash benefits and disability benefits. Two central characteristics of these programmes are analysed: replacement rates (i.e. the amount of sickness, unemployment and disability benefits as a proportion of an average wage) and coverage (the proportion of the labour force covered by unemployment and sickness insurance). In their analyses they use the overall average of coverage and replacement rates for these three programmes, as well as an overall composite index combining replacement and coverage rates. As the effect of these characteristics may be expected to vary across groups, the total sample were divided into four sub-samples in relation to their labour market status; (i) working, (ii) non-working (unemployed or house work), (iii) sick and disabled, and (iv) retired. All analyses were also stratified according to gender (thus eight subsamples are analysed). In addition, three control variables (at the country level) are included in the analyses: GDP/capita, unemployment rates, and the legislated standard retirement age for men and women respectively (in 2010). Within a multi-level framework, the analyses also control for several variables at the individual level, such as age, household structure, education, ethnic background, partner's education and, in the subsample consisting of working individuals, also social class, employment contract and job quality.

Their main findings are, firstly, that there is a strong positive correlation between health and level of economic development – health is generally better in richer countries. The correlation is stronger with measures of excess health as compared to the absolute measure of health. Secondly, the generosity of social protection appears to have few general effects when analysing the total population aged 50-64, especially when structural factors (GDP, unemployment and legislated standard retirement age) are taken into account. However, when analysing sub-groups, there is a significant positive relationship between coverage and self-rated health among those in work (both men and women), as well as for women not working and retired women. When controlling for structural factors, the significant positive relationship between coverage and health among working and retired women remains. Somewhat surprisingly, when structural factors are controlled for, there is a negative relationship between replacement rates generosity in five out of eight subsamples. However, the replacement rates of disability benefits have a positive effect on the subjective health of men in the subsample disabled/sick. The combined index (coverage and replacement rates) displays no significant effects when applying controls at the country level. When coverage and replacement rates are entered into the same model and controlling for GDP and unemployment, there is once again a negative effect of replacement rates on subjective health in four of the eight subsamples (working and not working men and women), whereas there is a positive effect of coverage on the subjective health of working women and disabled/sick women.

Norway as a crucial test case⁹

Norway can be considered as something of a crucial test case when it comes to the impact of the welfare state on health and incomes at labour market exits. By many standards Norway is a generous welfare state, with universal and comprehensive social policies. Norway also largely avoided the severe economic downturns that affected many countries in Europe in the early 1990s and in 2008. The growing affluence is illustrated by the fact that the median disposable consumption-unit-equivalised real (price-adjusted) household income in Norway rose by 33 per cent from 2000 to 2009.

Disability pension is also the main component of social insurance in Norway for adults under the statutory pension age. Thus, it can be argued that Norway is a positive benchmark with the institutional and economic resources necessary for protecting the health and incomes of disability pensioners. If the transition to retirement has substantial negative effects on incomes and health in Norway, we have reason to believe that the situation might be even worse in countries which are less fortunate in economic and institutional terms.

Disability pensions in Norway

The statutory retirement age in Norway is 67 years. For individuals whose health is majorly reduced before this age, the public disability pension is the main form of income protection. Around 20 per cent of Norwegians aged 45-66 were disability pensioners in the early 2000s. The requirement for being granted disability pension is that the earnings ability should be permanently reduced by at least 50 per cent, and that adequate medical treatment and rehabilitation has been tried. A doctor's confirmation is needed, and during the early 2000s more than one in five applicants were turned down. There is a guaranteed minimum level, but the size of the disability pension is to a considerable extent also determined by previous work incomes. Disability pensioners can also receive other welfare state benefits, and are also allowed to have some paid work income when receiving disability benefits. Many disability pensioners also receive supplementary disability pension from employment-based pension schemes. The median age when disability pension was granted was around 55 years during the 1990s, and very few leave this system before being transferred to old age pension at the age of 67.

In the two case studies from Norway, incomes across 16 years (1993-2008) were analysed for two categories: men and women who became disability pensioners in 1998 (when being between 45-60 years of age), and men who died from a fatal disease in 2009/2010 (aged 61-69).

Income and poverty among disability pensioners in Norway

There is a marked reduction in personal pre-tax incomes with the transition to disability pension in Norway. Around 70 per cent had an individual income in 1999 (i.e. one year after being granted disability pensions) that was lower than their individual income in 1993. The reduction in income was more pronounced among those who before becoming disability pensioners had comparatively high incomes, which is partly explained by the fact that the disability pension system compensates for previous incomes only up to a specific income level.

However, when taxation and household composition are taken into account, the transition to disability pension was not accompanied by any marked reduction in the overall purchasing power of households. A marked distance to the median among the non-pensioners evolved, however. In 1993, the median soon-

⁹ The section on Norway is based on Elstad & Dahl (2013a and 2013b).

to-be male disability pensioners' consumption opportunities were around 15 per cent lower than for the median non-pensioner; in 1999 the corresponding figure was about 28 per cent lower, and in 2008 it was 30 per cent lower. This pattern is roughly the same for women.

Also, some years before they entered disability pension, the extent of relative poverty (measured as 60 per cent of the median income) was higher among soon-to-be disability pensioners than among non-pensioners. After disability pension was granted, relative poverty increased, and about one in eight was relatively poor in 1999-2001, as opposed to 4 per cent among non-pensioners. However, over time the prevalence of relative poverty among disability pensioners did not increase. One reason for this might be higher mortality among low-income disability pensioners. Also noteworthy is that more than four out of ten disability pensioners – both in 1999-2001 and 2004-2006 – lived in households with equalised disposable incomes which were actually above the national median.

The relatively low level of relative poverty among disability pensioners in Norway is to some extent the result of work incomes and employment-based supplementary disability pensions. Whereas public disability pension constituted 90 per cent of the total incomes of low-income disability pensioners, somewhere between 40-50 per cent of incomes of the high-income pensioners came from employment-based pension schemes and paid work. The prevalence of poverty among pensioners who had to rely almost exclusively on welfare state income protection was also rather high, around 30 per cent.

Work incomes and access to employment-based supplementary disability pensions is also class biased. Whereas the median value of public disability pension and other welfare state income support does not vary much according to educational level or occupation, access to employment-based supplementary pensions is much higher among the highly educated and higher white collar occupations.

Access to work incomes was also class biased in the same way, which could reflect class differences in graded (less-than-100-per cent) disability pension, but also class differences in opportunities for exploiting the possibilities of having work incomes after being granted disability pension, due to special competences, social networks, or other advantages. This class bias in access to incomes from non-public sources contributes to class differences among the disability pensioners in the prevalence of relative poverty. In 1999-2001, for men and women together, 17 per cent of the disability pensioners with basic education, compared to 5 per cent of those with college or university, were relatively poor.

Mortality among disability pensioners

Not very surprisingly, mortality among disability pensioners is higher than among non-pensioners. Among the new disability pensioners in 1998, 21.3 per cent of the men and 11.0 per cent of the women had died during the following 12 years. Among non-pensioners, mortality was markedly lower – 7.2 per cent of the men and 4.3 per cent of the women had died during the same time period. The interesting question in this context is the extent to which economic circumstances after entering disability may explain mortality among disability pensioners. This is a methodologically very complex question. This complexity arises from the fact that observed associations between incomes and mortality risk could have a joint explanation in previous ill health. In the analyses of the Norwegian disability pensions, an attempt is made to circumvent these problems by constructing two measures aimed at capturing the long-term health status of individuals; welfare dependency 3-5 years before retirement and work incomes two years after retirement. It is argued that both welfare dependency before and work incomes after being granted disability pension may be related to earnings capacity, which in turn may be related to individual health

before being granted disability pension. It is very important to remember that these are indirect and imperfect indicators of long-term health status – welfare dependency before retirement and earnings after retirement could very well reflect other things, such as lack of social networks and social marginalisation in more general terms. After statistically adjusting for welfare dependency, the association between income and mortality is reduced but still statistically significant. When also adjusting for work incomes after retirement, the income gradient in mortality practically disappears.

Income consequences of a lethal disease

The second case study from Norway analyses how the income protection system in Norway functioned for persons that died from a fatal disease when in their sixties (in 2009/2010). The results show that to be afflicted by a lethal disease was typically accompanied by an income penalty – not in terms of an absolute reduction in buying power, but in terms of a gradually increasing income gap between those who fell ill with a deadly disease and those (of the same age, education, etc.) who did not. Sixteen years before their untimely deaths, the median pre-tax personal incomes among those who died in 2009-2010 were already around 12 per cent lower compared to those who did not die. A likely explanation is that those who died had more often experienced disadvantaged life events and health problems which had lowered their earnings. Their premature death in 2009/2010 could therefore have had long-term precursors which had somewhat inhibited their earnings. The gap started to increase markedly in 1997/1998, suggesting that the emerging health problems, ending in death in 2009/2010, had distinct negative implications for their income situation. In the mid-1990s, the median post-tax income among those who died in 2009/2010 was about 90 per cent of the level among the matched healthy survivors; in the late 2000s, this percentage had decreased to about 82-83 per cent.

There is also are no marked differences between educational groups in the development of their disposable income. However, there is a marked educational gradient in the degree to which a similar functional limitation was followed by a reduction in work incomes. For those with basic education, work incomes started to decline in the late 1990s and were from 2005 onwards zero. For those with college or university education, practically no work income decline (on average) is observed before 2004, and although work incomes after that drop fast, considerable work incomes were also obtained in 2007 and 2008. It appears, therefore, that the consequences of disease are much more compatible with the usual work requirements in high status occupations (where the higher educated usually work) than with the work demands in the typical occupations of those with less education.

Conclusions, findings and messages

The work presented here builds on the emerging research field of welfare states and public health (Lundberg et al., 2008 a, b; Åberg Yngwe et al., 2010; Lundberg et al., 2013). Thus, the choice and design of the specific studies undertaken have been tailored to expand and deepen knowledge on the importance of income and social protection policies for health and health inequalities. Our efforts include 1) methodological and conceptual development, 2) a better understanding of fixed (absolute) and relative mechanisms that link poverty to health and mortality, 3) a more comprehensive understanding of which features of social policy programmes are of importance for health in different social strata, and 4) a closer scrutiny of crucial stages across the life course, in particular entry and exit from the labour market.

A conceptual and methodological conclusion is that the welfare regime approach is often too crude to be used for more detailed studies of how different features of social protection policies can affect health and inequalities in health. In order to give proper policy recommendations, we cannot only look at differences between groups of countries that often differ substantially within those clusters. Furthermore, important policy changes that may affect health and health inequalities often occur in countries without affecting researchers' classification of countries into these clusters, thus emphasising stability rather than change. Rather, we need to look at the details of the policies – who gets what, when, and for how long – and study how variations in the design and ambition of policies is linked to health for different population groups.

It is important to point out that poverty, both in relative terms (as those who fall below a specific cut-off point in the national income distribution) and in fixed terms (as those below a fixed amount of money), is related to mortality among infants, children and adults. While both appear to be related to mortality, relative poverty often has a stronger relationship with mortality. This might reflect a methodological difficulty in defining a fixed poverty line, but may also suggest that the social comparisons involved in two of the three possible causal chains presented in Figure 1 are crucial and better reflected by the relative poverty measure.

Key findings and messages

Regarding the crucial step *into the labour market*, a key finding is that the extensiveness (i.e. the proportion of unemployed participating, and expenditure per participant) and the generosity (i.e. the replacement level for benefits, the duration of these benefits, and the period of work necessary to qualify for these benefits) of policies are important for health and inequalities among young adults. In particular this relates to active labour market policies and unemployment benefits specifically intended for youths that seem to be associated with better health among all groups of young adults. In contrast, the generosity of regular unemployment benefits (where a period of paid work prior to unemployment is needed to qualify for benefits) is only associated with better self-rated health among young adults with higher educational attainment. These results have important policy implications, both in regard to how scarce resources should be distributed between active and passive measures and to how passive measures should be shaped. Although a key finding in this report is the importance of coverage of social protection schemes for health and health inequalities, extending coverage against certain risks may sometimes require supplementing existing schemes with schemes particularly targeted at vulnerable

groups. Schemes that offer protection in case of income loss due to unemployment is here a good example: eligibility criteria such as a period of paid work and/or financial contributions might be a good idea to avoid excessive use of unemployment benefits, but it also means that young people will find it very difficult to qualify for such benefits. Extending coverage of unemployment benefits might in this context therefore imply setting up, or improving the generosity of existing, complementary schemes targeted at those that do not qualify for regular benefits, such as young adults.

One key finding from the analyses of *social rights during working years* is the crucial interplay between two central dimensions of the level of ambition of welfare states, namely coverage and replacement rates. In general, we can show that health is positively associated with replacement rates, in other words health is better in countries where levels of social protection benefits are higher. This is particularly true for the lower educated, which means that health inequalities can be reduced. However, this only holds when coverage rates are high. This makes good sense – if only a few are covered by insurance it matters little if the payments are high or not. In fact, it actually appears as though the health effects of increased replacement rates are slightly negative where coverage is lower. This could well reflect a sort of relative deprivation in such systems. These findings go well together with earlier work by Dahl and van der Wel (2013), reporting that health inequalities are narrower where social expenditure is higher. Social expenditure is of course driven by both coverage and replacements levels, as well as the need in the population in terms of e.g. unemployment levels (that is, however, adjusted for by Dahl and van der Wel).

The primary importance of coverage also fits with the conclusions drawn above regarding young adults, where coverage of regular unemployment benefits is more likely to be high among those with tertiary education, the group that also seem to benefit from such benefits. Again, we believe that the findings point to the need for different systems covering different types of risks. While regular unemployment benefits should have high coverage and high replacement rates in order to become a real collective resource, it must also have qualification criteria. For those groups that do not meet these criteria, other types of safety net must be in place. This conclusion is further supported by the analysis of the health of individuals that are approaching the ‘standard’ retirement age (Esser & Palme, 2014). Although there are few general effects of social policies on health in this group (especially when potentially confounding factors are controlled for), there is a positive effect of the generosity of disability benefits on the health of disabled and sick. Thus, for especially vulnerable groups it is not primarily the overall generosity of the welfare state that matters, but rather the conditions and generosity of policies targeted at their specific needs.

One such final safety net is minimum income benefits (MIB). As showed by Nelson and Fritzell (2014), the summed value of such benefit packages (including social assistance, housing allowance, child benefits and refundable tax credits) is linked with mortality – more generous packages means lower mortality. They also find that this finding is robust and also holds when adjusting for a range of possible confounders. Furthermore, the link between relative poverty levels and mortality seems to be at least in part a matter of differences in MIB.

A more general conclusion from these findings is that universalism is not only about high coverage rates or high replacement rates, but also that different types of risks may have to be addressed by different types of programmes. Hence, truly universal social policies may have to consist of a set of different safety nets that together cover a range of social risks.

Conclusions and recommendations

This report and the new pieces of work that it summarises builds on and extends our previous work in the field; the NEWS report for the CSDH (Lundberg et al., 2008a, b; Åberg Yngwe et al., 2010) and the Task Group report on social protection to the Review of Social Determinants and the Health Divide in the European Region that was recently launched (Lundberg et al., 2013). In general terms, our findings also underscore and support the overarching conclusion from the latter, namely that health is better and health inequalities generally smaller with larger efforts in terms of social protection policies. Hence, countries who do little can initiate something, countries that have some social protection can do more, and the countries that already do a lot can probably do better.

In terms of *policy recommendations*, and building on earlier key findings (like Dahl and van der Wel, 2013), we can conclude that the design and extent of social protection programmes are indeed linked with health and health inequalities. However, these links are complex. One such complexity is that our findings clearly indicate that there are cases where all groups appear to benefit. While this is clearly positive in terms of average health levels, it also means that no major reductions of inequalities are achieved in those cases. It also points to the importance of the insurance aspect of social protection for population health; when the employed also have better health in societies with better coverage and higher replacement rates, it is likely to be a result of the higher security offered by such systems, and not the better benefits themselves.

Another important conclusion from our work, which is actually new knowledge, is that programme components can interact. In the case of unemployment benefits, a high coverage is primary – with a low coverage, the replacement rates are not of importance for health, but with high coverage higher replacement rates are linked with better health, primarily so among the low educated. The policy message here is that it is better for population health to ensure that coverage is high and then increase the level of replacement rates. Whether this applies to other types of programmes (for example, sickness insurance) is not yet clear. However, earlier findings suggested that the level of basic pensions are important for mortality among the older population, whereas the level of income-related pensions were not (Palme & Norström, 2010).

Findings presented here also point to the importance of active labour market policies (ALMPs) for health and inequalities. This is in line with e.g. van der Wel et al. (2011), as well as the work on employment in the DRIVERS project (Siegrist et al., 2014), and suggest that investment in human capital is important for health and health inequalities.

However we also want to stress that doing more and doing better can, and probably should, include several things. Again, we suggest that multi-layer universalism, which entails different types of programmes for different types of risks, probably offers the best collective resource. This includes cash transfer programmes of different kinds – both contributory and minimum income benefits – as well as welfare services of good quality such as active labour market programmes. Again, an increased coverage of social protection is one way of doing more and better (Ferrarini, Nelson, & Sjöberg, 2014a, b), as is improved replacement levels when coverage is already high. Nevertheless, health inequalities are about both the gradient and the margin – and these different positions require different policy solutions. One way of doing more and better for those in the margin is potentially to increase the levels of minimum income benefits (Nelson & Fritzell, 2014).

There are also a number of *methodological and research conclusions and recommendations* that we can make. Our methodological conclusions refer to the more theoretical and conceptual aspects of our work, as well as technical and practical aspects relating to data and analysis. As underscored by our analytical review (Bergqvist et al., 2013), we strongly suggest that there is a constant need to critically evaluate the concepts and tools we use. This is particularly true in this field, where it is clear that the findings we produce, and hence the recommendations we may give, are much more clear and policy relevant when we apply an institutional or expenditure approach to capture welfare state performance. Different welfare state regime typologies may be illustrative but are not analytically useful when the outcomes of the welfare state are in focus.

The institutional approach mainly taken here has allowed for more refined analyses where it has been possible to disentangle different dimensions of social policies, and analyse their independent and combined importance for health in different educational groups. Continued work should explore these possibilities further.

A key feature of most analyses produced in our work on income and social protection is that data on different levels have been combined in order to undertake analyses of the importance of policy level features on individual level health outcomes in different educational groups. However, this approach also requires good data of different kinds at these levels. We have been dependent on the availability and quality of the European Survey of Income and Living Conditions (EU-SILC) and the European Social Survey (ESS). It is of vital importance that this type of resource receives continued funding, but also that the features offered in these data sets, such as the panel component of EU-SILC, become more explored and utilised.

The data on institutional features that we have relied on are not available in these general data resources, but are instead the result of many years of research work in collecting and coding the social rights in different countries. These efforts, as well as the funding needed to conduct these data collections, must also be recognised.

While we have primarily relied on institutional data to capture welfare state efforts, it is important to recognise the need for different and complementary approaches to capture different aspects of policies. In particular, it is essential that the characteristics of both specific programmes and the combined welfare state package are analysed in relation to the health and wellbeing of people in different social strata. This combined approach is likely to require data on institutional arrangements, social expenditure, and the full range of individual living conditions that constitute the individual level social determinants of health.

Finally, our work also provides a basis for a theoretical reflection. The social determinants framework, in line with the Nordic welfare research approach (Fritzell & Lundberg, 2007) and the fundamental cause perspective (Phelan et al., 2010), is mainly focused on the conditions and resources in different spheres of life that impact on health. These include the early childhood conditions, work, employment and working conditions, and the income and economic resources addressed as key drivers of health inequalities in the DRIVERS project.

The social determinants framework has proven essential for a wider understanding of health and health inequalities, both by offering a more complete understanding of how health inequalities are generated and by bringing into focus policies that address these key drivers and their distribution.

However, people are not simply exposed to a range of conditions, and their life chances cannot solely be understood as the resources they control. People act, react and adapt, in different ways and to different extents in different social strata. In order to gain a better understanding of persistent health inequalities, not least in some of the wealthier and more egalitarian countries in Europe, we believe that there must be more room for human agency in the social determinants framework, and in particular 'health related human agency' (Freese & Lutfey, 2011). The persistent inequalities in health also in the welfare states that spend most, prompt us to develop both our theoretical approaches and empirical studies further.

Final remark

The generation of health inequalities over the life course is a complex process, and clearly there are limits to the importance that income and social protection policies may have for health in different social strata. On the other hand, and given the importance of relative poverty, social protection policies are still important for health inequalities across Europe. Also, it is always possible to use existing levels of resources in a better way. However, it is also clearly possible that the more subtle forms of social inequalities that are embedded in values, norms, beliefs and behaviours are more powerful than we would usually like to think. It seems that existing policies are often based on the idea that equality in opportunities will lead to (gradual) improvements in equality of outcomes. However, the value of the collective resources provided by the welfare state may differ depending on the skills and wills to draw on them. Amartya Sen (1985) makes a distinction between *achieved functionings* and *capabilities*, where the former are actual conditions of life (social determinants of health) and the latter the abilities or freedoms to live the life one wishes to live. If social protection policies affect primarily the former, and health is also dependent on the latter, we need to ask what kind of actions and reforms are needed in order to achieve a more equal distribution of capabilities.

References

- Abrassart A. (2013). Cognitive Skills Matter: The Employment Disadvantage of Low-Skilled Workers in Comparative Perspective. *European Sociological Review*, 29: 4, 707–19.
- Antonovsky A. (1979). *Health, Stress, and Coping*. San Fransisco, Jossey Bass.
- Atkinson, T., Liem, R. and Liem, J. H. (1986), The Social Costs of Unemployment: Implications for Social Support. *Journal of Health and Social Behavior*, 27: 4, 317-31.
- Becker, G. S. (1964) *Human Capital*. New York: Columbia University Press.
- Bell D, Blanchflower D. (2011). Young people and the Great Recession. *Oxford Review of Economic Policy*, 27: 2, 241-67.
- Bergqvist K, Åberg Yngwe M, Lundberg O. (2013). Understanding the role of welfare state characteristics for health and inequalities – an analytical review. *BMC Public Health* 13:1234, <http://www.biomedcentral.com/1471-2458/13/1234>
- Bradshaw J, Ditch J, Holmes H, et al. (1993). *Support for children: a comparison of arrangements in fifteen countries*. London: HMSO.
- Brennenstuhl S, Quesnel-Vallee A, McDonough P. (2012). Welfare regimes, population health and health inequalities: a research synthesis. *J Epidemiol Community Health* 66(5):397–409.
- Dahl, E. van der Wel, K. (2013). Educational inequalities in health in European welfare states: A social expenditure approach. *Social Science & Medicine* 81: 60–69.
- Darity W, Goldsmith, A. H. (1993). Uemployment, Social Psychology, and Unemployment Hysteresis. *Journal of Post Keynesian Economics*, 16: 1, 55-71.
- De Cuyper, N. and De Witte, H. (2006). The Impact of Job Insecurity and Contract Type on Attitudes, Well-Being and Behavioural Reports: A Psychological Contract Perspective. *Journal of Occupational and Organizational Psychology*, 79: 3, 395-409.
- De Witte, H. (1999). *Job Insecurity and Psychological Well-being: Review of the Literature and Exploration of Some Unresolved Issues*. *European Journal of Work and Organizational Psychology*, 8: 2, 155-77.
- Deaton, A. (2003). Health, inequality, and economic development. *Journal of Economic Literature* 41(1): 113-158.
- Ecob, R. and G. Davey Smith (1999). Income and health: what is the nature of the relationship? *Social Science and Medicine* 48(5): 693-705.
- Elstad, Jon Ivar & Dahl, Espen. (2013a) Disability pension in Norway – preventing poverty, maintaining health? Working Paper for the DRIVERS project. Oslo: NOVA – Norwegian Social Research.
- Elstad, Jon Ivar & Dahl, Espen. (2013b) How large is the death penalty? Income consequences of a lethal disease – a case study from Norway. Working Paper for the DRIVERS project. Oslo: NOVA – Norwegian Social Research
- Erikson, R (1993). Descriptions of inequality: The Swedish approach to welfare research. In Nussbaum MC and Sen A. (eds.) *The Quality of Life*. Oxford: Clarendon Press.

- Erikson, R. and Uusitalo, H. (1987). The Scandinavian approach to welfare research. In Erikson R, Hansen EJ, Ringen S and Uusitalo H (Eds.) *The Scandinavian Model: Welfare States and Welfare Research*. New Yorke: M.E. Sharpe.
- Esser I, Palme J. (2014). Pre-retirement Aged Persons' Health across Europe: How Individual Factors and Institutions of Social protection Matter within a Multi-level Framework. Stockholm: Swedish Institute for Social Research.
- Eurofound (2012). NEETs – Young people not in employment, education or training: Characteristics, costs and policy responses in Europe. *Publications Office of the European Union*, Luxemburg.
- Ferrarini T, Norström T. (2010). Family policy, economic development and infant mortality: a longitudinal comparative analysis. *International Journal of Social Welfare* 19: S89-S102.
- Ferrarini T, Sjöberg O. (2010). Social policy and health: transition countries in a comparative perspective. *International Journal of Social Welfare* 19: S60-S88.
- Ferrarini T, Nelson K, Korpi W, et al. (2013). Social citizenship rights and social insurance replacement rate validity: pitfalls and possibilities. *J Eur Public Policy* 20:1251–66.
- Ferrarini T, Nelson K, Sjöberg O. (2014a). Decomposing the effect of social policies on population health and inequalities: An empirical example of unemployment benefits. *Scandinavian Journal of Public Health*, September 5, 2014, doi: 10.1177/1403494814546349.
- Ferrarini T, Nelson K, and Sjöberg O. (2014b). Unemployment insurance and deteriorating self-rated health in 23 European countries. *JECH Online First*, published on March 10, 2014 as 10.1136/jech-2013-203721.
- Freese J, Lutfey K. (2011). Fundamental causality: Challenges of an animating concept for medical sociology. In: Pescosolido BA et al (eds.), *Handbook of the sociology of health, illness and healing: A blueprint for the 21st century*, pp. 67-81. Springer.
- Fritzell, J. and Lundberg, O. (eds.) (2007). *Health Inequalities and Welfare Resources. Continuity and change in Sweden*. Bristol: Policy Press.
- Fritzell, J. and V.-M. Ritakallio (2010). Societal shifts and changed patterns of poverty. *International Journal of Social Welfare* 19: S25-S41.
- Fritzell J, Kangas O, Bacchus Hertzman J, Blomgren J, Hiilamo H. (2013). Cross-Temporal and Cross-National Poverty and Mortality Rates among Developed Countries. *Journal of Environmental and Public Health*, 2013, Article ID 915490, 15 pages, <http://dx.doi.org/10.1155/2013/915490>
- Fritzell J, Lennartsson C, Lundberg O. (2007). Health inequalities and welfare resources – findings and forecasts. In Fritzell J, Lundberg O. (eds.) *Health Inequalities and Welfare resources: Continuity and change in Sweden*. Bristol, Policy Press.
- Fritzell J, Neramo M, Lundberg O. (2004). The impact of income: assessing the relationship between income and health in Sweden. *Scandinavian Journal of Public Health* 32(1): 6-16.
- Fritzell J, Rehnberg J, Bacchus Hertzman J, Blomgren J (2014). Absolute or relative? A comparative analysis of the relationship between poverty and mortality. Stockholm: CHES.
- Garfinkel, I., L. Rainwater, et al. (2010). *Wealth & Welfare States. Is America a laggard or leader?* Oxford, Oxford University Press.
- Gilbert N. (2009). The least generous welfare state? A case of blind empiricism. *J Comp Policy Anal* 2009, 11(3):355–367.
- Giuliano P, Spilimbergo, A. (2009). Growing Up in a Recession: Beliefs and the Macroeconomy. *NBER Working Paper 1532*, National Bureau of Economic Research.


- Jahoda M. (1982). *Employment and Unemployment*. Cambridge, UK: University Press.
- Johansson S. (1970). *Om Levnadsnivåundersökningen* (On the Level of Living Survey). Stockholm, Allmänna förlaget.
- Johansson S. (2002). Conceptualizing and Measuring Quality of Life for National Policy. In Hagerty MR, Vogel J, Møller V. (Eds.) *Assessing Quality of Life and Living Conditions to Guide National Policy*. Springer Netherlands.
- Kangas O. (2010). One hundred years of money, welfare and death: mortality, economic growth and the development of the welfare state in 17 OECD countries 1900–2000. *International Journal of Social Welfare* 19: S42-S59.
- Kangas O, Palme J. (2007) Social rights, structural needs and social expenditure: a comparative study of 18 OECD countries 1960-2000. In Claasen J, Siegel NA. (eds.) *Investigating welfare state change. The 'dependent variable problem' in comparative analyses*, 106-129. Cheltenham: Edward Elgar.
- Kassman A, Franzén E (2005) Longer Term Labour Market Consequences of Economic Inactivity During Young Adulthood: A Swedish National Cohort Study. *Journal of Youth Studies*, 8(4):403-24.
- Kondo, N., G. Sembajwe, et al. (2009). Income inequality, mortality, and self rated health: meta-analysis of multilevel studies. *BMJ* 339: b4471.
- Lange, T. (2013). Scarred from the Past or Afraid of the Future? Unemployment and Job Satisfaction Across European Labour Markets. *The International Journal of Human Resource Management*, 24: 6, 1096-1112.
- Lindert, P. H. (2004). *Growing public : social spending and economic growth since the eighteenth century*. Cambridge, UK ; New York, Cambridge.
- Lundberg O. (2008). Commentary: politics and public health—some conceptual considerations concerning welfare state characteristics and public health outcomes. *Int J Epidemiol* 37: 1105–1108.
- Lundberg, O., Dahl, E., Fritzell, J., Palme, J., Sjöberg, O. (2013). *Social Protection Policies, Income and Health Inequalities*. Final Report from TG4 – GDP, Taxes, Income and Welfare, final revised version to the Review of Social Determinants and the Health Divide in the WHO European Region.
- Lundberg, O., J. Fritzell, et al. (2010). "The potential power of social policy programmes: income redistribution, economic resources and health." *International Journal of Social Welfare* 19: S2-S13.
- Lundberg, O., Åberg Yngwe, M., Kölegård Stjärne, M., Björk, L., and Fritzell, J. (2008a). *The Nordic Experience: Welfare States and Public Health (NEWS)*. Health Equity Studies No 12. Stockholm: CHES.
- Lundberg, O., Yngwe, M., Stjärne, M., Elstad, J., Ferrarini, T., Kangas, O., Norström, T., Palme, J., Fritzell, J., for the NEWS Nordic Expert Group (2008b). The role of welfare state principles and generosity in social policy programmes for public health: an international comparative study. *Lancet*, 372(9650), 1633-1640.
- Mackenbach, J. P., P. Martikainen, et al. (2005). The shape of the relationship between income and self-assessed health: an international study. *International Journal of Epidemiology* 34(2): 286-293.
- Marmot, M. (2004). Social Causes of Social Inequalities. In S. Anand, P. Fabienne and A. Sen. *Health, Public Health, Ethics, and Equity*. Oxford, Oxford University Press: 37–61.
- Marmot, M. (2005). Social determinants of health inequalities. *Lancet* 365(9464): 1099-1104.
- Morel, N., B. Palier, et al. (2012). *Towards a Social Investment Welfare State? Ideas, Policies and challenges*. Bristol, Policy Press.
- Morell S, Taylor R, Kerr C (1998) Unemployment and young people's health. *MJA*, 168:236-40.

- Muntaner C, Borrell C, Ng E, Chung H, Espelt A, Rodriguez-Sanz M, Benach J, O'Campo P. (2011). Review article: politics, welfare regimes, and population health: controversies and evidence. *Social Health Illn* 33(6):946–964
- Nelson, K. and Fritzell, J. (2014) Welfare states and public health: The role of minimum income benefits for mortality. *Social Science & Medicine* 112: 63–71.
- Nordenmark, M (1999) Non-financial employment motivation and well-being in different labour market situations – A Longitudinal Study. *Work Employment and Society*, 13(4):601-620.
- Nordenmark M, Sjödin J, Sällström E, Gillander-Gådin K, Selander J. (2013). Labour market marginalisation, inactivity and self-rated health among young women and men in Europe. Östersund: Mid Sweden University.
- Norström T, Palme J. (2010). Public pension institutions and old-age mortality in a comparative perspective. *International Journal of Social Welfare*, 19 (Supplement 1): S121–S130.
- Paul, K. I. and Moser, K. (2009). Unemployment Impairs Mental Health: Meta-analyses. *Journal of Vocational Behavior* 74: 3, 264–82.
- Phelan JC, Link BG, Tehranifar P. (2010). Social conditions as fundamental causes of health inequalities: Theory, evidence, and policy implications. *Journal of Health and Social Behavior* 51: S28-S40.
- Rowntree, B. S. (1901). *Poverty: a study of town life*. Macmillan.
- Sen, A. (1985). *Commodities and Capabilities*. Amsterdam: North Holland.
- Siegrist J, Montano D, Hoven H (in collaboration with Lunau T, Dragano N, Wahrendorf M) (2014). Work and health inequality, including policy implications. WP3 Final report. Düsseldorf, August 2014.
- Sjöberg, O. (2014). Labour market policies for young unemployed and their effect on health and health inequalities in Europe. Stockholm: Swedish Institute for Social Research.
- Solga, H. (2002). Stigmatization by Negative Selection: Explaining Less-Educated People's Decreasing Employment Opportunities. *European Sociological Review*, 18: 2, 159-78.
- Strandh, M, Hammarström, A, Nilsson, K, Nordenmark, M, Russel, H (2013) Unemployment, gender and mental health: the role of the gender regime. *Sociology of Health and Illness*, 35(5), 649-665.
- Sverke, M. Hellgren, J. and Näswall, K. (2002), 'No Security: A Meta-Analysis and Review of Job Insecurity and Its Consequences', *Journal of Occupational Health Psychology*, 7: 3, 242-64.
- van der Wel KA, Dahl E, Thielen, K. (2011). Social inequalities in 'sickness': European welfare states and non-employment among the chronically ill. *Social Science & Medicine* 73: 1608-1617.
- Warr P. (1987), *Work, Unemployment and Mental Health*. Oxford, UK: Clarendon
- Wilkinson, R. and K. Pickett (2009). *The spirit level: why more equal societies almost always do better*. London, Allen Lane.
- Wilkinson, R. G. and K. E. Pickett (2006). Income inequality and population health: a review and explanation of the evidence. *Soc Sci Med* 62(7): 1768-1784.
- Winefield, A. H., Tiggemann, M., Winefield, H. R., and Goldney, R. D. (1991). Social Alienation and Employment Status in Young Adults. *Journal of Organizational Behavior*, 12: 2, 145–54.
- Åberg Yngwe M, Fritzell J, Kölegård ML, Lundberg O (eds.) 2010. Social policy and public health across the life course. *International Journal of Social Welfare*, 19, Supplement 1.
- Åberg Yngwe M, Lundberg O. (2007). Assessing the contribution of relative deprivation to income differences in health. In J. Fritzell and O. Lundberg (eds) *Health Inequalities and Welfare resources: Continuity and change in Sweden*. Bristol, Policy Press.

Appendix – Research papers produced

- **Bergqvist K, Åberg Yngwe M, Lundberg O. (2013). Understanding the role of welfare state characteristics for health and inequalities – an analytical review. *BMC Public Health* 13:1234, <http://www.biomedcentral.com/1471-2458/13/1234>
- **Elstad, J I, Dahl E. (2013a). Disability pension in Norway – preventing poverty, maintaining health? Working Paper for the DRIVERS project. Oslo: NOVA – Norwegian Social Research.
- **Elstad, J I, Dahl E. (2013b). How large is the death penalty? Income consequences of a lethal disease – a case study from Norway. Working Paper for the DRIVERS project. Oslo: NOVA – Norwegian Social Research
- **Esser I, Palme J. (2014). Pre-retirement Aged Persons' Health across Europe: How Individual Factors and Institutions of Social protection Matter within a Multi-level Framework. Stockholm: Swedish Institute for Social Research.
- *Ferrarini T, Nelson K, Sjöberg O. (2014a). Decomposing the effect of social policies on population health and inequalities: An empirical example of unemployment benefits. *Scandinavian Journal of Public Health*, September 5, 2014, doi: 10.1177/1403494814546349.
- *Ferrarini T, Nelson K, Sjöberg O. (2014b). Unemployment insurance and deteriorating self-rated health in 23 European countries. *JECH* Online First, published on March 10, 2014 as 10.1136/jech-2013-203721.
- *Fritzell J, Rehnberg J, Bacchus Hertzman J, Blomgren J (2014). Absolute or relative? A comparative analysis of the relationship between poverty and mortality. Stockholm: CHESS.
- *Nelson K, Fritzell J. (2014). Welfare states and public health: The role of minimum income benefits for mortality. *Social Science & Medicine* 112: 63–71.
- **Nordenmark M, Sjödin J, Sällström E, Gillander-Gådin K, Selander J. (2013). Labour market marginalisation, inactivity and self-rated health among young women and men in Europe. Östersund: Mid Sweden University
- *Sjöberg, O. (2014). Labour market policies for young unemployed and their effect on health and health inequalities in Europe. Stockholm: Swedish Institute for Social Research.

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The research is undertaken by a consortium including leading research centres and organisations representing the public health sector, civil society and businesses.

