

Work, Retirement and Health: An Analysis of the Socio-economic Implications of Active Ageing and their Effects on Health

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Abstract. In recent decades many industrialized countries experienced a substantial decrease in the working age population as a proportion of the total population. Demographic factors, such as declining fertility and increasing life expectancy, as well as institutional factors, such as the generosity of state-funded pension, both determined a change in the age distribution and a marked anticipation in retirement age. A lively debate among researchers and policymakers is currently taking place in Europe, as there are concerns that working longer may not be healthy for workers, or that it will be hard for older workers to get a job. Conversely, if working longer leads to higher employment rates and better health conditions, policies aimed at increasing peoples' retirement age may represent a "win-win" strategy both in terms of fiscal policies as well as in terms of healthy life expectancy. Unfolding this controversy is essentially an empirical matter which is also of paramount importance for public policy. In this study we first review the main findings of the socio-economic literature. Second, we highlight the main research avenues that are currently investigated in the area of Social Science and Health Economics at the Università Cattolica. Finally we discuss the policy implications and the prospects for future research.

Keywords. Work, Retirement, Health, Skills

Introduction

In recent decades many industrialized countries experienced a substantial decrease in the working age population as a proportion of the total population. A number of reasons have been advocated to explain these patterns. On the one hand, demographic factors, such as declining fertility and increasing life expectancy contributed to alter the age distribution of the population. On the other hand, institutional factors, such as the overall generosity of state-funded pension systems and widespread financial incentives to early retirement, both determined a marked anticipation, compared to previous decades, in retirement age. These trends occurred while life expectancy and healthy life expectancy were both increasing. In other words, while people being healthier could have worked longer, the institutional setting and financial incentives

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were inducing them to reduce their working life, thus increasing inactivity rates. The effects of these patterns on the deterioration of public finances are well understood, and many countries have been reforming their public pension systems to induce people to work longer, conversely the wealth and health effects of individuals' transition from work to retirement, both on societies and individuals themselves, are much less clear. A lively debate among researchers and policymakers is currently taking place as there are concerns that working longer may not be healthy for workers, or that it will be hard for older workers to get a job (i.e. the well-known dilemma: "too young to retire, too old to work"). Also, if working in old age causes mental and physical strain, any attempt to address fiscal consolidation policies raising public pension retirement age might be misplaced (i.e. due to the increase in health spending and higher distress among the elderly). Conversely, if working longer leads to higher employment rates among older workers (as implied by the "Europe 2020 strategy") and better health conditions, policies aimed at increasing peoples' retirement age may represent a "win-win" strategy both in terms of fiscal policies as well as in terms of healthy life expectancy.

Unfolding this controversy is essentially an empirical matter which is also of paramount importance for public policy. Most research on the relationship between working in old age, retirement decisions and health has proved intrinsically difficult and has produced ambiguous results. This is essentially because work-retirement transitions are not randomly distributed across individuals, and individuals' decisions themselves are likely to be affected by health conditions (i.e. due to "reverse causality" retirement can influence health, and health is likely to influence retirement decisions). Moreover, data requirements for conducting empirical analyses are likely to be particularly demanding as individuals need to be followed over time (i.e. to control for unobserved heterogeneity), and information on health status, personal characteristics as well as work related attributes is also required.

Our research program intends to investigate the socio-economic implications of work and retirement patterns of older workers and their effects on health conditions. The first part will focus on the consequences of ageing on the labour market trajectories of older workers, and how these effects are mediated by the decay of workers competences. The second part will analyse how labour market outcomes and retirement decisions impact on the health of older workers. In particular, differences across countries and over time (i.e. due to reforms) in labour market institutions as well as in statutory retirement ages and financial incentives to retire, will be used to assess the health effects of policy changes that are currently debated in European countries.

1. Work, Retirement and Health: A Review of the Literature

1.1. Older Workers and Labour Market Outcomes

The share of older workers (age group 55–64 years) in EU countries is expected to increase over the next decades (from 2015 to 2025) by over 15%. This implies that not only the European workforce will be older but also that labour markets in European countries will experience an unprecedented increase in the working-age population. How would labour market respond to this epochal changes? How would

employment rates of young workers be affected and how hard would be for displaced older workers to find a new job? How do the employment trajectories of older workers will differ from those of prime age ones? What is the degree of employment and earnings instability of older workers, that is: Will older workers ending up in temporary jobs manage to get back to open ended employment contracts? Will the competences required to older workers be compatible with the available jobs?

All these questions focus on the growing concerns that European governments have on the quality of working life of older people and on the crucial role that active ageing policies will have to play in order to secure their well-being. While these topics have been extensively investigated for the general labour force, still little is known on the features of employment and earnings dynamics close to retirement. In Figure 1 we report labour market participation rates for older workers in OECD countries and life expectancy over the past 50 years. It shows that labour market participation of older generations (cohort 65+) remains lower in comparison with more recent generations (cohort 55+). Participation in the EU is astonishingly low with 67 per cent of people aged between 60 and 64 inactive. In this context life expectancy at 60 has been growing constantly.



Figure 1. Labour force participation and health of older workers in OECD countries (Source: OECD, 2012)

The economic literature has highlighted a number of stylized facts connected with the labour market of older workers. First, there is evidence that state pension retirement age has a positive impact on the employment rates of older workers [1]. This happens because higher retirement age provides stronger search incentives to unemployed old workers. Secondly, in the US the employment trajectories of older workers have been found to be more sensitive to business cycles fluctuations compared to younger workers [2].

Older workers' wages are less flexible downward if compared to younger workers' wages (because of longer tenures and implicit contracts), so that negative shocks tend to affect employment rather than wages. In turn, this suggests that

employment flows of older workers might be a special focus of policy design, with characteristics that differ from the general labour force. Cappellari, Dorset and Haile [3] provide evidence that this is actually the case: the employment trajectories of older workers appear to be much more persistent compared with younger workers, meaning that it is more likely for unemployed older workers to become long-term unemployed compared to younger workers.

Concerns about the labour market trajectories of older workers are also motivated by the possibility that productivity declines with age, which makes older workers less attractive to potential employers in the absence of downward wage flexibility. The evidence about the negative age-productivity gradient is, however, rather mixed. One main obstacle to the analysis of this phenomenon is the absence of representative data providing information on individual productivity over the life-cycle. In this respect, van Ours [4] finds evidence of a life-cycle productivity decline in sport but not in academic jobs. Castellucci, Padula and Pica [5] find strong evidence of an inverted U-shaped age-productivity profile in a sample of F1 drivers. Instead, Borsch-Supan [6] reports upward sloping age-productivity profiles for workers on an assembly line. In one of the few nationally representative studies on this topic, van Ours and Stoeldraijer [7] find only mild evidence of a wage-productivity gap with old age.

1.2. Older Workers and the Health Effects of Retirement

A growing concern is emerging among policymakers that policies that induce older workers to work longer may have adverse effect on their health, or alternatively that some attributes of the jobs, such as working conditions causing mental and physical strain, may be unsuitable for older workers. Is working in old age good or bad for individuals? What is the quality of the jobs held by older workers, and would these be compatible with their health status? Does retirement improves, or worsen, healthy life expectancy?

Most research on the relationship between health and working in old age has produced contrasting results. Some of the studies find a positive correlation with health [8], no correlation with health [9-15], or a negative correlation with health [16-17]. However, it should be noted that most of these studies are not able to identify any causal effects. As shown in the literature, precarious health conditions are likely to hurry retirement decisions leading to a finding of a "false negative" effect of retirement on health [18]. Another likely confounding effects originate from omitted variable bias, that is factors that affect both retirement and health which are not observed (and controlled for) in the analysis, may alter the true correlation between retirement and health: either showing a spurious correlation, or masking any effect of retirement on health. For example, retirement decision may be affected by the health status of spouses, or of other members of the family (i.e. the precarious health of a spouse may increase the likelihood of retirement). Some paper try to exploit the longitudinal nature of the data to solve some of the problems outlined above. Kerkhofs and Lindeboom [19] and Lindeboom et al. [20] used longitudinal data focusing on whether changes in retirement status generate changes in health, while controlling for all unobserved differences between individuals that do not vary over time (such as educational, genetic and gender related factors). Their results indicate that retirement has a positive effect on subjective measures of health, but no effect on objective measures of health.

Other studies use age-specific retirement incentives provided by the US Social Security system to capture changes in labour force participation [21-22], or employ age-specific retirement incentives of the UK Social Security system to gauge the effect of retirement on health [23], or retirement windows as an instrumental variable [18]. All these studies confirm that the cross-sectional association between health and retirement is positive; that is, those who retire later tend to be in better health.

However, when the endogeneity of retirement is accounted for, the results show a non-negative effect of retirement on health. Alternatively country-specific early and full retirement ages have been used as instruments for retirement behavior [24]. These statutory retirement ages clearly induce retirement, but are not related to an individual's health. Exploiting the discontinuities in retirement behavior across countries, this study finds significant evidence that retirement has a health-preserving effect on overall general health. Finally De Grip et al. [25] exploit a pension reform implemented in 2006 that induced a sharp discontinuous treatment of pensions rights, to measure the effect on mental health conditions of workers approaching retirement. They find that the reform had a strong impact on the mental health of workers affected by the reform. In particular those exposed to a pension reform that substantially lowers their pension wealth are more often depressed.

The underlying idea is that pension reforms (when unanticipated) alter individual behavior affecting the financial incentives to retire, while do not affect health through channel other than retirement. Conversely when reform are anticipated (i.e. due to public debate preceding reforms or because of delays in implementation), individuals may adjust their behavior before retiring taking into account their pre-retirement health status, in such cases the approach is not likely to produce unbiased results. Further problem arise when the standard pension eligibility age is perceived as an important landmark in the life-cycle of individuals, as it is most often the case. In such case, individuals, given their health status, are more likely to choose jobs with more favorable retirement conditions or jobs in which early retirement is more likely to be granted (i.e. such as public sector jobs). In this case, it is more difficult to separate selection effects originating from job shopping from the health effects of retirement.

A common problem to most studies is that they do not account for a varying impact of retirement on health over time. In other words, it is possible that retirement may improve health at first (particularly mental health) due to a lower stress and ability to carry out more satisfying and fulfilling activities (i.e. the so-called "holiday effect"), while as time goes on health may deteriorate for lack of physical activity and social interactions. Furthermore, undesirable lifestyle habits such as heavy eating, drinking and smoking may contribute to health deterioration but quite long after retirement. It is thus important to take into account the short- and long-term effects of retirement on health (i.e. need to control for the number of years spent in retirement).

2. A Review of the Main Findings: What do we Know?

2.1. Employment and Earnings Instability

Previous and existing research of the team of researchers based at the Università Cattolica has focused on employment and earning instability of workers over the

lifecycle and between cohorts. Cappellari et al [3] study the labor market transitions of older workers in the UK. Using data from the UK Labour Force Survey, they reconstruct individual trajectories of employment and non-employment over 5 consecutive quarters, using data between 1993 and 2003. They find that the labor market trajectories of older workers are characterized by pronounced persistence. Moreover, comparing results to those obtained with a younger sample they find evidence of a sorting process over the life-cycle whereby men's employment transitions are increasingly characterized by state dependence (i.e. the 'causal' effect of the past on the future) while, for women, old age employment dynamics appear to be driven by individual heterogeneity, with "good" ("bad") types persisting in employment (non-employment) over time. Their findings are of particular policy relevance. State dependence may occur for a number of reasons such as skill deterioration, reduced morale or the establishment of a pattern of daily life that does not accommodate paid work. The appropriate policy response is to help individuals avoid experiencing a period of non-employment, perhaps by providing support and incentives to remain in work during a period of occupational disability, for example. For those who do find themselves out of work, the role of policy should be to intervene early to help them find new employment as soon as possible.

Research on earnings dynamics has shown the existence of sizeable earnings variations over the life-cycle. In this area, the research team at the Università Cattolica has published several contributions showing that age has an impact on earnings through two distinct channel. First, age affects the so-called permanent earnings component, the one that captures long-term productivity. While on average earnings growth slows down when workers enter old age, such reduction of earnings capacity is heterogeneous across individuals, which induces an increase of wage inequality at old age (see the discussion on the working poor). Second, there is an effect on the so-called transitory wage component, that part of the wage process that reflects exposure to economic turbulence. There is some evidence that this instability increases prior to retirement, which is also of high policy relevance as it may increase the overall perceived uncertainty and affect retirement decisions. This evidence on instability is still scant and providing a thorough assessment of the issue is part of the future research agenda.

Finally, increasing wage inequality with age implies that an increasing share of (older) workers may fall below some decency threshold and into poverty (i.e., the so-called working poor). Lucifora and Salverda [26] provide a comprehensive discussion of the issues related with low pay employment and the policy options that are available. Cappellari [27-28] estimates transitions in and out of low pay showing that for older workers there is a working poor trap. Cappellari and Jenkins [29] find similar effects on household income poverty. All this evidence suggests that policy instruments such as wage subsidies need to be targeted also on older workers.

2.2. Lifestyle and Health

Another topic that has been widely investigated by economists at Università Cattolica is the relationship between lifestyles, job conditions and the health of workers. Cottini and Ghinetti [30] study whether employee's health is affected by both working conditions and individual's lifestyles. Results show that bad lifestyles over the life-cycle reduce self-assessed health, but the effects are different on mental and physical health. Bad working conditions are found to play a significant role, reducing health

whatever measure is considered. These findings suggest that bad working conditions and bad lifestyles are likely to impact negatively on the health of workers (especially with respect to mental health) and that specific policies should be implemented to reduce health deterioration after retirement.

2.3. Job Quality, Working Conditions and Health

Major changes occurred, in recent decades, in the functioning of labour markets which contributed to increase pressure for more labour flexibility and work intensification.

The link between job quality and the health of older workers has been investigated by researchers at Università Cattolica in a number of studies [31-34]. Using a wide range of health measures (predominately self-reported) including general physical and psychological health this literature shows that adverse conditions of the job (measured in terms of high job demands, bad job hazards, flexible contracts and low pay) impact on the health of workers (particularly of older workers) and that these effects might be mediated by national differences in health care systems. The implications here are that increasing the quality of jobs is important to improve the health of workers, particularly in their older age, thus supporting the priorities set within the Europe 2020 strategy.

Second, since health spending represents a major expense in most European countries, the relevance of job quality issues is not limited simply to well-being and general health considerations but also to the cost-effectiveness of public spending. Third, economic efficiency considerations should also be taken into account, since workers in good health are also more productive and more satisfied with their job at any age.

3. Future Research: What we (Still) Need to Know

Future research will focus on three main broad areas: first, the role of competences for older workers and labour market outcomes; second, the effects of job quality of older workers on their health; and finally how retirement decisions affect the health of older workers.

3.1. The Consequences of Ageing on the Labour Market Trajectories of Older Workers

The consequences of ageing on the labour market trajectories of older workers and how these effects are mediated by the decay of workers competences will be a key step of the future research agenda. Anecdotal evidence and the public debate often point to the fact that older workers may face higher risk of poverty or social exclusion when hit by adverse labour market shocks, but still significant statistical evidence on this is scanty (especially in Italy). At the same time, older workers (particularly men) play the main breadwinner role not only for their spouse but also for the offspring, which make their vulnerability to adverse labour market shocks a particularly worrying possibility.

While these topics have been extensively investigated for the general labour force, still little is known on the features of employment dynamics close to retirement. We will provide answers to these questions using longitudinal data on individual labour market trajectories coming both from the Labour Force Survey and from Social Security payrolls.

First individual transitions across states of the labour market for older workers and younger workers will be compared to understand the extent to which the design of active labour market policies needs an age gradient. We shall identify the determinants of job losing rates and of unemployment traps of older workers, in addition to the characterisation of the degree of churning between unemployment and temporary employment for older workers. In doing so it is important to distinguish amongst two alternative (though not necessarily mutually exclusive) explanations for unemployment persistence: heterogeneity and true state dependence. Under heterogeneity, workers persist in unemployment because of their personal attributes, which suggest that policies should be designed with the aim of affecting those characteristics, i.e. training programs for the unemployed. Conversely, under state dependence it is not heterogeneity that matters in affecting unemployment persistence, but rather the ‘scarring effects’ of unemployment per se irrespective of individual abilities, i.e. through human capital depreciation, signalling or search effort. In this case, policies should avoid individuals falling into unemployment, i.e. through employment subsidies. The ageing dimension of these two alternative scenarios is still under-researched and it is important to provide evidence on this.

After the work of Jacob Mincer, a well-known stylised fact in labour economics is that earnings growth slows down after a certain age. Less is known however on the degree of instability that characterises the earnings trajectories of older workers. Is the earnings process becoming more or less volatile during the earnings slow-down that precedes retirement? Providing an answer to this question is relevant because it would tell us whether the pre-retirement income process becomes more uncertain, which will affect saving behaviour, contributions into pension funds and retirement. Little is known on this fact apart from the findings of Baker and Solon [35] for the US, who indeed find that older workers face more unstable earnings profiles.

The traditional policy concern when it comes to wages is about low pay and working poors. More recently, these labour market descriptors have been complemented with measures of labour market volatility and earnings instability, which refer to yearly fluctuations of individual earnings around their mean over time. Earnings instability is relevant because it is a proxy of the degree of risk attached to income profiles. Often, this risk is not insurable, and in the absence of labour market institutions that smooth out income shocks, individual workers may end up experiencing welfare losses. Recently there has been a growing interest among economists and commentators on the increased risk brought about by labour market reforms in Europe in the form of reduced employment protection. For example, Cappellari and Leonardi [36] find that throughout the 1990s the spread of temporary employment in Italy has increased the earnings instability of younger cohorts, which are the most exposed to this type of reforms. With the upsurge of the great recession, however, temporary employment has become more and more common also for the older labour force, but an assessment of its impact on older workers earnings instability is still missing. Filling in this gap of knowledge and discussing its economic and policy implications is the main objective in this part of the project.

3.2. Older Workers Competences and Labour Market Outcomes

Human capital is probably the main engine of economic growth, both at the national and the individual level. Individuals normally invest in human capital in a life-cycle perspective, concentrating investments in the youth years through schooling, and then updating their stocks of human capital through training when working. The combination of schooling and training generates a set of adult competences which are the key for determining labour productivity.

Active labour market participation is a key ingredient of healthy and inclusive ageing, and in turn this depends on older workers capacity and competences. Ageing brings in a trade-off. On the one hand individuals become more and more experienced, which increases their task-performing ability. On the other physical and mental efficiency might decline, imparting a downward shift to workers competences. Cross-country evidence consistently indicates that wages start declining at age 50, which suggests that for workers approaching retirement the trade-off might well be on the negative side, and age associated with a decline of productive skills. Little is known on these issues due to data limitations, in particular accepted measures of adult competences to be used for investigating age gradients. The recent OECD-PIAAC study provides a cross-country micro-level database that can be used for investigating these issues.

Using these data, first we plan to assess the age gradient of adult competences, in particular their evolution after the age of 50. We will do this in a cross-country which will enable us to understand how different institutional settings and different systems of educational and vocational training map into workers competences at old age.

Using these data, our second goal in this part of the project will be to study the wage effect of competences and to contrast it to more traditional returns to education. Do competences pay more than education? Answering this question is key for the active ageing of older workers because finding that competences are rewarded in the labour market on top of education would indicate that training programs for older workers are an effective policy tool for mitigating low pay in old age. There is evidence in the literature on these effects for the general labour force [37], but a focus on the old age population is still missing. Moreover, existing studies are based on correlations between earnings, education and skills that, as is well known, provide only spurious evidence about the causal effect of human capital on earnings. We will overcome this shortcoming by exploiting variation in skills and education across countries which may legitimately be assumed independent from individual ability within countries, providing the basis for estimating the causal effect of human capital, the one parameter which is relevant for policy design.

3.3. The Effects of Job Quality of Older Workers on their Health

The “decrement models” of ageing argue that physical and cognitive changes occur with age, and it predicts that these changes affect worker’s health negatively. In this view, a higher level of job hazards is expected to have a stronger adverse effect on health among older people compared to younger individuals. Existing evidence finds that risk of suffering from work related diseases increases monotonically with age. Older workers employed in jobs characterized by adverse working conditions, high

job demands or work intensity are more likely to change their job. Quality of work and employment strongly affect perceived health, and thus might contribute to people's motivation to depart from their jobs as early as they can. Protection against physical strain often operates through exclusion from the workforce, particularly through early retirement, rather than reassignment to other positions within the company. The EU's Active Ageing Strategy includes tax benefits for companies that recruit older workers and promotes adapting the labour market to the needs of older workers. In this context, it becomes of primary importance to advance existing evidence on the health and wellbeing of older workers, on how this is influenced by their actual job conditions and understanding the implications of policies that encourage people to work longer.

The objective of this avenue of research is to analyze the effect of job quality on work-related health for European older workers (over the age of 50). We focus, in particular, on the work-related health of older workers as measured by a comprehensive set of indicators including perceptions of work-related health risks, mental (such as stress, anxiety, sleeping problems, irritability) and physical symptoms (such as respiratory difficulties, cardiac problems, skin problems) as reported by workers to be related to their jobs. The European Working Conditions Survey (EWCS) is a very good source of information: it covers approximately 30,000 workers between 50 and 65, in 34 European countries (i.e. EU 27 plus Norway, Croatia, the former Yugoslav Republic of Macedonia, Turkey, Albania, Montenegro and Kosovo). These data will be used to investigate the effects of job quality on the health status of older workers. The policy implications suggest that, if poor job quality reduces the health and wellbeing of older workers -- thus reducing their participation --, policy makers should target their interventions to improve healthier working conditions.

3.4 Retirement Decisions and the Health of Older Workers

There is no general consensus on the effect of retirement on health: on the one hand the view that retirement is harmful, on the other hand many believe that retirement is an health preserving state. The main reason for this lack of consensus lies on the credibility of the empirical strategy. To tackle this issue, stringent requirements on the data are necessary. The research group at the Università Cattolica intends to examine the relationship between health and retirement in a multi country setting using between countries and over time variations in statutory retirement ages and financial incentives to retire. The dataset is drawn from the first four waves (2004, 2006, 2008 and 2010) of the Survey of Health, Ageing and Retirement in Europe (SHARE).

Information is available on individuals over 50 on health, their socioeconomic status and family networks for more than 85,000 individuals (approximately 150,000 interviews) and 20 European countries (plus Israel). In SHARE different measures of health are collected, such as self-reported health (5 point scale), and individual objective health measures, such as grip strength, limitations in daily activities, chronic symptoms and a depression index (that includes sadness, pessimism, suicidal thoughts, sleep trouble, lack of interest, irritability, fatigue). In this context a matter of concern is that retirement could have different effects on health for different individuals, with SHARE we are able to control for this source of heterogeneity by means of characteristics of the last job (such if the job is physical demanding, entails long working hours, has bad prospects, heavy workload, lack of autonomy, presence

of high time pressure and support from colleagues) in order to identify the underlying distribution of health effects. Moreover, the panel dimension of the SHARE data might help in limiting problems arising from cohort heterogeneity in health measures that reflect differences in initial health conditions [38].

4. Policy Implications of Active Ageing

The results of the research undertaken at the Università Cattolica is expected to significantly improve our understanding of older workers behaviours and needs, and also to guide the design and implementation of policies in terms of older workers' participation in the labour market. Higher state pension ages, for example, might not just be possible (given longer life expectancy) and necessary (given the fiscal consolidation efforts) but later retirement may also lead to better average health in retirement. As such the government should allow more flexible retirement plans allowing workers to delay retirement when they health is good. It seems to be intuitively attractive from the point of view of the individual to have a smooth transition from work to retirement, gradually reducing the number of hours worked.

Gradual withdrawal from the labour force could take different forms: either phased retirement (reducing work hours in the same job) or partial retirement (changing to a less demanding job with usually fewer hours and lower earnings). In order to design successful plans that are attractive to both older workers and to society, it is essential to know the preferences of the workers as well as the considerations of their employers for offering or not offering gradual retirement. It is also essential to know the constraints imposed by state and occupational pension schemes. Institutional restrictions on combining earnings with pension income, or a pension system in which the pension level is determined by final earnings have been shown to severely limit the attractiveness of phased or partial retirement in the US [39]. Still, take-up of gradual retirement is rather low in most European countries. Where the mobility in the US labour market accommodates older workers who want to leave their career job to take up a bridge job as a form of partial retirement, this is much less the case in the Netherlands and other European countries. Of course, this does not mean that governments should force people to work, but rather that disincentives to stop working should be removed. Continuing some form of paid work (such as "mini-job" or bridge employment plans) in old age is one way to ensure a healthier population and a more economically viable work-retirement balance in the European countries. Clearly, the success of these policies will strongly depend on a better understanding of ageing in the workforce and the particular role of health in continuing work or withdrawal from the labor market.

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