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Disability and Social Security Reforms: The French Case

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Abstract

The French pattern of early transitions out of employment is basically explained by the young age at “normal” retirement and by the importance of transitions through unemployment insurance and early-retirement schemes before access to normal retirement. These routes have prevented French workers from significantly relying on disability incentives for early exits, contrary to situations that prevail in some other countries where normal ages are high, unemployment benefits are low and early-retirement schemes are almost non-existent. Yet, the role of disability remains an interesting topic of investigation in France, at least given the prospective reasons in a context of decreasing generosity of other programs.

A study of the past reforms of the pension system has shown that disability routes have often acted as a substitute for other retirement routes. Changes in the claiming of invalidity benefits seem to match changes in pension schemes or controls more than changes in health indicators, such as mortality rates. However, our results suggest that increases in average health levels over the past two decades have occurred along with increased disparities. In that context, less generous pensions may induce an increase in invalidity benefits claims not only because of substitution effects but also because of increases in the proportion of people with poor health.

Keywords: Pensions, Social Security, Disability, Early Retirement, Unemployment, Senior.

Codes JEL: H55, J26, J14.

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Résumé

Incapacité et réformes du système de retraite : le modèle français

En France, les sorties précoces de l'emploi sont expliquées principalement par un âge légal de départ à la retraite peu élevé et par l'existence de dispositifs de sorties liés à l'assurance chômage ou à des mesures de préretraites qui permettent aux travailleurs seniors de cesser leur activité avant d'accéder à une retraite « normale ». Pour ces raisons, les dispositifs liés à l'incapacité sont assez peu développés contrairement à la situation qui règne dans des pays où les âges normaux de départs à la retraite sont élevés et où les systèmes de sorties liés au chômage ou à la préretraite sont quasiment inexistantes. Pourtant il demeure intéressant d'examiner le rôle de l'incapacité dans le processus de départ à la retraite en France, au moins d'un point de vue prospectif dans un contexte de réduction de la générosité du système de pension et des dispositifs de sortie alternatifs traditionnels.

L'étude des réformes passées montre que l'incapacité est souvent un dispositif qui se substitue à d'autres dispositifs existants. Les changements dans la détermination des indemnités d'invalidité semblent plus impacter les sorties d'activités via ce dispositif que les modifications des indicateurs de santé tels que les taux de mortalité. Cependant, nos résultats suggèrent que les augmentations des niveaux moyens d'état de santé pendant les dernières deux décennies sont corrélées avec une augmentation des inégalités de santé. Dans un contexte où les pensions vont devenir de moins en moins généreuses, les demandes concernant le mécanisme d'invalidité peuvent, donc augmenter pour deux raisons : suite à l'existence des effets de substitution entre les dispositifs mais également pour répondre à des inégalités de santé grandissantes.

Mots-clés : Retraite, Incapacité, Sortie de l'emploi, Chômage, Senior.

Codes JEL: H55, J26, J14.

Introduction

It is well-known that France is characterised by low levels of employment in the 55-64 age bracket compared to other developed countries. Until recently, the specific role of disability benefits in explaining these early exits did not attract a lot of academic attention. One obvious reason for this lack of interest is that this role is quantitatively limited. The French pattern of early transitions out of employment is basically explained by the young age at “normal” retirement and by the importance of transitions through unemployment insurance (UI) and preretirement schemes (PR) before access to normal retirement. The role of these various routes has been repeatedly demonstrated in previous contributions to these ISS series volumes and again in the most recent one (Ben Salem, Blanchet, Bozio and Roger, 2010). These routes have exempted French workers from massively relying on disability motives for early exits, contrary to situations that prevail in some other countries where normal ages are high, unemployment benefits are low and preretirement schemes are almost non-existent.

Yet this role of disability remains an interesting topic of investigation in France, at least for prospective reasons. The current tendency involves increasing the normal retirement age and implementing more restricted access to unemployment benefits or preretirement for senior workers. In such a context, the disability route may gain some renewed importance in the future, acting as a substitute for these other early retirement schemes whose coverage will progressively decline. Investigating whether such substitution effects have been already observed in the past can shed some light on their potential impact in the future.

More generally, we observe an increasing interest in the French pension debate for the connection between retirement behaviour and health (Struillou, 2003; Volkoff et Bardot, 2004; Molinié, 2006; Blanchet and Debrand, 2008). It is accepted that different categories of workers end their working lives with very uneven health conditions and life expectancies, which are sometimes directly linked to past working conditions. How should pension reforms address these types of inequality, especially when poor health directly results from work conditions? This question remains unanswered. Although the pension reform that occurred in 2003 was expected to be followed by negotiations between social partners focused on this specific issue, such negotiations have yet to provide any form of tangible results, and this issue is again central to debates generated by the new reform of 2010. At the time of the writing of this paper, the main components of this reform project involve a progressive shift of the minimum retirement age from 60 to 62 and a parallel shift from 65 to 67 for the age at which a full rate pension can be obtained regardless of the length of one’s career. Consequences of such a shift for workers with poor health, low life expectancies and/or exposures to hard working conditions have been one of the main objections raised by opponents to the reform. The proposed answer to this concern has consisted of maintaining the threshold age of 60 for people with a level of impairment of at least 10%, although one must wonder to what proportions such criteria will be used as new instruments of early exits.

It is with these considerations in mind that we shall examine the French experience of interactions between pension reforms and the take-up of disability/invalidity benefits, and more generally, the importance of health considerations in the design of pension policies.

We shall first address substitution effects. Even if the disability route has always played a limited role in France, its importance is not negligible (Barnay and Jeger, 2006) and it has fluctuated over the past few decades. These fluctuations can be used to test the substitutability hypothesis, which states that disability loses its importance when other routes become more widely accessible and conversely when these routes are reformed in a more restrictive way. After a brief presentation of the labour market participation trends among old French workers in section 1, section 2 will review the main historical changes that occurred in the pension system, in early retirement schemes and in disability benefits; this section will also focus more specifically on interactions that occurred until the early eighties. We shall more specifically focus on two major historical changes, which weretoward more generous pensions and a lower take-up of disability benefits. The first change occurred during the 1970s (the Boulin law) and the second one in 1983, when the normal retirement age was lowered to 60. The consequences of these changes have been large enough to allow the observation of substitution effects at the macro level.

Section 3 will continue in the same vein and focus on two post-1990 changes moving in the opposite directions. The first change is the 1993 pension reform that restricted access to full pension benefits at 60. To date, this reform has not affected a very large proportion of the population, which implies that substitution effects are difficult to observe on a macro-series. However, such effects exist and can be identified using micro data. We shall present results from this quasi-experiment based on Bozio's (2006) results. The second episode relates to sickness leaves covered by health insurance. The first half of the 2000's witnessed an increase in such sickness leaves that has been sometimes interpreted as another manifestation of the substitution effects between early-retirement schemes and the disability route to retirement. Strengthened control over these sickness leaves after 2003 dramatically reduced their role among older workers.

In short, the gist of sections 2 and 3 is that whatever episode is considered, institutional changes or changes in the intensity of controls are sufficient to explain changes in the take-up of invalidity benefits. Given this evidence, it might appear hardly necessary to verify that these changes are not correlated with global health trends. We shall nevertheless examine this question in section 4. One good reason for exploring this question is that an absence of correlation at the macro level can still accompany a significant interaction at a more micro level. Moreover, although the take-up of invalidity benefits essentially reflects institutional changes, those who claim these benefits may actually face real health problems. At the macro level, section 4 confirms the lack of correlation between health and labour market status; the past few decades have been a period of uninterrupted improvement in average health. But micro data can help build a more detailed story that reconciles this macro view with the increasing concern for health considerations in the pension debate. An improvement of average health can accompany the persistence of a significant health dimension of pension problems if the dispersion of health status is large and a fortiori if this dispersion is increasing. Micro data suggest that such a phenomenon may be responsible for these observations. If this trend is confirmed, our aforementioned question retains all of its importance. If health is an obstacle to remaining in the labour market for an substantial proportion of the population, how should pension policies address these cases? The general improvement of health and the lack of historical connection between health and the take up of invalidity benefits do not necessarily mean that health can be neglected in the design of retirement policies.

1. General labor force participation trends and pension reforms

To obtain a clear view of the role of invalidity benefits in the general pattern of retirement routes of older workers in France, we first provide a brief review of the general labour force participation (LFP) trends of the past few decades. Moreover, we underline the link between LFP and the pension reforms implemented during the same period.

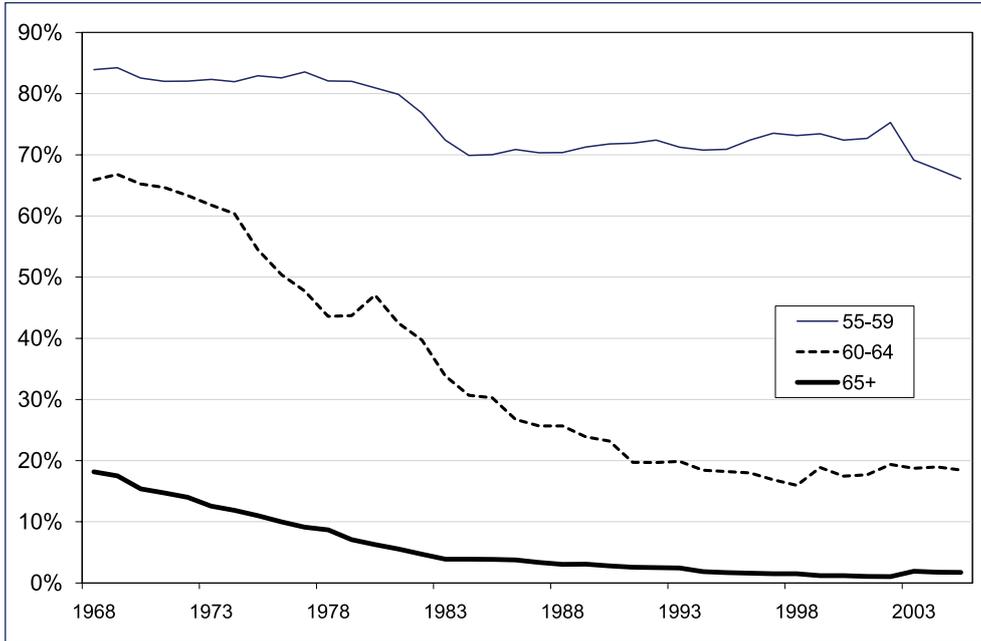
Data on labour force participation and pathways to retirement are provided by labour force surveys (LFS) conducted by the French National Statistical Institute (INSEE) since 1950. We use the 1968-2005 waves of this LFS. Trends in labour force participation for men and women are shown in Figures 1 and 2. Participation rates of senior workers aged 65 and over are quite low. We note a large decrease over the same period in men aged 60-64, and we observe the same trend for women, but in smaller proportions due to the counteracting influence of increased attachment to the labour force for successive cohorts.

The difference between men and women is still more pronounced for the 55-59 age range. For men, after a period of relative stability at the beginning of the period, we observe a decrease just after 1982 and then a new period of stability. For women, the increase in the number of women attached to the labour market in the 55-59 age range fully dominates the trend toward earlier exits.

Previous work by Ben Salem, Blanchet, Bozio and Roger (2010) has emphasised the correlation between changes in senior labour force participation and key dates of retirement reforms or labour market policies toward senior workers in France. Until 1983, the decline in LFP for the 60-64 age group has been due to the beginning of retirement at age 60 for some specific subgroups of the population as well as the development of early retirement schemes essentially targeted to this age bracket. For this age group, the small accident that is observed in 1980 is a pure statistical artefact due to the transition through the age group of the small cohorts born between 1915 and 1919. Because LFP rates are higher at 60 than they are at 64, the arrival of small cohorts first reduces the average LFP rate for the entire 5-year group and conversely, when the bulk of these small cohorts are in the second half of the age group. If we extrapolate from this accident, we see that the trend has been almost continuous. The impact of the 1983 reform has been essentially to replace early retired people with normal retirees.

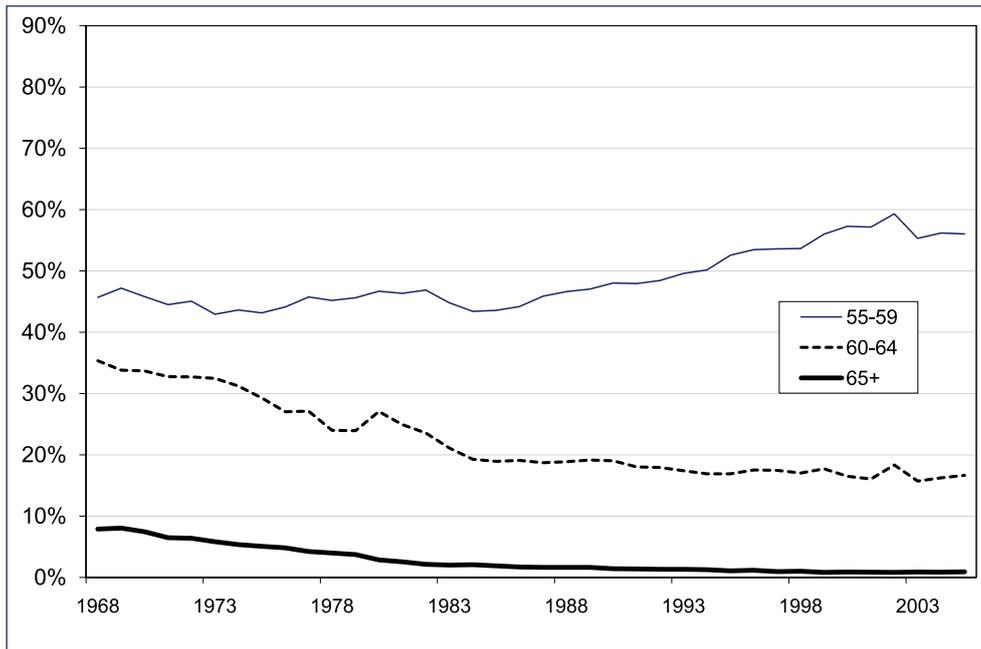
Since then, the 1993 and 2003 reforms have introduced changes that, in the long run, should again increase LFP rates for the 60-64 age group, although the consequences of these reforms are still negligible. The reason is that these reforms did not reduce the possibility of obtaining a pension at 60 and instead relied on another parameter, which is the number of years of contributions requested for the pension to be a full rate one. This parameter had been fixed at 37.5 years of contributions in 1983. The 1993 reform increased it gradually from 37.5 years to 40 years between the 1933 and 1943 cohorts, although only for private sector employees. The 2003 reform extended this 40-year limit to public sector employees as well (progressively between 2003 and 2008) and now imposes a further strengthening for all workers, first from 40 to 41 years between 2008 and 2012 and then consistent with changes in life expectancy, all of which were combined with changes in the incentives to retire either before or after this full rate. If these reforms did not result in large changes in participation rates until now, it is because these new conditions have so far affected only a limited proportion of the population. Cohorts that are currently retiring generally started working before 20 and are still frequently able to validate 40 or 41 years of contribution at 60. In addition, changes in incentives to retire before the full rate have occurred in a way that makes it less penalising, at least for private sector employees. Since 2003, some of these employees (those who started working at a young age)

Figure 1: Labor force participation for men, 1968-2005



Source: Insee

Figure 2: Labor force participation for women, 1968-2005



Source: Insee

have benefited from the possibility of retiring as soon as they achieved their 40 years of contributions, without the need to wait until age 60. This aspect of the reform has been introduced to make it more acceptable to the public opinion, and it also has been precisely targeted to low-skilled workers with long careers who are more likely to reach the 55-59 bracket in poor health.

The consequences of this latter disposition are visible at the very ends of the lines for the 55-59 age group in figures 1 and 2, with significant decreases for both men and women; however, once again, some perturbations may be attributed to the transition through the age group of cohorts of very uneven sizes who were born during and just after World War II, and also to a break in the series in 2003 due to the shift from an annual to a continuous survey¹

Then, examining the past with this 55-59 year age group and focusing on men for whom the impact of retirement and early retirement policies is not blurred by other trends, we see that the major event for this age group is the decrease during the first half of the 1980s. This decrease can be understood as a temporary consequence of lowering the normal retirement age to 60. This decrease mechanically resulted in the disappearance of early retirement for the 60-64 bracket, although it also led to the development of new flows of early-retirees in the 55-59 group. However, this time the public authorities decided to more tightly control these new flows and the decrease in the LFP rate stopped in 1985. Since then, with the exception of the post-2003 episode, policies have been able to just stabilise the LFP rate.

2. The role of invalidity benefits: long-term trends

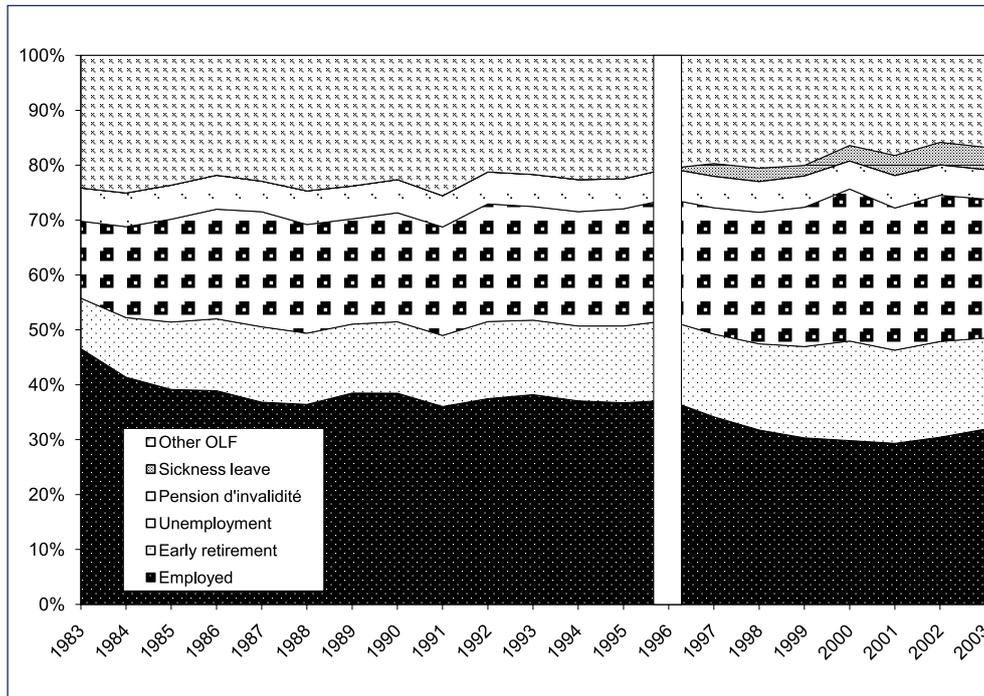
What has been the relative importance of the invalidity route over these decades?

Figure 3 uses labour force surveys and some other data sources to provide an evaluation of the relative importance of this route compared to other possible pathways out of the labour force. The proxy that is used is the status of the individual in the year before his 60th birthday. The data extend as far back as 1983 (i.e., they only cover the period during which the normal retirement age was 60). Moreover, data on sickness leave by age are only available after 1997; before that date, workers on sickness leave were recorded as employed. Throughout this period, we see a decrease in the proportion of people still in employment just before their 60th birthdays, as well as an increase in the proportions of people in early retirement or benefiting from unemployment insurance benefits. Yet, throughout this period, the number of people going through disability insurance or on sickness leave is not negligible and comprised between 5% and 8% of the population. We will now address this route by using additional statistics specific to this route and by covering a longer time period.

First, some explanation of the organisation of this disability route is required. Even if disability is not a predominant route out of the labour force in the French system, the idea that disability is a basic underlying motive for access to retirement has been historically important in the foundation of French social security. This is related to the consequences of the Great Depression, which resulted in very high unemployment rates for workers older than 50 and to the creation of the AVTS (Allocation aux Vieux Travailleurs Salariés) in 1941 under the Vichy government, which provided early retirement for workers older than 60 who were excluded from the labour force due to health or economic reasons.

¹ From 1968 to 2002, the households included in the Labor Force Survey sample were interviewed in March of three consecutive years with one-third of the households replaced each year. Since 2003, the households included in the French LFS have been interviewed six consecutive quarters with one-sixth of the households replaced each quarter.

Figure 3: Pathways to retirement, men and women



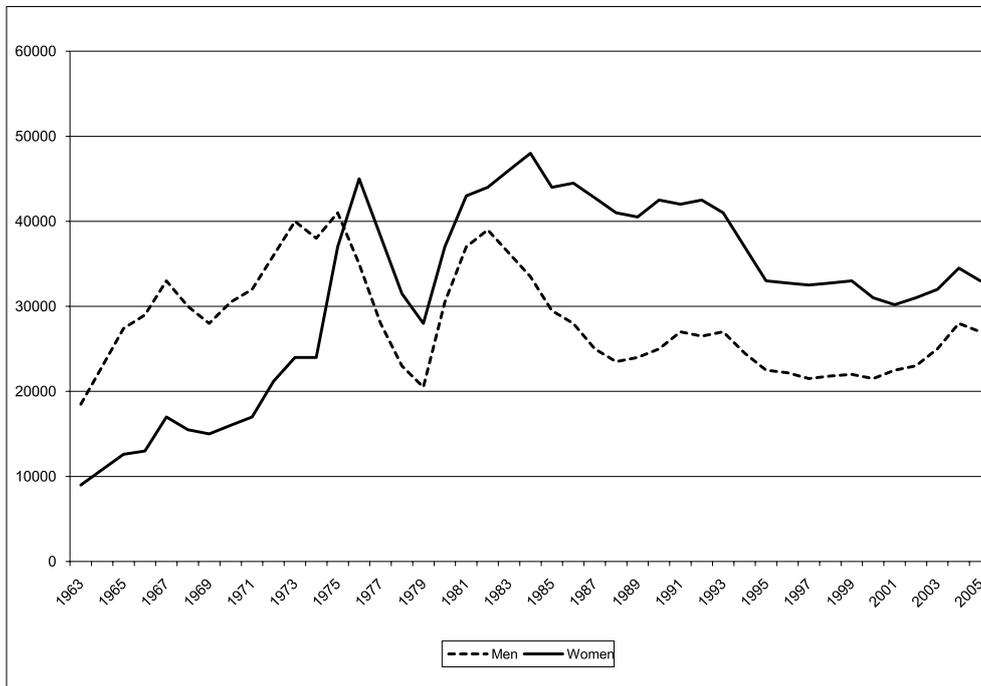
Note: Pathways are proxied by the situation at age 59 (source: Enquête Emploi) corrected with administrative data on unemployment (source: Unédic), early retirement (source: Dares) and complemented with administrative data on sickness leave (source: CNAM) and inflows from pension d'invalidité to pensions d'inaptitude (source: CNAV).

Break in the series: Data before 1997 regarding sickness leave are missing; before that date, workers in sickness leave were recorded as employed.

The employability issue was also at the heart of the creation of the current system of Social Security in 1945. At that time, “*risque vieillesse*” (old age risk) was clearly characterised as the risk of living beyond an age at which the individual becomes unable to maintain his standard of living through labour force participation because of health or other reasons. The designers of the system had initially considered that 65 was an acceptable proxy for this age, although they already allowed earlier access (as soon as 60) either for people who were already benefiting from invalidity insurance before this age (*retraite pour ex-invalides*) or for people who were declared incapable of work at this age even though they had not previously received invalidity benefits (*retraite pour inaptitude*). This second category remained, however, highly selective; it required a disability rate of 100%², was limited to people having worked for at least 30 years, and provided a benefit that equalled, at the maximum, 40% of the average of the past wages. This was higher than the rate of replacement for people claiming early retirement at 60 without this invalidity motive, although it was still not much of an incentive. Until the beginning of the 1970s, this system was therefore rarely used (when used, it was mostly by men), with women more frequently resorting to the *retraite pour ex-invalides*.

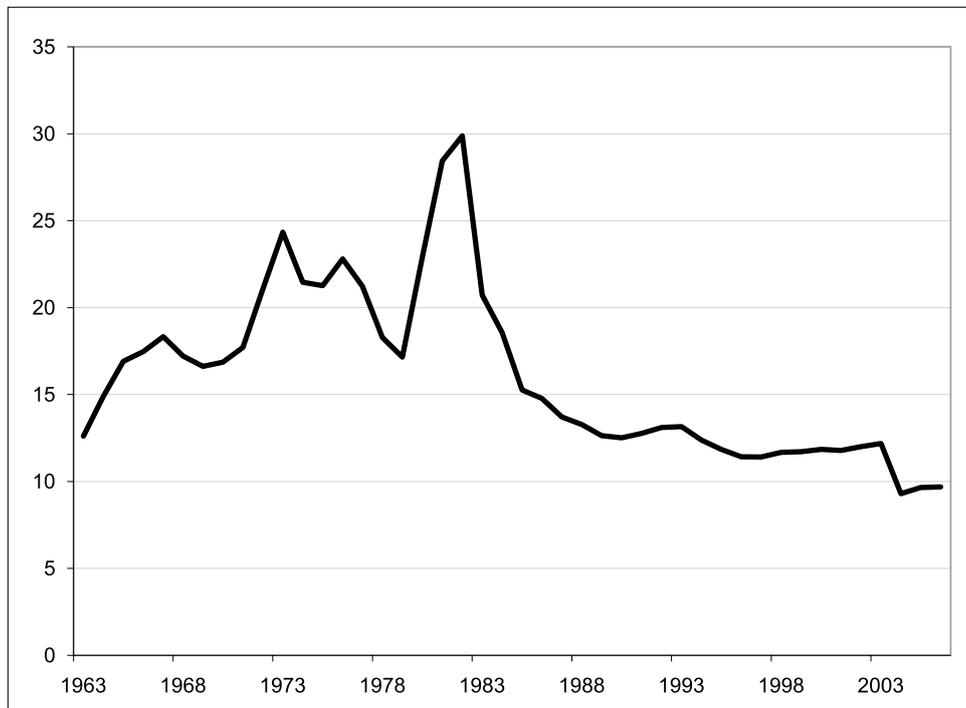
2 The disability rate measures the intensity of limitations encountered by the disabled person

Figure 4: “Pensions d’inaptitude”: total flows



Source: CNAV in Omnès (2006)

Figure 5: “Pensions d’inaptitude”: % of the flow of new retirees

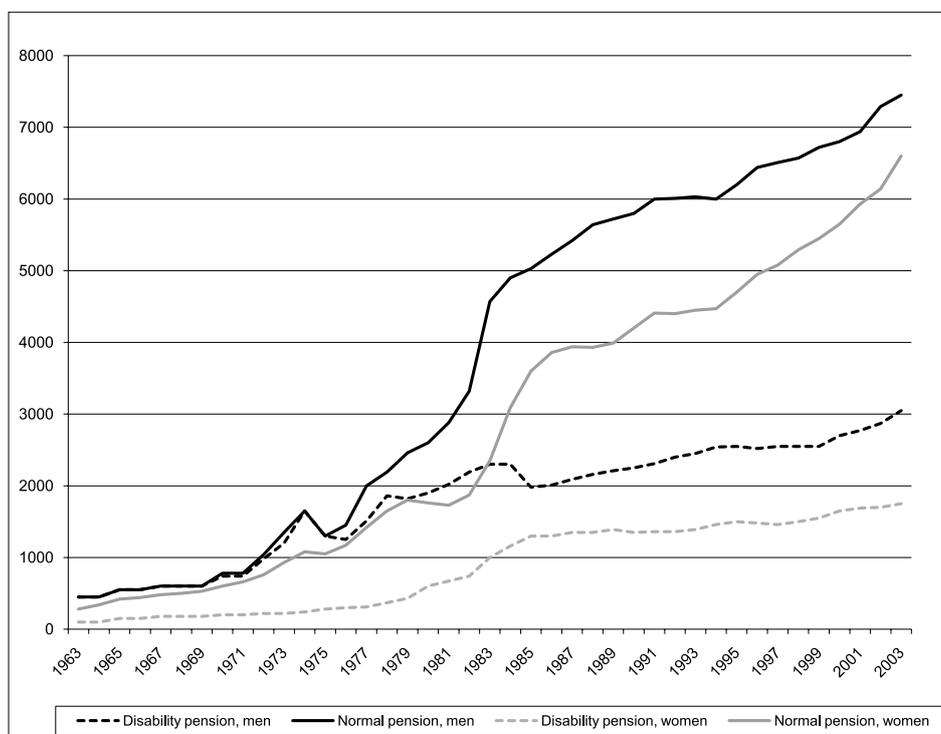


Source: CNAV

A more dynamic phase for the *pension d'inaptitude* occurred during the 1970s. From a general point of view, this period was a period of increasing generosity for the pension system, in particular with the aim of reducing the prevalence of poverty among elderly people (it was one of the aspects of the “new society” program of the post-1968 Chaban-Delmas government). This period was also marked by the strong union pressure in favour of lowering the normal retirement age to 60 for the entire population, which ultimately led to retirement at the age of 60 in 1983. Although such demand remained unsatisfied during this period, the Boulin reform of 1971 opened several possibilities for earlier exits for various categories of the population, including a move toward less selective and more generous rules for the *pension d'inaptitude*. The threshold for the rate of invalidity was lowered to 50%, the condition of having worked 30 years or more was suppressed and the benefits were increased to 50% of the average wage (i.e., consistent with a normal full rate pension).

This led to an increased importance of this route, although, as shown in Figure 4, the incidence of this change was more pronounced for women. Men, over the same period, started benefiting from the development of the early retirement route and the financially more attractive *allocation spécifique du fonds national pour l'emploi* especially at the end of the 1970s. Overall, the proportion of *pensions d'inaptitude* in the annual flow of new pensioners increased over this period, albeit with oscillations, and finally peaked at 30% of total exits in 1983 (see Figure 5).

Figure 6: Average pension amount: normal pensions and *pensions d'inaptitude*, 1963-2003 (in euros)



Source: CNAV in Omnès (2006)

It is just after that peak when access to a full pension at age 60 became possible for the large majority of the population, the only condition being that one must have contributed to the pension system for at least 37.5 years. In this context, claiming for a pension d'inaptitude became useless for a large proportion of people. We note in Figure 6 that the average pension amount for normal retirement became at least twice as high as the invalidity benefits. Those who still had a reason to rely on this route were people reaching the age of 60 in bad health and with incomplete careers. This proportion of the total flow of new pensioners now comprised between 10 and 15%.

Did subsequent pension reforms alter this picture? As mentioned, the 1993 reform gradually increased the number of years of contribution required for a full pension. The 2003 reform were along the same lines. As already shown, these two reforms have had only small upward effects on retirement ages to date. It is therefore not surprising that figure 4 does not exhibit significant moves in the flows of disabled people. To analyse whether these reforms started reorienting part of the flows toward the disability route, we must examine the micro level and analyse whether disability take-up has significantly increased among people who were hurt by the pension reform. Figure 3 also suggests another related route in more detail because there seems to be a change in the number of people benefiting from sickness leaves around the 2003 reform. This is the subject of the next section.

3. Two quasi-experiments

The 1993 pension reform: disability pensions as a substitute to normal pensions?

The 1993 reform is the first one in France that aimed to delay retirement. It reduced the average full-rate pension amount (by introducing a longer period to compute the reference wage) and gradually increased the length of contribution required to get the full replacement rate. Access to disability pensions (pensions d'inaptitude) remained unchanged. As a consequence, the reform increased the relative attractiveness of disability pensions for workers who were no longer eligible for a full-rate pension at age 60 in the normal pension scheme (due to an insufficient contribution length) but were potentially eligible for a disability pension. These workers basically had three options: (i) keep claiming a normal pension at age 60 at the cost of a high penalty³; (ii) delay claiming until reaching the required number of quarters for a normal pension; or (iii) apply for a disability pension at age 60. Our goal is to assess the role played by the third option.

Unfortunately, the impact of the 1993 reform is hardly detectable from the aggregate data (such as in Figures 3 to 5), as the reform only affected approximately 8% of the workers (the wage earners of the private sector with 131 to 160 quarters of contribution at age 60, retiring through a normal pension). However, Bozio (2006) shows that it can be detected from the micro data by applying a difference-in-difference approach to an administrative and exhaustive data set. In what follows, we summarise and discuss his results.

The identification of the reform rests on the comparison of workers with the same completed contribution length at age 60 over different birth cohorts. With a given contribution length (e.g., 151 quarters), older cohorts (e.g., born in 1934) are eligible for a full-rate pension at the first retirement age (60), whereas younger cohorts (e.g., born in 1935) need additional contribution quarters. Comparing the retirement behaviour of these two groups therefore identifies the impact of the increased contribution requirements. The identification strengthened to possible

3 The replacement ratio was reduced by 10 percentage points for each year of missing contribution.

cohort trends using workers who were unaffected by the reform, given their completed contribution lengths as a control (e.g., workers having contributed 152 quarters by age 60).

For a representative worker aged 60 who has contributed the required number of quarters for a full-rate pension, increasing the contribution requirement by a quarter (i) increases the average retirement age through the normal pension scheme by approximately 2 months and (ii) increases the probability of receiving a disability pension by 13 percentage points (Bozio, 2006, tables 2.4 and 2.7). In other words, three types of responses are observed; some workers keep retiring at 60 through the normal pension scheme, some delay claiming and delay retirement⁴, and a significant proportion of workers switch to disability pensions. Interestingly, the effects of the 1993 reform are smaller for workers missing more than a quarter of contribution by age 60. Even before the reform, these workers did not have access to normal pensions at a full rate at age 60; they were therefore already likely to apply for a disability pension, and the impact of the 1993 reform may be small. On average, Bozio (2006) reports that a one-quarter increase in required contribution increases the probability of receiving a disability pension by 2 percentage points.

Overall, even though they are not visible on the aggregate data, these substitution effects are sizeable. The 1993 natural experiment is therefore useful from a prospective viewpoint. For instance, if the same substitution effects persists for cohorts born in the 1960's and 1970's for which the 1993 reform should be binding for one worker out of two (due to the increase in age at the time of labour market entry), disability pensions may become a significant route to retirement. However, the interpretation of these effects remains an open question. One cannot conclude from the results whether the reform induced a pure disclosure effect (workers with health problems who formerly relied on the normal pension scheme begin to use the disability schemes that are implemented for them) or whether it generated a moral hazard problem (workers who are not targeted by the disability pensions use them as a way to escape the new contribution requirements).

The impact of tighter controls on long-term sickness leaves for older workers

The sharp increase in sickness benefits that occurred at the beginning of the 2000's in France has been a matter of debate (Le and Reynaud, 2007; Kusnik-Joinville *et al.*, 2006). Between 1997 and 2003, aggregate sickness benefits increased from an index of 100 to 140, before decreasing to 125 by 2005. Changes in the population size and structure as well as the decline in unemployment can explain approximately half of the increase (the rest remains unexplained); in terms of the decrease after 2003, it has been widely attributed to the tighter controls that were implemented (Kusnik-Joinville *et al.*, 2006). Indeed, the number of controls for short-term sickness leaves increased from 34,000 in 2003 to 250,000 in 2005; since 2005, long-term leaves (longer than 60 days) have undergone systematic control.

None of the previous studies has explored whether this rise and fall of sickness benefits in France has varied by age. This is the question we consider here, using original administrative data from the French public health insurance administration (Caisse nationale d'assurance maladie, CNAM). Indeed, older workers in the late 1990's and early 2000's had specific incentives to rely on sickness benefits, as some of the early retirement schemes were being phased out quite rapidly (the number of recipients of an early retirement scheme, between the ages of 55 to 59, decreased from 230,000 in 1997 to 130,000 in 2005). Unemployment (without search requirements after age 56 or 57) largely acted as a substitute (the number of recipients increased from 270,000 to 400,000 over the same period), although long-term sickness leaves may also

4 Until recently, workers have retired when they claimed for pension benefits

have played a role. Moreover, the sudden restriction in sickness benefits in 2004-2005 through tighter controls may have had a stronger impact on older workers if they were using sickness benefits as one route to retirement among many, as opposed to younger workers who could only rely on sickness benefits in case of health problems.

Figure 7 provides evidence in favour of these two hypotheses. It shows the evolution of sickness benefits per capita (in 1998 Euros) for the different age groups among men (i.e., the total amounts of sickness benefits received by a given age group over its size in the full population, in order to correct for demographic shifts). All of the age groups display an upward trend over the 1997-2008 time period, with years 2000-2003 standing out above that trend. However, the magnitude of the 2000-2003 “bump” is much larger for workers aged 55 to 64. In particular, the decrease in benefits that occurs in the overall population after 2003 seems to be fully driven by the older age groups; other groups only display a slowdown in growth after 2004-2005. Figure 8 shows quite similar patterns for women, although the bump is slightly less apparent.

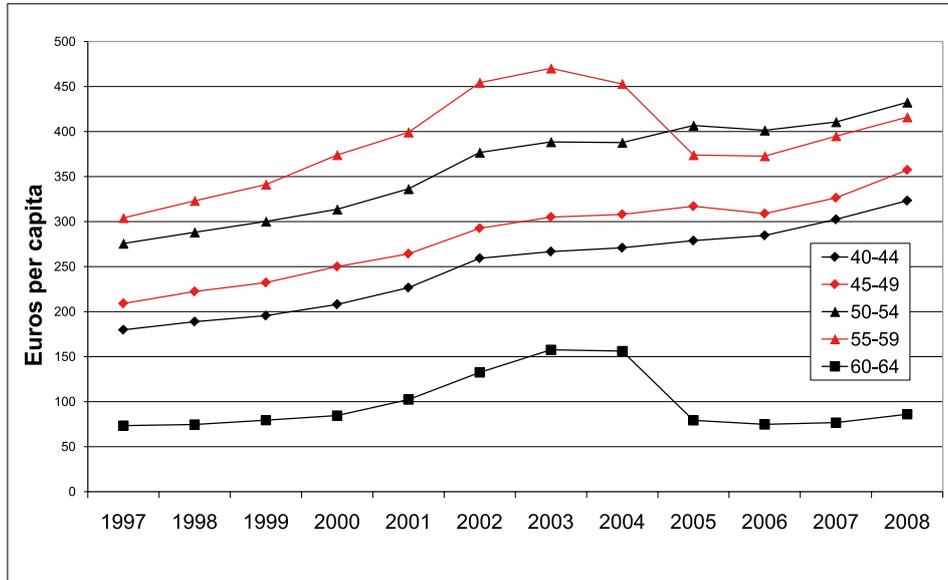
In order to control for the fixed differences across birth cohorts and for age effects, we conduct a difference-in-difference analysis. This analysis uses the same administrative data as in the previous graphs (i.e., data grouped by 5-year age groups). This data limitation implies that we observe a given 5-year birth cohort only every 5 years. For instance, we observe the 1944-48 birth cohorts in 1998, when they are 50 to 54 years old, in 2003, when they are 55 to 59, and in 2008, when they are 60 to 64. As “controls”, we use the adjacent cohorts (i.e., the 1949-53 birth cohorts observed in 2003 and 2008 when they were 50-54, and 55-59, respectively) and the 1939-43 birth cohorts (observed in 1998 and 2003, when they were 55-59 and 60-64, respectively).

We start by computing the impact of an easy access to sickness benefits for workers aged 55-59. To do so, we compare the evolution of benefits for the 1944-1948 cohorts (that reached ages of 55-59 in 2003, at a time of loose controls) to the following cohorts (that reached ages of 55-59 after the restrictions, in 2008). That is, we contrast the two cohorts that reached age 55-59 (a decisive age in terms of retirement pathways) at a time of loose controls vs. tightened controls on sickness benefits. The benefits per capita are displayed in panel A of table 1 (left part). For the 1944-48 cohorts, benefits per capita increased from 288 to 470 euros between 1998 and 2003. As 2003 was a year when benefits were easily accessible for all ages, part of this increase may indicate the impact of the loose controls over the benefits for workers aged 55-59. Clearly, part of the increase may also be simply due to the effect of age. We control for this age effect by using the 1949-54 cohorts observed in 2003 and 2008. At the age range of 55 to 59, these cohorts witnessed tighter controls. Correspondingly, the increase in benefits is much lower; the difference in differences is 155 euros. Therefore, the difference in differences shows that when workers are in their 50s, the reliance on sickness benefits increases much faster with age when the controls are loose (for the 1944-48 cohorts) than when they are tighter (for the 1949-53 cohorts).

Consider now what happens between the 55-59 and the 60-64 age ranges when the controls are tightened. To do so, let's examine the 1944-48 cohort again, in 2003 and 2008 (a period of control tightening) and compare it to the 1939-43 cohort, in 1998 and 2003 (a period of loose controls). The results are shown on the right side of table 1, panel A. For the 1944-48 cohorts, benefits per capita substantially decreased between 2003 and 2008. Part of this is obviously due to an age effect; a large proportion of the workers had retired by 2008 and was no longer eligible for sickness benefits. However, a comparison with individuals born between 1939 and 1943 shows that the decrease is especially large for the 1944-48 cohorts, with the difference in differences amounting to -219 euros⁵.

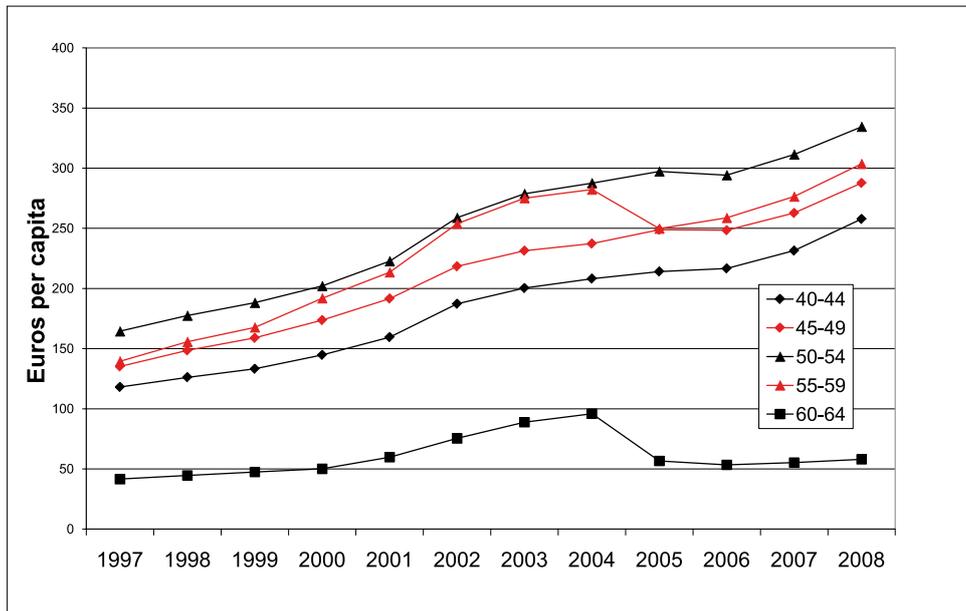
5 Note that the 1939-43 cohorts are better described as a “control” group than the 1949-53 cohorts, as the former remained under a regime of loose controls, whereas the latter were impacted by the policy change: they reached the age of 55-59 under a regime of tight controls. In that sense, the first difference in differences combines the effects of two opposite “treatments”: increased access for the 1944-48 cohorts (loose controls at age 55-59) contrasted to tightening of controls for the 1949-53 cohorts.

Figure 7: Sickness benefits for men by age group, 1997-2008



Source: Cnam

Figure 8: Sickness benefits for women by age group, 1997-2008



Source: Cnam

Note: Benefits per capita are computed as the total spending on sickness benefits for a given age group, divided by the population size of that group.

**Table 1: Sickness benefits by cohort and age group
Euros per capita, men**

A. Age group of interest: 55 to 64							
	1944-48 cohort	1949-54 cohort		1944-48 cohort	1939-44 cohorts		
50-54 year old	288	388		55-59 year old	470	323	
55-59 year old	470	416		60-64 year old	86	158	
			2nd difference				2nd difference
1st difference	182	27	155	1st difference	-384	-165	-219
B. Younger age group: 45 to 54							
	1954-58 cohort	1959-64 cohort		1954-58 cohort	1949-54 cohort		
40-44 year old	189	267		45-49 year old	305	222	
45-49 year old	305	357		50-54 year old	432	388	
			2nd difference				2nd difference
1st difference	116	91	25	127	166		-39
C. 55 to 64 vs. 45 to 54							
Third difference			129				-180

**Table 2: Sickness benefits by cohort and age group
Euros per capita, women**

A. Age group of interest: 55 to 64							
	1944-48 cohort	1949-54 cohort		1944-48 cohort	1939-44 cohort		
50-54 year old	177	279		55-59 year old	275	156	
55-59 year old	275	304		60-64 year old	58	89	
			2nd difference				2nd difference
1st difference	98	25	73	1st difference	-217	-67	-150
B. Younger age group: 45 to 54							
	1954-58 cohort	1959-64 cohort		1954-58 cohort	1949-54 cohort		
40-44 year old	126	200		45-49 year old	231	149	
45-49 year old	231	288		50-54 year old	334	279	
			2nd difference				2nd difference
1st difference	105	87	18	103	130		-27
C. 55 to 64 vs. 45 to 54							
Third difference			55				-123

Overall, this shows that sickness benefits display a specific age pattern for the 1944-48 cohorts, which distinguish them from the two adjacent cohorts: a very large increase between the ages of 50-54 and 55-59, followed by a dramatic decrease when reaching the ages of 60-64. Given that these cohorts reached the age of 55-59 just before a strong tightening of sickness benefit controls, a plausible explanation for this age pattern is the sensitivity of workers in the “crucial age” of 55-59 to the rules governing the access to different pathways to retirement.

One may, of course, wonder whether similar patterns have occurred for younger cohorts during the same period. In panel B of table 1, we analyse the 1954-58 cohorts by using the two adjacent cohorts to control for age effects (in the same way as for panel A). We find a rise in benefits between 1998 and 2003 (+25 euros, adjusted for age) and a decrease between 2003 and 2008 (-39 euros, net of age effects). However, the magnitude of these movements is much lower than that for the 1944-1948 cohorts. This is confirmed by the third difference in panel C.

Table 2 provides quite similar evidence for women, although the magnitude of the effects is somewhat lower. Overall, this analysis confirms that workers who were older than 55 have “overreacted” to the increase and decrease in sickness benefits after 2003. As this occurred in the context of restrictions of access to early retirement schemes, this evidence can be interpreted as a sign of the specific sensitivity of older workers to the rules of access to sickness benefits.

To conclude this section, we find robust evidence that sickness benefits and disability pensions can act as substitutes for other retirement routes, suggesting that older workers are quite sensitive to the financial incentives of using this route rather than other ones. Combined with the historical evidence on the important role played by disability routes before 1980, such evidence suggests that today’s reduced use of the disability route is mostly due to its relative unattractiveness.

4 Increasing health inequalities among seniors

Previous sections have shown that disability can be used as a substitute for other retirement routes. This suggests that its apparent prevalence is not necessarily connected to changes in actual health status and this also raises doubts about the role of adverse health conditions as a major explanation for the development of early retirement. The expansion of early retirement would have resulted from other factors, and the fact that it has sometimes taken the form of increased disability rates would only reflect country- and/or period-specific institutional arrangements.

However, this may be only part of the story. A complete diagnosis of the link or the non-link between early exits and health status requires a more direct examination. This last section will provide some elements on this issue both at the micro and macro levels, relying on various measures of health. Messages will require more or fewer qualifications according to the perspectives that are retained.

Mortality rates and life expectancy

We first study the link between retirement and health trends by proxying health with mortality. Mortality is an imperfect indicator of health or disability, although it remains an important indicator of the change in health status of a population. Figures 9 and

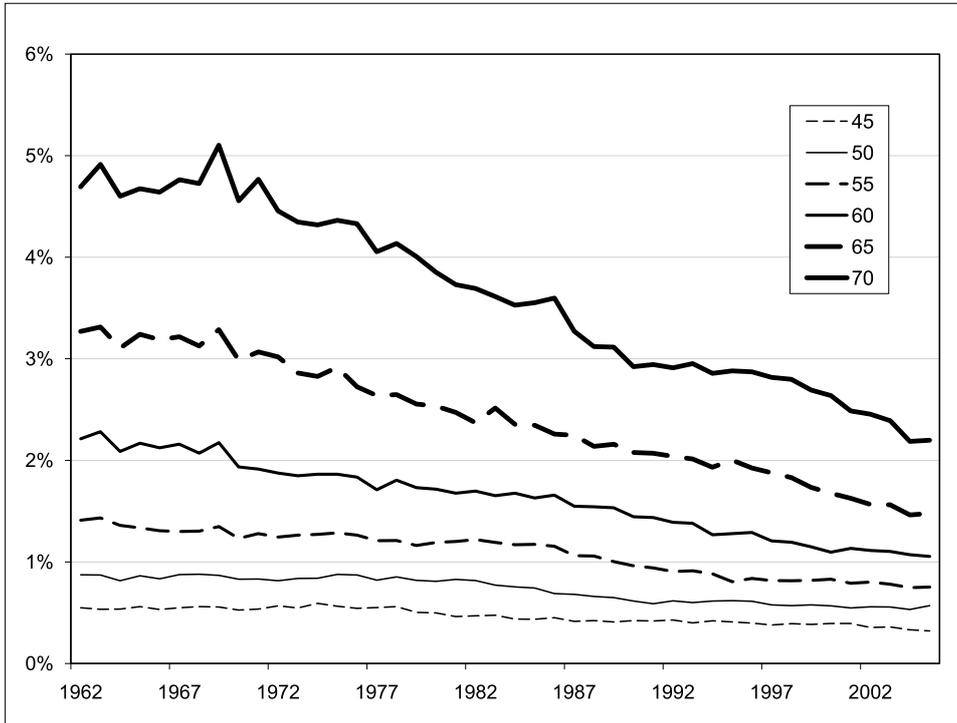
10 provide mortality rates at different ages for men and women. The mortality rate at seventy decreased by more than twofold between 1962 and 2000, although each age is concerned by the decrease. More than the mortality rate, the ages of equal mortality probability given in Figure 11 provide an idea of the increase in the average length of life over the past few decades. What is computed at each period is the age at which an individual reaches the same mortality rate as an individual aged 55, 60 or 65. On the average, for both men and women, these “equal mortality ages” have shifted by approximately 10 years between 1960 and 2008. For instance, you need to be a bit older than 70 today to face the instant mortality risk to which an individual aged 60 was exposed in 1960. This is more or less consistent with the global shift in life expectancy at birth that has gained 10.6 years for men and 10.7 years for women over the same period (from 67.0 to 77.6 years and from 73.6 to 84.3 years, respectively).

Not surprisingly, the comparison of labour force participation with such mortality data on Figure 12 gives no indication of a link between health and labour force participation of older workers. If health is proxied by mortality, this approach sends a clear message of a full disconnect between health and retirement trends.

However, aggregate mortality rates suffer from limitations health trends are assessed. Although life expectancy in France is increasing, it is not clear whether these extra years are spent in good health. According to Jagger *et al.* (2008), at 50 years of age, life expectancy in France is 29.6 years for a man and 35.4 years for a woman whereas healthy life expectancy is 18.0 years for a man and 19.7 years for a woman⁶. Moreover, the aggregate trend may hide changes in the dispersion of health.

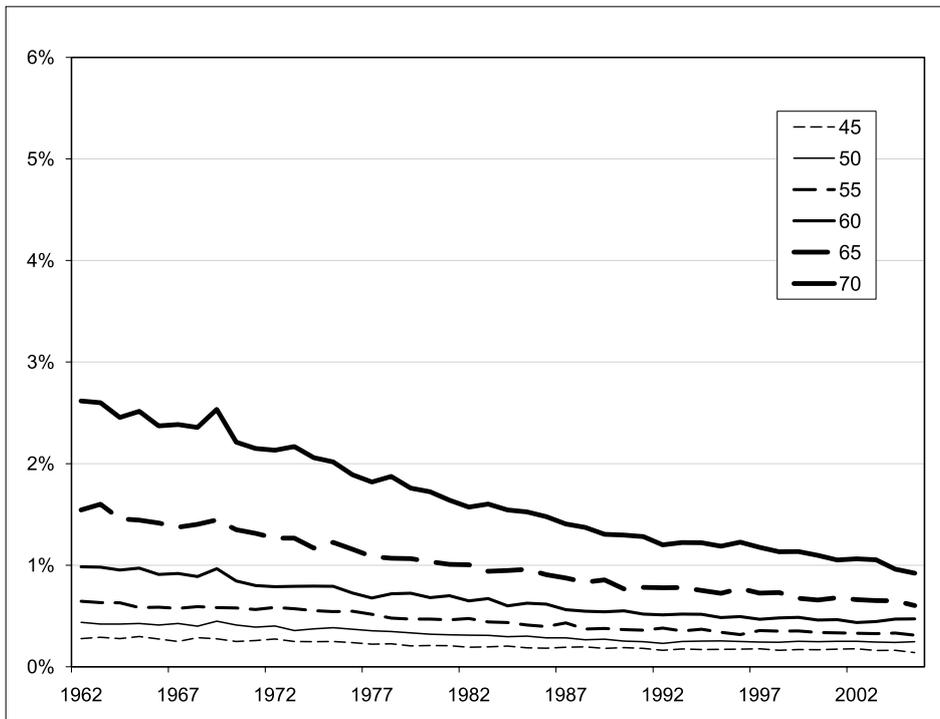
6 These authors calculate the differences between life expectancy and healthy life years in all of the countries using mortality data in the form of life tables and age specific prevalence of activity limitation. The results showed that in 25 countries, a 50 year-old man can expect, on average, to live until 67.3 years old without activity limitation and a woman until 68.1 years old, whereas a man's life expectancy is 78.9 years and a woman's is 83.5 years. The differences or inequalities between countries are considerable both in terms of life expectancy (9.1 years for men and 6.1 years for women) and healthy life expectancy (14.5 years for men and 13.7 years for women). On the basis of a cross-country econometric analysis, the authors demonstrate that disability-free life expectancy is related to a country's GDP and health expenditures in the care for the elderly of both sexes. For men, it is positively correlated to the long-term unemployment rate and negatively correlated to lifelong learning.

Figure 9: Mortality rates at different ages, men



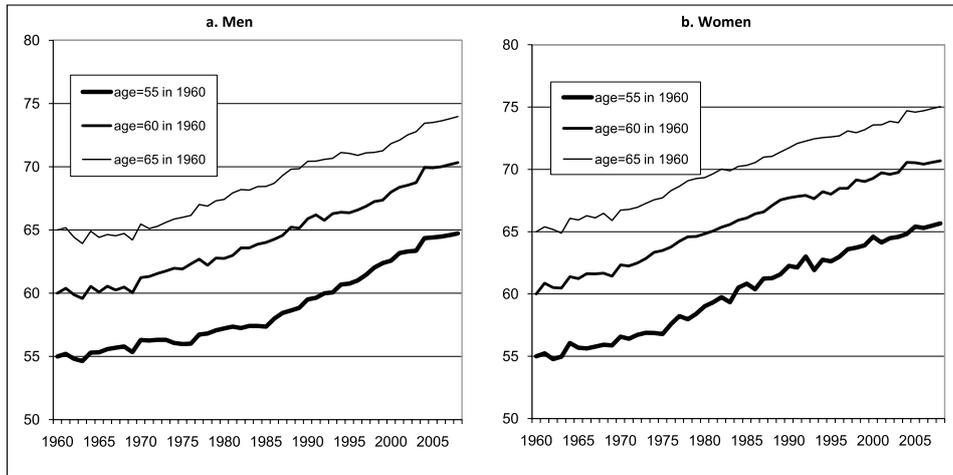
Source : INSEE

Figure 10: Mortality rates at different ages, women



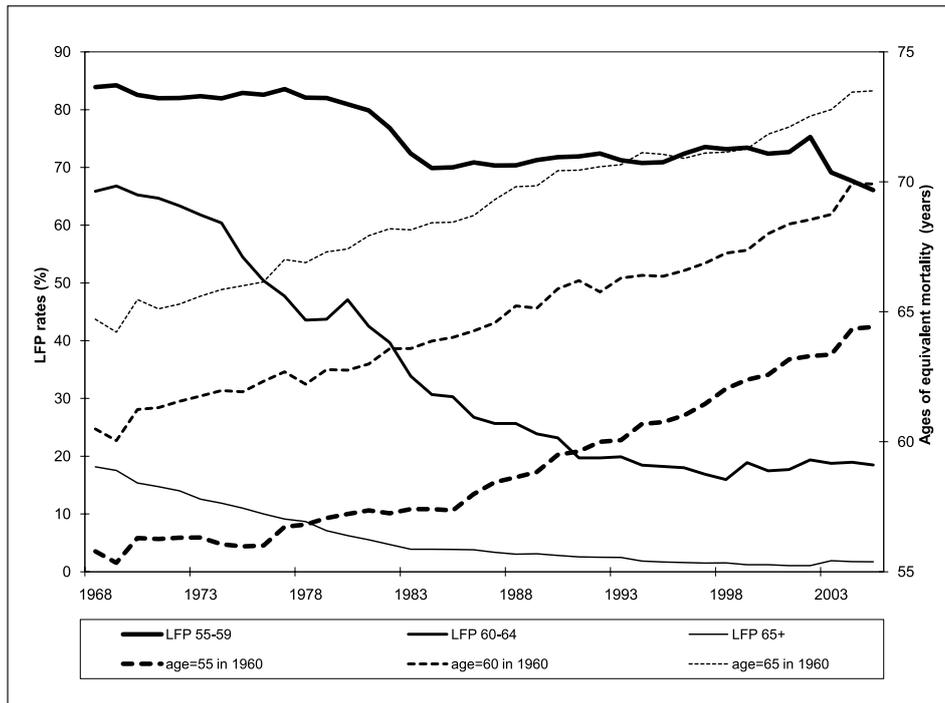
Source : INSEE

Figure 11: Ages of equivalent mortality



Source : INSEE

Figure 12: Ages of equivalent mortality and LFP rates, men



Source : INSEE

Several alternative health indicators can be used to study these changes in health status both at the macro and micro levels over the past few decades. Here, we shall concentrate on two of them: self-reported health and the body mass index (BMI), both of which are available since 1992 from the “*Enquête Santé et protection sociale*” (ESPS), a biennial survey of a panel of beneficiaries from health insurance that is performed by IRDES (*Institut de Recherches et de Documentation en Economie de la Santé*).

Self reported health status

Figures 13 and 14 show the average self-reported health levels on a scale of 10 for various age groups, for both men and women. They do not show any clear trends over the last 20 years, although they do indicate a slight deterioration over the recent past (2002 to 2008). At the micro level, subjective health indicators are clearly lower for the disabled. Employment status also shows an increasing gap between the unemployed and employed older workers. For men, we note a monotonic decline in the subjective health status of the unemployed over the time period, with health status of the other categories being held almost constant. The results are less clear for women even if there is a decrease at the end of the period for the unemployed ones.

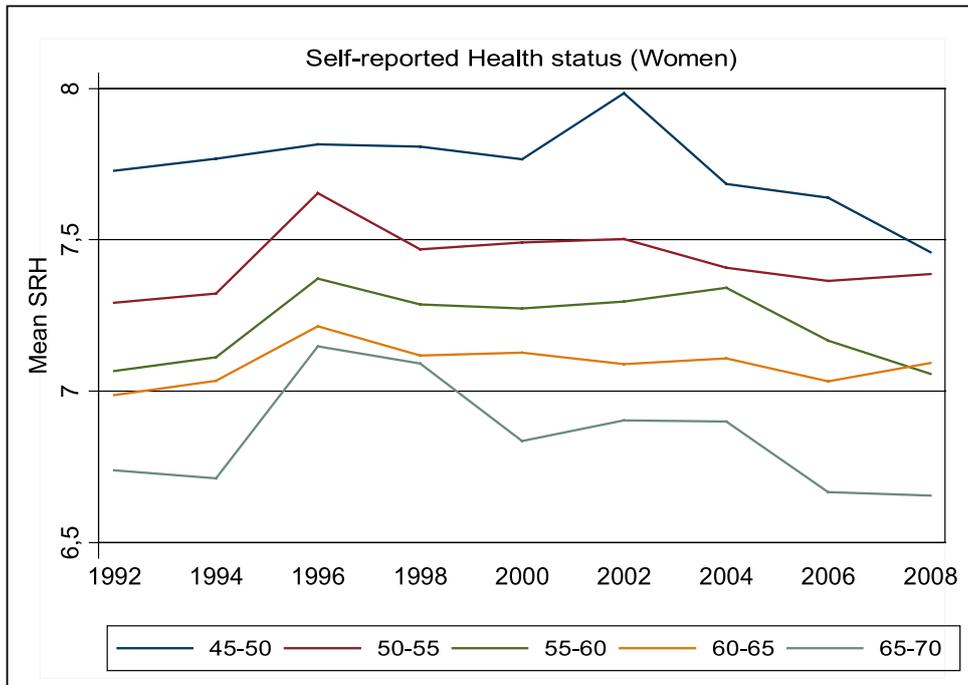
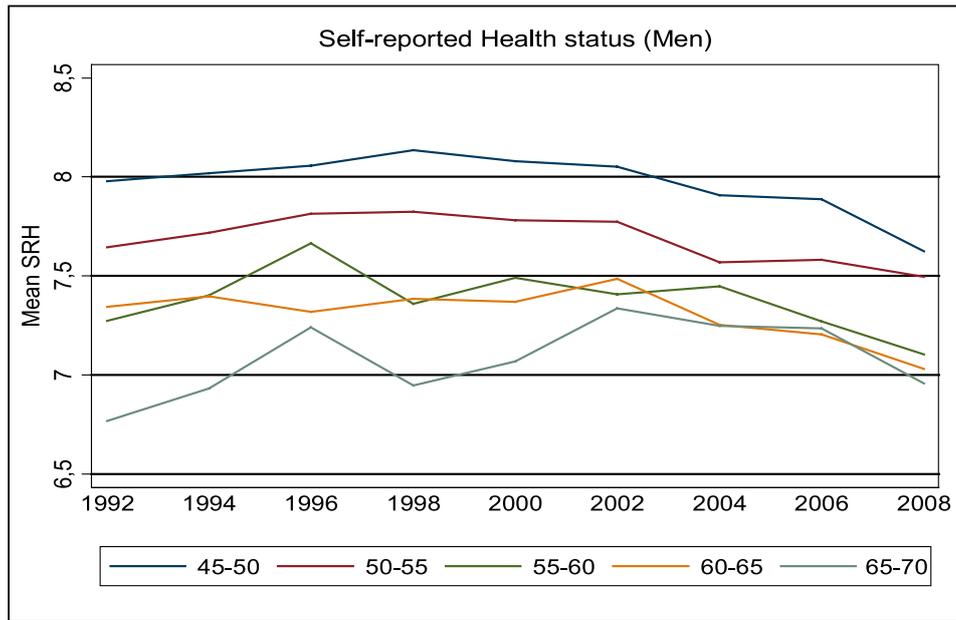
Globally, messages delivered by these subjective health indicators do not run completely opposite to those obtained with mortality data. We do not find a massive global deterioration of health status that could account for observed declines in employment rates. Global trends rather suggest that health factors have been globally neutral over the same period. However, micro data suggest that health factors may have eventually fed pressures to maintain early retirements over the recent few years. Even if there is no strong correlation between health status and retirement along the time dimension, this correlation does exist at the micro level. Therefore, poor health is correlated with non-employment and is therefore a reasonable candidate to explain at least a part of the early exits.

This micro link can exist in various forms. It is straightforward when an exit takes place through the disability route. It will be more indirect, but still easy to determine, when an exit takes place through unemployment. On the demand side, workers in bad health are more likely to suffer from below average productivity and are more likely to be laid off by firms confronted by excess capacities or in search of productivity gains. The probability of being hired, already low for senior job-seekers, will be still lower for those with bad health. On the supply side, these workers in poor health are more likely to find attractive and eventually accept financial conditions offered in case of individual or collective lay-offs, and, when out of the labour force, will be less motivated to try to return to employment.

We must recall, however, that the quantification of these links may be affected by various biases or measurement errors. For instance, the causal impact of health on employment can be either moderated or amplified by symmetrical effects of the labour force status on health. Being employed can be the cause or an aggravating factor of some health problems (Strauss and Thomas, 1998), especially for people working under conditions of physical or psychological pressure, although unemployment can also be a negative factor for health. Depending on which effect dominates, the observed relationship between health and employment will either underestimate or overestimate the true causal impact of health.

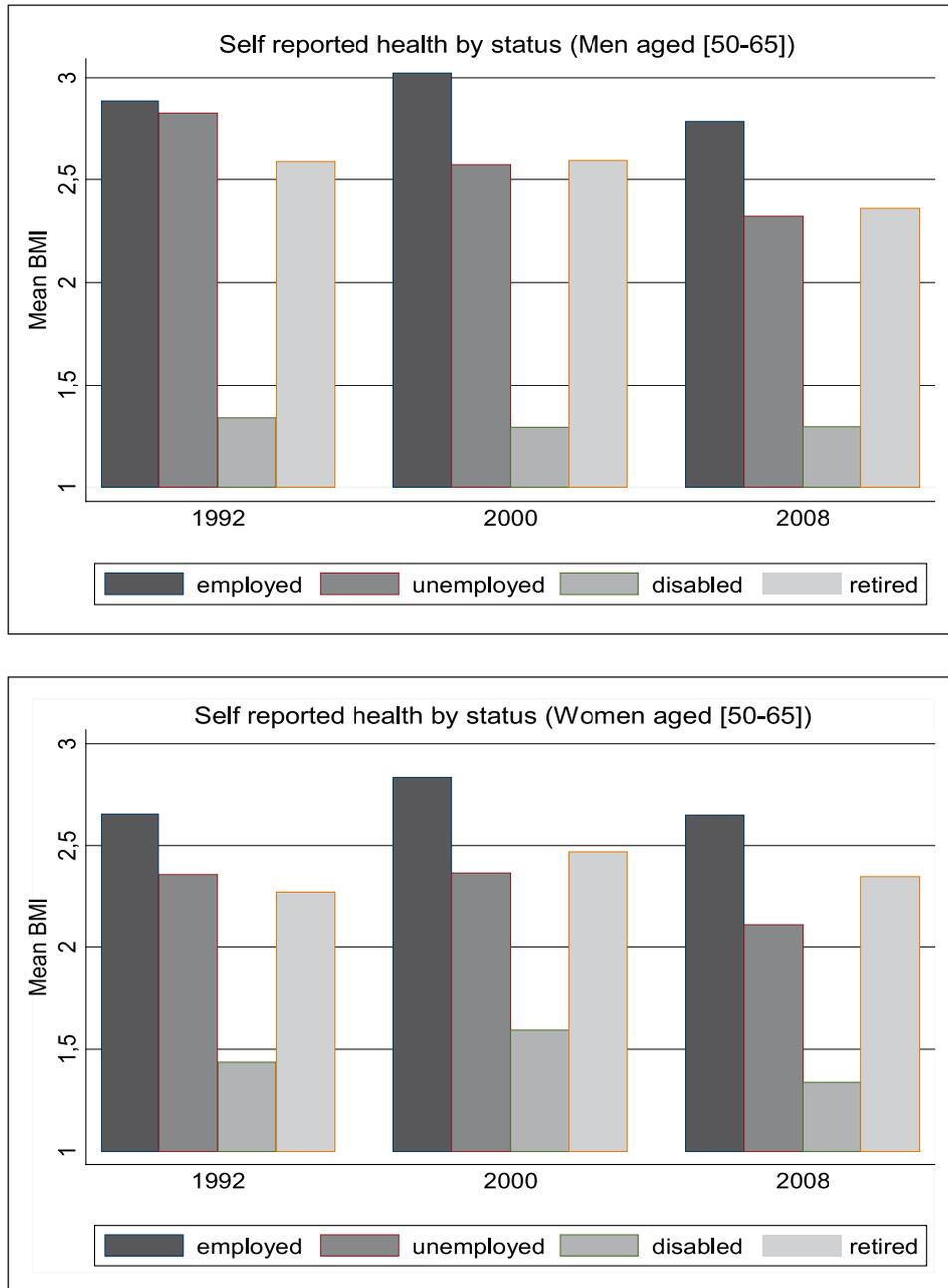
Biases can also originate from declarative behaviours. An increasing sensitivity to a health problem can lead to a stationary or deteriorating index of self-reported health, even when objective health improves. The correlation observed at the micro level between non-employment and bad health can also result from self-justification bias (i.e., people preferring to attribute their early exits from the labour force to health problems rather than to any other possible cause).

Figure 13: Self reported health status



Source: ESPS surveys

Figure 14: Self reported health status by labor market status



Source : ESPS surveys

The body mass index (BMI)

This latter category of biases resulting from self-declaration can be avoided by relying on more objective measures. The one we favour here is the body mass index, which is widely accepted in the medical and public health literature as an index of bad health, because it represents a risk factor of health disorders and premature mortality. Body mass indices by age and gender are shown in table 3. On average, BMI increased consistently during the period between 1992 and 2008. For men aged between 50 and 65 years old, it increased from 25.9 in 1992 to 26.3 in 2000 and 26.4 in 2008. For women aged between 50 and 65 years old, it was lower at the beginning of the period (24.7 against 25.9 for the men) but also increased from 24.7 in 1992 to 25.0 in 2000 and 25.2 in 2008. This increase does not seem to be substantial; averages still do not contradict the view that health factors have been relatively neutral over the period. However, other distributional characteristics deliver a less favourable message, especially at the top of the distribution. If we define BMI > 30 as obesity, its prevalence between 50 and 65 has increased by approximately 30-40% between 1992 and 2008, from 11.8 to 16.1 for men and from 10.8 to 15.4 for women. The phenomenon is still more striking for those who are younger, with a prevalence that has increased almost twofold for the entire population. This suggests a generational effect that may accelerate health deterioration in the 50-65 group over the decades to come (Figure 15). This provides one good reason to believe that some pressures will persist or even increase in favour of specific measures in favour of people reaching retirement ages under adverse health conditions, and it also points to the necessity of looking simultaneously at means and at dispersions if we want to properly measure the magnitude of this problem.

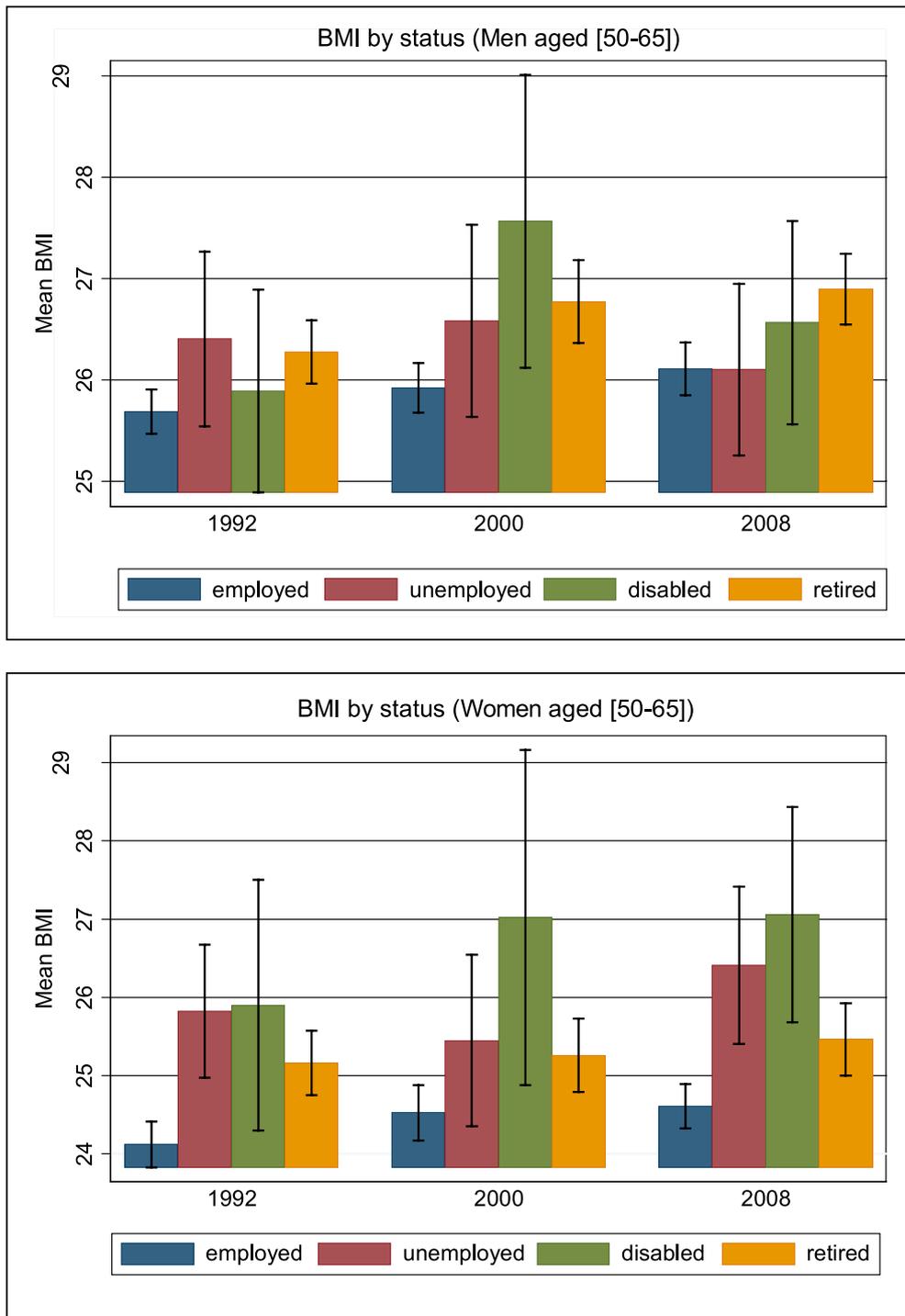
Finally, correlations between BMI levels and employment status exhibit a less clear pattern than for subjective health. However, it also shows that BMI, for both men and women, is almost always higher for disabled individuals and lower for individuals in employment. Except for men at the end of the period, the BMI indicator is higher for the unemployed than for the employed older workers. This confirms the results we obtained with the subjective health indicator. Unemployed people seem to be in worse health than employed people. As previously mentioned, unemployment may act as a substitution to disability routes but act on people with health difficulties; the question is, then, to understand how pension policy must address the case of these people. Again, the question is all the more important because BMI trends among the younger cohorts suggest that the problem may gain further importance in the decades to come.

Table 3: Body mass index by period, gender and age group

		Mean	Standard deviation	% with BMI>25	% with BMI>30
50-65 age group					
Men	1992	26.0	3.5	57.0	11.8
	2000	26.2	3.5	56.3	12.3
	2008	26.4	3.9	61.5	16.1
Women	1992	24.7	4.1	40.1	10.8
	2000	25.0	4.4	42.7	13.7
	2008	25.2	4.7	43.3	15.4
All ages					
Men	1992	22.7	4.5	29.4	5.0
	2000	23.0	4.8	32.9	6.5
	2008	23.5	5.0	37.1	9.1
Women	1992	21.9	4.5	20.8	5.3
	2000	22.2	4.8	23.4	6.9
	2008	22.9	5.3	29.3	9.9

Source : ESPS surveys

Figure 15: BMI Indicator by labor market status



Source: ESPS surveys

Conclusion

Even if disability does not seem to be a key component in the retirement history of old workers in France, discussions on disability as a retirement route remain essential in a context of a general decrease in the generosity of the pension scheme.

The study of past reforms of the pension system illustrates that disability routes have often acted as a substitute to other retirement routes. Changes in the claiming of invalidity benefits seem to match changes in pension schemes or controls more than changes in health indicators, such as mortality rates. However, the last section suggests that increases in average health levels over the past two decades have been accompanied by increased disparities. In that context, less generous pensions may induce an increase in the claiming of invalidity benefits not only because of substitution effects, but also because of increases in the proportions of people with poor health.

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Disability and Social Security Reforms: The French Case

Luc Behaghel (Paris School of Economics, Inra), Didier Blanchet (Insee-D3E),
Thierry Debrand (Irdes), Muriel Roger (Paris School of Economics, Inra, Insee-D3E)

The French pattern of early transitions out of employment is basically explained by the young age at “normal” retirement and by the importance of transitions through unemployment insurance and early-retirement schemes before access to normal retirement. These routes have prevented French workers from significantly relying on disability incentives for early exits, contrary to situations that prevail in some other countries where normal ages are high, unemployment benefits are low and early-retirement schemes are almost non-existent. Yet, the role of disability remains an interesting topic of investigation in France, at least given the prospective reasons in a context of decreasing generosity of other programs. A study of the past reforms of the pension system has shown that disability routes have often acted as a substitute for other retirement routes. Changes in the claiming of invalidity benefits seem to match changes in pension schemes or controls more than changes in health indicators, such as mortality rates. However, our results suggest that increases in average health levels over the past two decades have occurred along with increased disparities. In that context, less generous pensions may induce an increase in invalidity benefits claims not only because of substitution effects but also because of increases in the proportion of people with poor health.

Incapacité et réformes du système de retraite : le modèle français

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En France, les sorties précoces de l'emploi sont expliquées principalement par un âge légal de départ à la retraite peu élevé et par l'existence de dispositifs de sorties liés à l'assurance chômage ou à des mesures de préretraites qui permettent aux travailleurs seniors de cesser leur activité avant d'accéder à une retraite « normale ». Pour ces raisons, les dispositifs liés à l'incapacité sont assez peu développés contrairement à la situation qui règne dans des pays où les âges normaux de départs à la retraite sont élevés et où les systèmes de sorties liés au chômage ou à la préretraite sont quasiment inexistantes. Pourtant il demeure intéressant d'examiner le rôle de l'incapacité dans le processus de départ à la retraite en France, au moins d'un point de vue prospectif dans un contexte de réduction de la générosité du système de pension et des dispositifs de sortie alternatifs traditionnels.

L'étude des réformes passées montre que l'incapacité est souvent un dispositif qui se substitue à d'autres dispositifs existants. Les changements dans la détermination des indemnités d'invalidité semblent plus impacter les sorties d'activités via ce dispositif que les modifications des indicateurs de santé tels que les taux de mortalité. Cependant, nos résultats suggèrent que les augmentations des niveaux moyens d'état de santé pendant les dernières deux décennies sont corrélées avec une augmentation des inégalités de santé. Dans un contexte où les pensions vont devenir de moins en moins généreuses, les demandes concernant le mécanisme d'invalidité peuvent, donc augmenter pour deux raisons : suite à l'existence des effets de substitution entre les dispositifs mais également pour répondre à des inégalités de santé grandissantes.