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Disability Programs, Health, and Retirement in Denmark since 1960

Paul Bingley, Nabanita Datta Gupta,
and Peder J. Pedersen

5.1 Introduction

Over the last fifty to sixty years Danish society has undergone quite a fundamental change in terms of the share of the population eighteen to sixty-five years old being provided for in one of several transfer programs. The increase has been from about 5 percent to 20 percent of the population in the labor market active age-group. This development has occurred throughout quite different cyclical situations and it can be characterized by changes in programs that existed back in the 1950s and by the introduction of new programs—some permanent and some temporary.

In the present chapter the main emphasis is given to Social Disability Pension (SDP) along with other programs for early retirement from the labor force. The SDP is not an insurance-based program but is financed from general tax revenues with eligibility originally depending on medical, and later on a mix of medical and social criteria. The long-run development in take-up of SDP reflects a number of different factors. Over the last fifty to sixty years a number of reforms of SDP have been enacted with different motives and impact on the contents and aspirations of the program. Over this time, the economy has undergone a number of big cyclical swings with

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the possible consequence that take-up of SDP to some extent might be influenced by movements in unemployment. Finally, as the primary criteria for entry to SDP are medical, take-up could be affected by trends in mortality or in the prevalence of more serious health conditions.

In the following, we present in section 5.2 the background for further analyses in the subsequent sections by looking into some long-run historical trends. We focus on some aggregate long-run trends in SDP take-up, in unemployment, in labor force participation, and in mortality. Finally, section 5.2 outlines the main questions or hypotheses being subsequently analyzed. The purpose of section 5.3 is to introduce and describe trends in mortality over the period since 1960 as one element in an attempt to understand the development in the relationship between health—with mortality as the ultimate indicator—SDP and trends in the labor market regarding employment and unemployment by gender and age-groups. Section 5.4 introduces a mix of health indicators over all or part of the period since 1960 consisting of register-based data for the years since 1980 and indicators of self-assessed health for a number of years between 1987 and 2005. The main purpose in section 5.5 is to describe the specific programs with the main emphasis on SDP and the reforms that were enacted since the 1960s. The section further contains descriptions of other early retirement programs that have had an impact on labor force participation for older workers. For these programs, the description focuses on the motives behind the introduction and subsequent reforms, followed by data for the take-up of each of the programs. Further, section 5.5 illustrates the pathways from the labor force to retirement as well as evidence of substitution between programs. Section 5.6 describes trends in employment and unemployment with a special emphasis on the timing of permanent as well as temporary policy changes in the area of early retirement. Next, the purpose of section 5.7 is an attempt to identify the relationship—or the lack of such—between the changes we find in the labor market regarding employment for the age-groups most relevant in an early retirement perspective, and the trends we have found in the earlier sections looking into the development in mortality and health along with policy reforms. Finally, section 5.8 concludes and summarizes.

5.2 Historical Overview—Some Aggregate Trends

In this section we briefly summarize some aggregate trends before moving on to more disaggregate analyses. It is well known that a gray zone may exist between unemployment and disability insurance. The idea of a competing risk-setting between SDP and unemployment programs is the topic in Black, Daniel, and Sanders (2002) and Autor and Duggan (2003). The possible interaction between disability insurance (DI) and labor supply is the topic in Gruber (2000) and Campoliteti (2004) with focus on the US labor market. In Bratsberg (1999) the focus is on DI in the setting of a Scandinavian welfare

state. In a recent contribution, Bratsberg, Fevang, and Røed (2010) takes up explicitly the relationship between unemployment and DI in the Norwegian welfare state. Many studies in this area take the specific approach of analyzing the consequences of big firm closures with focus on what happens to older laid off workers. When panel data are available the laid off workers can be followed through an initial phase of unemployment to either a new job or to an exit to DI or another program for early retirement. Other obvious possibilities of program substitution are between SDP and alternative programs for early retirement beyond unemployment, especially programs without the medical or social eligibility criteria valid for SDP.

Figure 5.1 shows the aggregate profile in Denmark 1966 to 2008 in the unemployment rate and in the number of people in the SDP program relative to the population eighteen to sixty-five years old. There is no obvious relationship between SDP and unemployment at the aggregate level. The unemployment rate follows an inverted U profile peaking slightly above 12 percent in 1994. The SDP ratio shows a completely different profile, moving for most of the period between 6 and 8 percent without any simple correlation with the business cycle represented by the unemployment rate. It should be emphasized, however, that other programs were introduced in the period as pathways out of the labor force for older workers. Behind the aggregate lack of any relationship shown in figure 5.1, the unemployment SDP interaction is more complicated when we consider program substitution.

The next aggregate profiles shown in figure 5.2 are the mortality rates for women and men aged sixty-five years over the last fifty years. Roughly, mortality for the sixty-five-year-olds is constant until a decline is seen from

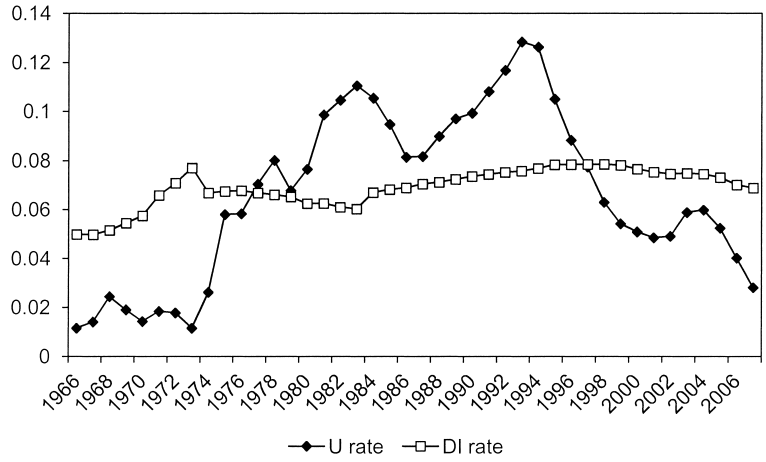

Fig. 5.1 Unemployment rate and DI/population share (eighteen to sixty-five), 1966 to 2008

Source: Statistics Denmark.

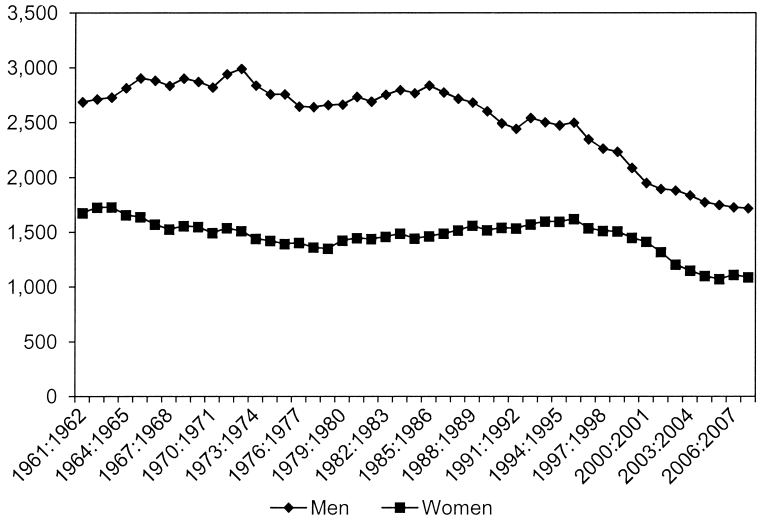

Fig. 5.2 Mortality rate per 100,000, men and women, sixty-five years old, 1961 to 2008

Source: Statistics Denmark.

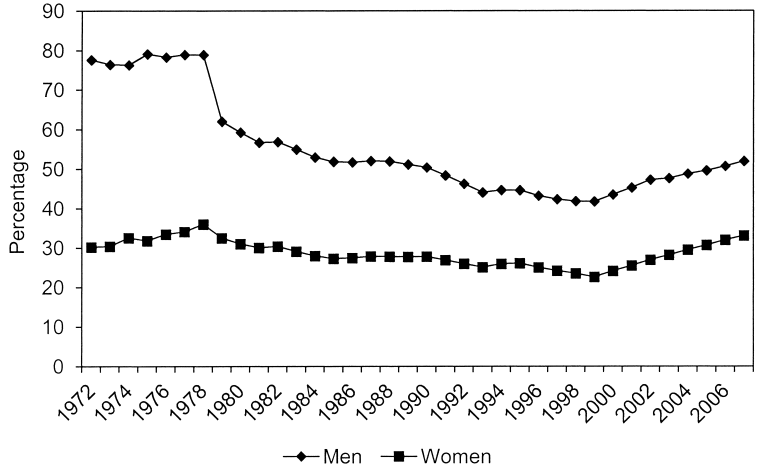

Fig. 5.3 Labor force participation rates, sixty to sixty-four years old, men and women, 1972 to 2008

Source: Statistics Denmark.

around 1990. Here we have, at least at the aggregate level, the same lack of any simple relationship between mortality and the SDP share.

The final aggregate profile is the labor force participation rates for the "critical" age-group in the present context, the sixty to sixty-four-year-olds shown in figure 5.3 for women and men, using consistent data since 1972.

Looking at the profile for men it is obvious that factors other than SDP and mortality are behind the kinks and trends. We return to this in section 5.6. For women the profile appears much more smooth in reflecting that the impact from program innovations, to a big extent, is counteracted by strong cohort increases in female labor force participation.

5.3 Mortality Trends

The main emphasis in the present chapter is on the interaction between measures of health, DI(SDP) take-up, and labor market performance, including the impact of policy reforms and changes in the area of early retirement. As an introduction to the treatment of SDP and alternative retirement programs, we begin with a brief description of available indicators of population health in Denmark over recent decades. In this section the focus is on mortality as an indicator of the general health status in the population.

The reduction in mortality over the last fifty years is among the lowest in the Organization for Economic Cooperation and Development (OECD) area. We show the mortality rates for men and women at ages fifty-five, sixty, and sixty-five in figures 5.4 and 5.5. It is evident that there were essentially no gains in this area until about 1990. From then on we observe a fairly strong decline in mortality at all three ages, most pronounced for the sixty-five-year-olds. The level is higher for men at all three ages and the reduction in mortality in absolute as well as in relative terms is greater for men.[1]

The average retirement age has gone down in Denmark in the period since 1960. It is interesting to relate this to the increase in longevity shown in figures 5.6, 5.7, and 5.8. Figure 5.6 shows mortality by age, from forty to eighty-five, for men and women in 1960 and nearly fifty years later in 2008. Figure 5.6 illustrates by gender the age at which mortality is equal to 2 percent in 1960 and in 2008, respectively. For men this occurs in 2008 at age sixty-seven instead of sixty-two, and for women mortality reaches this level at age seventy-one in 2008 compared with age sixty-six back in 1960. So, for both men and women the 2 percent mortality level has moved up with five years of age since 1960. From figures 5.4 and 5.5 we know that this increase occurred in the last fifteen to twenty years.

Figures 5.7 and 5.8 illustrate the decline in mortality in a different way. From 1950 to 2009, we show which age a person should have in each of the years to have the same mortality as a sixty-year-old, respectively a sixty-five-year-old person in 1960. For men in figure 5.7 and for women in figure 5.8 we find that the overall decline in mortality after 1990 in this illustration

1. Data are available for expected lifetime at birth back to 1840. It is interesting to note that the female-male difference in expected longevity is about two years for about the first 100 years of observations. It then increases from a minimum slightly below two years in the first half of the 1920s to a peak of six years in the second half of the 1980s. From then on the difference in expected lifetime goes down to 4.5 years in 2008.

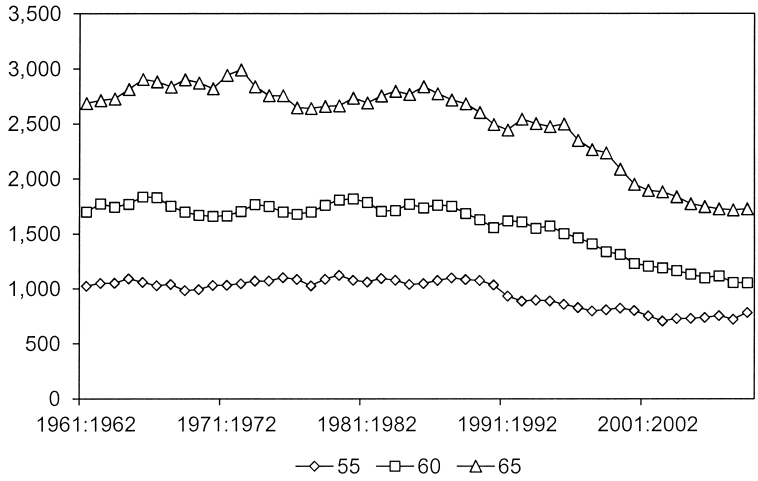

Fig. 5.4 Male mortality rate per 100,000, 1961 to 2008
Source: Statistics Denmark.

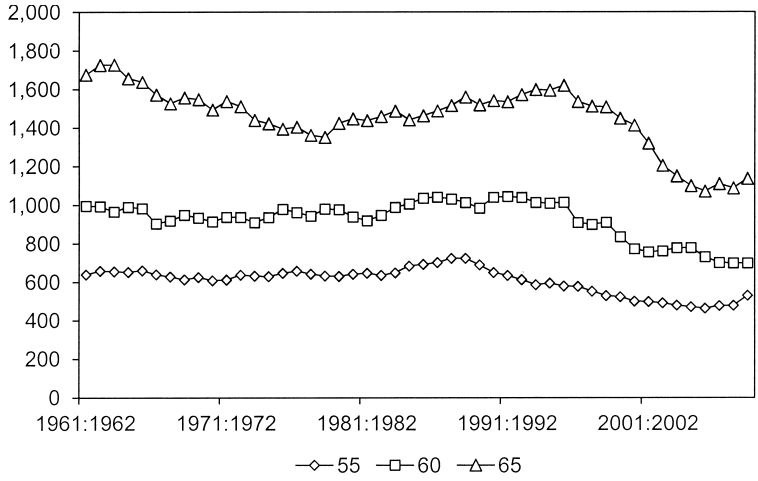

Fig. 5.5 Female mortality rate per 100,000, 1961 to 2008
Source: Statistics Denmark.

corresponds with an increase to, respectively, the mid-sixties or to around age seventy for having the same mortality at the end of the period as a sixty-year-old, and respectively, a sixty-five-year-old had in 1960.

Finally, we summarize in this section in figures 5.9 and 5.10 how four major causes of death have evolved since 1977 for sixty to sixty-four-year-old men and women. For men, it is evident from Figure 5.9 that a strong decline in myocardial infarction and related diseases is the main factor

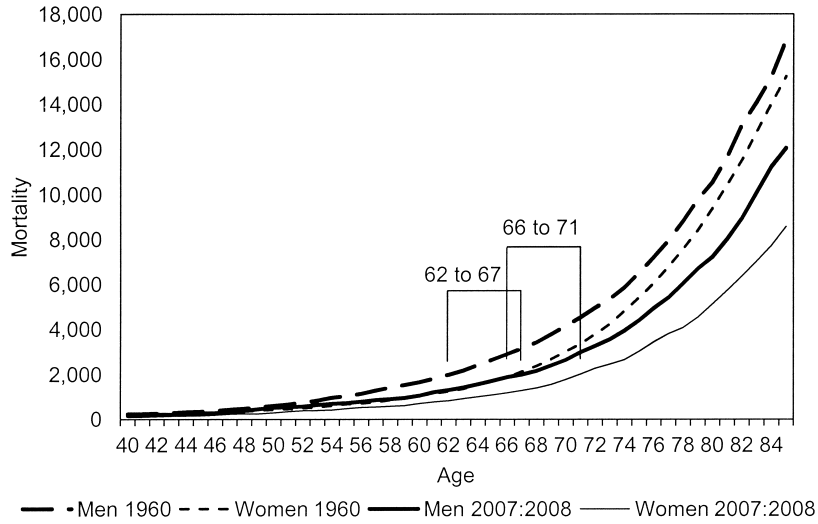

Fig. 5.6 Two-year mortality rates by age and gender, 1960 and 2007, 2008
Source: Statistics Denmark.

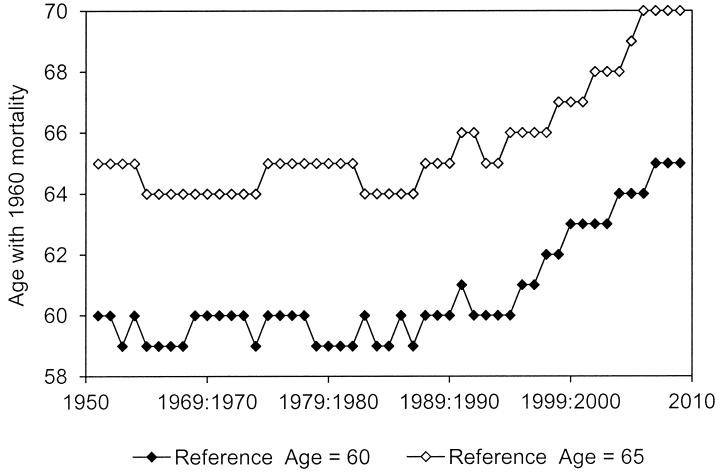

Fig. 5.7 Ages of equal mortality probability for men, 1960 to 2009
Source: Statistics Denmark.

behind the decline in mortality since the years around 1990. The number of deaths due to cancer has also gone down, although not as much as myocardial infarction. The two other major causes, strokes and related diseases and diseases in the respiratory system, have been fairly stable over the period.

For women, figure 5.10 shows a different picture. The number of deaths due to cancer is fairly stable over the period while myocardial infarction goes

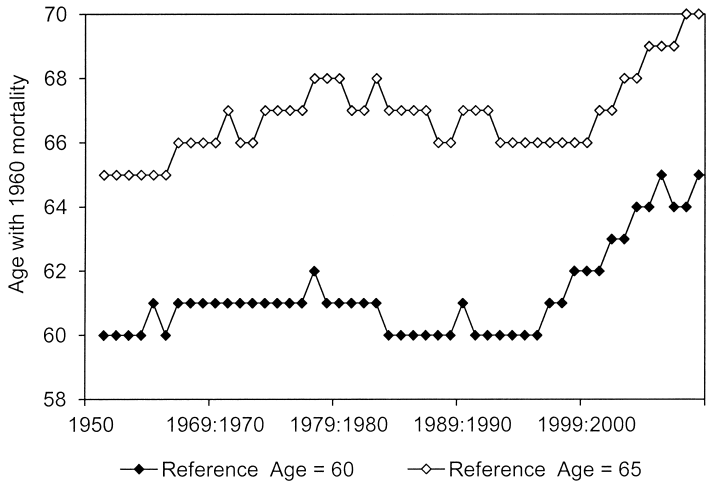

Fig. 5.8 Ages of equal mortality probability for women, 1960 to 2009
Source: Statistics Denmark.

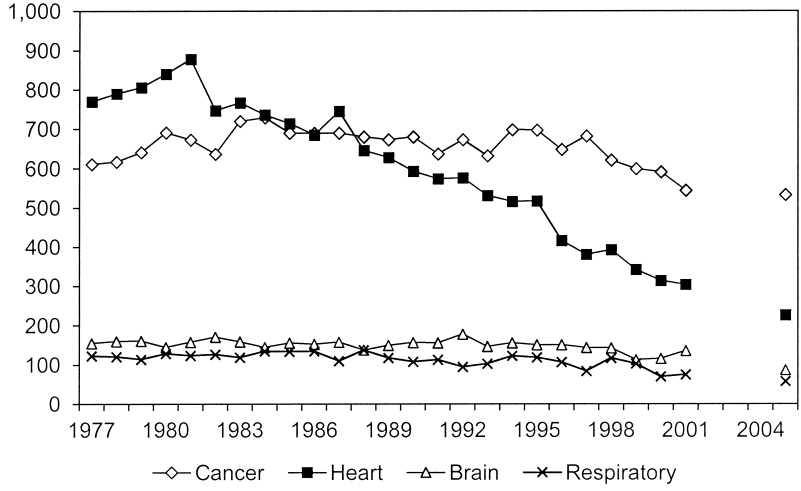

Fig. 5.9 Four major causes of death per 100,000, men aged sixty to sixty-four years old, 1977 to 2005
Source: Statistics Denmark.

down as found for men. Comparing causes of death for men and women sixty to sixty-four years old, we find excess mortality for men due to cancer, myocardial infarction and related diseases, and strokes and related diseases. For strokes, excess mortality is constant since 1977. For cancer it is falling until no excess mortality was found by the end of the period, and for

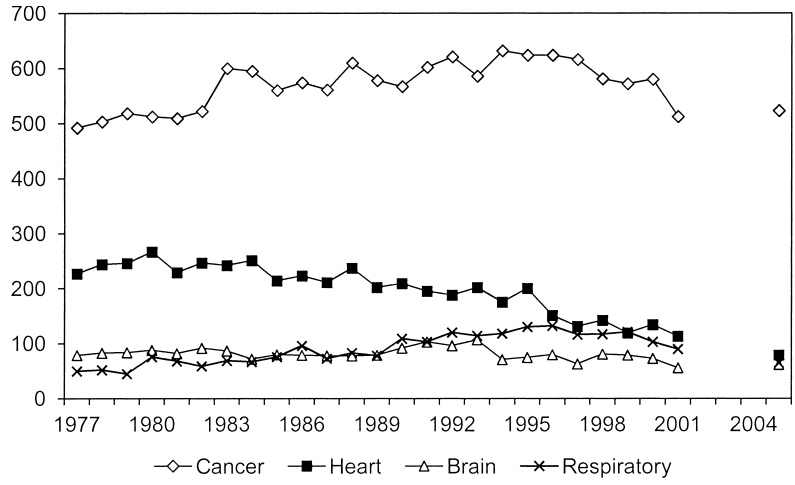

Fig. 5.10 Four major causes of death, women aged sixty to sixty-four years old, 1977 to 2005
Source: Statistics Denmark.

myocardial infarction the decline is much stronger for men. There is only one exception to this pattern, that is, for diseases of the respiratory system, initially with a clear excess mortality for men but with a shift to female excess mortality from around 1990.

5.4 Trends in Population Health

It is straightforward to find reliable mortality data. It is more difficult to find long, consistent time series for the topics in focus in this section, that is, self-reported health and register data-based health indicators. Looking first at indicators for self-reported health, we have two sources that are both used in this section. The first source is a survey run by the National Institute of Public Health (NIPH), collected five times between 1987 and 2005. The other source is the Danish panel in the European Community Household Panel (ECHP), collected annually from 1994 to 2001. The share reporting their health status as "good" in the NIPH survey seems to be at the same level as the aggregate share of respondents finding their health status "very good" or "good" in the ECHP survey.

In figure 5.11 we show the results from the NIPH survey separately for women and men, aged twenty-five to forty-four, and forty-five to sixty-four years, respectively. The surveys cover a time span of eighteen years so—with some caution—it seems we can conclude that satisfaction with health status is falling or about constant for the twenty-five to forty-four-year-olds and seems to be increasing for the forty-five to sixty-four-year-olds. A tentative

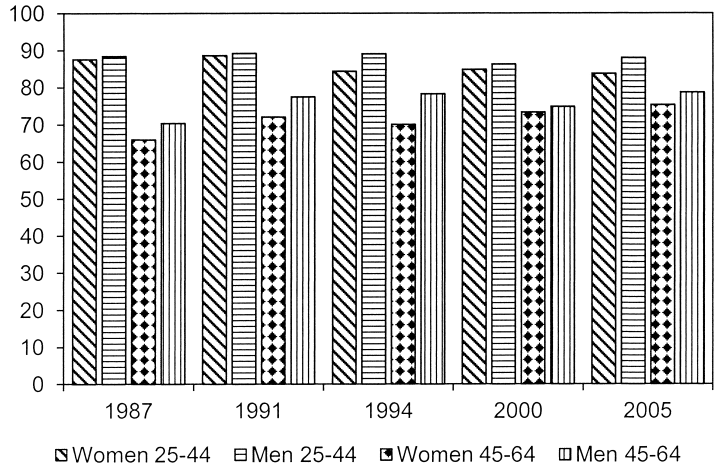

Fig. 5.11 Share with self-reported health "good"
Sources: OECD Health Data, June 2010; National Institute of Social Health.

conclusion is that self-reported health (and mortality, cf. section 5.3) seems to become better for the groups most relevant for SDP and the other early retirement programs being introduced in the period in focus here.

When we compare with the shorter period covered by the ECHP, we find in figure 5.12 approximately the same trend for the twenty-five to forty-four-year-olds as in figure 5.11, while the share for the forty-five to sixty-four-year-olds, is approximately constant.

The Danish panel in the ECHP has been used also in figure 5.13. We have pooled data for all eight waves and show in the graph the share by age, forty-five to seventy, and gender who find their health status to be "very good" or "good." As expected, the share is falling with age but at varying speed. It seems that two points—with caution—can be concluded from figure 5.13. First, while the share is at the same level for women and men in their mid-forties the decline is much faster for women. Secondly, the share seems to be flat or only falling quite slowly from the midfifties to the midsixties, that is, the age interval where many were eligible for one or another of the early retirement programs that were open in the years covered by the ECHP (cf. the detailed description of these programs in section 5.5).

Next, we present a few health indicators based on register data. First, figure 5.14 shows the total number of new cases (per 100,000) of all kinds of cancer found annually from 1978 to 2008, separately for women and men. Notice that the number increases throughout the period and more so as mortality goes down, also due to cancer in the sixty to sixty-four-year-old group (cf. figures 5.9 and 5.10).

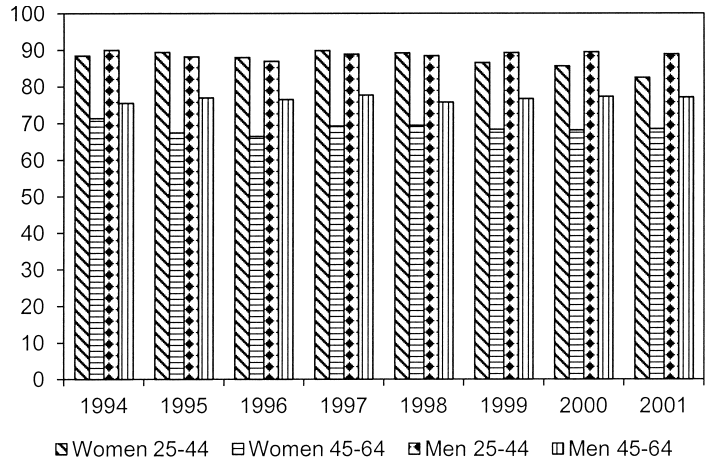

Fig. 5.12 Share with self-reported health "good" and "very good"
Source: Calculations from European Community Household Panel.

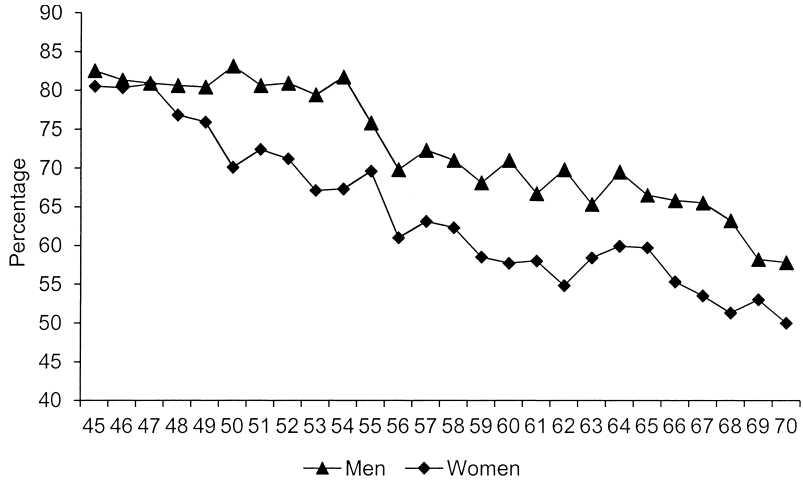

Fig. 5.13 Share of respondents with self-reported health "very good" or "good" by age and gender, average values 1994 to 2001
Source: Calculations from European Community Household Panel, pooled over eight waves.

Figures 5.15 and 5.16 show for the same age-group and separately by gender the (scaled) prevalence of annual diagnoses of three major disease groups, that is, malignant tumors, myocardial infarction and related diseases, and psychiatric diagnoses along with mortality. Due to a new classification system for diagnoses introduced in 1991, this year is the first in figures

Fig. 5.14 New cases of cancer per 100,000, 1978 to 2008
Source: Statistics Denmark.

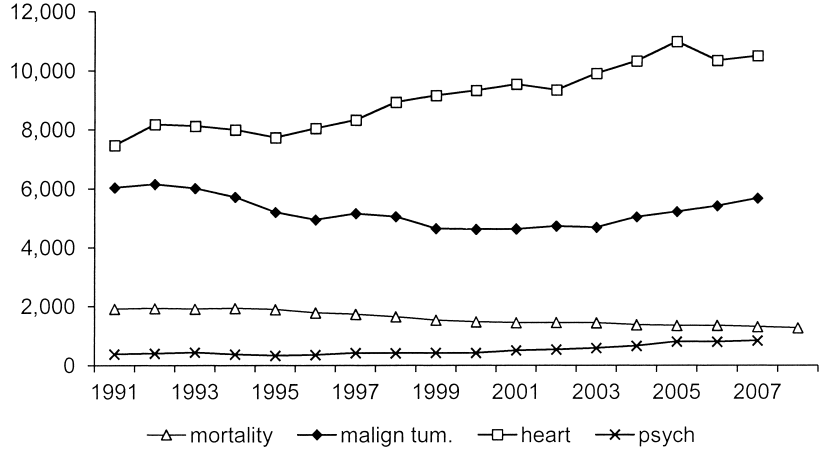

Fig. 5.15 Mortality and prevalence of three major diagnoses, men aged sixty to sixty-four years
Source: Statistics Denmark.

5.15 and 5.16. The data shown in figures 5.15 and 5.16 are illustrative. A cautious interpretation is that diagnoses and mortality are on different tracks. For instance, for men sixty to sixty-four years old, the number of diagnoses of cases with serious diseases of the heart goes up quite strongly while heart diseases as cause of death goes down equally strongly (cf. figure 5.9).

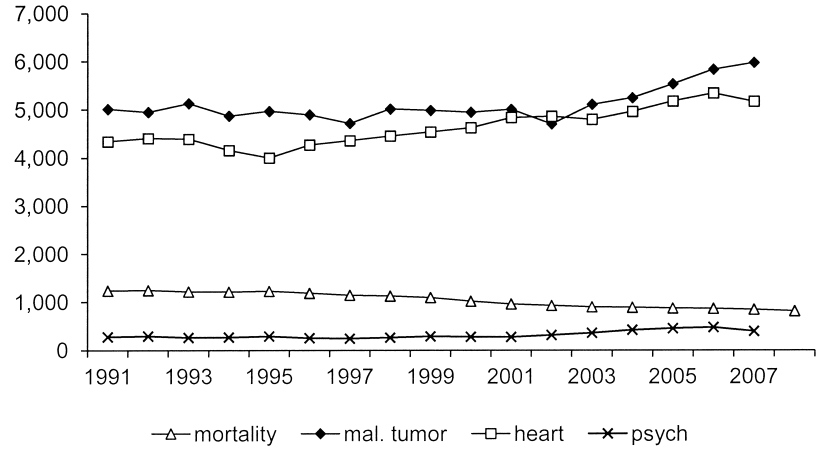

Fig. 5.16 Mortality and prevalence of three major diagnoses, women aged sixty to sixty-four years

Source: Statistics Denmark.

5.5 DI and Other Early Retirement Programs

5.5.1 Social Disability Pension (SDP)

The historical origin of SDP is a "classic" disability pension granted on medical criteria ending with a transition to Old-Age Pension ([OAP], folkepension) at age sixty-seven (decreased to sixty-five years in 2004). The number of participants in SDP relative to the population is shown in figure 5.17. Until 1983 there were, along with SDP, a number of smaller social security pension programs available before the OAP age granted on a mix of medical and social criteria. These small programs consisted of a program for widows' pension conditional on being aged fifty-five years or older, and programs for granting early OAP before age sixty-seven to single women, and to women above a certain age with an older spouse receiving OAP. Further, a small group of men could be granted early OAP on specific social criteria. Policy changes and reforms have been enacted on several occasions. The first policy change—in the period we consider—occurred in 1965. The decline in the number of participants from 1965 to 1967—after a strong increase from 1960—was, however, due to purely administrative reclassifications (Bengtsson 1989).

The next policy change was in 1967, making the eligibility criteria less restrictive regarding health. From 1974, married women sixty-two to sixty-six years old with an older spouse receiving OAP no longer received an independent early OAP. This was replaced with an increase in pension benefits to the retired spouse. The decline in the number of DI recipients from 1974 to

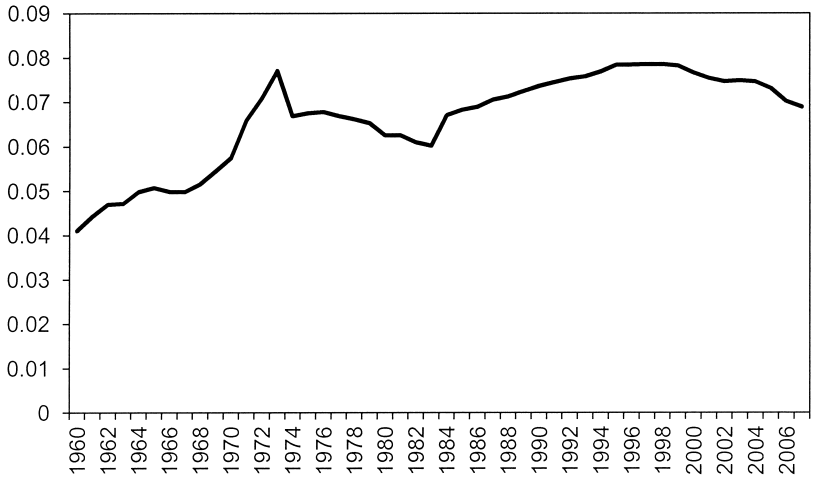

Fig. 5.17 Participants in DI, aged eighteen to sixty-six/sixty-four as share of population, 1960 to 2008

Source: Statistics Denmark.

Note: Policy reforms in 1967, 1974, 1983, 1998, and 2003.

1975 was thus artificial, that is, the number of people in the labor force was not affected and the expenditures for the program were not affected either. A major change of SDP was enacted in 1984 through a major reform of social security programs regarding early retirement. The reformed SDP was intended to encompass a number of earlier programs. The biggest among these by far was the classical disability pension. Other programs, which were included into the new SDP, were, as before, a public-financed program for widows' pension, a program for early OAP for specific groups, and a program for disabled persons with a low-level compensation. The data break in 1984 occurred as a consequence of new groups who became eligible at the same time as some among the previously eligible groups lost their eligibility. New groups that became eligible were fifty to sixty-six-year-olds on social criteria and all eighteen to sixty-six-year-olds on a broad mix of social and/or health criteria. Those now excluded were a number of widows fifty-five years and older and single women, sixty-two to sixty-six years old, excluded on a new means test. The group of newly eligible was significantly bigger than the group who lost eligibility.

From 1984, SDP on medical or social criteria could be granted on three levels. The highest level was applicable to persons younger than sixty whose work capacity had been reduced to almost nothing. The intermediate level SDP was open for those younger than sixty with a work capacity reduced to one-third of the normal level, and to people sixty to sixty-six years old with almost no remaining work capacity. Eligibility for the highest and the

intermediate levels of SDP was decided on medical criteria. Finally, eligibility for the lowest level, the so-called ordinary level SDP, depended on work capacity having been reduced to below half the normal level. The evaluation of this was based on health criteria or on a combination of health and social criteria. Recipients of the ordinary level of SDP that were younger than age sixty were entitled to a supplementary amount. From 1999 the granting of the ordinary level pension was dependent on rehabilitation having been considered or tried without success.

Recipients of benefits in the number of smaller programs that were merged with the classical disability pension from 1984 were all entitled to the lowest level of SDP. It is consequently only possible to avoid the data break in 1984 if the focus is on the group of people entitled to the highest and the intermediate level of benefits. For this group a data series is consistent until a reform making the program more simple was enacted in 2003.

In 1992, 1997, 1998, and 1999 administrative and financial incentives were tightened up for the municipalities who are responsible for granting SDP. The purpose of these changes was to restrict/reduce entry to the program. A reform was, as mentioned, enacted in 2003. The main contents were a tightening of the eligibility criteria and a reduction of benefits for future SDP pensioners. The three levels of benefits (plus different ad hoc benefits) were replaced by one benefit set at maximum unemployment insurance benefits for married/cohabiting, and 85 percent of this amount for singles.

In figures 5.18 and 5.19 we disaggregate by gender and age and show the relative participation in SDP since the 1984 reform. In this period alternative early retirement programs were introduced—or already in operation—to be described later. One of these, the Post Employment Wage (*efterlon,* hereafter

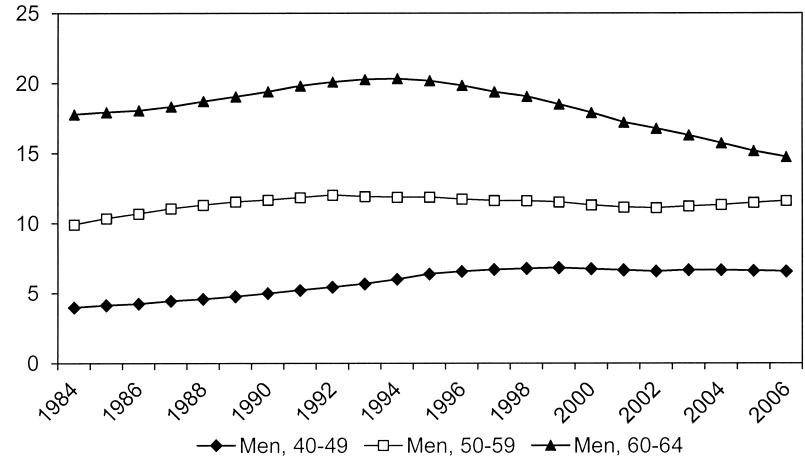

Fig. 5.18 The SDP/population, men, 1984 to 2006
Source: Statistics Denmark.

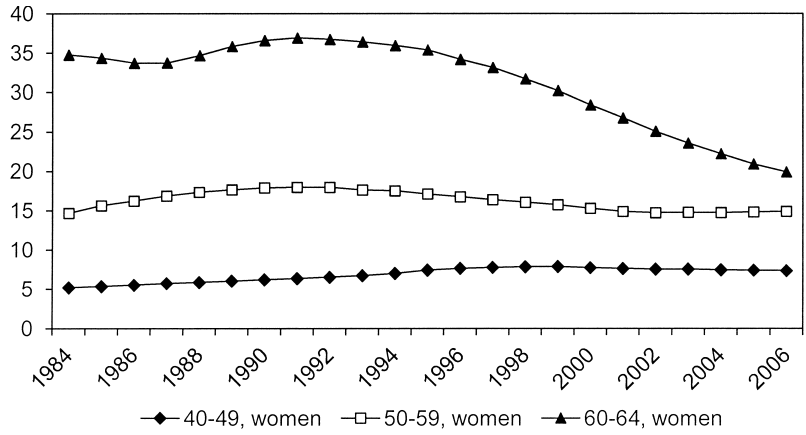

Fig. 5.19 The SDP/population, women, 1984 to 2006
Source: Statistics Denmark.

[PEW]) program, is relevant from 1979 for the sixty to sixty-six (sixty-four)-year-olds while another one, the Transitional Benefit Program (*overgangsydelse,* hereafter [TBP]), was relevant for the fifty to fifty-nine-year-olds.[2] This transitional program was open from 1992 to 1996 and is described later. For the forty to forty-nine-year-olds, SDP was the only potentially available early retirement program and for this age-group we find an increase in the share in contrast to the two older groups. For the fifty to fifty-nine-year-olds, and especially for the sixty to sixty-four-year-olds, it seems evident that program substitution is occurring. We return to this later.

5.5.2 The Flex Job Program

This program was introduced in 1998. One explicit purpose was to reduce the entry to SDP by creating a new type of work opportunity for people with permanently reduced work capacity, but with a residual work capacity above the level for becoming eligible to SDP. The employer pays the wage to a flex job employee and is reimbursed from the public sector with either half or two-thirds of the collectively agreed minimum wage in the relevant part of the labor market, the share depending on the work capacity of the individual employee.

The program is supplemented with an Unemployment Compensation Benefit (not part of the standard unemployment insurance program) designed to provide an income for persons unable to be admitted to the flex job program until a flex job is available, and to provide an income during unemployment spells between flex jobs. The program quickly became popular

2. The PEW program was relevant for the sixty to sixty-six-year-olds until 2004, but data for figures 5.14 and 5.15 are only available for the age interval sixty to sixty-four.

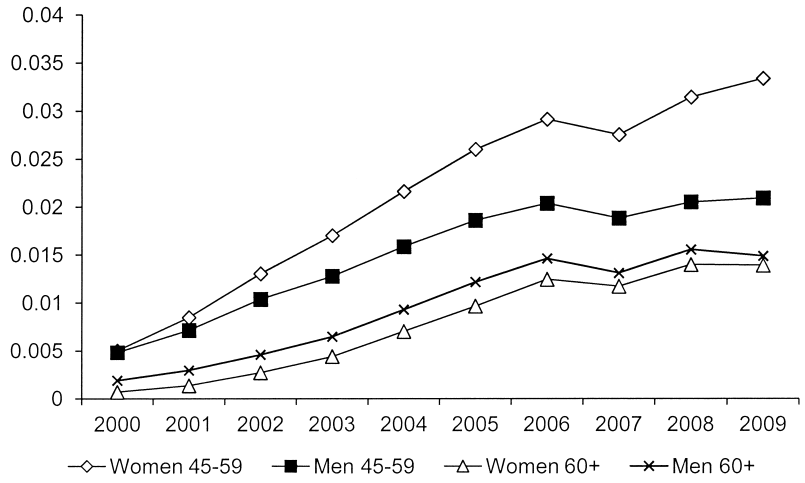

Fig. 5.20 Number of participants in the Flex Job Program, women and men, by age, relative to population in relevant age groups, 2000 to 2009
Source: Statistics Denmark.

with entry rates far above predictions in the policy preparation phase and seemingly without much impact on entry rates to the SDP program. By mid-2009, about 60,000 persons corresponding to about 2 percent of the labor force were enrolled (cf. figure 5.20).

5.5.3 The Post Employment Wage (PEW) Program

In 1979 a new early retirement program, the PEW, was introduced with eligibility based solely on being at least sixty years old and having sufficient tenure as member of an unemployment insurance fund. Entry to the program was high compared to estimates made during the policy preparation phase. There were two main arguments behind the introduction of the program. One was that certain groups of manual workers with a labor market history of hard physical work should have an option for early retirement without having to fulfill the formal medical criteria for the disability pension program. The other was to release jobs during a deep recession for younger unemployed workers.

In 1979 the OAP age was sixty-seven so the relevant age-group was the sixty to sixty-six-year-olds in the labor force. Initially, eligibility was conditional on membership of an unemployment insurance fund for five out of the most recent ten years. Benefits in the program for workers coming from a job were set at unemployment insurance benefit levels for the first 2.5 years, and at 82 percent of maximum unemployment benefits for the remaining period until age sixty-seven. Participants were allowed to work 200 hours per year at most, reflecting the original motive of creating jobs for the young

unemployed. A recent study, Bingley, Gupta, and Pedersen (2010), concluded that the program did not have the intended impact on youth employment or unemployment.

During the thirty years since its introduction, the PEW program has undergone a number of changes. The first came in 1980 when eligibility became conditional on unemployment insurance fund membership in ten out of the most recent fifteen years. Like later reforms of the program this was, however, grandfathered so the more restrictive rule was applied only for workers younger than fifty at the time of the change. The initial five out of ten years rule was thus effective for all entrants over the first ten years with the program.

The next major change was in 1992 with the purpose of reducing entry, which became conditional on unemployment insurance fund membership in twenty out of the previous twenty-five years. However, this was again grandfathered to apply only to persons younger than forty in 1992. The 1992 reform introduced a "sixty-three years rule," meaning that entry from age sixty-three implied PEW at 100 percent of unemployment insurance benefit level through to age sixty-six. Also in 1992 another temporary program for early retirement for individuals fifty to fifty-nine-years-old was introduced. This, the so-called Temporary Benefits Program (TBP), is described later.

The next reform of PEW came in 1999, introducing the "Flexible PEW." The main elements in the reform were that entry before age sixty-two implied means-testing against private pension plans, also those with delayed benefits, and further PEW benefits were 91 percent of maximum unemployment insurance benefits for the whole duration of PEW. Entry at sixty-two years and older implied no means-testing against individual pension schemes. Further, postponing entry implied accumulation of a quarterly tax-free premium up to the duration of the whole PEW period.

Next, the 200 hours limit on paid work was replaced by a reduction of benefits by a fixed amount for each hour worked. Another new element was the introduction of voluntary PEW contribution; however, at far lower than a fair actuarial contribution. These were previously bundled with unemployment insurance contributions. Finally, the number of years of unemployment insurance fund membership was changed again to twenty-five out of the last thirty years. This was, however, also grandfathered.

The most important part of the pension reform in 1999 was a reduction of the OAP age from sixty-seven to sixty-five, effective from 2004 for those born July 1939 or later. The impact on labor supply from this was relatively small as most of the sixty-five to sixty-six-year-olds were in the PEW program or in other early retirement programs. For the public purse, financial savings were that for two years individuals could no longer collect PEW but instead became eligible to OAP, which was less generous. On the other hand, a number of people, either working or being provided for by their family, could now collect OAP for two more years.

Overall, the motive in reforms in this area has been to change incentives for entering PEW, thus keeping more people in the labor force. We return to look into whether these intentions have succeeded or not. We show in figures 5.21 and 5.22 the number of men and women in the PEW program relative to the number of people in the relevant part of the population. In both figures we attempt to correct for the OAP reform by including in the graphs from 2005 the number of people sixty-five to sixty-six years old who would have collected PEW assuming the same take-up rate for those two cohorts as in 2004. For men, we find a very strong increase in the share collecting PEW in the first period after 1979 until all eligible sixty to sixty-six-year-olds, could collect benefits. A new increase occurs throughout the 1990s followed by a 5 percentage points decline when adjusting for the OAP change from age sixty-seven to sixty-five. For women, figure 5.17 shows a nearly uninterrupted increase in the PEW share until a peak in 2003 followed by a very moderate decline after adjustment. From around 2000 the share of women surpasses the share of men collecting PEW. For SDP the share of women has been significantly higher than the share of men ever since 1984 (cf. figures 5.14 and 5.15).

5.5.4 The Transitional Benefits Program

Besides the PEW program, a more restricted early retirement program in the social security area, the Transitional Benefit Program (TBP), was opened for long-term unemployed people in their fifties in 1992. Eligibility conditions were stricter than to the PEW program as it was made additionally

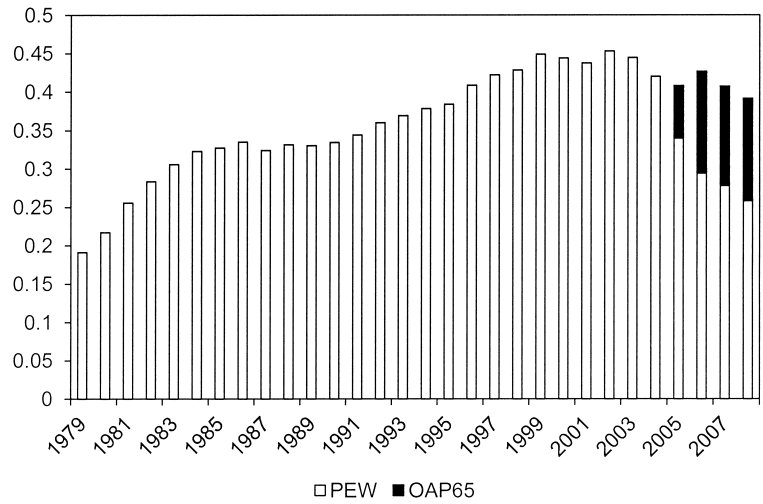

Fig. 5.21 Number of participants in PEW relative to population in relevant age group, men, 1979 to 2008
Source: Ministry of Labor and Statistics Denmark.

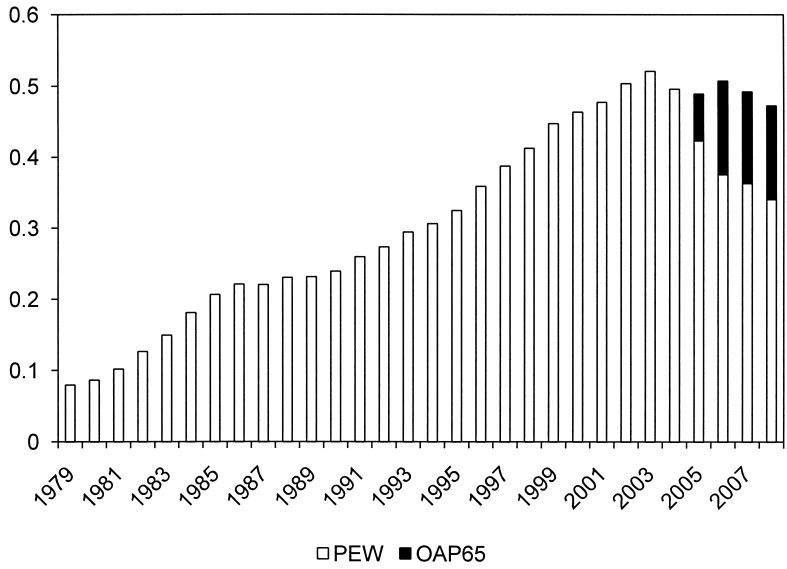

Fig. 5.22 Number of participants in PEW relative to population in relevant age-group, women, 1979 to 2008
Source: Ministry of Labor and Statistics Denmark.

dependent on twelve months in unemployment out of the most recent fifteen months. In 1992, long-term unemployed people fifty-five to fifty-nine years old could enter the program. After entry they collected reduced unemployment insurance benefits and no longer had to search actively and be available for a job offer. Entry was thus an effective exit from the labor force. From age sixty participants were transferred to PEW. From 1994 the program was open also for long-term unemployed fifty to fifty-four years old. Entry to the program was closed again in 1996. In spite of being open for entry only four years, the TBP had an impact for several years on the labor market for people fifty to fifty-nine years old. A person entering aged fifty years old in 1996, just before the closing of the program, would thus transfer to PEW in 2006. The number of participants relative to the population in relevant ages is shown in figure 5.23. For the fifty-five to fifty-nine-year-olds the increase was a dramatic one, going from 3 percent entering the first year to a stock of 9 percent of all fifty-five to fifty-nine-year-olds in the third year. Like for PEW, the entry far exceeded estimates in the policy preparing phase.

No less than eight programs for early retirement—not all in operation in all the years—have been available in Denmark in the period 1970 to 2008. In figures 5.24 and 5.25 we attempt to illustrate the shifting importance of these different pathways over the period. This is a pragmatic approach as the ideal flow data are not available for the period. Instead we have separately,

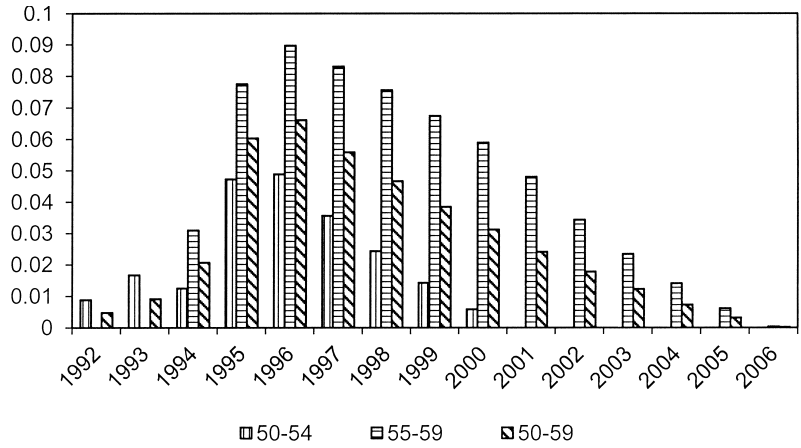

Fig. 5.23 Number of participants in the TBP program by age relative to population, 1992 to 2006

Source: Statistics Denmark.

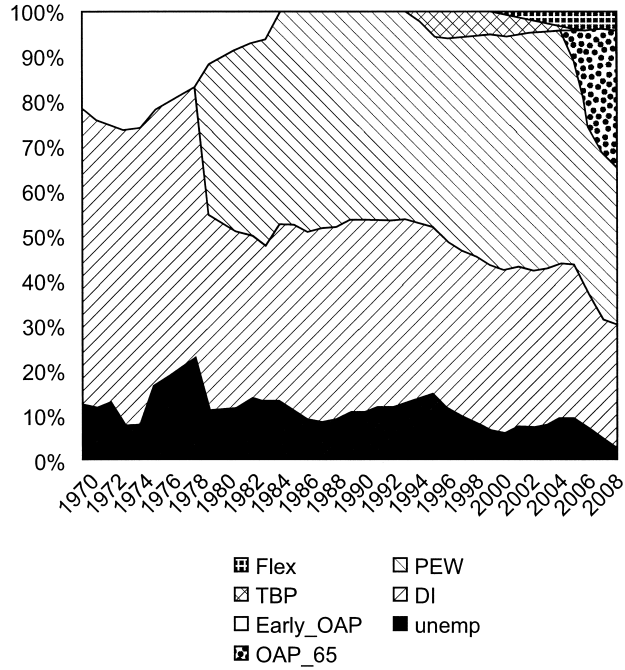

Fig. 5.24 Pathways to retirement, men aged fifty-five to sixty-six years, Denmark, 1970 to 2008

Source: Calculations from Statistics Denmark.

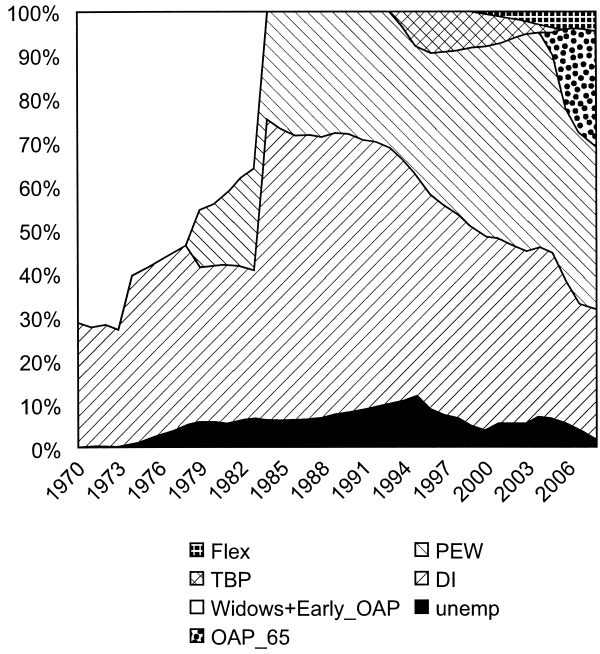

Fig. 5.25 Pathways to retirement, women aged fifty-five to sixty-six years, Denmark, 1970 to 2008

Source: Calculations from Statistics Denmark.

for men and women fifty-five to sixty-six years old, calculated the relative distribution on the different programs annually. Taking a specific year as example, the graphs show the distribution of men, and respectively women, on the included programs for early retirement.[3] The importance of opening up new programs and subsequent crowding out, at least in relative terms, of existing programs is evident from figures 5.24 and 5.25. The opening of new programs has not only a substitution effect but also an effect on the total number of people fifty-five to sixty-six years old being provided for in the different programs. This effect on the absolute numbers is not visible from the two graphs.

For the period 1984 to 2000 data are available (Larsen and Pedersen 2008) on origin and destination for people moving into early retirement programs. Annual average values are shown for men and women in figures 5.26 and 5.27 for the composition by origin for people having PEW, SDP, other early retirement programs and OAP as destinations, with coming from a job as dominant for all destinations. The importance of coming from unemploy-

3. The relative importance of unemployment as a pathway is exaggerated as a share of unemployment spells in the age-group ends with employment in a new job.

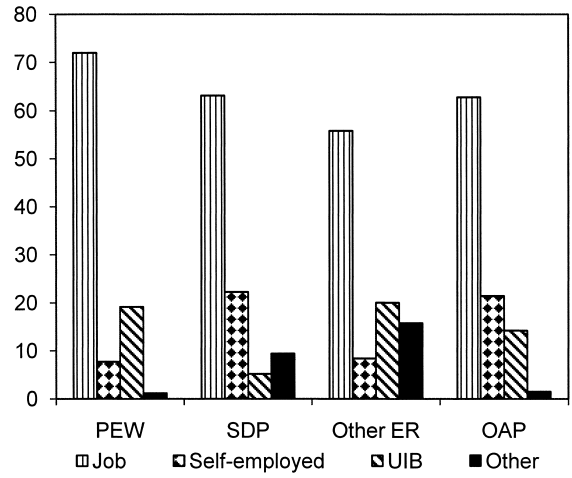

Fig. 5.26 Relative distribution on flows into early retirement and OAP, average values, men, 1984 to 2000
Source: Calculations from Larsen and Pedersen 2008.

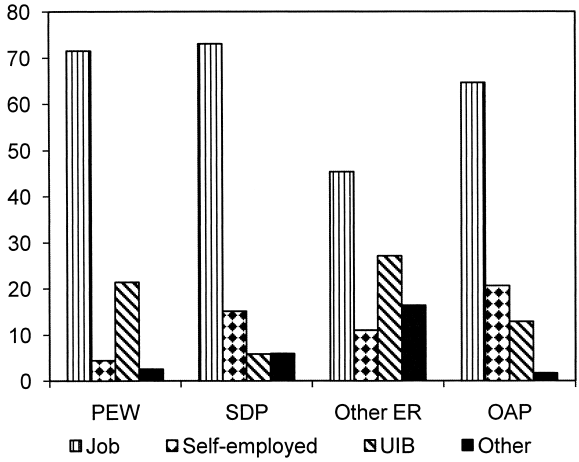

Fig. 5.27 Relative distribution on flows into early retirement and OAP, average values, women, 1984 to 2000
Source: Calculations from Larsen and Pedersen 2008.

ment varies between destinations with least importance for SDP as destination. For women we see the destination "other early retirement" differ by origin relative to other early retirement states. The relative importance of unemployment presumably reflects the TBP program where long-term unemployment was a condition for eligibility.

For the two big programs SDP and PEW, we show in figures 5.28 and 5.29

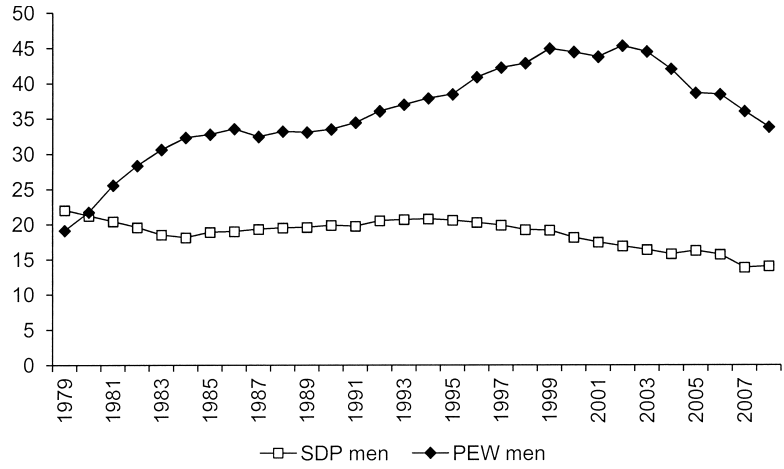

Fig. 5.28 Share of male population aged sixty to sixty-six years old in SDP and PEW programs, 1979 to 2008
Source: Statistics Denmark.

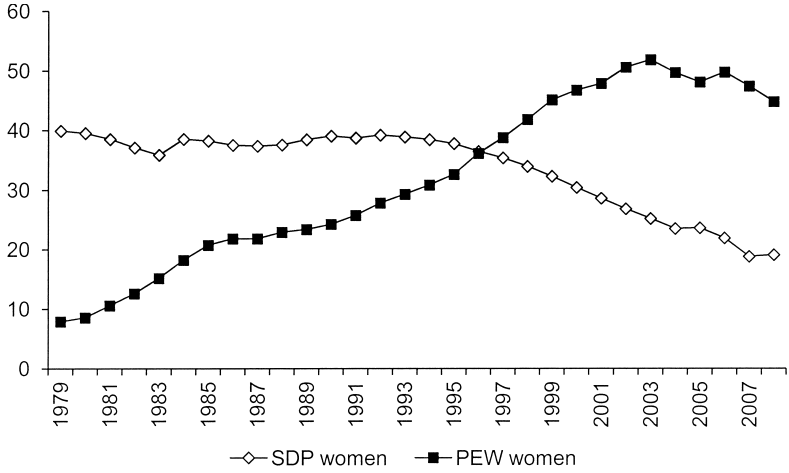

Fig. 5.29 Share of female population aged sixty to sixty-six years old in SDP and PEW programs, 1979 to 2008
Source: Statistics Denmark.

the shares being participants in each program by gender for the period from the opening of PEW in 1979 until 2008. For men sixty to sixty-six years old the SDP share is stable until the late 1990s when a decline of 5 percentage points is seen at the same time as the PEW share goes down. For women, on the other hand, the SDP share goes down with some 20 percentage points at the same time as the PEW share goes up. There is, however, no evidence of a more direct program substitution.

5.6 Labor Force Participation, Unemployment, and Policy Reforms

The opening of new programs has had a clear impact on labor force participation in the eligible age-groups. Labor force participation rates for men fifty-five to fifty-nine, sixty to sixty-four, and sixty-five to sixty-nine years old are shown in figure 5.30, including indications for major policy changes. The impact from the introduction of PEW is very clearly illustrated while no impact is found in 1984 from the SDP reform. The opening of TBP in 1994 for the fifty-five to fifty-nine-year-olds is equally visible. The participation rate for the sixty to sixty-four-year-olds shows a fairly strong increase after the 1999 reform for both men and women. Part of this may, however, reflect statistical conventions as earnings above a certain level in the most recent years (from 2003) can result in a participant in the PEW program being classified as a labor force participant if earnings are sufficiently high. For women, shown in figure 5.31, the reaction to PEW is weaker than for men due to much lower participation rates for women in their sixties. For the fifty to fifty-nine-year-olds, on the other hand, the TBP reaction is much stronger than for men. The 1984 SDP reform is, however, not visible in the participation rates.

Policy changes are also reflected when we look at employment and unemployment rates for men in the age intervals fifty-five to fifty-nine and sixty to sixty-four from 1972 to 2007 (cf. figures 5.32 and 5.33). Employment rates for the fifty-five to fifty-nine-year-olds return to the level of about 0.80, found during the 1980s after the TBP generated dip in the the 1990s. Looking

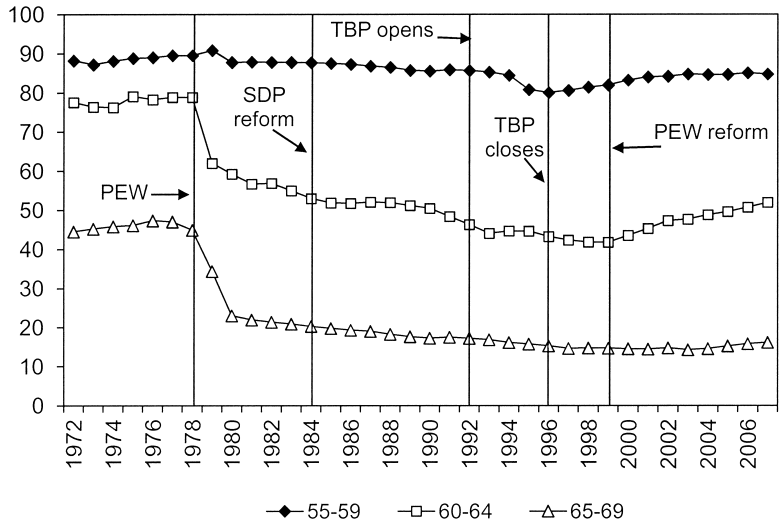

Fig. 5.30 Labor force participation, men aged fifty-five to fifty-nine, sixty to sixty-four, and sixty-five to sixty-nine years old

Source: Statistics Denmark.

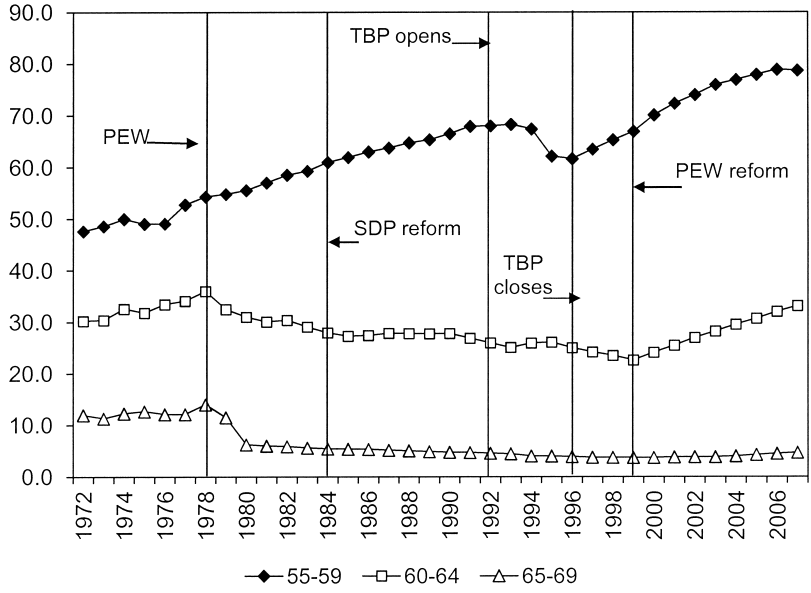

Fig. 5.31 Labor force participation, women aged fifty-five to fifty-nine, sixty to sixty-four, and sixty-five to sixty-nine years old

Source: Statistics Denmark.

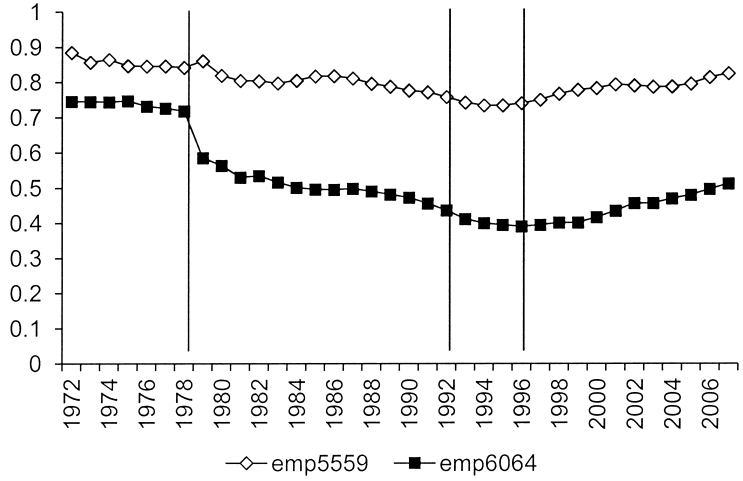

Fig. 5.32 Male employment rates, fifty-five to fifty-nine and sixty to sixty-four in Denmark

Source: Statistics Denmark.

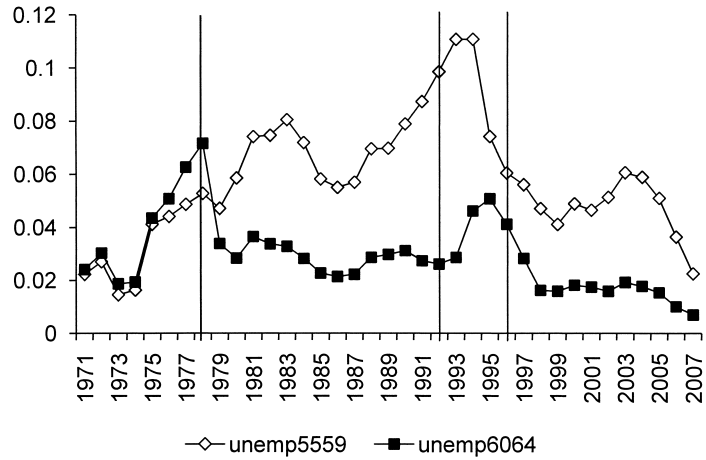

Fig. 5.33 Male unemployment rates, fifty-five to fifty-nine and sixty to sixty-four in Denmark
Source: Statistics Denmark.

at unemployment rates in figure 5.33, the impact from policy changes is even more clearly found than in the labor force participation data. In the late 1970s, after the first oil price shock and before introduction of PEW, unemployment was significantly higher for the sixty to sixty-four-year-olds than for those aged fifty-five to fifty-nine. The introduction of PEW results—as expected—in unemployment falling to half the pre-1979 level for the sixty to sixty-four-year-olds. Unemployment remains low until the early 1990s while it increases from about 6 to about 12 percent for the fifty-five to fifty-nine-year-olds. The TBP program results in a large decline in unemployment for this age group.

5.7 Health, Policy Reforms, and the Labor Market

The earlier focus has been on the impact on labor force participation, employment, and unemployment from a number of changes in labor market and retirement policies. We found no visible impact from reforms in the SDP program as an indicator for changes in health and mortality. The purpose in this section is to relate labor market changes in a more explicit way to changes in mortality and SDP participation. In the first illustration, we show in figure 5.34 the employment rate for men fifty to seventy years old at three points in time, 1981, 1994, and 2008. We find the ranking between the years as expected, that is, the highest employment rate in 1981 where PEW not yet had its full effect, a strong decline in the peak unemployment year 1994, and finally a return to a higher employment rate in the near full employment year of 2008.

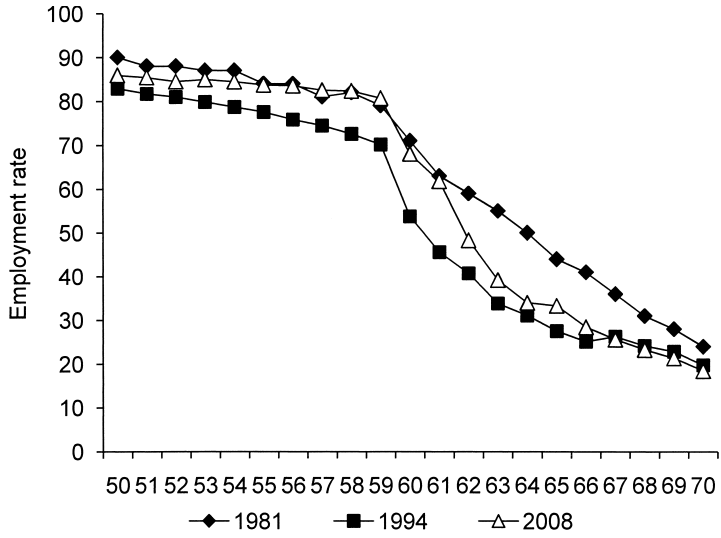

Fig. 5.34 Employment rate, men aged fifty to seventy years, 1981, 1994, and 2008
Source: Calculations from Statistics Denmark.

What we do next is for each age between fifty and seventy in each of the years to find mortality and plot that against the employment rate. This is done in figure 5.35 for men. The result is an unstable relationship over time between mortality and employment at given ages. Instead, we find mortality declining at a given employment rate or employment declining at a given rate of mortality. Taking mortality as a health indicator, we thus have that an improvement of health is accompanied by a decline in employment rates. A possible explanation is that non-health-related early retirement programs have a crowding out effect relative to the impact from health in isolation.

For women, figure 5.36 reflects a strong cohort effect regarding employment until the early sixties. Still, we find in figure 5.37 a shift of the relationship to the left indicating as for men that reduced mortality (improved health) correlates with lower employment rates.

In the last four figures, 5.38, 5.39, 5.40, and 5.41, we include in the same graphs for men and women fifty-five to fifty-nine and sixty to sixty-six years old, mortality rates, (scaled) relative participation in the SDP program, and labor force participation rates for the period 1973 to 2008. For expositional reasons disability rates are multiplied with 200. For all four gender/age groups mortality as a health indicator is falling from the first half of the 1990s. Due to the introduction of PEW, SDP participation is not comparable between the fifty-five to fifty-nine and the sixty to sixty-six-year-olds. Furthermore, the impact from TBP makes it difficult to interpret SDP as

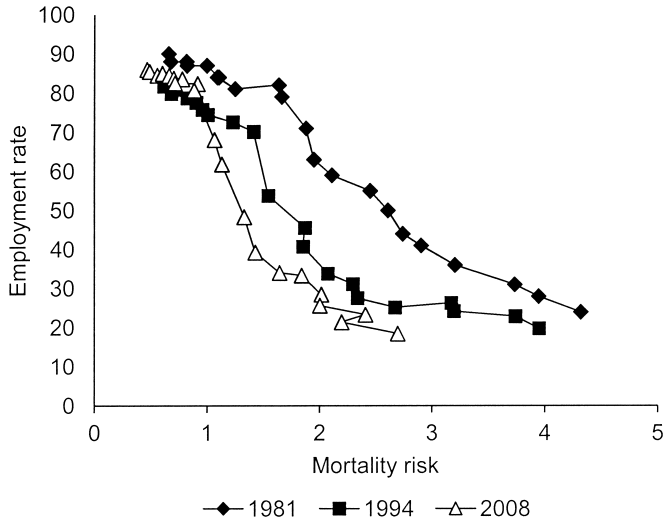

Fig. 5.35 Employment rate by mortality risk * 100, men aged fifty to seventy years old, 1981, 1994, and 2008

Source: Calculations from Statistics Denmark.

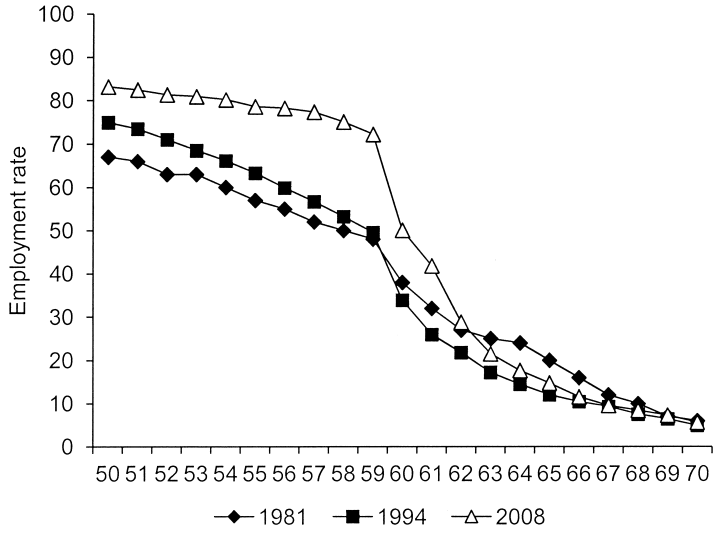

Fig. 5.36 Employment rate, women aged fifty to seventy years, 1981, 1994, and 2008

Source: Calculations from Statistics Denmark.

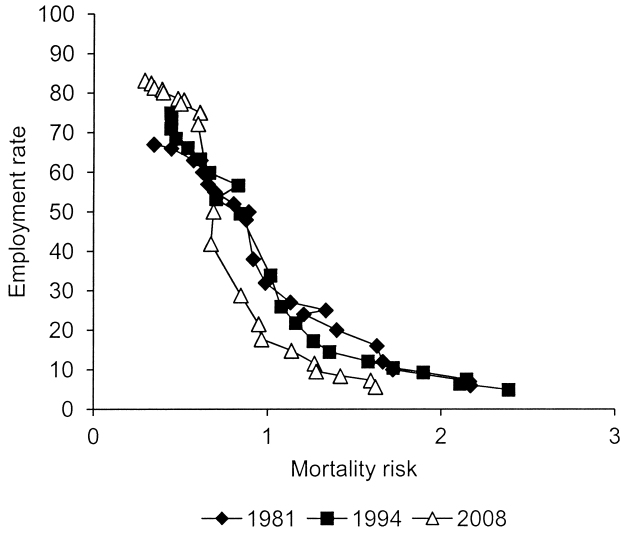

Fig. 5.37 Employment rate by mortality risk * 100, women aged fifty to seventy years, 1981, 1994, and 2008

Source: Calculations from Statistics Denmark.

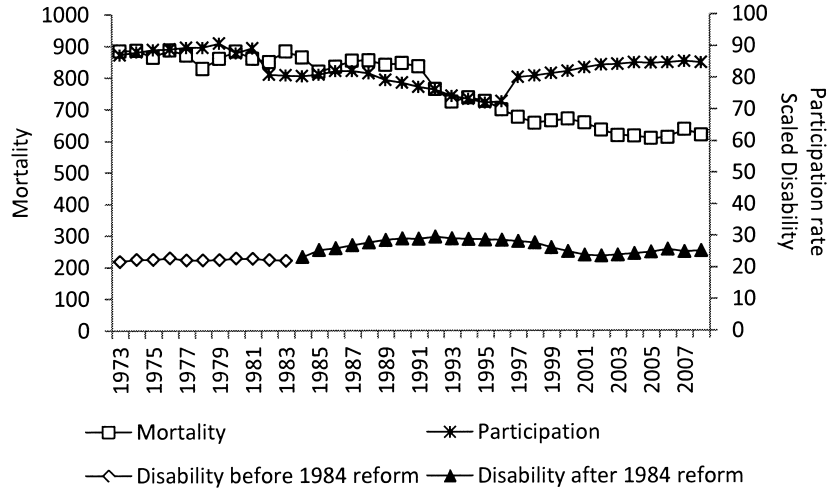

Fig. 5.38 Labor force participation, mortality and (scaled) disability, men aged fifty-five to fifty-nine years

Source: Calculations from Statistics Denmark.

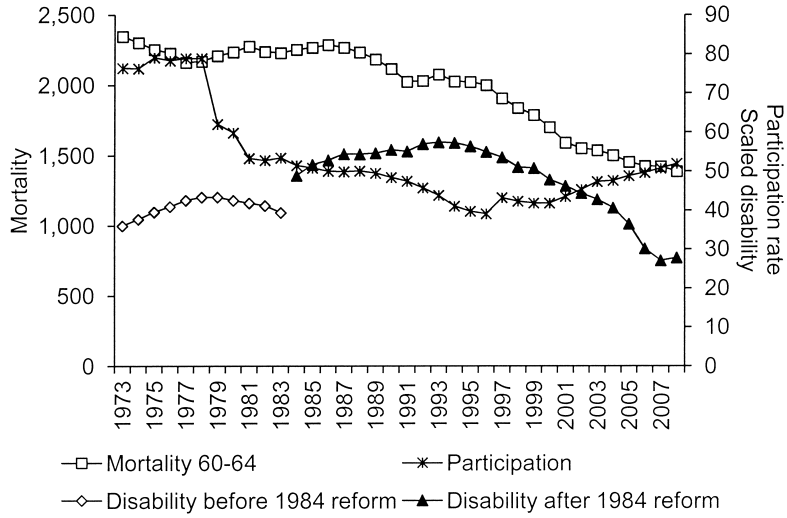

Fig. 5.39 Labor force participation, mortality and (scaled) disability, men aged sixty to sixty-four years

Source: Calculations from Statistics Denmark.

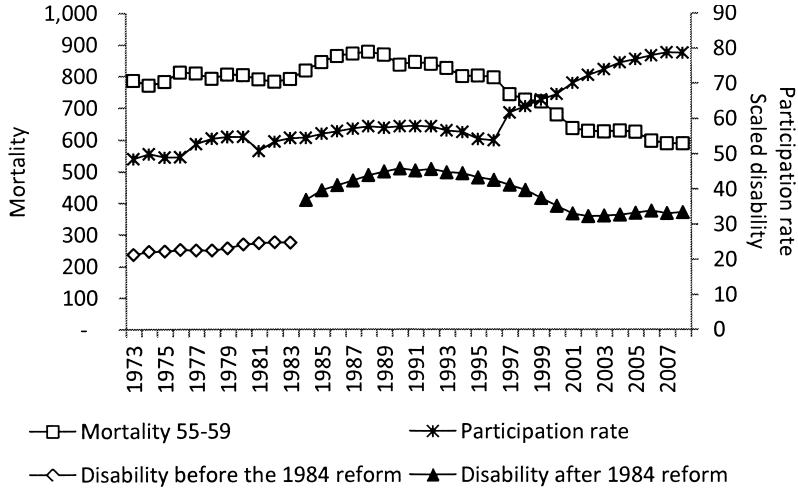

Fig. 5.40 Labor force participation, mortality and (scaled) disability, women aged fifty-five to fifty-nine years

Source: Calculations from Statistics Denmark.

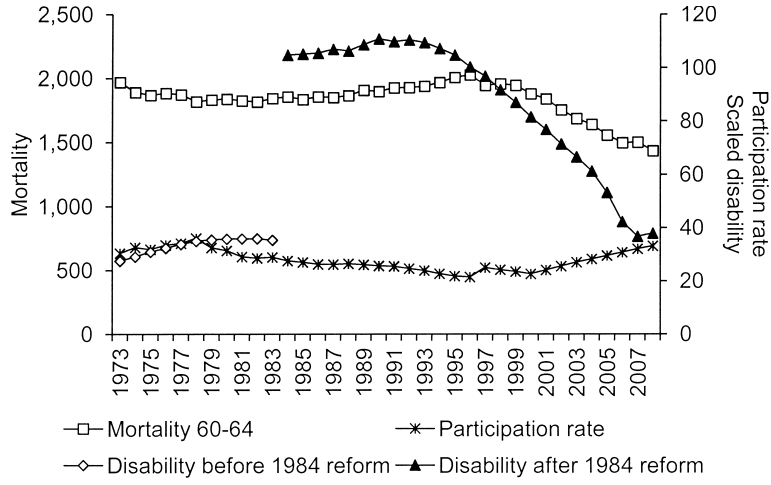

Fig. 5.41 Labor force participation, mortality and (scaled) disability, women aged sixty to sixty-six years

Source: Calculations from Statistics Denmark.

a health indicator for the fifty-five to fifty-nine-year-olds from the mid-1990s. With these reservations in mind SDP is flat until the impact from the SDP reform and introduction of competing programs makes it difficult to interpret SDP take-up as a genuine health indicator. Labor force participation has the profile for the four gender/age groups described earlier, that is, heavily influenced by program innovations and reforms since the early 1980s.

5.8 Summary and Conclusions

The main conclusion from the previous analyses is the strong relationship between labor force participation, employment, and unemployment on one hand, and non-health-related programs for early retirement on the other hand for everybody sixty years or older for most of the period for which we have consistent data series. For the last twenty years this also applies for people in their fifties.

Only fairly incomplete evidence exists for self-reported health status. We combine this with register-based evidence for the health sector, that is, prevalence of some major diseases and some main causes of death, and finally we include mortality for the most relevant age groups. However, no clear relationship appears between labor market performance and these health indicators.

Changes in transfer programs unrelated to health status tend to dominate any relationship between labor market attachment and health measures. It is fairly difficult, based on available data, to construct a long consistent

series of take-up of the health-related part of SDP. This might be part of the reason that no evident relationship appears between health indicators and SDP take-up.

A very important reason for, or explanation of, the lack of a number of expected correlations is most probably that SDP is "on its own track" due to program innovations and reforms creating competing risks or program substitution dominating the picture in the most recent decades for those older than fifty in focus in the present study. While it seems to be difficult to relate SDP take-up to available health indicators, it is still a highly relevant question to continue analyses of the factors behind the development in this very expensive public sector program for early retirement.

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