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The Health of Older Persons
in OECD Countries: Is it
Improving Fast Enough to
Compensate for Population
Ageing?

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**LABOUR MARKET AND SOCIAL POLICY -
OCCASIONAL PAPERS NO. 37**

**THE HEALTH OF OLDER PERSONS IN OECD COUNTRIES:
IS IT IMPROVING FAST ENOUGH TO COMPENSATE FOR
POPULATION AGEING?**

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**DIRECTORATE FOR EDUCATION,
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SUMMARY

This study extends research on the impact of age-specific disability trends internationally, with a specific emphasis on long-term care needs. It focuses on changing patterns of disability in populations over 65 for a set of OECD countries for which cross-sectional evidence is available for at least two points in time five years or more apart (Australia, Canada, France, Germany, Japan, the Netherlands, Sweden, the United Kingdom and the United States). It analyses the policy implications of trends in health outcomes among older populations, both in terms of financing and with respect to the balance of care between home and institutions.

Information related to severe disability, as measured by the ability to carry out activities of daily living, was obtained for the population aged 65 and over, and cross-classified into four age groups and by gender. Two projections were made: one assumes stable rates of disability, and the other reflects the rate of change based on available observations in each country separated by periods of 5 to 10 years. The reduction in prevalence of disability rates was mainly found among the age groups 65 to 80 years, and is more striking for males than for females. While international differences remain to be explained, on the whole these trends show a significant decline in prevalence. The decline is more significant in private households, but is often partly offset by an increase in disability in the remaining institutionalised population (when this information is available). Trends are far from homogeneous across countries, however. There are increases for specific age/gender groups, particularly for older women in some countries.

The economic impact of these trends depends on the institutional arrangements for long-term care services. Due to different subsidisation levels, public costs of formal home care differ widely between countries, as does the balance between home care and institutional care. Overall, deinstitutionalisation, with recourse to less expensive form of institutions, appears to play a larger role than disability trends *per se* in determining overall costs. While the improvements in the health status of older populations are an important factor in terms of welfare, they may have mixed effects on public finances, for which the results are much less clear cut. Finally, the study addresses the policy implications of trends in health outcomes among older populations and their consequences for long-term care policies.

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1. INTRODUCTION

1. The issue of international trends of disability has been a subject of keen interest for both economists and demographers (Manton 1997, Waidman Manton 1998). A wealth of results has been produced, both in the US and in other countries, sometimes with puzzling and contradictory implications. Disability trends are one of the key elements in the economics of ageing.

2. Intense discussions among epidemiologists and demographers led to the debate over the "expansion or compression of morbidity" (Fries 1989, Waidmann Bound Schoenboem 1995, Mormiche 1996). Many studies from the 1970s presented a rather gloomy view of the future, with evidence of growing prevalence of disease, deteriorating health and increasing disability among older populations. Such views served to reinforce the conventional wisdom in the field of ageing, which leads to catastrophic scenarios, presenting demographic projections as exogenous constraints for which few social solutions will be available, other than a huge increase in public expenditures.

3. On the other hand, some recent studies (Manton 1997) have investigated the impact of age-specific disability trends on long-term care needs in the US from a rather different perspective, and give rise to more optimistic conclusions. In spite of some data difficulties being unsolved, Manton and Waidman (1998) show that other US sources could also provide similar conclusions. While discussions about the magnitude of health improvements are ongoing, most other recent US work (Mc Clellan Newhouse Cutler 1997, Cutler Richardson 1997) illustrates gains in health in general terms for the older part of the US population. Some authors (Manton 1997) have even argued that the improvements in health of the elderly population could generate savings high enough to counteract the potential impact of ageing.

4. The main contribution of this study is to extend this investigation to an international framework. It focuses on changing patterns of disability in populations over 65 for a set of OECD countries for which consistent cross-sectional estimates are available for at least two points in time five years or more apart. (Australia, Canada, France, Germany, Japan, the Netherlands, Sweden, the United Kingdom and the United States¹). This allows broader issues to be addressed:

- Have there been significant health improvements among older persons in OECD countries?
- What is the likely impact of these trends for long-term care services? Are savings likely to be as high as expected?

5. To answer these questions, repeated cross-sectional age and sex data for each country are combined with information related to severe disability as measured by the ability to carry out Activities of Daily Living. Two projections have been made, one assuming stable rates of disability, and the other assuming that recent trends in disability rates persist over the projection period. The gains are mainly found in younger age groups (65-80), and are more striking for men than for women. While international differences remain to be explained, these trends on the whole show a significant decline in prevalence. The decline is more important in private households. As deinstitutionalisation² has removed the mildly

¹ Some data from Finland and Norway are also available, but could not be incorporated at this stage.

² This refers to arrangements where older disabled persons are less likely to be placed in institutions combined with more emphasis on home care.

disabled from institutions, there is often an increase in disability in the remaining institutionalised population (where this information is available).

6. The economic impact of these trends depends on institutional arrangements for long-term care services. Due to different subsidisation levels, public costs of formal home care differ widely between countries, as does the balance between home and institutions. While the improving health of older populations is important, its effects on public finances are much less clear cut. Finally, the study addresses the policy implications of trends in health outcomes among older populations and their consequences for the formulation of long-term care policies.

7. Demographic and social issues (of which only some could be integrated into the model) are presented in Section 2. In Section 3, trends in disability data are being presented and interpreted. This is followed by the presentation of the results of the projection of disability in Section 4, and some brief economic modelling in Section 5 concludes the paper.

2. THE DEMOGRAPHIC AND SOCIAL CONTEXT

2.1 Addressing the general context of ageing

8. Population ageing will have major implications for OECD economies and societies over the next few decades -- many of these implications have been analysed in depth in the OECD (1998) report, *Maintaining Prosperity in an Ageing Society*. The area in which the implications are obviously important is long-term care for the frail elderly.

9. In the field of long-term care and social policy towards older persons, the significance of the ageing process is important, since it is primarily being fuelled by life expectancy gains at advanced ages. These gains attest to the positive character of the general economic and social changes in the OECD countries but they may also raise legitimate questions about social needs. The economist's toolbox offers several ways to illustrate and clarify this debate. Some build from a structural microeconomic model integrating longevity, frailty, living arrangements, and the availability of spouse and children, to assess needs in terms of formal care, either in the community or in institutions (Börsch Supan 1996, Lakwadala Philipson, 1998). Given optimistic views about male longevity, this leads to a first series of results dampening the direct effects of ageing.

10. At the national level, researchers have tried to integrate all existing approaches in dynamic micro-simulation models³. Such an approach has its own specific problems and it is not possible to carry out such modelling on the international level. The present study chooses instead an intermediary way to illustrate this debate, with both a reduced schematic demographic and social framework, while using detailed data describing trends in the frail older population.

³ Wiener 1997, for the United States, see the review in the United Kingdom, HMSO (1996). Models have also been developed at Statistics Canada, the Netherlands and in France.

2.2 The hypotheses behind the demographic projections

11. In this study, central United Nations projections were used (1996 revision) as a common set of hypotheses with a focus on mortality aspects and migration is assumed to have a neutral impact⁴. The United Nations projections for OECD countries typically assume increases of between 3 and 4 years in life expectancies between the base year and 2030, implying an average increase of about 1 year per decade.

Table 1. Life expectancy gains implicit in UN demographic projections

12. The United Nations, along with many other agencies, base their projections of life expectancy on the assumption that death rates at advanced ages cannot be reduced substantially and that a life expectancy of around 80 to 85 years is the highest that can be achieved. The implicit life expectancy gains in the projections used in the present study are a little less than a year per decade on average for women (.94 year) and a little more than a year for men (1.02). These numbers are higher for the US (1 and 1.3) than for Japan (.8 and .75), with an implicit convergence assumed over countries.

13. Until recently, the common hypothesis about life expectancy has been that, if individuals reach the age of 80, their life expectancy beyond that is not much more than about 5 years, thus justifying this implicit convergence scenario. In fact, compared to recent observed trends, life expectancy gains could have been expected for most countries to have been around 1.2-2 months a year for men and 1.6-2 months a year for women, which is slightly more⁵.

14. The general hypothesis is based on a widely received view that most deaths at advanced ages are due to intrinsic and intractable ageing processes which would require fundamental and unforeseeable breakthroughs in medical knowledge in order to be postponed. This is consistent with a fall of mortality rates at earlier ages, thus implying a *rectangularization* in the survival curve.

15. However, there is an important literature which argues that significant increases in life expectancy for those aged over 80 are indeed possible, calling for a reconsideration of the whole ageing process (Vaupel Lundstrom 1996, Vaupel 1998). In fact, ageing-related deficiencies are due to specific diseases (osteoporosis, Alzheimer's disease) for which medical research may offer continuous improvement. Hence, current developments thus reflect not only an increased rectangularization of the life expectancy curve and age pyramids but also a general trend towards gains in life expectancy at most advanced ages⁶.

16. Whilst the debate about life expectancy will only be resolved in the fullness of time, it would seem that a cautious approach to projections regarding ageing populations should at least investigate the implications of much greater increases in life expectancy than those suggested in the current United Nations projections, even though there may be varying degrees of scepticism about the likelihood of them actually occurring. Alternative scenarios are presented by Lutz, Goldstein Prinz (1996). For most international projections, the variants by mortality only slightly differ by 2020 (Lutz Sanderson Scherbov

⁴ The central scenario was chosen with a neutral impact from migration.

⁵ For more details see chart 1 in Jacobzone (1999).

⁶ Moreover, the empirical analysis of life insurance and annuity contracts by Mullin and Philipson (1997) shows that private markets expect mortality to fall further in the future at quite a high rate.

Goujon 1996). Hence, by limiting this study to a rather short time period, it is possible to side-step this issue, and to continue to use the UN projections which incorporate the “rectangularisation” assumption.

Table 2. Female to male population ratios

17. For most countries, implicit longer life for males translates into a rebalancing of the female/male ratios. These ratios are highest today in France, Germany, Japan, the United Kingdom and the United States. If this does occur, it may dampen the overall demand for formal care in the future, as the number of ageing couples is likely to increase. These effects are strongest for the oldest persons, as the female/male ratios are the highest in the over 80 groups. However, it has not been possible to factor this effect into this study.

18. Populations projections are available with a breakdown by gender and 5 year age intervals⁷. The age intervals had to be adjusted to match the available disability data. The difficulty of presenting very detailed results for the oldest age groups may also represent one shortcoming of such an exercise and call for further research when corresponding data becomes available. It seems, however, that age 80 (or 85 the case being) represents a major breakdown, with both trends in disability and institutionalisation differing above and below this age.

19. A brief look at the projections reveals three groups of countries:

- a moderate demographic increase of older populations: Germany, Sweden, and the United Kingdom.
- a reasonably strong demographic increase of older populations: France, the Netherlands and the United States.

This group presents a strong increase for the over 65 men populations and to a lesser extent for women. The increase of the over 80 group is comparable to the first group of countries.

- a steep and fast demographic increase of older populations including the oldest old: Australia, Canada, Japan.

The increase of those over 65 is very strong, but comparable to the previous group. Increases in the over 80 groups are particularly pronounced in those countries, with almost a doubling in Japan.

Table 3.1, 3.2. Underlying demographic projections

20. In most countries, the share of those over 80 years old in the population aged 65 and over tend to increase faster, and represents up to a quarter of this population by the year 2010. Later, the entry of the "Baby Boom" generations tends to offset this, and the share of the very old population tends to stabilise

⁷ For Germany, specific adjustments had to be made to reconstitute the former Eastern and Western Länder, by age and gender, with a global structure matching the UN projections. Rothgang Schmähl (1997) data were used for the readjustment.

and even falls a little in relative terms. Only Japan, which did not experience a clear Baby Boom, presents a deep and continuous trend in terms of the ageing of its population.

2.3 Heterogeneous socioeconomic contexts and more independent life styles of the elderly

21. The projections presented here have had to use a rather schematic framework. While other qualitative factors, such as income and wealth over generations, lifestyles and consumer preferences, may play a role, they cannot be incorporated directly. Two such factors are worth a mention, the potential availability of informal care, and living choices of the older populations. The first of these will not influence needs, but may play a role in transforming them eventually into a direct demand for home help. Availability is likely to be more reduced in case of higher participation rates of women in paid work⁸ and where female/male ratios are highly unbalanced. As far as living choices of older persons are concerned, it seems likely that there will be continuous rise in the demand for living alone among older persons in the future together with a greater emphasis of ageing in couples, due to a joint rise in life expectancy.

22. A whole variety of factors are likely to drive the demand for formal care. This study assumes a direct translation of trends in disability to formal care needs. In fact, most of the empirical research on the demand for formal care shows that disability levels in terms of ADLs⁹, (and IADLs) are the main factors driving the demand either for formal care at home or care in institutions¹⁰. In policy formulation and implementation however, attention should also be paid to other factors, such as various alternative forms of support and resources available to frail older persons.

3. THE DATA FOR TRENDS IN DISABILITY RATES

23. Data describing "disability" both in institutions and in the community will be presented together. Institutionalisation is fundamentally different, with respect to the health and policy implications, from disability and health in the community:

- The latter is more reflective of the evolution of health among older populations.
- The former depends on explicit or implicit institutionalisation policies, and the equilibrium between supply and demand for beds.

24. In theory, one should first attempt to project disability independently from the institutional setting in which care will be provided (Kunkel Applebaum 1992). This is not feasible however at the international level, given available data (see below). To give a general intuitive overview of underlying trends, a typical OECD country would be a country with a stable or slowly increasing number of beds in

⁸ This may also mean that the burden of caring might then be very much increased.

⁹ ADL : Activities of Daily Living. IADL: Instrumental Activities of Daily Living

¹⁰ A literature survey has been undertaken on the subject for the OECD by A. Gramain (forthcoming).

institutions, leading to a de facto deinstitutionalisation of the older population. At the same time, health gains would generally be witnessed for the population living in the community. In the event that an appropriate balance of care can be achieved, access to institutions would be reserved, in the main, to people with the worst health, while those staying in institutions would also tend to have a diminishing health capital. Hence, health within institutions tends to deteriorate, due to persistence, selection and self-selection effects. Data describing the evolution of institutionalisation rates is presented first. In a second stage, data describing trends in disability rates in households will be presented. The combination of both types of information will then allow projections of disabled populations to be made. These rates will be applied to a baseyear level for institutionalised populations and disabled populations living in households.

3.1 The institutionalised population

3.1.1 Sources and methods of data

25. In Nordic countries, such as Netherlands and Sweden, data stem mainly from administrative sources describing the populations living in institutions. For some countries (Australia, Canada, Sweden), it was necessary to homogenise different sources over different years. For trends, data were generally selected which allowed for the longest time interval (Germany, Japan, the Netherlands and the United Kingdom do not include trends of institutionalisation). For levels, the most precise and consistent data was selected in the most recent year. In general, the coverage of institutions was restricted to those which are partly medicalized for nursing activities, or specifically dedicated to older persons; acute care hospitals were however, excluded as they provide intensive health care and not long-term care. This leads to a more restricted definition for countries such as Sweden but does allow for the inclusion of long-term care hospital beds in Japan.

26. Annual growth rates of the share of the population living in institutions are estimated using end points¹¹ for each age/gender cell. These methods are elementary, compared with other structural models (Manton 1998). But this parsimonious procedure allowed a larger number of countries to be included.

Table 4. Sources of data for institutionalisation

3.1.2 A brief overview of past trends

27. Deinstitutionalisation is occurring in most countries particularly at younger ages, except in France. The decrease is significant in Australia, but less for older women. The decrease in Japan was too strong to be projected due to poor data comparability over the years¹². In Canada, trends are stronger for

¹¹ Simple log-linear regressions were performed in a few cases when many points were available.

¹² For this country, data needs reprocessing in order to be comparable, due to the key role hospitals play in providing de facto long-term care, see Ikegami Campbell (1995), International Longevity Center (1994, 1995a 1995b, 1996).

the youngest age groups, and hardly perceptible for the very old. Trends are quite noticeable in both Sweden and the Netherlands¹³. In the United States¹⁴, deinstitutionalisation is also pronounced¹⁵.

Table 5.1, 5.2. Evolution of institutionalisation rates for the countries studied

28. These trends reflect the changing equilibrium between supply and demand for long-term care "markets" (or "activities", when allocated through the public sector). Due to the very decentralised nature of long-term care systems, it is often hard to obtain generalisations but a few key elements may still be put forward:

- explicit policies to promote deinstitutionalisation are at work:

Explicit policies exist in a certain number of countries such as in Australia at the federal level, following the Aged Care Reform strategy implemented in 1988-1993 (See Australian Department of Health 1993, Halton 1998). This led to a freeze in nursing home beds, which are reserved for the most disabled older persons. This process which is valid also for other countries, is the result of the "community care" trend, that was very strong over the 1970s and 1980s. It may reflect the preferences of both the older persons and decision makers, but it may also be the case that countries have experienced different institutionalisation cycles:

- In Nordic Scandinavian countries, where social systems were highly developed early, the social preference for home care and the need for deinstitutionalisation have been felt earliest. This is true for Sweden (It would also hold for Finland and Norway).
- In countries which have experienced slower developments such as Canada or the United Kingdom, this came later:

In the United States, there are Certificates of Needs (CONs) for Nursing Homes in some States, and a general desire to turn towards more community care. The magnitude of the trend may be unclear for this country given the heterogeneity of sources, but both dedicated statistical instruments -- (National Nursing Home Survey (NNHS) and the National Long-Term Care Survey (NLTCSS)) -- offer converging results about deinstitutionalisation trends.

- implicit deinstitutionalisation policies are at work:

¹³ However, the dynamic projection could not be conducted for the Netherlands due to the absence of reliable data on changes in disability rates.

¹⁴ For the United States, the data presented in the main tables comes essentially from the NLTCSS. Results from other surveys and statistical tools are presented in table 10d and 10e.

¹⁵ For the United States it is unclear what is the best instrument to measure institutionalisation trends: Census data would also indicate deinstitutionalisation, but not for those over 80, perhaps due to a change in the population structure within this age group which is difficult to detect (Table 8c). For younger age groups, trends from different surveys are similar. Trends similar to those shown here are obtained from NNHS 1977-1985, and in spite of some comparison difficulties, NNHS 1995-1985. (Table 8d).

In countries like France or Germany, no explicit national policy existed until recently. It maybe that a slow rate of in transformation and updating of acute care hospital beds into proper nursing homes, together with restrictions in supply, led to a shortage of nursing home beds in France, and hence to a *de facto* deinstitutionalisation over the long term. However, the French data available from 1990 through 1994 show a slight increase which will be used in this study as an example of possible implications of further institutionalisation. In Germany, the number of beds has certainly increased over the years, and there seems to be some stability of institutionalisation rates. The incentives towards community care and help in kind offered by the 1991 long-term care bill should contribute to a further stabilisation.

29. Japan suffers from an extreme shortage rather than an undersupply of nursing home beds, and the Government has planned to vastly expand facilities under its "Gold Plan", with some extensions in 1998 (the same would hold for Korea). If some *de facto* deinstitutionalisation has occurred in this country between 1989 and 1996, it might more reflect institutional disequilibria in this market rather than a clear trend which can be projected into the future.

3.2 Disability in households

3.2.1 Sources and methods of data

30. Research involving international comparisons of population health (Cambois Robine 1996, Freedman Soldo 1994, Manton Waidman 1998, REVES 1995, 1997) has produced several types of indicators involving multiple definitions of disability. Usually, a distinction is made between:

- "Severe disability", which includes those individuals with at least 1 ADL restriction (or more). This is almost invariably associated with the need for help with personal care, either at home or in an institution.
- "Moderate disability", which includes those individuals experiencing no ADL restriction but IADL limitations. This does not usually lead to institutionalisation.
- "Little or no disability", which includes individuals with no major functional limitations (either ADL or IADL).

31. To best ensure international comparability, this study focuses on severe disability, as measured by ADL, since this concept is usually less heterogeneous across countries. The key assumptions are that this sort of disability is both:

- linked with health status in a measurable way, as an "outcome" of both past life and health care.
- an objective reason to seek help with personal care, in either form.

32. Given these assumptions, we would argue that severe disability is a reasonable proxy for the need for long-term care.

Table 6. Sources of data for disability in households and general population

33. Severe disability, as presented here, refers to persons with at least 1 ADL, or who would be in potential need of personal care. Annual growth rates were estimated for each age/gender cell, using methods similar to those above. In the following projections and tables, *levels should not directly be compared* across countries. On the other hand, particular care was taken to ensure that *trends could be as comparable as possible*, with consistent definitions over time¹⁶.

34. For most countries data comes from household surveys, except for Canada and Australia where the surveys also cover the institutionalised population. The American case is hybrid, with the NLTCS on the one hand, and the combination of other statistical surveys on the other hand (NNHS/Census/NHIS). American results remain very complex due to the multiple number of surveys, which generates data discrepancies (Wiener *et al* 1990, Manton Waidman 1998). In this study, results rely primarily on NLTCS data. On the whole, the balance of evidence suggests that the current presented NLTCS findings still reflect the main trends for this country.

35. As a caveat, one should note that this cut-off of "severe disability" was more appropriate for private households than for institutions as:

- quite a few countries do not measure the health of institutionalised persons.
- a simple "severe disability" criteria might not be sufficient to fully describe the health status of the institutionalised population (more severe criteria should be examined, i.e. 5-6 ADLs, Dementia).

It should be remembered that these trends have been calculated with available past medium-term data. They illustrate the evolution of long-term care systems at the end of the 1980s and the beginning of the 1990s. If past trends are likely to continue, they may show which developments might be expected in the near future, if there are no significant new policy developments. They also help to illustrate the potential long-term impact of social policies in this field for the countries which experienced significant measurable changes during this period.

36. For this reason, the assumption had to be made that all persons living in institutions are disabled for several of countries: this is the so-called "Sullivan" hypothesis used by demographers. For some countries for which data are available including the US, no trend could be detected within institutions, as disability levels in terms of at least 1-2 ADLs were already close to 100 % for the institutionalised population¹⁷. This assumption appears to be reasonable for a level of at least 1-2 ADLs. Some analysts consider higher levels of disability, such as 3-4 or 5-6 ADLs for measuring disability in institutions. However, for the purpose of this study, we considered 1-2 ADLs to be the cut-off. This does not mean that all persons living in institutions deserve to be there due to their disability level, but that these persons under any circumstances would be in need of help with personal care, and would represent potential users of long-term care systems, whether in institutions or at home.

3.2.2 *A brief look at past trends*

37. General results of prevalence data broken down by age and gender are displayed in Chart 1. The significance of differences in levels should not be overstated: the lower the general level of severe

¹⁶ In a few cases, this led to the selection of a different concept of disability to compute the trends, than was chosen for comparing levels in the base year.

¹⁷ This is purely a working assumption and does not necessarily reflect "true needs" as measured from pure disability levels.

disability, the more restrictive are the concepts. It appears that concepts chosen for France and Japan were rather restrictive. For Australia and Canada, figures include the institutionalised population. In most countries, the trends are statistically significant for the youngest age groups, but are not straightforward in the charts. Compared with other countries, the US displays a large gender gap. Disability trends are more difficult to assess for the oldest groups, where gains are smaller and are even replaced by an increase¹⁸.

Chart 1. Trends in prevalence of severe disability by age groups and gender in OECD countries

38. Table 7 allows for a direct comparison of trends. Countries can tentatively be grouped in the following manner:

- Countries with very moderate or no gains in disability on the whole. (Australia, the Netherlands and the United Kingdom)
 - In the UK, there has been a slight decrease in disability for men, even at older ages. On the other hand, disability increased for younger women (65-74). In the population as a whole, there is almost no change in disability given evolving structures.
 - In Australia, disability mainly worsened for older males. Overall, gains are rather modest when they exist.
 - In the Netherlands, no trend could be computed with certainty.
- Countries with mixed or moderate results (Canada, Sweden).
 - Canada has a very mixed pattern, with clear gains for younger older persons, 65-74, at a fast rate between 1986-1991. On the other hand, there are almost no gains and even an increase for both genders and most age groups over 75. The global effect is very ambiguous.
 - Gains exist but are rather moderate in Sweden, and are larger for men than for women. The health of those over 85 has not been measured over time.
- Countries with significant gains (Germany, France, Japan, the United States).
 - The concepts may be a little distorted for France and Japan. At least, these trends are consistent with other national data (CREDES INSERM 1998). This also seems to be the case for Japan, even if the evidence is scanty.
 - The data are still rather recent for Germany and they are only valid for Western Länder. Gains exist for all age groups, but are comparatively smaller for very old persons of both gender. They are very similar by gender.
 - In the US, if one considers NLTCS, there are significant gains for men in all age groups, and only moderate gains for women, but these gains exist for all age groups.

Table 7.1, 7.2. Evolution of severe disability rates

39. The American situation needs further examination, given the variety and quality of available sources. First, the evolution of disability rates has been controversial, as corresponding evidence from

¹⁸ Which may well be due to a shift to older groups not captured by the data because of the 80 breakdown.

NHIS¹⁹ (table 8e), does not show any significant reductions for severe disability. The 1993 National Research Council workshop (Freedman Soldo 1994) reached something of an agreement about the decline of IADL disability, but views for severe disability were more mixed. From NLTCs (Manton 1998), there seems to be significant gains in severe disability, together with a shift from higher levels of disability towards lower levels. Another important source of information has been the LSOA (Longitudinal Study On Aging), which is coupled with NHIS for those individuals aged 70 or more (Crimmins Saito Reynolds 1997). This source indicates only minor gains but could not be used in the course of this study as it refers only to the population 70 and above. Recently however, a wide variety of sources have converged towards indicating some gains in severe disability for the US older population (Survey of Income and Program Participation SIPP, Medicare Current Beneficiary Survey, MCBS). Freedman and Martin's (1997) analysis of SIPP data suggests real improvements in health have caused declines in disability rates.

40. Possible transfers from Nursing Homes into the community have been pointed out as possibly explaining these trends. In fact, a close look at disability levels both within institutions and in the community reveals no direct measurable effects of the deinstitutionalisation process on the average health of people living in the community (Table 8a and 8b). There seems to be a transfer from lower to higher levels of disability in institutions for both genders. In the community, the declines of overall prevalence seem to occur at almost all levels of disability, even if trends seemed to be worse for women over the period 1982-1989.

Table 8a, 8b. Evolution of disability levels within institutions and in the community

4. POPULATION PROJECTIONS OF DISABLED PERSONS

4.1 A general overview of the methods

41. The projections combine care probabilities²⁰ with the population projection as do much other national work in the field (Schmähl Rothgang 1996 for Germany for a detailed example). This study provides a comparison between a dynamic approach and a static one:

- the dynamic approach projects past trends into the future, be they institutionalisation rates or disability rates.
- the static approach presents the results of pure demographic change, assuming no change in institutionalisation or disability rates in coming years.

¹⁹ The criterion of "Personal care activities" was selected to avoid the 65-69 cut off with ordinary questions on disability in the survey. They also seem to best represent the difficulty with ADLs given the characteristics of the survey.

²⁰ These are defined for each age and gender cell as the share of this population group which is disabled and in need of care.

42. This process allows the separation of policy²¹, epidemiological and demographic trends.

Table 9. Methods for the projections

43. For all countries, the dynamic exercise provides for a projection of disability rates in households. Since there was no clear trend in disability for the Netherlands, the dynamic exercise would yield the same picture as a static projection, which is the only one presented for this country. For Germany it is valid only for the Western Länder. Since no trend was available for the Eastern Länder, prevalence levels are assumed to be constant, even in the dynamic projection²². It would have been inappropriate to make the same assumptions for the Eastern Länder as the Western ones, as other socio-economic trends are still rather different. Other eastern European countries, with a similar history and industry structure, have experienced rather less favourable trends in health in recent years. As far as the United States are concerned, the exercise mainly shows the results performed with the NLTCs, instead of NHIS²³. In the event that data describing households and institutions were issued from the same global survey, as in Canada and Australia, global trends of disabled older persons were first computed. The evolution of institutionalisation rates was measured using exogenous data. Estimates for disability trends for households were measured by subtraction, using global trends of disabled older persons minus those in institutions.

44. Four years are displayed to present the results. The first is the base year, for which care probabilities and institutionalisation rates were gathered together. This baseline year may differ a little across countries and is usually around 1995. Results are then presented for three other years: 2000, 2010 and 2020. This allows to capture most of the impact of the baby-boom in a reduced form and is largely sufficient for public medium-term planning. Trends are given in three columns as follows:

- cumulated evolution from the baseline year up to 2000,
- evolution from 2000 up to 2010,
- evolution from 2000 up to 2020.

45. To a first order, aggregate change from the baseline year to 2020 can be obtained by adding the results from the first and the third columns.

²¹ The particular policy trends are the ones driving the evolution of institutionalisation rates. However, the role of policy in influencing the balance between formal and informal care for community care is not integrated in the projection.

²² This was an implicit rule when no other trend information was available, as for over 85 years persons in Sweden.

²³ There seem to be almost no trends from the NHIS observations. Hence, such an exercise would have been close to the static scenario for households.

4.2 The projection of the institutionalised population

46. For Germany, Japan, and the UK, no trend could be included for institutionalisation as measured from past available information²⁴. Disability within institutions could only be described for Canada, France and the United States. In general, projections were made separately for households and for institutions, except for Australia and Canada.

Table 10.1, 10.2. Projection of the population living in institutions

47. The pure demographic effect is strongest for countries with a strong demographic increase for the very old, mainly Canada and Japan, which experience growth rates of around 75-90 % over 25 years, or a yearly growth rate of the institutionalised population over 2.5 % (see H2 column). After increasing slightly up to 2010, prevalence of disability actually falls in those countries by the year 2020, due to the very strong increase in the population aged 65 and over. Similar trends are observed for the US, with a smaller increase in the institutionalised population (43 %) and a stronger decline in prevalence. European countries usually experience trends more slowly, except for the Netherlands.

48. Taking policy-driven institutionalisation trends into account has a profound impact on projected numbers. Under the dynamic hypothesis, France would experience the strongest increase in institutionalised population, while the institutionalised population would remain stable in the US and almost stable until 2010 in Sweden. In Australia, the number of institutionalised persons still increases significantly in spite of the deinstitutionalisation process. This is true to a lesser extent in Canada. In terms of levels, the prevalence of institutionalisation would be in the range of between 4 1/2 and 8 % in this second scenario, with a mean around 5-5.5 % by the year 2020.

4.3 The projection of disability in households

49. The static exercise shows increase in disability associated with the ageing process. Naturally, this is fastest where ageing is more pronounced, such as in Japan (with almost 100% growth from 1996-2020, or 2.9 % a year) and Canada. The number of disabled older persons would also rise very significantly in Australia and France. The overall growth is more modest in Germany and Sweden. The rise in the US appears to be in the middle, at around 50 % over 1994-2020, or 1.5 % a year. Due to the very strong growth in the population just over 65, under the static hypothesis global prevalence would in fact fall in the population aged 65 and over, over the projection period to 2020 in Australia, Canada, the Netherlands, Sweden, the United Kingdom and the United States.

Table 11.1, 11.2. Projection of the number of disabled older persons living in the community

50. If one factors trends into account, the number of disabled older persons in Japan would increase by only 25 %, or a little less than 1 % a year. The influence of the trend would also be strong in France²⁵, in Germany, Sweden and the United States. The total number of disabled persons would rise only slightly in France, Germany, and in Sweden. In the US, the number of disabled older persons in the community

²⁴ This does not preclude any future trends resulting from current projects being implemented in the field of long-term care, particularly in Germany and Japan.

²⁵ Although here the trend appears to be overstated.

would only increase by 25 % over 1994-2020, or 0.9 % a year. On the other hand, countries such as the UK or Canada, would not see such a large difference as they are experiencing fewer reductions in the prevalence of disability, and even an increases for some age/gender groups.

51. It thus appears that health changes could make a large difference for potential future numbers of disabled persons living in the community. There would be a significant impact if current trends were to continue.

4.4 The evolution in total number of disabled older persons

52. This sums up the two previous trends: (i) growth of disability in private households; and (ii) growth in the institutionalised population (all of whom are assumed to be disabled). Taking into account the dynamic hypothesis, Japan's adjusted trends, though already strong, would become closer to those of Australia and Canada. Sweden would have a stable disabled older population over the period 2010-2020. Under the dynamic hypothesis, the trends would be only moderate in the US and Germany, and, in fact, are close to the one experienced in the UK. France would be in an intermediate position. In fact, in all countries, the combined effects of health gains and a strong increase of the population just over 65 lead to an actual decline in prevalence by the year 2020.

Table 12. Projection of the total number of disabled older persons

53. These projection results should not be regarded as forecasts, but rather as a way of locating the importance of dynamic factors in evaluating the ageing process. It seems that demographic change *per se* is not enough to account for transforming the pure demographic by potential future social needs. Here, health and long-term care policies can certainly make a difference in transforming the pure demographic effect of ageing into very different social outcomes. Actual future results might be somewhere in between, as the strong trends observed in some countries over a relatively short period may not be sustainable in the long-term. On the other hand, one should not underestimate the potential for innovation and adaptation in human societies. Such results at least have the merit of allowing to consider a point of view different from the one that often prevails in the field of ageing.

5. IMPLICATIONS OF THE PROJECTIONS FOR PUBLIC LONG-TERM CARE SPENDING

5.1 A broad discussion of economic implications

54. The economic implications of these projections may be assessed in two different ways:

- from the point of view of people's utility, valuing the implicit health gains.
- from the point of view of the public finances in terms of the costs of health and long-term care.

55. Although ADL disability may impair someone's quality of life, it was not possible to use for this international data a matrix such as the one developed for the United States, for example, by Cutler and Richardson (1998). Gains in active life expectancy imply higher welfare for the older persons in question; the value of these welfare gains could possibly be expressed in economic terms. However, it did not seem possible to place a value on these health gains in a consistent way at the international level due to the high uncertainty in the orders of magnitude.

56. In terms of public finance implications, in theory, both health care and long-term care spending could be considered. This study chooses to focus on a narrow question, which refers to the likely implication of the projections discussed above for public spending on long-term care. This is different from Manton (1997). In fact, the relationship between health care spending and disability among the elderly is far from being straightforward: people without disabilities may need less expenditure on average but there may also be a need for higher expenditure to maintain good health and prevent disability. In addition, evidence at the international level was not sufficient to allow further investigations.

57. As the relationship between disability and level of care provided is quite linear, the narrower long-term care implications can be addressed. The projection will assume that the relative levels of informal and formal care will remain constant in the future. Currently, most international data show that informal care could account for up to 80 % of total care. Choices are mainly driven by:

- the availability of informal care, primarily from the spouse and children.
 - the availability of a spouse is influenced by both the female to male population ratio and also by the average rate of decomposition and recomposition of households.
 - the availability of children may be driven partly by how close they live to their parents but also by their degree of participation in the labour market since time spent at work cannot be used for caregiving.
- the living choices of older populations
 - demand for privacy increases with income,
 - relative demand for nursing homes decreases with both incomes and perceived prices.
- the perceived price of care in the community
 - physical constraints in access.
 - financial dimension.

58. In most countries, current arrangements, both at home and in institutions, reflect a certain constrained equilibrium, depending on local conditions and relative prices. However, there are a number of trends which could lead to a greater demand for formal in-home care. The demand for privacy is still likely to rise if the income of older persons continues to grow -- although at the same time, a rising number of older persons may be able to grow old while staying at home together. In most countries, the

²⁶ A few studies document this pattern at the end of life. These include for example Mc Clellan Skinner 1997. Data on spending by broad age group are available, but they are not suited for detailed examination of spending for the very old.

availability of informal care is reduced by modern living choices, more independent life styles and participation by women in paid work in the labour market. These trends may largely explain the pressure observed in many Western countries towards long-term care insurance, involving public subsidies.

5.2 Implicit demographic growth rates

59. The cost of providing care to disabled older persons (LTC) may be written:

$$LTC_d = n_d P_c$$

where n_d is the number of disabled older persons
 P_c is the unit price/cost of care giving

GDP is summarised as follows, from the income side

$$GDP = n_E \cdot w_E$$

where n_E is the number of wage earners
 w_E is the level of wages

The share of long-term care in GDP may be written $\frac{LTC}{GDP} = \frac{n_d}{n_E} * \frac{P_c}{w_E}$ (1)

where $p_c = \frac{w_c n_c}{n_d}$ P_c is the unit price of care, equals the wage of carers times the number of carers divided by the number of disabled older persons. p_c may be rewritten as follows:

$$p_c = w_c * \Pi_c$$

$$\Pi_c = \frac{n_c}{n_d}$$

Π_c is inverse of the unit productivity of care (numbers of carers per disabled older person). The share of GDP thus becomes:

$$\frac{LTC}{GDP} = \frac{n_d}{n_E} * \Pi_c * \frac{w_c}{w_E}$$

- Π_c is assumed to be constant. In the long run, it is assumed that there are no productivity gains in long-term care activities²⁸. This strong assumption has not been adopted in the United Kingdom. For example, (HMSO 1996, Wittemberg 1998), analysts have proposed up to 1 % a year of total factor productivity gains, which would mean gains of around 30 % for the projection period. However, the view was held that productivity in long-term care does not mean anything other than carers spending time with patients, and that high productivity gains could not be achieved without damaging quality in the long run.

²⁷ Capital income has been assumed to be incorporated in wages for simplicity in the presentation.

²⁸ In any case, assuming productivity dividends would further limit the implications of these trends in terms of public spending: the interested analyst can easily derive modified results for the purpose of comparison with national specific studies.

- w_c/w_E is assumed to be constant. It represents the wage of carers relative to average wages in the economy. This means that the general productivity gains will be channelled into wage increases, themselves redistributed into the "caring economy".

60. The growth of GDP can be decomposed into demographic growth η , and various productivity factors ($g = \eta * \pi_K * \pi_L * TFP$). Once productivity gains are neutralised and transformed into wage growth, the only factors left influencing the evolution of LTC/GDP are the growth rate of the number of potential wage earners (n_E) and the number of persons in need of care (n_d).

61. Coming back to the first expression (1), P_c/w_E equals in fact the average unit cost of care divided by the average wage. It can be approximated by the annual unit cost of care divided by GDP per capita in a given country. This leads finally to:

$$\left(\frac{LTC}{GDP}\right)_n = \left(\frac{LTC}{GDP}\right)_0 * \frac{n_{d_n}}{n_{d_0}} * \left(\frac{n_{E_n}}{n_{E_0}}\right)^{(-1)}$$

Hence, for the projection, the share of long-term care expenditure in GDP was first estimated for the base year. Afterwards, this was multiplied by trends in the number of disabled older persons, and divided by trends in the number of wage earners²⁹. This was done separately for community care and institutional care.

62. As a proxy for trends in the number of wage earners, the number of 15-64 people was used for all countries over the corresponding time periods³⁰. The main observation from Table 13, is that the US and Canada both enjoy a much stronger demographic increase, while the European countries have stagnating populations and Japan experiences a staggering decline in its active population. The US-Japanese gap reaches 33 % by 2020, which makes a significant difference in the ability to accommodate frail ageing populations.

Table 13. Projection of the 15-64 year-old population

5.3 The costing exercise hypotheses

63. Baseline estimates, largely based on OECD (1998) work, are presented in Table 14. Total expenditure on care provision for the dependent elderly is estimated to vary between 1 and 3 per cent of GDP (Table 14). To estimate public expenditures, local/national data were aggregated from different sources in a way that ensured better international comparability. The data presented are, however, indicative³¹. The public expenditure share of GDP is mostly between 0.6 to 2-3 %. Lower levels of expenditure are found in southern Europe. Proportionally, there is a relation between the share of private financing for health and for long-term care, which may reveal national preferences about the extent of

²⁹ Except for the costs, this is not too different from the ratios estimated by Manton (1997).

³⁰ Constant labour market participation rates are assumed. Departing from this strong assumption would introduce further labour market considerations which are not the core of this study.

³¹ Many EU results were derived from country reports provided by a project co-ordinated by Pr. Pacolet, Universiteit Leuven.

public intervention in this field. The share of public spending is relatively lower in the United States. It is higher in Scandinavian countries and also in Australia and the United Kingdom. One should note that formal in-home help (difference between columns (1) and (2)) is particularly difficult to measure, especially direct out-of-pocket payments. Moreover, in most countries, formal help represents only a small part of total help: it represents one fifth of total care resources available to the frail non-institutionalised elderly³².

Table 14. Comparison of care systems

64. From these results, baseline year estimates were derived for the cost of home help and in-patient care. Hypotheses about costing are presented in Table 15³³.

Table 15. Cost hypotheses

65. Average public unit spending for home care is highly variable. It is highest in Scandinavian countries, which rely upon highly developed formal long-term care systems. It is intermediate in Canada, Germany, Netherlands and the U.K. It is lower in Australia, France, Japan and the United States. The data presented are as of 1996. Japan is currently implementing an important package to develop home care services. Australia also is experiencing a major policy change at the moment with a shift towards community care. Global per unit costs of institutions are usually close to 1-1.4 times annual GDP. These costs are highest for care provided in medical settings and are estimated to be around two thirds of annual GDP *per capita* for hybrid forms of housing for older persons. As public subsidisation is not homogeneous, publicly recorded costs are highest in Japan, Sweden, the UK. The Australian case is specific, as there is a strong movement in this country away from medicalized settings towards cheaper accommodations for older persons, a pattern which was factored into the projection. For other countries such as France, but perhaps also the US, the shift towards higher levels of disability within institutions may lead to a higher workload and implicit cost increases³⁴. The implicit relative costs derived under those hypotheses tend to underestimate the value of home care in a welfare perspective. Although this is clearly biased, this is consistent with public policy priorities in the field, as the cost of informal care at home is often not incorporated into decision making.

5.4 A less clear-cut impact in terms of potential public spending

66. The final results are displayed in Table 16. A much less clear-cut impact emerges from these results. For the US, not taking the increased workload of nursing homes into account, the combined effect of a strong demographic increase together with positive trends in disability, contributes to fully stabilising the long-term care spending share of GDP, which is projected to remain stable or decline slightly. Due to less favourable trends in disability, Canada experiences a moderate reduction in the spending trends

³² Monetary values were attributed to informal help, dependency would represent a more important macroeconomic burden, closer to 4 or 5 % of GDP, as informal care represents around four fifth of total care (Kalish Aman Buchele 1998).

³³ See Marino Tessier Werle (1998) for more details on the cost information. (Social Policy Division internal note).

³⁴ At this stage, these could only be incorporated for France.

compared with the static hypothesis, which increase by around 30 % over the projection period, a magnitude similar to Germany. Spending increases remain moderate in Sweden, due to falls in disability and to deinstitutionalisation. In Australia the moderation in increases is due to a shift towards less costly forms of institutionalisation, and in the UK it is also due to a moderate demographic increase. In Australia, the projections do not integrate any further shifts in the balance of public and private spending, with higher private spending fuelled by increased user contributions to care in case of growing retirement incomes and assets. Spending remains highest in Sweden, being close to 3 % of GDP.

67. On the other hand, under both hypotheses, France would experience a strong increase in long-term care spending. This is mainly due to the very strong increase in spending for institutionalisation, through an increase in disability in the institutionalised population combined with no deinstitutionalisation taken as an assumption from the specific French data available. As home care is minimally subsidised in this country, reductions of disability in households do not yield any direct financial gains. For Japan, even if the hypothesis for trends in disability is rather optimistic, this country would still experience the highest increase in spending, under any hypothesis. The share of GDP would more than double under the static projection and would still increase by 88 % under the dynamic projection. A stagnating active population and the absence of deinstitutionalisation embedded in the current projection explain why the strong demographic increase of the very old population can not be dampened for this country.

Table 16. Projection of publicly financed long-term care share of GDP

68. All these projections are made under an assumption of a constant ratio of formal/informal help in the future. While they of course should again not be taken as forecasts, they may well illustrate the importance of different factors for evaluating the potential impact of ageing. They also demonstrate that, from a public policy perspective, this is far from being a pure demographic exercise. Policy driven and social factors may play a key role in determining future directions in the long-term care field.

6. CONCLUDING REMARKS

69. These results have important implications in several areas, but are specially relevant for the health and ageing dimensions of social policies, particularly with regard to long-term care policies.

70. In pure financial terms, such trends suggest caution is needed in inferring links between improvements in health and health care spending. It seems that better health can be acquired through better life styles and through appropriate access to new technologies. The new technologies are not without any cost: the increase in health care spending for many OECD developed countries from 1980 up to the mid 1990s was by itself larger than the total spending in long-term care for a significant number of countries.

71. The focus in this paper has been on the direct link between disability levels and the need for formal personal care³⁵. They thus summarise the direct expenditure implications of care trends. Projections as presented here cannot take account of possible future changes in behaviour, such as increased prevention or an expansion in reliance on benefits. They may just reflect the trends of combined demography, epidemiology, and policy influences on institutionalisation.

72. A key point is that they also demonstrate the usefulness of an "active" strategy in the field of ageing. This active ageing strategy focuses on reducing the prevalence of disability with more emphasis on prevention. It also considers that ageing, far from being a pure demographic phenomena, is a dynamic process which social policy and care systems may certainly influence : there is a wide difference on the long-term between the two scenarios in the projections displayed in the current study. Decisions taken now in terms of the balance of care, support for informal care and choices offered to older populations will also largely determine the future.

73. On the other hand, this should not obscure the fact that a relative de-institutionalisation of the elderly is a major challenge itself to social systems, as increased support for home care has then to be provided. Another important factor is the change of case-mix experienced by nursing homes accompanying the change in the balance between home and community care. Where it can be objectively measured, these trends indicate a need for a streamlining of existing capacities, rather than further expansion of the number of proper nursing home beds.

³⁵ If eligibility levels reflect real levels of disability.

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TABLES AND CHARTS

Table 1. Life expectancy gains implicit in UN demographic projections

Life expectancy at birth ⁽¹⁾	Men				Women			
	1995	2000	2010	2020	1995	2000	2010	2020
Australia	75.4	76.1	77.1	77.9	81.2	81.7	82.6	83.6
Canada	76.1	76.5	77.5	78.4	81.8	82.4	83.3	84.1
France	74.6	75.4	76.4	77.4	82.9	83.3	84.1	84.9
Germany	73.4	74.2	75.5	76.5	79.9	80.7	81.7	82.7
Japan	76.9	77.3	78.0	78.8	82.9	83.3	84.1	84.9
Netherlands	75.0	75.8	76.8	77.8	80.6	81.2	82.1	83.1
Sweden	76.2	77.1	78.4	79.4	80.8	81.6	82.9	83.9
United Kingdom	74.5	75.3	76.3	77.3	79.8	80.6	81.5	82.6
United States	73.4	74.2	75.8	76.8	80.1	80.6	81.5	82.6
Average 9 countries	75.1	75.8	76.9	77.8	81.1	81.7	82.6	83.6

1: Life expectancy at age 65 is not published. Life expectancy at birth still represents a good proxy for the variations, as any further decline of early mortality could have only but a slight impact for the countries being considered.

Table 2. Female/Male population ratios in UN projections

France	1994	2000	2010	2020	Germany	1995	2000	2010	2020
65-69	1.21	1.17	1.12	1.14	65-69	1.24	1.14	1.13	1.13
70-74	1.34	1.30	1.24	1.20	70-74	1.79	1.36	1.24	1.25
75-79	1.54	1.50	1.42	1.35	75-79	2.12	2.07	1.44	1.43
over 80	2.18	2.16	2.02	1.97	over 80	2.64	2.77	2.42	2.07
Total over 65	1.50	1.47	1.44	1.38	Total over 65	1.78	1.61	1.43	1.42
United Kingdom					Sweden				
65-69	1.13	1.09	1.08	1.10	65-69	1.13	1.11	1.03	1.02
70-74	1.26	1.23	1.17	1.19	70-74	1.21	1.21	1.13	1.09
75-79	1.51	1.40	1.35	1.34	75-79	1.36	1.35	1.30	1.18
over 80	2.24	2.12	2.02	1.99	over 80	1.88	1.88	1.84	1.72
Total over 65	1.44	1.39	1.35	1.34	Total over 65	1.36	1.36	1.28	1.22
Australia					Netherlands				
65-69	1.05	1.05	1.04	1.09	65-69	1.16	1.12	1.05	1.05
70-74	1.19	1.14	1.13	1.13	70-74	1.33	1.27	1.17	1.13
75-79	1.41	1.37	1.29	1.26	75-79	1.57	1.53	1.40	1.30
over 80	1.93	1.92	1.84	1.79	over 80	2.24	2.22	2.12	1.99
Total over 65	1.31	1.30	1.27	1.25	Total over 65	1.48	1.44	1.35	1.28
Japan					United States				
65-69	1.13	1.12	1.11	1.08	65-69	1.17	1.15	1.13	1.11
70-74	1.38	1.22	1.19	1.15	70-74	1.28	1.25	1.22	1.20
75-79	1.61	1.57	1.32	1.29	75-79	1.47	1.42	1.36	1.34
over 80	1.92	2.00	1.87	1.76	over 80	2.15	2.05	1.95	1.91
Total over 65	1.41	1.37	1.32	1.29	Total over 65	1.44	1.42	1.38	1.31
Canada									
65-69	1.12	1.09	1.09	1.09					
70-74	1.28	1.21	1.17	1.16					
75-79	1.44	1.43	1.31	1.28					
over 80	1.89	1.90	1.86	1.79					
Total over 65	1.36	1.34	1.31	1.27					

Table 3.1. Underlying demographic projections

	Men							Women						
	N. th.	N. th.	N. th.	N. th.	Gr. rate %	Gr. rate %	Gr. rate %	N. th.	N. th.	N. th.	N. th.	Gr. rate %	Gr. rate %	Gr. rate %
France	1994	2000	2010	2020	2000/1994	2010/2000	2020/2000	1994	2000	2010	2020	2000/1994	2010/2000	2020/2000
65-69	1240	1251	1215	1735	0.9	-2.9	38.7	1497	1468	1355	1975	-1.9	-7.7	34.5
70-74	930	1083	1046	1489	16.5	-3.4	37.5	1247	1413	1293	1793	13.3	-8.5	26.9
75-79	542	794	883	870	46.5	11.2	9.6	835	1194	1257	1171	43.0	5.3	-1.9
over 80	741	757	1044	1173	2.2	37.9	55.0	1617	1634	2106	2316	1.1	28.9	41.7
Total over 65	3453	3885	4188	5267	12.5	7.8	35.6	5196	5709	6011	7255	9.9	5.3	27.1
United Kingdom	1992	2000	2010	2020	2000/1992	2010/2000	2020/2000	1992	2000	2010	2020	2000/1992	2010/2000	2020/2000
65-69	1320	1236	1413	1577	-6.4	14.3	27.6	1491	1350	1532	1736	-9.5	13.5	28.6
70-74	1030	1048	1077	1418	1.7	2.8	35.3	1298	1285	1264	1681	-1.0	-1.6	30.8
75-79	728	810	785	924	11.3	-3.1	14.1	1100	1132	1058	1236	2.9	-6.5	9.2
over 80	670	746	853	918	11.3	14.3	23.1	1504	1585	1727	1824	5.4	9.0	15.1
Total over 65	3748	3840	4128	4837	2.5	7.5	26.0	5393	5352	5581	6477	-0.8	4.3	21.0
Australia	1996	2000	2010	2020	2000/1996	2010/2000	2020/2000	1996	2000	2010	2020	2000/1996	2010/2000	2020/2000
65-69	328	315	424	567	-4.0	34.6	80.0	345	331	441	617	-4.1	33.2	86.4
70-74	273	283	308	479	3.7	8.8	69.3	326	324	347	541	-0.6	7.1	67.0
75-79	170	205	213	296	20.6	3.9	44.4	240	280	274	372	16.7	-2.1	32.9
over 80	153	170	234	280	11.1	37.6	64.7	296	326	430	501	10.1	31.9	53.7
Total over 65	924	973	1179	1622	5.3	21.2	66.7	1207	1261	1492	2031	4.5	18.3	61.1
Japan	1996	2000	2010	2020	2000/1996	2010/2000	2020/2000	1996	2000	2010	2020	2000/1996	2010/2000	2020/2000
65-69	3055	3305	3770	3877	8.2	14.1	17.3	3453	3715	4191	4176	7.6	12.8	12.4
70-74	2042	2596	3036	4023	27.1	16.9	55.0	2816	3177	3619	4634	12.8	13.9	45.9
75-79	1295	1554	2410	2816	20.0	55.1	81.2	2082	2441	3177	3625	17.2	30.2	48.5
over 80	1247	1371	2139	3000	9.9	56.0	118.8	2397	2747	4006	5268	14.6	45.8	91.8
Total over 65	7639	8826	11355	13716	15.5	28.7	55.4	10748	12080	14993	17703	12.4	24.1	46.5
Canada	1995	2000	2010	2020	2000/1995	2010/2000	2020/2000	1995	2000	2010	2020	2000/1995	2010/2000	2020/2000
65-69	525	544	693	1000	3.6	27.4	83.8	590	593	754	1091	0.5	27.2	84.0
70-74	426	459	499	795	7.7	8.7	73.2	544	556	585	920	2.2	5.2	65.5
75-79	278	341	388	508	22.7	13.8	49.0	401	487	508	651	21.4	4.3	33.7
over 80	263	305	422	517	16.0	38.4	69.5	498	580	785	923	16.5	35.3	59.1
Total over 65	1492	1649	2002	2820	10.5	21.4	71.0	2033	2216	2632	3585	9.0	18.8	61.8

Note : Numbers in Thousands. Growth rates in %.

Table 3.2. Underlying demographic projections

	Men							Women						
	N. th.	N. th.	N. th.	N. th.	Gr. rate %	Gr. rate %	Gr. rate %	N. th.	N. th.	N. th.	N. th.	Gr. rate %	Gr. rate %	Gr. rate %
Germany	1995	2000	2010	2020	2000/1995	2010/2000	2020/2000	1995	2000	2010	2020	2000/1995	2010/2000	2020/2000
65-69	1774	1883	2112	2275	6.2	12.2	20.8	2210	2148	2394	2581	-2.8	11.5	20.2
70-74	1217	1487	2042	1656	22.1	37.3	11.4	2187	2028	2521	2062	-7.3	24.3	1.7
75-79	608	911	1210	1390	49.8	32.8	52.6	1289	1885	1745	1992	46.3	-7.4	5.7
over 80	854	736	1011	1423	-13.8	37.3	93.4	2259	2039	2439	2947	-9.7	19.6	44.5
Total over 65	4453	5017	6375	6745	12.7	27.1	34.4	7945	8100	9099	9582	2.0	12.3	18.3
Sweden	1995	2000	2010	2020	2000/1995	2010/2000	2020/2000	1995	2000	2010	2020	2000/1995	2010/2000	2020/2000
65-69	188	179	259	261	-4.8	44.7	45.8	212	198	266	267	-6.6	34.3	34.8
70-74	182	162	175	257	-11.0	8.0	58.6	221	196	198	281	-11.3	1.0	43.4
75-79	135	143	126	190	5.9	-11.9	32.9	184	193	164	225	4.9	-15.0	16.6
over 80	137	144	159	178	5.1	10.4	23.6	258	270	293	307	4.7	8.5	13.7
Total over 65	642	628	719	886	-2.2	14.5	41.1	875	857	921	1080	-2.1	7.5	26.0
Netherlands	1995	2000	2010	2020	2000/1995	2010/2000	2020/2000	1995	2000	2010	2020	2000/1995	2010/2000	2020/2000
65-69	288	304	382	492	5.6	25.7	61.8	335	339	401	518	1.2	18.3	52.8
70-74	238	244	282	439	2.5	15.6	79.9	316	310	330	497	-1.9	6.5	60.3
75-79	152	180	200	259	18.4	11.1	43.9	239	276	279	336	15.5	1.1	21.7
over 80	145	156	196	239	7.6	25.6	53.2	325	347	416	475	6.8	19.9	36.9
Total over 65	823	884	1060	1429	7.4	19.9	61.7	1215	1272	1426	1826	4.7	12.1	43.6
United States	1994	2000	2010	2020	2000/1994	2010/2000	2020/2000	1994	2000	2010	2020	2000/1994	2010/2000	2020/2000
65-69	4626	4395	5696	8388	-5.0	29.6	90.9	5402	5036	6439	9277	-6.8	27.9	84.2
70-74	3844	3904	4044	6326	1.6	3.6	62.0	4933	4882	4933	7573	-1.0	1.0	55.1
75-79	2638	3040	2972	3947	15.2	-2.2	29.8	3881	4311	4055	5298	11.1	-5.9	22.9
over 80	2504	2940	3625	3991	17.4	23.3	35.7	5396	6020	7058	7639	11.6	17.2	26.9
Total over 65	13612	14279	16337	22652	4.9	14.4	58.6	19612	20249	22485	29787	3.2	11.0	47.1

Note : Numbers in Thousands. Growth rates in %.

Table 4. Sources of data for institutionalisation

	<i>Survey, data</i>	<i>Comments</i>
France	<i>EHPA 1990, 1994</i>	Specific survey for institutions, including disability and need for personal care (Etablissements Hebergeant des Personnes Agées).
United Kingdom	<i>Census</i>	Cross sectional data 1991, Sullivan hypothesis
Australia	<i>ABS survey on disability, 1981-1988, 1993</i> <i>AIHW 1995 data for 1985 up to 1986</i>	The ABS survey was used to estimate total disability. In fact, actual data describing institutionalisation rates from AIHW was used to obtain a longer interval over 1985-1996. Data cover hostels and nursing homes.
Japan	<i>Fukawa 1996</i>	Institutions include long-term inpatient institutionalisation (hospitals), health institutions, welfare facilities and nursing homes. Data was also available for 1989 but the trend could not be integrated for the projection period.
Canada	<i>NPHS 1994-1995</i> <i>HALS 1986-1991.</i>	The National Population Health Survey was used for the base year while the Health and Activity Limitation Survey was used for the trends (need for self care).
Germany	<i>Schmähl Rothgang (1996)</i> <i>Rothgang Vogler (1997)</i> <i>Wille (1998)</i>	Data on care probabilities for institutions come from Krug and Reh as presented in Schmähl Rothgang (1996) and updated by Rothgang Vogler (1997). Officially used in projections (Wille 1998).
Sweden	<i>Institutional data : Särsklist Boende, Perner inom Landstingens Längvård, Social Departementet Valfärdsfakta Social 1997</i>	Data comes from institution broad descriptions, from which age and gender probabilities could be extracted. Data were consistently available over 1980-1995. Given the wide continuum of old age homes in Sweden the more formal institutions only have been selected for international comparability.
Netherlands	<i>CBS (1993, 1992, 1996), SCP (1996, 1997).</i>	Data comes both from the Central Bureau vor de Statistik and from specific studies published by the Social and Cultural Planning office (SCP 1996, SCP 1997). Sources described in those publications. The data comes mainly from an institutional background. The more formal institutions acknowledged by the Dutch themselves as "nursing homes or old age homes" for international comparability have been selected.
United States		
(1)	<i>NLTCS 1982, 1984, 1989, 1994</i>	A description of disability is possible for the 1984, 1989, 1994 waves. Institutionalisation rates available for all waves
(2)	<i>NNHS, 1977, 1985, 1995 plus Census 1970, 1980, 1990</i>	Some adjustments had to be made to make 1995 and 1985 comparable.

Table 5.1. Evolution of institutionalisation rates for the countries studied

	Men				Women				Global			
France	1990	1994	Gr. rate % ⁽¹⁾	Comment	1990	1994	Gr. rate % ⁽¹⁾	Comment	1990	1994	Gr. rate % ⁽¹⁾	Comment
65-69	0.9	0.7	-5.1		1.7	1.5	-3.4		1.4	1.2	-4.0%	
70-74	1.5	1.2	-5.7		3.0	2.5	-4.1		2.4	2.0	-4.7%	
75-79	4.3	2.8	-10.0		8.8	6.2	-8.4		7.0	4.8	-9.0%	
over 80	8.3	10.0	+4.8		16.8	21.7	+6.7		13.5	17.0	6.0%	
Total over 65	3.9	3.8	-0.3		7.8	8.3	+1.5		6.3	6.5	0.85%	Estimated on the whole standardized population
United Kingdom		1991				1991						
65-69		1.1				0.9						
70-74		1.6				1.9						
75-79		2.9				4.3						
over 80		9.0				16.9						
Total over 65		3.0	None	No Dynamic. No reliable data. Not much variation observed.		6.2	None	No reliable data. Not much variation observed.				
Australia	1988	1993	Gr. rate % ⁽¹⁾		1988	1993	Gr. rate % ⁽¹⁾	Annual variation rate	1985	1996	Gr. rate % ⁽¹⁾	
65-79	3.2	2.1	-5.2	Due to a policy context, there was a strong decline in Australia between 1988 and 1993	2.1	1.7	-6.7					
over 80	30.5	20.6	-4.8	Those rates were not considered sustainable over 25 years	12.6	11.8	-1.4					
Total over 65									6.7	6.5	-0.35	The reference has been taken over 1985-1996 for reliability

Table 5.1. Evolution of institutionalisation rates for the countries studied (continued)

	Men				Women				Global			
									1989	1996	Gr. rate % ⁽¹⁾	
Japan												
65-69									3.3	1.2	-13.4	
70-74									5.4	2.3	-11.8	
75-79									8.2	4.7	-7.7	
over 80									15.9	13.1	-2.7	
Total over 65									7.5	5.1	-5.6	No dynamic could be integrated : 1989 and 1996 could not be compared with certainty.
Canada									1985	1991	Gr. rate % ⁽¹⁾	
65-69									1.8	1.4	-4.2	
70-74									2.8	2.4	-2.5	
75-79									5.9	5.6	-1.1	
over 80									23.7	23.4	-0.2	
Total over 65									7.8	7.6	-0.4	The global standardized trend has been used in the projections, as trends by age groups were too heterogenous.

Gr. rate %⁽¹⁾ = Average annual growth rate.

Table 5.2. Evolution of institutionalisation rates for the countries studied

	Men				Women				Global				
Germany		1995		Comment		1995		Comment				Comment	
65-69		0.3				0.6							
70-74		0.5				1.2							
75-79		1.8				2.4							
80-84		2.9				5.6							
85-89		6.8				13.7							
over 90		16.5				26.1							
Total over 65		1.5	None	No Dynamics. No reliable data. Not much variation observed.		3.8	None	No Dynamics. No reliable data. Not much variation observed.					
Sweden										1995	Gr. rate % ⁽¹⁾		
65-79										3.13	-0.96	In fact, trends result from log-linear estimation over 1980-1995. Last year given as reference	
over 80										25.07	-0.48	In fact, trends result from log linear estimation over 1980-1995. Last year given as reference	
Total over 65											N.R.-		
Netherlands										1980	1995	Gr. rate % ⁽¹⁾	
65-79										3.%	2.%	-2.7	
over 80										27.%	17.%	-3.0	
Total over 65													As only the static exercise was performed for the Netherlands, these very fast trends could not be included.

Table 5.2. Evolution of institutionalisation rates for the countries studied (continued)

United States (1)	Men				Women				Global			
	1982	1994	Gr. rate % ⁽¹⁾	NLTCS exercise	1982	1994	Gr. rate % ⁽¹⁾	NLTCS exercise	1982	1994	Gr. rate % ⁽¹⁾	NLTCS exercise
65-69	1.40	0.96	-2.23	The annual variation is estimated	1.31	0.85	-3.37	The annual variation is estimated	1.35	0.89	-2.90	The annual variation is estimated
70-74	2.08	1.75	-1.29	not using the extreme points, but	2.41	1.77	-2.34	not using the extreme points, but	2.27	1.76	-1.93	not using the extreme points, but
75-79	4.22	3.12	-2.26	the four available points (1982, 1984, 1989, 1994)	5.38	4.23	-2.03	the four available points (1982, 1984, 1989, 1994)	4.94	3.78	-2.15	the four available points (1982
over 80	12.07	9.41	-1.61		19.99	18.01	-0.96		17.63	15.26	-1.18	, 1984, 1989, 1994)
Total over 65	3.81	3.20	-1.04	This integrates the change in population structure	6.91	6.42	-0.61	This integrates the change in population structure	5.69	5.11	-0.79	This integrates the change in population structure
United States (2)												
65-69												
70-74												
75-79												
over 80												
Total over 65												

Note :proportions are expressed in %. Definitions of institutions may vary from country to country but have been harmonized as far as possible: long-term care in hospitals has been included for Japan. For other countries, this includes purely Nursing homes and old age homes, but tends to exclude sheltered housing. Gr. rate %⁽¹⁾ = Average annual growth rate.

Table 6. Sources of data for disability in households and general population

	<i>Survey, data</i>	<i>Comments</i>
France	<i>Enquête Santé Soins Médicaux 1980 1991 INSEE CREDES SESI</i>	Trends were estimated for 1980-1991 using a rather severe disability concept to ensure longitudinal homogeneity. Similar general trends have been reported, even for milder disability, and also for the period 1970-1980 (see CREDES-INSERM 1998).
United Kingdom	<i>General Household Survey 1980 1985 1991 1994</i>	The 1976 survey could not be used as comparability was not sufficient. The 1991 results are suspect and could not be directly exploited as well.
Australia	<i>ABS survey on disability, 1981-1988, 1993 AIHW 1995 data for 1985 up to 1986</i>	The trends were estimated from the ABS surveys on disability, ageing and carers. "Severe handicap", corresponds to ADL. ABS survey was used to estimate total disability. In fact, actual data on institutionalisation rates from AIHW was used to obtain a longer interval over 1985-1996. Data cover hostels and nursing homes.
Japan	<i>Fukawa 1996 Nanjo (1975, 1980, 1985)</i>	The trends were estimated from the Nanjo (1987) longitudinal study, (rather severe concept of disability, confined to bed). Results consistent with Liu et al. (1997) (period 1985-1990). Levels for the base year were taken from Fukawa (1996), consistent with Tsuji et al. (1997) and International Longevity Center publications.
Canada	<i>HALS 1986-1991.</i>	The trends were estimated for the whole country from the Health and Activity Limitation Survey. (need for self care). (Wilkins (1994).
Germany	<i>Schmähl Rothgang (1996) Rothgang Vogler (1997) Brückner (1997) Wille (1998)</i>	Data on care probabilities in households come from Infratest 1996 studies as presented in Schmähl Rothgang (1996) and updated by Rothgang Vogler (1997). Trends come from Microcensus data 1989-1995, Statistisches Bundesamt, as provided by Brückner (1997)
Sweden	<i>SLC surveys (1975-80, 1981-85, 1986-90, 1991-95</i>	Data comes from the Surveys of Living Conditions (Severe Ill Health). Disability over 75 was only measured in a single year (no trend is imputed for the oldest old population by hypothesis).
Netherlands	<i>CBS (1993, 1992, 1996),</i>	Data comes both from the Central Bureau vor de Statistik and from specific studies published by the Social and Cultural Planning office (SCP 1996, SCP 1997). Sources described in those publications. Data comes mainly from an institutional background. The more pronounced institutions acknowledged by the Dutch themselves as "nursing homes or old age homes" for international comparability have been selected.
United States (1)	<i>NLTCS 1982, 1984, 1989, 1994</i>	Trends are computed by age and gender, for the groups with at least 1-2 ADL (all severe disabled persons).
United States (2)	<i>NHIS, 1985, 1988, 1990, 1995</i>	Trends were estimated using information from questions on need for personal care, which provides information on severe disability, not linked with the labour market, and reported from age 65. Available through 1982-1996 in theory. To ensure longitudinal homogeneity the time interval was limited to 1985-1995, with four years made available to us.

Table 7.1 Evolution of severe disability rates

	Men				Women				Global			
France	1990	1994	Gr. rate % ⁽¹⁾	Comment	1990	1994	Gr. rate % ⁽¹⁾	Comment	1990	1994	Gr. rate % ⁽¹⁾	Comment
65-74	1.41	1.05	-2.63	The ADL criteria chosen was confined to bed to ensure longitudinal comparability	1.73	0.82	-6.59	The ADL criteria chosen was confined to bed to ensure longitudinal comparability	1.59	0.92	-4.84	The ADL criteria chosen was confined to bed to ensure longitudinal comparability
75-79	4.52	1.34	-10.47		3.49	2.57	-2.72		3.86	2.06	-5.52	
80-85	5.66	2.05	-8.82		4.94	5.28	0.61		5.18	3.99	-2.35	
over 85	9.01	6.82	-2.50		11.86	11.41	-0.35		10.92	10.44	-0.41	
over 80	7.00	3.17	-6.94		7.78	7.94	0.18		7.52	6.36	-1.51	Estimated on the whole standardized population
75-84	4.87	1.64	-9.43		3.96	3.74	-0.51		4.28	2.89	-3.52	
Total over 65	2.96	1.51	-5.91		3.42	3.07	-0.98		3.23	2.43	-2.56	This integrates the changing structure of the population
United Kingdom	1980	1994	Gr. rate % ⁽¹⁾		1980	1994	Gr. rate % ⁽¹⁾		1980	1994	Gr. rate % ⁽¹⁾	
65-74	4.8	4.5	-0.53	The annual variation is taken from the extreme points (1980-1994, due to some uncertainty in the 1991 value)	5.8	6.5	0.89	The annual variation is taken from the extreme points (1980-1994, due to some uncertainty in the 1991 value)	5.4	5.6	0.34	This is roughly equivalent to taking the slope excluding 1991.
75-79	8.0	6.0	-2.03	The 1991 point was surprisingly low.	10.0	9.0	-0.75	The 1991 point was surprisingly low.	9.3	7.8	-1.20	
over 80	21.2	14.7	-2.60		22.6	19.4	-1.10		22.2	17.8	-1.56	
Total over 65	7.4	6.6	-0.81	This integrates the changing structure of the population	9.7	10.2	0.34	This integrates the changing structure of the population	8.8	8.7	-0.05	This integrates the changing structure of the population

Table 7.1 Evolution of severe disability rates (continued)

	Men				Women				Global			
Australia	1981	1993	Gr. rate % ⁽¹⁾		1981	1993	Gr. rate % ⁽¹⁾	Annual variation rate	1985	1996	Gr. rate % ⁽¹⁾	
65-69	7.7	6.2	-1.74	The variation is estimated from the extreme points 1981-1993, not including 1988.	9.5	8.4	-0.99	The variation is estimated from the extreme points 1981-1993, not including 1988.	8.6	7.3	-1.33	
70-74	9.8	9.0	-0.68		12.7	14.4	1.04		11.4	12.0	0.39	
75-79	16.0	12.0	-2.37		22.3	18.8	-1.41		19.7	16.0	-1.73	
over 80	27.8	35.8	2.13		57.8	45.1	-2.05		40.2	42.0	0.35	
Total over 65	12.3	15.1	1.71	This integrates the changing structure of the population	20.4	20.7	0.13	This integrates the changing structure of the population	17.0	17.3	0.14	This integrates the changing structure of the population
France	1990	1994	Gr. rate % ⁽¹⁾	Comment	1990	1994	Gr. rate % ⁽¹⁾	Comment	1990	1994	Gr. rate % ⁽¹⁾	Comment
Japan	1975	1985	Gr. rate % ⁽¹⁾		1975	1985	Gr. rate % ⁽¹⁾		1975	1985	Gr. rate % ⁽¹⁾	
65-74	8.7	7.2	-1.84		8.7	6.3	-3.24		8.7	6.7	-2.63	
over 75	13.4	11.6	-1.41		13.8	12.8	-0.74		13.6	12.3	-0.99	
Total over 65	10.3	8.8	-1.58	This integrates the changing structure of the population	10.3	8.8	-1.56	This integrates the changing structure of the population	10.3	8.8	-1.57	Equivalent standardized rate by age and gender structure -1.89
Canada	1986	1991	Gr. rate % ⁽¹⁾		1986	1991	Gr. rate % ⁽¹⁾		1986	1991	Gr. rate % ⁽¹⁾	
65-74	5.1	3.9	-5.22		6.4	4.9	-5.20		5.82	4.45	-5.23	
75-84	9.2	10.4	2.48		14.9	15.9	1.31		12.56	13.72	1.79	
over 85	29.4	35.3	3.73		49.2	46.9	-0.95		42.53	43.36	0.39	
Total over 65	6.0	6.8	2.40	This integrates the changing structure of the population	11.7	13.0	2.11	This integrates the changing structure of the population	9.26	10.38	2.31	

Gr. rate %⁽¹⁾ = Average annual growth rate.

Table 7.2. Evolution of severe disability rates

	Men				Women				Global			
West Germany	1986	1995	Gr. rate % ⁽¹⁾	Comment	1986	1995	Gr. rate % ⁽¹⁾	Comment	1986	1995	Gr. rate % ⁽¹⁾	Comment
65-69	18.75	14.17	-3.07		19.4	14.5	-3.20		19.1	14.3	-3.14	
70-74	22.78	16.83	-3.31		24.9	17.3	-3.95		24.2	17.2	-3.73	
75-79	25.66	20.09	-2.68		29.4	21.8	-3.25		28.2	21.3	-3.08	
80-84	27.34	23.56	-1.64		31.5	25.8	-2.19		30.3	25.2	-2.05	
85-89	27.21	25.18	-0.86		29.6	28.4	-0.44		29.0	27.6	-0.54	
over 90	28.11	24.12	-1.69		33.4	31.5	-0.66		32.0	29.5	-0.89	
over 80	27.38	24.11	-1.40		31.1	27.3	-1.45		29.8	26.1	-1.43	
Total over 65	22.50	17.65	-2.66	This is estimated with 1995 population	25.9	20.2	-2.76	This is estimated with 1995 population	25.0	19.5	-2.73	This is estimated with 1995 population
Sweden	1975	1995	Gr. rate % ⁽¹⁾		1975	1995	Gr. rate % ⁽¹⁾		1975	1995	Gr. rate % ⁽¹⁾	
65-74	17.2	10.0	-2.68	The annual variation is taken from 1995-1975, which was equivalent to the regression over 1975-1980-1985-1995	17.0	12.7	-1.45	The annual variation is taken from 1995-1975, which was equivalent to the regression over 1975-1980-1985-1995	17.1	11.5	-1.98	The annual variation is taken from 1995-1975, which was equivalent to the regression over 1975-1980-1985-1995
75-85	23.6	18.1	-1.32		29.0	25.5	-0.64		26.8	22.5	-0.87	
over 85	35.9	35.9	0.00	Absence of variation by assumption	36.9	36.9	0.00	Absence of variation by assumption	36.6	36.6	0.00	Absence of variation by assumption
Total over 65	20.4	14.7	-1.62	This integrates the changing structure of the population	23.2	20.5	-0.62	This integrates the changing structure of the population	22.0	18.0	-0.99	This integrates the changing structure of the population
Netherlands		1995				1995				1995		
65-74		8.6		Trends not reliable		17.0		Trends not reliable		13.2%		Trends not reliable
74-79		17.0				22.0				20.1%		
over 80		28.3				44.8				39.7%		
Total over 65		13.6		No annual variation by assumption : not much observed		25.4		No annual variation by assumption : not much observed		20.7%		No annual variation by assumption : not much observed

Table 7.2. Evolution of severe disability rates (continued)

United States (1)	Men				Women				Global			
	1982	1994	Gr. rate % ⁽¹⁾	NLTCS exercise	1982	1994	Gr. rate % ⁽¹⁾	NLTCS exercise	1982	1994	Gr. rate % ⁽¹⁾	NLTCS exercise
65-69	6.2	5.0	-1.66		7.2	6.5	-0.86		6.8	5.8	-1.19	
70-74	9.8	6.2	-3.28		10.0	9.6	-0.33		9.9	8.2	-1.45	
75-79	11.8	10.2	-1.34		15.9	14.5	-0.34		14.3	12.8	-0.70	
over 80	25.6	19.1	-2.28		31.8	31.2	-0.21		29.8	27.3	-0.72	
Total over 65	11.1	8.9	-1.71	This integrates the changing structure of the population	14.8	14.8	0.11	This integrates the changing structure of the population	13.3	12.4	-0.47	This integrates the changing structure of the population
United States (2)												
65-69												
70-74												
75-79												
over 80												
Total over 65												

Gr. rate %⁽¹⁾ = Average annual growth rate.

Table 8a. Evolution of disability levels within institutions (NLTCS)

Men	1-2 ADLs			3-4 ADLs			5-6 ADLs			Total		
	<i>1984</i>	<i>1989</i>	<i>1994</i>	<i>1984</i>	<i>1989</i>	<i>1994</i>	<i>1984</i>	<i>1989</i>	<i>1994</i>	<i>1984</i>	<i>1989</i>	<i>1994</i>
65-69	24.7	22.5	9.5	21.6	16.2	21.1	44.8	54.9	55.6	91.2	93.5	86.2
70-74	26.9	25.5	5.9	17.7	11.7	17.2	40.4	46.7	76.9	85.0	83.9	100.0
75-79	15.8	11.6	16.6	20.1	15.3	12.4	52.4	72.2	66.2	88.2	99.1	95.2
Over 80	18.8	15.1	14.5	16.2	22.5	20.9	57.1	59.8	59.2	92.0	97.3	94.6
Over 65	20.1	16.7	13.1	17.9	18.8	18.7	52.0	60.0	62.9	89.9	95.4	94.7
Women	1-2 ADLs			3-4 ADLs			5-6 ADLs			Total		
	<i>1984</i>	<i>1989</i>	<i>1994</i>	<i>1984</i>	<i>1989</i>	<i>1994</i>	<i>1984</i>	<i>1989</i>	<i>1994</i>	<i>1984</i>	<i>1989</i>	<i>1994</i>
65-69	15.4	20.6	8.8	22.4	17.6	4.0	57.0	56.0	87.2	94.9	94.1	100.0
70-74	28.1	24.6	16.0	13.9	12.9	15.0	47.8	55.4	61.5	89.8	93.0	92.5
75-79	17.2	22.4	16.0	27.4	16.7	18.5	49.1	57.8	62.4	93.8	97.0	96.8
Over 80	12.7	11.7	11.4	20.0	22.4	17.6	59.2	64.5	67.8	91.9	98.7	96.8
Over 65	15.0	14.9	12.2	20.7	20.5	17.0	56.5	62.3	67.4	92.2	97.7	96.6

Note : Disability levels in %

Table 8b. Evolution of disability levels in the community (NLTCS)

Men	1-2 ADLs			3-4 ADLs			5-6 ADLs			Total		
	<i>1984</i>	<i>1989</i>	<i>1994</i>	<i>1984</i>	<i>1989</i>	<i>1994</i>	<i>1984</i>	<i>1989</i>	<i>1994</i>	<i>1984</i>	<i>1989</i>	<i>1994</i>
65-69	2.78	2.13	2.64	1.31	1.69	1.38	1.46	1.24	1.00	5.55	5.07	5.02
70-74	3.99	4.97	3.36	2.20	1.88	1.28	2.45	1.82	1.59	8.63	8.67	6.23
75-79	5.61	5.63	5.19	2.72	2.85	2.60	3.58	2.26	2.41	11.91	10.74	10.20
Over 80	11.69	8.94	8.91	4.99	7.36	4.67	7.36	6.33	5.53	24.03	22.63	19.12
Over 65	5.00	4.69	4.45	2.38	2.88	2.17	3.02	2.42	2.25	10.40	9.99	8.87
Women	1-2 ADLs			3-4 ADLs			5-6 ADLs			Total		
	<i>1984</i>	<i>1989</i>	<i>1994</i>	<i>1984</i>	<i>1989</i>	<i>1994</i>	<i>1984</i>	<i>1989</i>	<i>1994</i>	<i>1984</i>	<i>1989</i>	<i>1994</i>
65-69	3.58	3.24	3.41	1.78	1.61	1.73	1.45	1.32	1.37	6.80	6.17	6.52
70-74	5.77	5.81	4.90	2.40	2.26	2.29	1.90	1.79	2.44	10.07	9.86	9.64
75-79	8.48	9.44	7.74	3.48	4.64	4.34	2.93	2.84	2.41	14.89	16.91	14.48
Over 80	17.13	16.16	14.13	7.53	9.76	9.16	8.67	7.83	7.91	33.33	33.75	31.21
Over 65	8.01	8.10	7.24	3.50	4.26	4.18	3.39	3.24	3.42	14.89	15.61	14.84

Note : Disability levels in %

Table 8c. Population institutionalised

Males	1970	1980	1990	1970-1980	1980-1990
	disability levels	disability levels	disability levels	Gr. rate % ⁽¹⁾	Gr. rate % ⁽¹⁾
65-69	1.69	1.39	1.21	-1.94	-1.38
70-74	2.44	2.20	2.01	-1.03	-0.90
75-79	4.13	3.89	3.64	-0.60	-0.66
80+	10.18	11.71	12.25	1.42	0.45
65+	3.74	3.81	3.83	0.19	0.06
Females					
65-69	1.57	1.32	1.12	-1.72	-1.63
70-74	2.84	2.61	2.24	-0.84	-1.52
75-79	5.87	5.63	4.88	-0.42	-1.42
80+	16.32	19.13	19.69	1.60	0.29
65+	5.78	6.76	7.06	1.58	0.43

Source : Crimmins reporting Census Data.

Disability levels in %. Gr. rate %⁽¹⁾ = Average annual growth rate.

Table 8d. Population institutionalised (NNHS)

Males	NNHS			NNHS following			
	1977	1985	Gr. rate % ⁽¹⁾		1985est	1995est	Gr. rate % ⁽¹⁾
65-69	1.24	0.99	-2.78	65-74	1.05	0.92	-1.29
70-74	1.86	1.60	-1.86	75-84	4.15	3.28	-2.32
75-79	3.22	2.86	-1.47	over 85	16.33	14.89	-0.92
over 80	8.78	9.09	0.43	over 65	2.84	2.56	-1.01
over 65	3.03	2.90	-0.55				
Females							
65-69	1.37	1.03	-3.50	65-74	1.39	1.04	-2.85
70-74	2.57	2.04	-2.85	75-84	6.18	4.92	-2.25
75-79	5.42	4.41	-2.54	over 85	27.38	26.78	-0.22
over 80	16.57	16.27	-0.23	over 65	5.74	5.29	-0.80
over 65	5.86	5.79	-0.15				

Note : Note : Disability levels in %. Average annual growth rate in %. Source: NNHS 77-85 US department of Health and Human Services; Trends in the health of older Americans, CDC, Vital and Health Statistics, 195, 3, 30, chp5:274-298. NNHS 85-95 : as provided by ASPE and with some populations adjustments.

Table 8e. NHIS Evolution of the ability to perform personal care (ADL related activities)

Male	1985	1989	1992	1995	Av Gr. rate
65 - 69	1.96	2.68	2.43	3.20	0.11
70 - 74	4.25	4.32	3.93	3.20	-0.10
75 - 79	4.99	7.48	6.90	7.15	0.19
80 +	13.54	12.14	12.15	11.10	-0.22
65 +	5.03	5.53	5.36	5.40	0.03
Female	1985	1989	1992	1995	Av Gr. rate
65 - 69	1.93	2.50	2.28	2.41	0.04
70 - 74	3.61	3.42	4.75	3.81	0.06
75 - 79	6.24	5.64	7.05	5.26	-0.05
80 +	11.79	13.33	15.99	16.18	0.48
65 +	5.32	5.74	7.13	6.67	0.17

Source : NCHS (1998). As supplied. Disability levels in %. Average annual growth rates in %/.

Table 9. Methods for the projections

Country	Type of dynamic projection			Type of survey
	Dynamics of disability for households	Dynamics of institutionalisation	Dynamics of disability within institutions	
France	YES	YES	YES. increasing	HH+NH survey
United Kingdom	YES	NO	NO/Sullivan Hyp.	HH Survey+ NH Survey
Australia	YES	YES	NO/Sullivan Hyp.	HH Survey+ various data on institutionalised people
Japan	YES	NO	NO/Sullivan Hyp.	HH survey +various data on institutionalised people
Canada	YES	YES	YES/decreasing	Global Survey
Germany	YES W- Germany	NO	Not relevant	Survey on care probabilities at home and in institutions linked with social insurance scheme.
Sweden	YES	YES	NO	HH+various data on institutionalised population
Netherlands	NO (not shown)	YES	NO	HH+various data on institutionalised population
United States (1)	YES	YES	NO	Global Survey
United States (2)	YES (small)	YES	YES	HH survey + NH survey +Census

Table 10.1. Projection of the population living in institutions

	H1 dynamic projection							H2 constant trends						
	N.th.	N.th.	N.th.	N.th.	Gr. rate %	Gr. rate %	Gr. rate %	N.th.	N.th.	N.th.	N.th.	Gr. rate %	Gr. rate %	Gr. rate %
France	1994	2000	2010	2020	2000/1994	2010/2000	2020/2000	1994	2000	2010	2020	2000/1994	2010/2000	2020/2000
Total population. over 65	8649	9594	10199	12522	10.9	6.3	30.5	8649	9594	10199	12522	10.9	6.3	30.5
Total prevalence	6.54	6.64	8.09	7.95	1.5	21.9	19.8	6.54	6.51	6.48	6.42	-0.5	-0.5	-1.4
Total institutionalized older persons	566	637	825	995	12.6	29.5	56.3	566	624	660	804	10.4	5.8	28.7
United Kingdom	1992	2000	2010	2020	2000/1992	2010/2000	2020/2000	1992	2000	2010	2020	2000/1992	2010/2000	2020/2000
Total population. over 65								9108	9192	9709	11314	0.9	5.6	23.1
Total prevalence								4.91	5.16	5.23	4.94	5.0	1.4	-4.3
Total institutionalized older persons								447	474	508	558	6.0	7.1	17.8
Australia	1996	2000	2010	2020	2000/1996	2010/2000	2020/2000	1996	2000	2010	2020	2000/1996	2010/2000	2020/2000
Total population. over 65	2131	2234	2671	3653	4.8	19.6	63.5	2131	2234	2671	3653	4.8	19.6	63.5
Total prevalence*	6.41	6.51	6.72	5.93	1.6	3.2	-8.9	6.41	6.60	7.05	6.45	3.0	6.8	-2.3
Total institutionalized older persons	137	145	179	217	6.5	23.3	49.0	137	148	188	236	8.0	27.7	59.7
Japan	1996	2000	2010	2020	2000/1996	2010/2000	2020/2000	1996	2000	2010	2020	2000/1996	2010/2000	2020/2000
Total population. over 65								14289	20906	26348	31419	46.3	26.0	50.3
Total prevalence								5.06	3.96	4.32	4.58	-21.8	9.0	15.7
Total institutionalized older persons								724	828	1138	1440	14.4	37.4	73.8
Canada	1995	2000	2010	2020	2000/1995	2010/2000	2020/2000	1995	2000	2010	2020	2000/1995	2010/2000	2020/2000
Total population. over 65	3525	3865	4634	6405	9.6	19.9	65.7	3525	3865	4634	6405	9.6	19.9	65.7
Total prevalence	6.00	5.93	5.66	4.46	-1.3	-4.4	-24.8	6.00	6.30	6.81	6.13	5.0	8.1	-2.7
Total institutionalized older persons	212	229	262	286	8.2	14.6	24.7	212	244	316	393	15.1	29.6	61.3

Note : Numbers in Thousands. Growth rates in %.

Table 10.2. Projection of the population living in institutions

	H1 dynamic projection							H2 constant trends						
	N.th.	N.th.	N.th.	N.th.	Gr. rate %	Gr. rate %	Gr. rate %	N.th.	N.th.	N.th.	N.th.	Gr. rate %	Gr. rate %	Gr. rate %
Germany	1995	2000	2010	2020	2000/1995	2010/2000	2020/2000	1995	2000	2010	2020	2000/1995	2010/2000	2020/2000
Total population. over 65								12398	13117	15474	16327	5.8	18.0	24.5
Total prevalence								3.31	3.40	3.10	3.45	2.9	-8.8	1.3
Total institutionalized older persons								410	446	480	563	8.8	7.6	26.1
Sweden	1995	2000	2010	2020	2000/1995	2010/2000	2020/2000	1995	2000	2010	2020	2000/1995	2010/2000	2020/2000
Total population. over 65	1517	1485	1640	1966	-2.1	10.4	32.4	1517	1485	1640	1966	-2.1	10.4	32.4
Total prevalence	8.84%	8.97	8.71	7.89	1.5	-3.0	-12.0	8.84	9.32	8.94	8.91	5.4	-4.1	-4.4
Total institutionalized older persons	134	133	143	155	-0.7	7.2	16.4	134	138	147	175	3.2	6.0	26.6
Netherlands	1995	2000	2010	2020	2000/1995	2010/2000	2020/2000	1995	2000	2010	2020	2000/1995	2010/2000	2020/2000
Total population. over 65								2038	2156	2486	3255	5.8	15.3	51.0
Total prevalence								8.09	8.13	8.35	7.73	0.5	2.7	-5.0
Total institutionalized older persons								165	175	207	251	6.3	18.4	43.5
United States (1)	1994	2000	2010	2020	2000/1994	2010/2000	2020/2000	1994	2000	2010	2020	2000/1994	2010/2000	2020/2000
Total population. over 65	33224	34528	38822	52439	3.9	12.4	51.9	33224	34528	38822	52439	3.9	12.4	51.9
Total prevalence	5.11%	5.00	4.45	3.33	-2.1	-11.1	-33.5	5.11	5.44	5.52	4.77	6.4	1.5	-12.2
Total institutionalized older persons	1699	1728	1727	1745	1.7	0.0	1.0	1699	1878	2144	2502	10.5	14.2	33.3

Note : Numbers in Thousands. Growth rates in %.

Table 11.1. Projection of the number of disabled older persons living in the community

	H1 dynamic projection							H2 constant trends						
	N.th.	N.th.	N.th.	N.th.	Gr. rate %	Gr. rate %	Gr. rate %	N.th.	N.th.	N.th.	N.th.	Gr. rate %	Gr. rate %	Gr. rate %
France	1994	2000	2010	2020	2000/1994	2010/2000	2020/2000	1994	2000	2010	2020	2000/1994	2010/2000	2020/2000
Total population. over 65	8649	9594	10199	12522	10.9	6.3	30.5	8649	9594	10199	12522	10.9	6.3	30.5
Total prevalence	8.02	6.64	5.85	4.75	-17.3	-11.8	-28.4	8.02	8.06	10.00	9.49	0.4	24.1	17.8
Disabled older persons in the community	694	637	597	595	-8.2	-6.3	-6.6	694	773	1020	1188	11.4	32.0	53.7
United Kingdom	1992	2000	2010	2020	2000/1992	2010/2000	2020/2000	1992	2000	2010	2020	2000/1992	2010/2000	2020/2000
Total population. over 65	9108	9192	9709	11314	0.9	5.6	23.1	9108	9192	9709	11314	0.9	5.6	23.1
Total prevalence	13.35	13.16	12.75	11.91	-1.4	-3.1	-9.6	8.44	8.56	8.68	8.43	1.5	1.3	-1.6
Disabled older persons in the community	1216	1210	1238	1347	-0.5	2.3	11.3	769	787	843	954	2.4	7.0	21.2
Australia	1996	2000	2010	2020	2000/1996	2010/2000	2020/2000	1996	2000	2010	2020	2000/1996	2010/2000	2020/2000
Total population. over 65	2131	2234	2671	3653	4.8	19.6	63.5	2131	2234	2671	3653	4.8	19.6	63.5
Total prevalence*	10.76	10.73	10.30	10.09	-0.3	-4.0	-6.0	10.76	11.09	11.09	10.66	3.0	0.0	-3.9
Disabled older persons in the community	229	240	275	369	4.5	14.8	53.8	229	248	296	389	8.0	19.6	57.2
Japan	1996	2000	2010	2020	2000/1996	2010/2000	2020/2000	1996	2000	2010	2020	2000/1996	2010/2000	2020/2000
Total population. over 65	14289	20906	26348	31419	46.3	26.0	50.3	14289	20906	26348	31419	46.3	26.0	50.3
Total prevalence	6.39	4.63	4.16	3.66	-27.5	-10.2	-21.1	6.39	5.01	5.45	5.79	-21.6	8.8	15.8
Disabled older persons in the community	913	969	1096	1148	6.1	13.1	18.6	913	1047	1435	1821	14.6	37.2	74.0
Canada	1995	2000	2010	2020	2000/1995	2010/2000	2020/2000	1995	2000	2010	2020	2000/1995	2010/2000	2020/2000
Total population. over 65	3525	3865	4634	6405	9.6	19.9	65.7	3525	3865	4634	6405	9.6	19.9	65.7
Total prevalence	4.08	4.41	4.85	4.48	8.2	9.9	1.5	4.08	4.26	4.54	4.15	4.3	6.7	-2.5
Disabled older persons in the community	144	171	225	287	18.6	31.8	68.2	144	164	210	266	14.3	27.9	61.6

Note : Numbers in Thousands. Growth rates in %. Differences in levels tend not to be significant across countries and may reflect a heterogeneity of concept .

Table 11.2. Projection of the number of disabled older persons living in the community

	H1 dynamic projection							H2 constant trends						
	N.th.	N.th.	N.th.	N.th.	Gr. rate %	Gr. rate %	Gr. rate %	N.th.	N.th.	N.th.	N.th.	Gr. rate %	Gr. rate %	Gr. rate %
Germany	1995	2000	2010	2020	2000/1995	2010/2000	2020/2000	1995	2000	2010	2020	2000/1994	2010/2000	2020/2000
Total population. over 65	12398	13117	15474	16327	5.8	18.0	24.5	12398	13117	15474	16327	5.8	18.0	24.5
Total prevalence	7.44	6.24	5.84	5.69	-16.2	-6.3	-8.8	7.44	7.16	7.27	7.91	-3.8	1.6	10.4
Disabled older persons in the community	923	818	904	929	-11.3	10.5	13.5	923	940	1126	1291	1.8	19.8	37.5
Sweden	1995	2000	2010	2020	2000/1995	2010/2000	2020/2000	1995	2000	2010	2020	2000/1995	2010/2000	2020/2000
Total population. over 65	1517	1485	1640	1966	-2.1	10.4	32.4	1517	1485	1640	1966	-2.1	10.4	32.4
Total prevalence	9.37	8.89	7.06	6.40	-5.1	-20.6	-28.0	9.37	9.44	9.29	9.22	0.7	-1.6	-2.4
Disabled older persons in the community	142	132	116	126	-7.1	-12.3	-4.7	142	140	152	181	-1.4	8.7	29.3
Netherlands	1995	2000	2010	2020	2000/1995	2010/2000	2020/2000	1995	2000	2010	2020	2000/1995	2010/2000	2020/2000
Total population. over 65								2038	2156	2486	3255	5.8	15.3	51.0
Total prevalence								12.57	12.67	12.51	12.27	0.8	-1.2	-3.1
Disabled older persons in the community								256	273	311	400	6.6	13.9	46.3
United States (1)	1994	2000	2010	2020	2000/1994	2010/2000	2020/2000	1994	2000	2010	2020	2000/1994	2010/2000	2020/2000
Total population. over 65	33224	34528	38822	52439	3.9	12.4	51.9	33224	34528	38822	52439	3.9	12.4	51.9
Total prevalence	11.72	11.62	10.81	9.30	-0.9	-7.0	-19.9	11.72	12.14	12.12	11.24	3.6	-0.2	-7.5
Disabled older persons in the community	3895	4013	4197	4879	3.0	4.6	21.6	3895	4193	4704	5892	7.7	12.2	40.5

Note : Numbers in Thousands. Growth rates in %. Differences in levels tend not to be significant across countries and may reflect a heterogeneity of concept .

Table 12. Projection of the total number of disabled older persons

	H1 dynamic projection							H2 constant trends						
	N.th.	N.th.	N.th.	N.th.	Gr. rate %	Gr. rate %	Gr. rate %	N.th.	N.th.	N.th.	N.th.	Gr. rate %	Gr. rate %	Gr. rate %
France	1994	2000	2010	2020	2000/1994	2010/2000	2020/2000	1994	2000	2010	2020	2000/1994	2010/2000	2020/2000
Total population. over 65	8649	9594	10199	12522	10.9	6.3	30.5	8649	9594	10199	12522	10.9	6.3	30.5
Total prevalence	14.57	13.28	13.94	12.69	-8.9	5.0	-4.4	14.57	14.56	16.47	15.91	-0.1	13.2	9.3
Total disabled older persons	1260	1274	1422	1590	1.1	11.6	24.8	1260	1397	1680	1992	10.9	20.3	42.6
United Kingdom	1992	2000	2010	2020	2000/1992	2010/2000	2020/2000	1992	2000	2010	2020	2000/1992	2010/2000	2020/2000
Total population. over 65	9108	9192	9709	11314	1	6	23	9108	9192	9709	11314	0.9	5.6	23.1
Total prevalence	13.35	13.16	12.75	11.91	-1.4	-3.1	-9.6	13.35	13.72	13.91	13.37	2.8	1.4	-2.6
Total disabled older persons	1216	1210	1238	1347	-0.5	2.3	11.3	1216	1261	1350	1512	3.7	7.1	19.9
Australia	1996	2000	2010	2020	2000/1996	2010/2000	2020/2000	1996	2000	2010	2020	2000/1996	2010/2000	2020/2000
Total population. over 65	2131	2234	2671	3653	4.8	19.6	63.5	2131	2234	2671	3653	4.8	19.6	63.5
Total prevalence*	17.17	17.24	17.02	16.03	0.4	-1.3	-7	17.17	17.69	18.14	17.11	3	2.5	-3.3
Total disabled older persons	366	385	455	585	5.3	18	52	366	395	485	625	8	22.5	58.1
Japan	1996	2000	2010	2020	2000/1996	2010/2000	2020/2000	1996	2000	2010	2020	2000/1996	2010/2000	2020/2000
Total population. over 65	14289	20906	26348	31419	46.3	26.0	50.3	14289	20906	26348	31419	46.3	26.0	50.3
Total prevalence	11.45	8.59	8.48	8.24	-25.0	-1.4	-4.2	11.45	8.97	9.77	10.38	-21.7	8.9	15.7
Total disabled older persons	1636	1797	2233	2588	9.8	24.3	44.0	1636	1875	2573	3260	14.6	37.3	73.9
Canada	1995	2000	2010	2020	2000/1995	2010/2000	2020/2000	1995	2000	2010	2020	2000/1995	2010/2000	2020/2000
Total population. over 65	3525	3865	4634	6405	9.6	19.9	65.7	3525	3865	4634	6405	9.6	19.9	65.7
Total prevalence	10.09	10.34	10.52	8.94	2.5	1.7	-13.5	10.09	10.56	11.35	10.28	4.7	7.5	-2.7
Total disabled older persons	356	400	487	573	12.4	21.9	43.3	356	408	526	659	14.8	28.9	61.4

Table 12. Projection of the total number of disabled older persons (continued)

	H1 dynamic projection							H2 constant trends						
	N.th.	N.th.	N.th.	N.th.	Gr. rate %	Gr. rate %	Gr. rate %	N.th.	N.th.	N.th.	N.th.	Gr. rate %	Gr. rate %	Gr. rate %
Germany	1995	2000	2010	2020	2000/1995	2010/2000	2020/2000	1995	2000	2010	2020	2000/1995	2010/2000	2020/2000
Total population. over 65	12398	13117	15474	16327	5.8	18.0	24.5	12398	13117	15474	16327	5.8	18.0	24.5
Total prevalence	10.75	9.64	8.95	9.14	-10.3	-7.2	-5.2	10.75	10.56	10.38	11.36	-1.7	-1.8	7.5
Total disabled older persons	1333	1265	1385	1492	-5.1	9.5	17.9	1333	1386	1606	1854	4.0	15.9	33.8
Sweden	1995	2000	2010	2020	2000/1995	2010/2000	2020/2000	1995	2000	2010	2020	2000/1995	2010/2000	2020/2000
Total population. over 65	1517	1485	1640	1966	-2.1	10.4	32.4	1517	1485	1640	1966	-2.1	10.4	32.4
Total prevalence	18.22	17.87	15.76	14.29	-1.9	-11.8	-20.0	18.22	18.76	18.23	18.13	3.0	-2.8	-3.4
Total disabled older persons	276	265	259	281	-4.0	-2.5	5.9	276	279	299	356	0.8	7.4	28.0
Netherlands	1995	2000	2010	2020	2000/1995	2010/2000	2020/2000	1995	2000	2010	2020	2000/1995	2010/2000	2020/2000
Total population. over 65								2038	2156	2486	3255	5.8	15.3	51.0
Total prevalence								20.66	20.80	20.86	20.00	0.7	0.3	-3.8
Total disabled older persons								421	448	519	651	6.5	15.7	45.2
United States (1)	1994	2000	2010	2020	2000/1994	2010/2000	2020/2000	1994	2000	2010	2020	2000/1994	2010/2000	2020/2000
Total population. over 65	33224	34528	38822	52439	3.9	12.4	51.9	33224	34528	38822	52439	3.9	12.4	51.9
Total prevalence	18.08	16.84	16.63	15.26	-6.9	-1.2	-9.4	18.08	16.84	17.58	17.64	-6.9	4.4	4.8
Total disabled older persons	5594	5740	5924	6624	2.6	3.2	15.4	5594	6071	6848	8394	8.5	12.8	38.3

Note : Numbers in Thousands. Growth rates in %. By assumption, the number of disabled older persons presented include all institutionalised persons and severely disabled persons in households. Differences in levels tend not to be significant across countries and may reflect a heterogeneity of concept .

Table 13. Projection of the 15-64 year-old population

France	1994	2000	2010	2020	2000/1994	2010/2000	2020/2000
Population 15-64	37870	38634	39821	37939	2.0	3.1	-1.8
United Kingdom	1992	2000	2010	2020	2000/1992	2010/2000	2020/2000
Population 15-64	37561	38142	38868	37646	1.5	1.9	-1.3
Australia	1996	2000	2010	2020	2000/1996	2010/2000	2020/2000
Population 15-64	5619	5717	5871	5748	1.7	2.7	0.5
Japan	1996	2000	2010	2020	2000/1996	2010/2000	2020/2000
Population 15-64	87074	86365	81452	74778	-0.8	-5.7	-13.4
Canada	1995	2000	2010	2020	2000/1995	2010/2000	2020/2000
Population 15-64	19868	20898	22746	22837	5.2	8.8	9.3
Germany	1995	2000	2010	2020	2000/1995	2010/2000	2020/2000
Population 15-64	56043	56860	56005	54405	1.5	-1.5	-4.3
Sweden	1995	2000	2010	2020	2000/1995	2010/2000	2020/2000
Population 15-64	5619	5717	5871	5748	1.7	2.7	0.5
Netherlands	1995	2000	2010	2020	2000/1995	2010/2000	2020/2000
Population 15-64	10603	10829	11097	10498	2.1	2.5	-3.1
United States (1)	1994	2000	2010	2020	2000/1994	2010/2000	2020/2000
Population 15-64	172771	183900	201932	206365	6.4	9.8	12.2

Table 14. Comparisons of care systems

Country	Estimated total spending on LTC (1992-1995)	Estimated public spending on LTC (1992-1995)	Share of population aged 65 and over in institutions	Share of population aged 65 and over receiving formal help at home	Share of private beds among institutions	Share of spending towards institutions in total public spending on long-term care
	% GDP	% GDP	% of total	% of total	% of total	% of total
	(1)	(1)	(2)	(3)	(2)	(4)
Australia	0.90	0.73	6.8	11.7	26	73
Austria	1.4	n/a	4.9	24	n/a	n/a
Belgium	1.21	0.66	6.4	4.5	49	53
Canada	1.08	0.76	6.2 to 7.5	17	38	67
Denmark	n/a	2.24	7	20.3	n/a	80
Finland	1.12	0.89	5.3 to 7.6	14	12	86
France	n/a	0.50	6.5	6.1	32	59
Germany	n/a	0.82	6.8	9.6	33	48
Japan (5)	n/a	0.15 / 0.62	6.0(6)	5	n/a	n/a
Netherlands	2.70	1.80	8.8(6)	12	n/a	76
Norway	2.80	2.80	6.6	17	10	63
Sweden	2.7	2.7	8.7	11.2	n/a	n/a
United Kingdom	1.30	1.00	5.1	5.5	44	70
United States	1.32	0.70	5.7	16	100	67
	(7)					
Greece	0.17	n/a	n/a	n/a	n/a	n/a
Ireland	0.86	n/a	5	3.5	47	n/a
Italy	0.58	n/a	3.9	3.0	33	n/a
Portugal	0.39	n/a	n/a	n/a	n/a	n/a
Spain	0.56	n/a	2.8	2	n/a	n/a
Switzerland	0.75	n/a	n/a	n/a	n/a	n/a

“N/A- “Information is not available.

- (1) Long-term care spending refers to the care needed to help older persons leading an independent life, at home or in an institution. It excludes informal help. For home care, it should include all home care services, including district nurses services, excluding medical visits. For institutions, it includes all the costs related to care and lodging, including help for all self-care activities, but excluding medical costs. Public costs includes all costs incurred by public institutions, municipalities, sickness funds or old age funds. Private spending refers to out of pocket payments or payments by private long-term care insurance when the definitions are available. Definitions for the lower part of the table may be a little more restrictive than for the upper part. Definitions across countries are not always totally homogenous as information was provided from two different sources. Most of the information was derived from Pacolet *et al.* (1997) and other national sources as follows:

Australia	Key facts, provided by the Department of Health. (1998)
Austria	K. Leichsenring (1998), <i>Social Protection for Dependency in Old Age</i> , Vienna, European Centre for Social Welfare Policy and Research, February.
Belgium	Pacolet <i>et al.</i> (1998). <i>Country report Belgium, The State of the Debate on Social protection for Dependency in Old age in the 15 EU Member states and Norway</i> , Research project for the European Commission DGV and the Belgian Minister of Social Affairs, Katoliek Universiteit Leuven.
Canada	Chartrand P. (1993) <i>Description of long-term care services in provinces and territories of Canada</i> , Federal/provincial/territorial subcommittee on continuing care.
Denmark	Department of Health, (1998).
Finland	Vaarama M., Kautto M. (1997) <i>Social Protection for the elderly in Finland</i> ISBN 851-33-0495-7, Gummerus Oy, Jyväskylä.
France	Joel, M.E., (1997) “La dépendance des personnes âgées en France”, mimeo, LEGOS, Université de Paris Dauphine.
General	Pacolet J., Versieck K., Bouten R., Lanoye H. (1997) <i>The State of the Debate on Social protection for Dependency in Old age in the 15 EU Member states and Norway</i> , Research project for the European Commission DGV and the Belgian Minister of Social Affairs, Katoliek Universiteit Leuven.
Germany	Rothgang H., Schmähl W (1995) <i>The Long-term Costs of Public Longd-term Care Insurance in Germany</i> , Zentrum für Sozialpolitik Universität Bremen, Arbetispapier n° 9/95.
Japan	Data provided by the Ministry of Health and Welfare (1998)
Netherlands	Schuijt-Lucaassen N. (1997) <i>Social protection for dependent elderly in the Netherlands</i> , Institute for Applied Gerontology, Vrije Universiteit, Amsterdam.
Norway	Daatland (1997) <i>Social protection for the elderly in Norway</i> , Norwegian Social Research, NOVA, Skriftserie 4/1997.
Sweden	Secretariat for Long-term analysis, Ministry of Health and Social Affairs, (1998).
U. K.	HMSO (1996) "Long Term Care: Future Provision and Funding", House of Commons n° 119, London.
U. S.	Wiener J., Illston L.H., Hanley R.J. (1994) <i>Sharing the Burden : Strategies for Public and Private Long-Term Care Insurance</i> . Washington DC. The Brookings Institution.

- (2) Estimates may vary according to the concept chosen for institutions (sheltered housing, hotels for the elderly, medical homes). Normally, the concept described should include only staffed homes. For Denmark the concept of older persons refer mostly to over 67. Sources for Ireland O. Shea (1998), Spain Rodriguez Cabrero (1998).
- (3) Proportion of older persons receiving formal help at home, including district nursing, and help with Activities of Daily Living. For Australia, this does not include the population receiving carer payment.
- (4) This shows the proportion of public funding devoted to institutions as opposed to supporting help in a community setting.
- (5) Japan. the data of 0.15 corresponds to present spending for care to the older person in 1995 (not including hospitalisation costs) while 0.62 correspond to the additional spending involved by the current long-term care insurance adjusted with the 1995 population.
- (6) Some of the residential accommodation is provided within hospitals.
- (7) Data is derived from Markus Schneider & al. *Gesundheitssysteme im internationalen Vergleich*, (1994), BASYS. Data refer to the years 1992-1994 as supplied by the authors.

Existing estimates for long-term care in OECD Health Data are somewhat lower but do exclude a considerable share of long-term care programmes.

Table 15. Cost hypothesis*(Base year estimates for the projection)*

	Home care	Institutions		
	<i>Public cost</i>		<i>Public cost</i>	<i>Total Costs</i>
France 1990				
Relative cost %/GDP head	20.2	Less severe More severe	30.7 51.1	66.7 111.1
United Kingdom 1992				
Relative cost %/GDP head	27.2	Average	89.0	153.5
Australia 1996				
Relative cost %/GDP head	9.8	Nursing Homes Hostels	105.1 35.0	
Japan 1996				
Relative cost %/GDP head	11.8	Hospitals Homes for the elderly	146.4 62.3	
Canada 1995				
Relative cost %/GDP head	42.2	Nursing homes Homes for the Aged	72.3 61.6	80.3 68.5
Germany 1995				
Relative cost %/GDP head	28.7	Average institutions all grades	77.3	96.7
Sweden 1995				
Relative cost %/GDP head	83.8	Average costs	99.6	
Netherlands 1995				
Relative cost %/GDP head	29.6	Average public costs	111.0	
United States 1994				
Relative cost %/GDP head	16.7 ⁽¹⁾	Average nursing homes costs	67.2	137.7

Note: For the US, total cost of home help are estimated to be 22.7 % of GDP/head.. Total costs of home help are not available for most other countries. Details from national reports and various sources consistent with Table 14. The information displayed in this table results also from the contribution of Marino, Tessier Werle (1998) to the OECD. (A French version is available upon request).

Table 16. Projection of publicly financed long-term care share of GDP

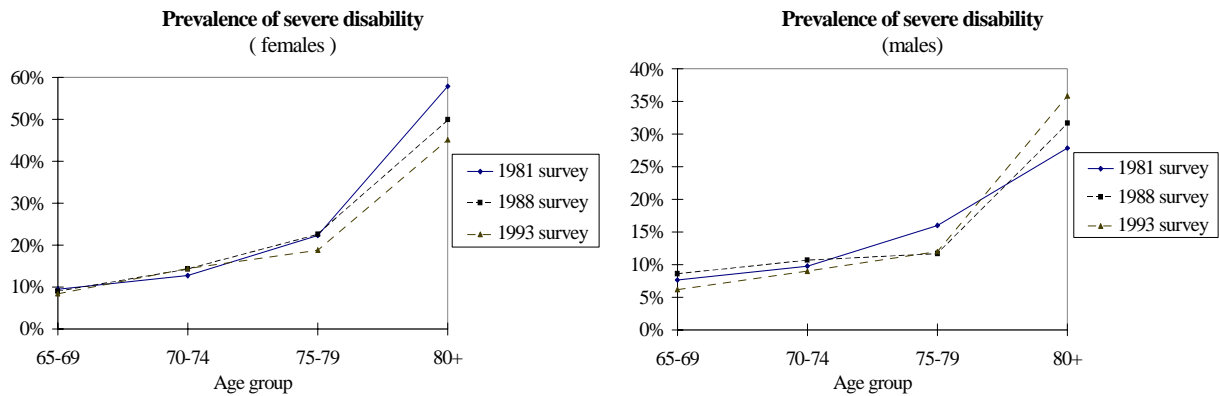
	H1 dynamic projection							H2 constant trends						
	% GDP	% GDP	% GDP	% GDP	Gr. rate %	Gr. rate %	Gr. rate %	% GDP	% GDP	% GDP	% GDP	Gr. rate %	Gr. rate %	Gr. rate %
France	1994	2000	2010	2020	2000/1994	2010/2000	2020/2000	1994	2000	2010	2020	2000/1994	2010/2000	2020/2000
Home help	0.23	0.20	0.18	0.19	-10.1	-9.0	-5.0	0.23	0.24	0.27	0.33	7.3	9.7	33.4
Institutions	0.37	0.41	0.54	0.71	11.7	30.3	70.2	0.37	0.41	0.52	0.66	9.9	26.7	61.4
Total	0.60	0.62	0.72	0.90	3.5	17.4	45.5	0.60	0.65	0.79	0.98	8.9	20.4	50.9
United Kingdom	1992	2000	2010	2020	2000/1992	2010/2000	2020/2000	1992	2000	2010	2020	2000/1992	2010/2000	2020/2000
Home help	0.36	0.34	0.33	0.37	-5.2	-2.6	8.5	0.36	0.36	0.38	0.44	1.3	4.7	22.4
Institutions	0.69	0.72	0.75	0.86	3.3	5.1	19.3	0.69	0.72	0.75	0.86	3.3	5.1	19.3
Total	1.05	1.06	1.08	1.22	0.4	2.6	15.9	1.05	1.08	1.13	1.30	2.6	4.9	20.4
Australia	1996	2000	2010	2020	2000/1996	2010/2000	2020/2000	1996	2000	2010	2020	2000/1996	2010/2000	2020/2000
Home help	0.15	0.15	0.17	0.23	2.7	11.8	53.0	0.15	0.16	0.19	0.26	6.2	16.5	56.3
Institutions	0.66	0.66	0.70	0.76	0.0	6.2	13.8	0.66	0.70	0.88	1.12	6.1	24.3	58.8
Total	0.81	0.82	0.88	0.99	0.5	7.2	21.2	0.82	0.87	1.07	1.38	6.1	22.8	58.4
Japan	1996	2000	2010	2020	2000/1996	2010/2000	2020/2000	1996	2000	2010	2020	2000/1996	2010/2000	2020/2000
Home help	0.08	0.09	0.11	0.12	7.0	19.9	37.0	0.75	0.86	1.26	1.74	15.4	46.0	101.7
Institutions	0.66	0.74	1.00	1.28	11.3	35.0	73.4	0.08	0.10	0.14	0.19	15.6	45.4	100.9
Total	0.75	0.83	1.10	1.40	10.9	33.4	69.5	0.66	0.76	1.12	1.54	15.4	46.1	101.8
Canada	1995	2000	2010	2020	2000/1995	2010/2000	2020/2000	1995	2000	2010	2020	2000/1995	2010/2000	2020/2000
Home help	0.21	0.23	0.28	0.36	12.8	21.1	53.9	0.71	0.77	0.92	1.14	9.2	18.6	47.7
Institutions	0.50	0.51	0.53	0.57	2.2	3.9	11.3	0.21	0.23	0.26	0.33	8.7	17.5	47.9
Total	0.71	0.74	0.81	0.93	5.3	9.3	24.7	0.50	0.55	0.65	0.81	9.4	19.1	47.6

Table 16. Projection of publicly financed long-term care share of GDP (continued)

	H1 dynamic projection							H2 constant trends						
	% GDP	% GDP	% GDP	% GDP	Gr. rate %	Gr. rate %	Gr. rate %	% GDP	% GDP	% GDP	% GDP	Gr. rate %	Gr. rate %	Gr. rate %
Germany	1995	2000	2010	2020	2000/1994	2010/2000	2020/2000	1995	2000	2010	2020	2000/1994	2010/2000	2020/2000
Home help	0.32	0.32	0.32	0.35	-2.6	1.9	10.0	0.32	0.34	0.39	0.47	4.5	16.4	38.8
Institutions	0.39	0.40	0.45	0.55	4.0	12.6	35.9	0.39	0.40	0.45	0.55	4.0	12.6	35.9
Total	0.71	0.72	0.78	0.90	1.0	7.9	24.5	0.71	0.74	0.85	1.02	4.2	14.3	37.2
Sweden	1995	2000	2010	2020	2000/1995	2010/2000	2020/2000	1995	2000	2010	2020	2000/1995	2010/2000	2020/2000
Home help	1.35	1.23	1.05	1.17	-8.7	-14.6	-5.2	1.35	1.31	1.38	1.68	-3.1	5.9	28.6
Institutions	1.51	1.48	1.54	1.71	-2.4	4.4	15.8	1.51	1.53	1.58	1.93	1.4	3.2	25.9
Total	2.86	2.71	2.59	2.88	-5.4	-4.3	6.3	2.86	2.84	2.96	3.61	-0.7	4.4	27.2
Netherlands	1995	2000	2010	2020	2000/1995	2010/2000	2020/2000	1995	2000	2010	2020	2000/1995	2010/2000	2020/2000
Home help								0.49	0.51	0.57	0.77	4.4	11.1	50.9
Institutions								1.18	1.23	1.42	1.82	4.1	15.5	48.0
Total								1.67	1.74	1.99	2.60	4.2	14.2	48.9
United States (1)	1994	2000	2010	2020	2000/1995	2010/2000	2020/2000	1994	2000	2010	2020	2000/1995	2010/2000	2020/2000
Home help	0.24	0.23	0.22	0.25	-3.2	-4.7	8.4	0.24	0.24	0.25	0.30	1.1	2.2	25.2
Institutions	0.42	0.40	0.37	0.36	-4.4	-9.0	-10.0	0.42	0.44	0.46	0.52	3.8	4.0	18.8
Total	0.66	0.64	0.59	0.61	-4.0	-7.4	-3.3	0.66	0.68	0.70	0.82	2.9	3.3	21.1

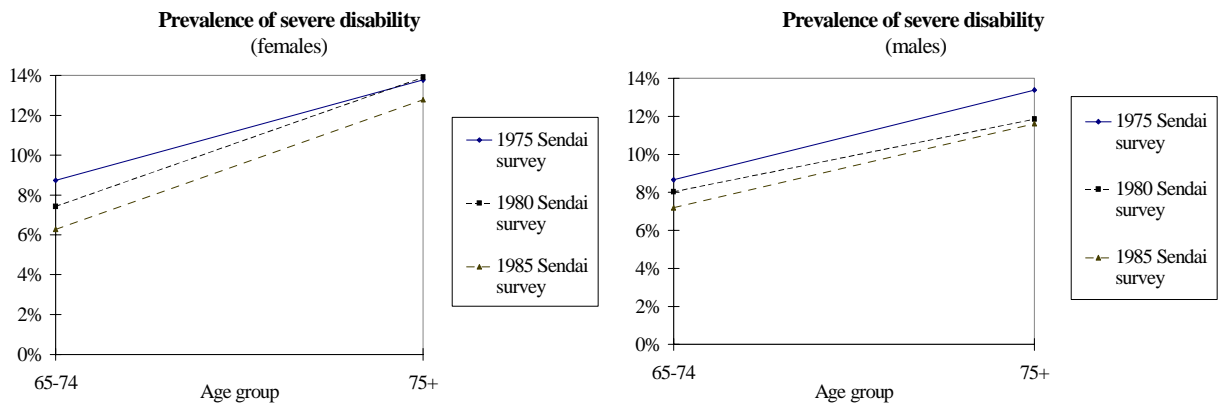
Note : share of GDP in %. Average annual growth rates in %.

**Chart 1: Trends in prevalence of severe disability by age groups and gender in OECD countries
Australia**



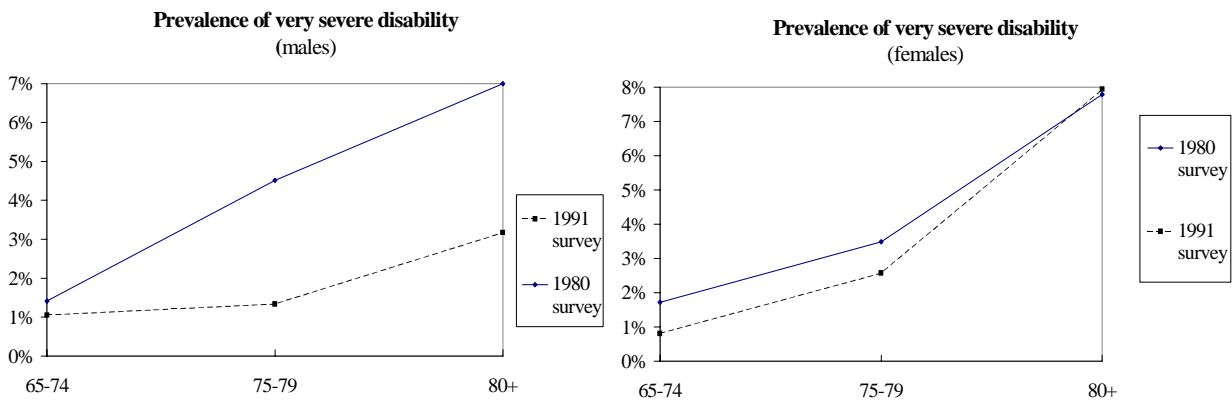
note : severe handicap, households and institutions

Japan



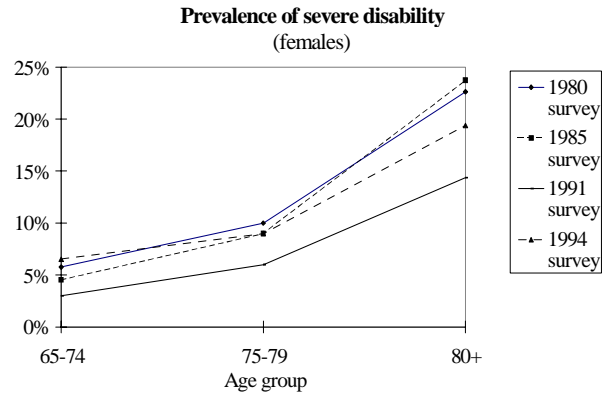
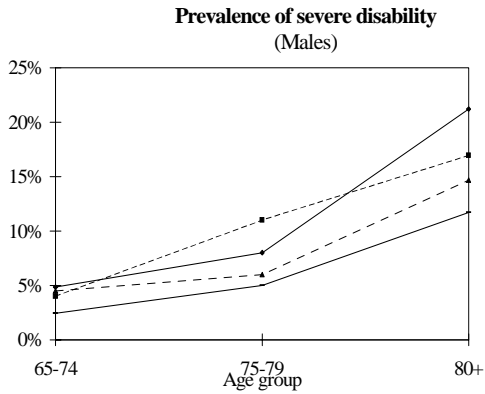
note : bedridden persons in households

France



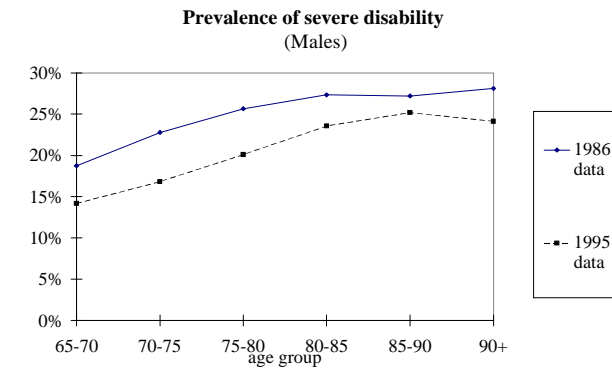
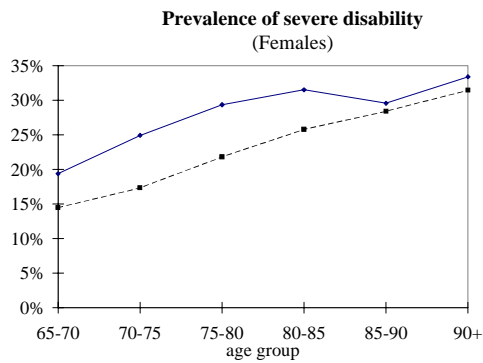
note : Households, confined to bed

United Kingdom



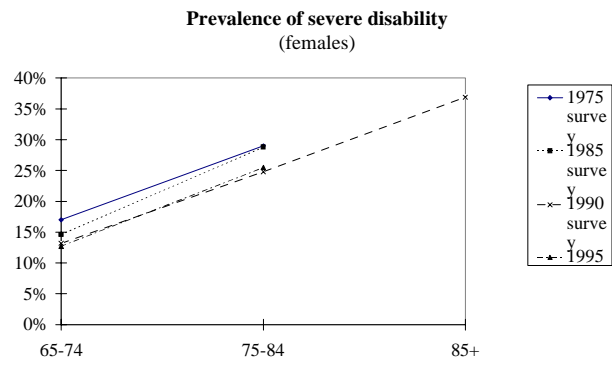
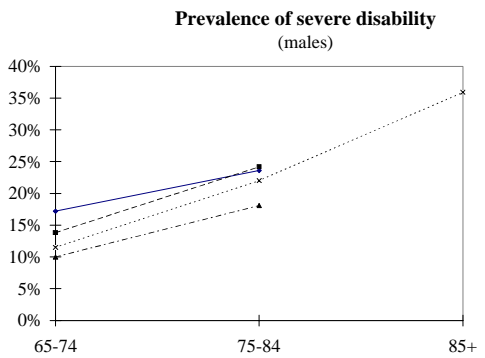
Note : Households survey, severe disability

Germany



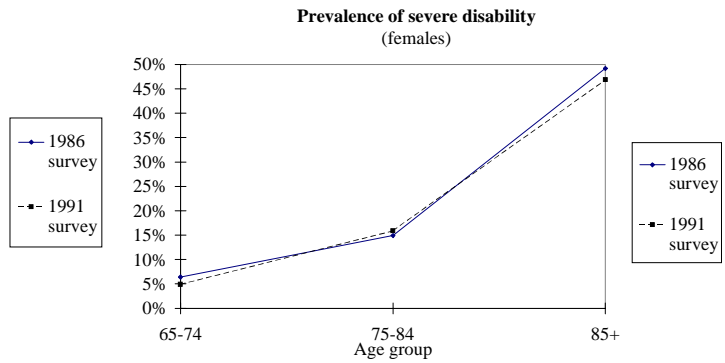
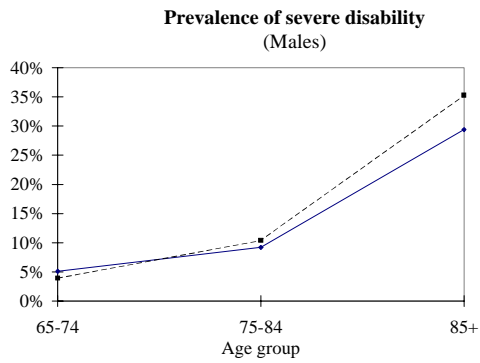
Note : Households microcensus, severe disability

Sweden



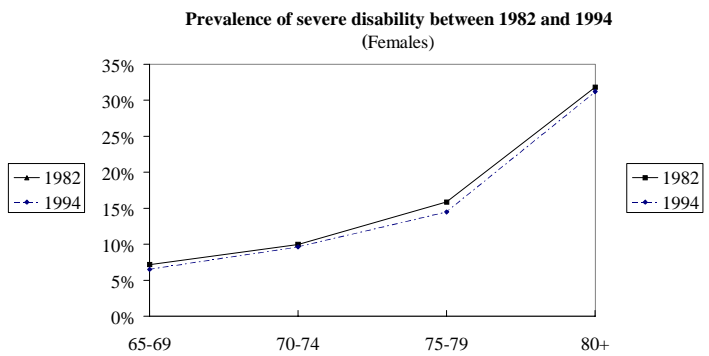
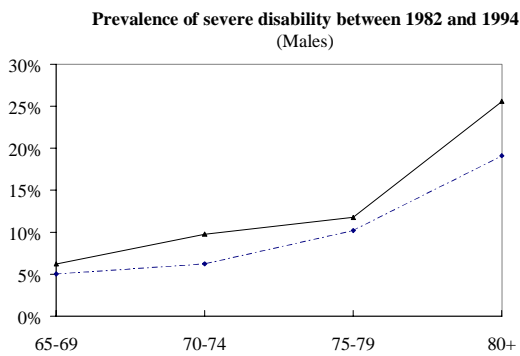
Note : households and institutions, severe disability

Canada



Note : HALS survey, households and institutions, severe disability

United States



Note : NLTCs survey, prevalence of severe disability in households

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