The financing of long-term care for older people raises a great many questions. How many older people are likely to require long-term care services in thirty years’ time? How much are these services likely to cost? Will the cost to public funds prove affordable? Who should pay? How should costs be divided between public expenditure and private sources of finance?

Reliable projections of future demand and of future spending on long-term care are needed in order to address these issues. Using an updated and expanded version of the long-term care projections model developed by the Personal Social Services Research Unit (PSSRU), this paper presents projections of demand and associated future expenditure in England up to 2031.

The PSSRU model was constructed as part of a project on long-term care finance funded by the Department of Health. This project is concerned with two related policy issues on funding long-term care for older people. First, will expenditure — and specifically public expenditure — on long-term care remain sustainable in coming decades, despite demographic pressures and rising expectations? Second, what balance should there be between public and private financing?

**The PSSRU Model**

The PSSRU model has provided projections for the Royal Commission on Long Term Care, HM Treasury’s Health Trends Review, the Institute of Public Policy Research, the Alzheimer’s Research Trust, the European Commission and the National Assembly for Wales. The model is regularly expanded and updated to provide new projections for the Department of Health.

The model aims to make projections of three key variables: the future numbers of dependent older people; the likely level of demand for long-term care services for older people; and the costs associated with meeting this demand. The version used here has a base year of 2001, and incorporates the interim population projections from that year.

The model is cell-based and takes the form of a spreadsheet. It estimates:
- first, the numbers of older people with different levels of dependency by age group, gender, household type and housing tenure;
- second, the levels of long-term care services required; and
- third, total health and social services expenditure. In the fourth part, total expenditure is allocated to the various funding sources.

**Projected numbers of older people**

Dependency influences need for care more than age. The model uses four dependency groups, based on measures of the ability to perform activities of daily living (ADLs) and instrumental activities of daily living (IADLs).

Household type is another key factor in receiving long-term care, and informal care, with which it is closely related, is combined with household composition in a five-point classification: living alone without informal help; living alone with informal help; de facto single, living with others; married/cohabiting couples; and married/cohabiting couples living with others.

Housing tenure can be regarded as a proxy for socio-economic group, and the model divides people living in private households between those in owner-occupied tenure and those living in rented accommodation. In the case of older people living alone, this is relevant in terms of those who fund their own residential or nursing home care and those who are funded by local...
Projected level of demand

The model then projects the volume of services demanded. Using the independent variables of age, gender, dependency, marital status, household type/informal care and housing tenure allowed an estimate of the probability of receipt of non-residential services. Separate analyses were undertaken for dependent and non-dependent older people; few of the latter received services other than private domestic help and chiropody.

A combination of official national statistics and data from previous PSSRU studies was used to estimate the probability of receiving residential and nursing home care. Hospital Episode Statistics data on numbers of older patients by age and gender with stays over 55 days were used to estimate the numbers in long-stay hospital care.

Projected expenditure and funding sources

The third part of the model projects total expenditure on formal services, covering costs to the health service, social services and service users. The fourth part breaks down this projected aggregate expenditure by funding source: NHS, social services and service users. The costs of health services are assigned to the NHS, while the costs of social services are divided between users and personal social services. People in residential care and nursing homes are divided into privately and publicly funded residents on the basis of current data.

KEY ASSUMPTIONS ABOUT FUTURE TRENDS

The PSSRU model does not forecast future policies or future patterns of care, but makes projections based on specific assumptions about future trends in key factors influencing demand for care. These assumptions are summarised in box 1. Figure 1 shows projected expenditure by funding source on the basis of these assumptions.

WHAT IF KEY ASSUMPTIONS CHANGE?

This section examines the model's sensitivity to any changes in the key assumptions, with particular regard to changes relating to life expectancy, dependency rates, the availability of informal care, patterns of formal care and the unit costs of care.

Life expectancy

The GAD population projections for England produce a rise of 54 per cent in numbers of people aged 65 or more between 2001 and 2031, while numbers of those over 85 will rise by 81 per cent.

Mortality rates in old age are the key factor affecting the projected number of older people. As the proportion of older people with dependency rises sharply with age, the model's projections are very sensitive to the assumptions about the numbers of very elderly people. Figure 2 shows projected expenditure in 2031 as a percentage of GDP under alternative assumptions.

Dependency

If falling mortality rates were accompanied by falling rates of dependency, this would (at least partially) offset the impact of demographic pressures on demand. Constant dependency rates could be regarded as a pessimistic assumption. The 'Brookings scenario' is a less pessimistic assumption that moves the age-specific dependency rate up by one year for each one-year increase in life expectancy.

While there are differing views about whether age-specific dependency rates
can be expected to rise, fall or remain much the same, projections of demand for long-term care are highly sensitive to assumptions about dependency. Figure 3 shows projected expenditure in 2031 as a percentage of GDP using a range of assumptions.

**Figure 3. Projected expenditure as per cent of GDP, England, 2031, under alternative assumptions about dependency trends**

![Graph showing projected expenditure as per cent of GDP, England, 2031, under alternative assumptions about dependency trends.]

The GAD marital status projections suggest that in future there was likely to be an increase in spouse carers of dependent older people. However, many spouse carers are elderly and in need of support themselves. The third scenario looked at providing support to the most heavily burdened carers (defined as those providing personal care to older people living in the same household) and explores the implications of making the same services available to those living with others as those living alone: the ‘carer-blind’ approach.

In the first scenario, projected public spending was lower than in the base case as the packages of domiciliary care were less costly than institutional care. The national entitlement scenario, however, had substantial cost implications with numbers of those using home help nearly doubling. Under the ‘carer-blind’ scenario projected long-term care expenditure would also be higher than under the base case.

**Unit costs and economic growth**

Spending on long-term care is highly sensitive to relatively small changes in...
The range of services to a wider range of need to include the costs of a wider long-term care. Any such figure would reflect the total costs to society of the expenditure projections do not rises in the real unit costs of services. This scenario is based on the Treasury’s long-term assumptions, published in the 2003 Budget, for productivity growth (as an indicator of possible future rises in care staff earnings) and for growth in GDP. In this scenario, spending on long-term care would rise to nearly £31bn compared to £25bn under the base case.

Residential care, home care and day care are all highly labour intensive. An alternative scenario investigates the impact of assuming that future unit costs will rise in line with projected raises in earnings. This scenario is based on the Treasury’s long-term assumptions, published in the 2003 Budget, for productivity growth (as an indicator of possible future rises in care staff earnings) and for growth in GDP. In this scenario, spending on long-term care would rise to nearly £31bn compared to £25bn under the base case.

**FINDINGS AND DISCUSSION**

The PSSRU model produces projections of future long-term care expenditure based on a specific set of base case assumptions. While this set seems plausible, it is clear that the projections do not represent the only possible scenario and cannot be regarded as forecasts of the future. The projected future demand for long-term care services for older people is sensitive to assumptions about future numbers of older people, the prevalence of dependency, the future availability of informal care, and future rises in the real unit costs of services.

The expenditure projections do not reflect the total costs to society of long-term care. Any such figure would need to include the costs of a wider range of services to a wider range of public agencies and service users, as well as the opportunity costs of informal care. It should also be pointed out that the model does not make allowances for any changes in public expectations concerning the quality, range or level of care.

**Future developments**

The PSSRU long-term care study will continue to update and improve the projections model. Further work is planned on trends in dependency rates in order to widen the range of scenarios investigated in the sensitivity analysis. This will incorporate, as far as possible, consideration of cognitive impairment as well as functional dependency.

**Key Messages**

- Policy-makers need to plan for uncertainty in future demand for long-term care for dependent older people. Future life expectancy, dependency rates and rises in unit costs are all uncertain, but they will all have substantial implications for demand and associated expenditure.
- Unless current dependency rates decline, the numbers of dependent older people will rise significantly over the next 30 years. But if improved health care or other measures could reduce dependency this would partially offset the demographic pressures. Hence there is a need to promote measures that support healthy ageing and reduce dependency in old age.
- As families and other informal carers currently provide much of the care for dependent older people living at home, a decline in the supply of informal care could have considerable financial consequences. This highlights the importance of providing services that support older people living at home and their carers.
- Leaving public expectations aside, substantial rises in formal services will be required in order to keep pace with demographic projections. As older people generally prefer to remain in their homes as long as possible, developing non-residential services like home care and day care will be particularly important.
- While the model projects that the proportion of GDP required to fund long-term care services will rise, this does not imply that there is a looming ‘demographic time-bomb’ or an imminent crisis of sustainability. It does suggest that promoting efficiency will be particularly important in order to limit real rises in unit costs — although the scope for this may be limited. It also suggests that improving cost-effectiveness will be important, so that better outcomes can be achieved from similar service inputs.

**Further Information**

The full paper on which this research summary is based is available on the PSSRU website, www.PSSRU.ac.uk.