CHAPTER 5

Aging, Long-Term Care, and Public Expenditures

Introduction

There are widespread concerns that rapidly aging populations in many countries in Eastern Europe and the former Soviet Union will have significantly higher health care requirements, simply because the elderly have a high demand for ambulatory, inpatient, and chronic care. Another critical issue is long-term care for the very old. Such care becomes costly as the availability of informal (family-based) care declines, and it can have large opportunity costs if younger people spend time caring for the elderly that they would otherwise spend in the labor force.

There is, therefore, a real potential for medical and health costs to rise as populations age, especially in countries where levels of health spending are already higher than available resources, though the magnitude will depend crucially on whether longer life spans mean more healthy years or added years of illness and dependency. Indeed, there is increasing evidence that older people already are healthier than their counterparts of a few decades ago and have healthier lifestyles relative to previous generations, with the result that the threshold for frailty and disability is being pushed later into old age. However, prevention and postponement of disease and disability and

maintenance of health, independence, and mobility in an aging population will continue to remain the major health-related challenges of population aging. Population aging will also aggravate the magnitude of mental health problems, as the life expectancy of those with mental disorders increases and as an ever-growing number of people reach the age at which the risk of such disorders is high. In addition to these health issues, living longer will also present individual and societal challenges related to quality of life in old age, including independence, social interaction, and community involvement.

A large number of studies—primarily concentrated in countries of Western Europe and in Japan—document the impact of aging on health and health expenditures and confirm the high level of use of health services in old age, particularly ambulatory services, medication, hospital admissions, and surgery. The general finding in most assessments is that health expenditure per episode is typically higher for the elderly, though use levels off and even declines for the very old. Large variations exist across countries: aging predicts health care expenditures better in Japan than in Australia, Canada, or the United Kingdom. Yet many studies also show that aging is not a significant factor affecting health expenditures if proximity to death is taken into account, because a large proportion of lifetime expenditures on health take place in the two years preceding death, irrespective of the individual's age at that time. Further, broader economic trends and technological innovation have a greater influence on total health care expenditures over time than does aging. In sum, there is little doubt that health expenditures will increase as populations get older. The central issue is the extent to which this fact will lead to increased consumption of health care services and higher rates of health care expenditure, thereby placing existing sources of funding under greater strain.

Reflecting this concern, a substantial literature has developed over the past couple of decades that focuses on the characteristics, causes, and likely future consequences of aging, especially for European health care systems. Numerous national and multicountry studies explore a wide range of topics associated with the past or likely future impact of aging on health care expenditures. Others concentrate on interpreting past data, and still others seek to extrapolate from past trends to predict likely outcomes. Some studies explore the potential range of policy options that might help mitigate undesirable outcomes. As one would expect in such a diverse literature, views diverge broadly on nearly every important aspect.

This chapter explores the impact of demographic changes on health expenditures in countries in the region. The next section

reviews the major positions in the literature about the impact of aging on known and potential health expenditures. Projections of public expenditures on health are then presented and discussed. (The sensitivity of the projection results on expenditures to data assumptions is discussed in annex 5.D.) The chapter then presents a review of the provision and use of long-term care services in countries in the region, followed by projections of the elderly dependent populations that will need long-term care. The chapter concludes with a brief consideration of policy options for managing the impact of aging on future health expenditures.

Aging and Health Expenditures

Many studies document the increased burden of disease and consequent higher use of health care services by the elderly. A broad-ranging data set for the Netherlands raises a variety of health care and public health issues regarding past patterns of consumption of health care services by the elderly (Van den Berg Jeths and others 2004). During 1983 to 1993, the incidence of cancer increased, especially prostate cancer among men and breast and lung cancer among women, but after 1996 there was a decrease in incidence in men and a stabilization in women, causing the trend over the entire 1983 to 1998 period to be nonsignificant (Van Dijck and others 2002). The prevalence of diabetes mellitus also increased, although this increase could also be due to improvements in the ability of general practitioners to detect the disease (Van Oers 2002). The prevalence of strokes and heart attacks increased in women, and the prevalence of heart failure increased in men. The prevalence of arteriosclerosis increased significantly across the population, as did problems associated with the neck and the back. At the same time, psychosocial complaints by people age 65 and older decreased significantly, perhaps because of improvements in socioeconomic status.

Salonen and Haverinen (2004) find that in Finland 90 percent of people age 75 and older suffer from some chronic disease or disability. Cardiovascular and musculoskeletal diseases, diabetes, and dementia were the most prevalent diseases. A noteworthy aspect of this report is the continued importance of cardiovascular disease in Finland some 30 years after the large-scale North Karelia Project sought to change traditional Finnish dietary and exercise habits (Puska and others 1981). This finding highlights the long lag-time before even relatively successful preventive strategies can be expected to reduce ongoing expenditures on cardiovascular disease.

The data do not provide conclusive evidence on the prevalence of disability among the elderly. Nesti and others (2004) find that Italy has almost 2 million elderly people with disabilities and that nearly half of the people age 80 and older have disabilities. However, Howse (2005) concludes, "The best available evidence on current trends in disability in the USA and some other OECD countries supports the view that overall prevalence of chronic disability is actually declining *in spite of* population aging."

Beyond documenting higher rates of health need and use of health services by elderly populations, a number of studies have probed the same databases for evidence of key characteristics and relationships that can either help identify factors that generate these higher rates or assess their policy implications. Five key conclusions emerge, described in the following sections.

Conclusion 1: Aging Explains Only a Minor Portion of Increased Health Expenditure

Howse (2005) concludes that technological innovation and productivity have made a substantially larger contribution to increases in health care spending over the past few decades than population aging has. Johansson (1997) reviews overall expenditure developments in Sweden and shows that cost factors in the general economy play a more important role in the increase of health expenditures than does growth in the number of elderly people. The same conclusion is drawn by Castles (2000), using data for the Organisation for Economic Co-operation and Development (OECD) countries for the period from 1965 to 1995. This analysis finds no statistically significant relationship between aging and aggregate health care expenditure and concludes that total health expenditure in a country is almost entirely explained by its level of real gross domestic product (GDP) per capita. Similarly, Richardson and Robertson (1999) conclude from OECD data for 1975, 1985, and 1995 that health expenditures per capita are not driven mechanistically by demographic factors. Several additional studies present evidence from specific health system subsectors that support these more general assessments. For example, overall wage levels in a country have been found to have an important effect on the cost of long-term care services (Wittenberg and Comas-Herrera 2003).

Conclusion 2: Economic and Social Policies Are Important Determinants of Health Expenditures

A number of studies suggest a direct link between health expenditures for the elderly and a variety of economic and social policies that

are not primarily health related. These policy issues differ from previously noted economic influences on health expenditures (for example, productivity, technological innovation, and GDP level) in that they are less aggregate and are perceived to more directly reflect intentional government decisions. Castles (2000) found a statistically significant relationship between governing party preferences about how to provide long-term care and health expenditures in this area. In particular, this cross-national study concluded that the ideological preference of leftist parties to favor service provision over transfer expenditures accounted for the majority of the variance observed in spending on services to the elderly.

Several studies suggest that employment policies can have a noticeable effect on health expenditures for the elderly. Governments and companies can redesign workplaces and work schedules to make them more suitable for elderly workers (Taylor 2003). Employment levels and the overall condition of the labor market also can affect the availability and cost of both formal and informal home care workers (Wittenberg and Comas-Herrera 2003). A related policy area concerns housing patterns for the elderly, particularly in the provision of informal care. A European Commission study (Economic Policy Committee 2001) suggests that countries should do more to encourage the elderly to live with other family members, and that fewer single-person elderly households could reduce the need for formal care. In fact, Costa-Font and Patxot (2003, 2005) describe Spain as moving in exactly the opposite direction, from the traditional, family-based model of care to a modern, community-based model. Their suggestion that the Spanish government should consider establishing a publicly funded financing system similar to the system in Germany demonstrates the potential effect that proposals to change national policy can have—in this case on the level of formal home care expenditures.

Conclusion 3: Service Use Falls after Age 80

The recent Survey of Health, Aging, and Retirement in Europe (SHARE) study (Börsch-Supan and others 2005), which surveyed 20,000 continental Europeans older than 50, reports a strong correlation between age and number of medical consultations.[1] In general, evidence on the use of health services indicates higher use among older people for ambulatory medical consultations, medication, hospital admissions, and surgery. This effect of age levels off at 80 years, and the rates of use fall among the "oldest old" (that is, older than 85). Arguably the most important finding in the SHARE

study is that the use of health services peaks at ages 75 to 79 and then drops off. These results suggest that projected rapid growth in the proportion and also absolute number of very old people may not be as great a cause for concern as some policy makers have thought. However, this analysis also suggests that increased numbers in the "young old" (65 to 79) category will require greater resources than currently anticipated.

Conclusion 4: Proximity to Death Is Key

Several studies have demonstrated that the relationship observed between health expenditure and age can be partly explained by the concentration of health expenditures in the period immediately before death. For example, Stooker and others (2001) report that costs in a Dutch hospital rose by 170 percent when the elderly moved from the second to the last year of life. McGrail and others (2000) find that age is less important than proximity to death as a predictor of costs, though this effect is less pronounced for social and nursing care costs. These studies suggest that methodologies for calculating the effect of aging on future health care expenditures should include the "time-to-death" effect.

Conclusion 5: Large Variance Exists between Countries

Seshamani and Gray (2003) explore the relationship between health care expenditures and aging in Australia, Canada, and Japan, as well as in England and Wales. They find large variations across countries. Demographic shifts and population growth predicted only 18 percent of the increases observed in health care expenditures in England and Wales, compared with 34 percent, 44 percent, and 68 percent for Australia, Canada, and Japan, respectively. This finding necessarily points policy makers away from the number of elderly alone as a key or even central factor in explaining health care expenditures.

Projections of Public Expenditures on Health

Health spending is determined by a number of independent and interacting factors, including health status of the population, economic growth, technological innovations, level of defined benefits in publicly funded systems, and productivity of human and capital resources. In addition, estimates of health expenditures over time will depend on changes in the size and age structure of the population. Any projection of health expenditures thus must take into

account both demographic and nondemographic changes that affect health spending.

Health expenditure projections were carried out for this report. To the extent permitted by the availability of data, the projections followed the approach used by the Economic Policy Committee (EPC) of the European Commission Directorate General for Economic and Financial Affairs (European Commission 2006). The EPC's latest projections include the effect of changes in the size and age structure of the population of the member countries, as well as age-related health expenditure profiles related to patterns of morbidity and population aging. The EPC's work also links assumed expenditures to years of remaining life and adjusts projections for the impact of nondemographic drivers of health spending.

Data and Methodology

Future health expenditures primarily will depend on the number of projected users of health services, the intensity of use of health services, the nature and type of health services used, and the costs associated with these services. The number of projected users of health services depends on projections of population size and age structures. The intensity of use of health services is a function of the health status of the elderly. The nature and type of health services used in the future will depend on the availability of health goods and services, which will be shaped by inventions and innovations in medical science and technology. Health services that are publicly financed also depend on the level of benefits supported by public funds. The future costs of health goods and services are determined by a host of factors, including inflation and technology.

The projection exercise involves a number of assumptions about the intensity of use of health services among elderly cohorts, the availability and use of health goods and services, and the costs of health goods and services:

- Adjustments are made for death-related costs, on the basis of empirical evidence that health care costs are highest in the last years of life, irrespective of length of life. Thus, average health care costs will fall for all age groups, with declines in the number of people in a given age group who have few remaining years of life.
- The probability of seeking or receiving care and the level of benefits are both held constant at 2004 levels.
- Technology effects are assumed to be neutral in the future, and the future availability of health goods and services is assumed to remain unchanged.

- Consumption of health goods and services is assumed to be unaffected by changes in living standards and income levels.
- Unit costs are assumed to evolve in line with GDP per capita.
- The ratio of health expenditures across age groups is assumed to remain constant throughout the period of projections. In other words, if in 2005 health expenditure on a 60 year old is 10 times the expenditure on a 25 year old, it will remain 10 times in 2050.

The sensitivity of the projections to assumptions about the underlying data is discussed in annex 5.D. Four scenarios are estimated in projecting health expenditures for countries of the region:

- **Pure aging scenario.** The number of years spent in good health is kept constant, and all additional years of life are assumed to be spent in bad health. Age-related health expenditures are assumed to stay constant over time, and the only adjustment permitted is the adjustment in the growth rate of GDP per capita. Health expenditure projections are computed in three simple steps. First, the age-specific cost for each age group is calculated for each year of the projection by adjusting the age-specific costs in 2004 for changes in projected GDP per capita for the target year. Second, this GDP per capita adjusted unit cost is multiplied by the projected population of each year of age and summed to yield the total costs for that year. Third, this total is divided by the projected GDP using the assumed rates of growth of GDP in order to obtain the share of health expenditure in GDP.
- **Constant morbidity scenario.** This scenario assumes that morbidity levels in additional years of life in the future remain the same as at present and that all additional years of life are lived healthily. In this model, the age-related expenditure profile of the base year is shifted outward in direct proportion to the projected gains in life expectancy.
- **Compressed morbidity scenario.** This scenario assumes that morbidity levels in additional years of life in future years are lower than at present, which is the same as postulating that all additional years of life are lived more healthily. In this model, the age-related expenditure profile of the base year is shifted outward at twice the rate as in the constant morbidity scenario.
- **Pure aging scenario adjusted for death-related costs.** The unit costs for each year are differentiated between those who die

and those who survive. The computation of the unit costs of health care is a bit more laborious. First, the population of each age group is divided into a number of subgroups according to the number of remaining years of life, using the mortality rate as a weighting factor. For instance, the number of people age 40 who are expected to die within five years of 2015 is computed as the population age 40 in 2015 multiplied by the probability of dying by 2020, which is the same as the probability of the 40 years olds surviving 2015 times the probability of the 41 year olds surviving 2016, and so on, times the probability of dying in 2020 of people age 45. The unit cost of each year is adjusted by the ratio of health expenditures related to the dying to health expenditures of survivors. Total costs are calculated by multiplying the size of each subgroup by its modified cost per capita.

Population projections and life expectancy data are taken from 2004 revisions of the United Nations (UN) population projections (United Nations 2005). Data on health expenditures for 2004 are taken from various country records and the World Health Organization (WHO) Health For All database. GDP projections come from the *World Economic Outlook* (IMF 2006). The forecast rate of growth in 2010 is assumed to hold during 2010 to 2050.

Two data inputs used in the analysis deserve special mention. First, data on age-related public expenditures on health are available for very few countries in the region, mostly the new European Union (EU) member states. This lack of data poses a serious challenge to projections of health expenditures into the future. For countries where reliable data were not available, an average profile was created on the basis of assumed ratios in expenditures across age intervals as well as health expenditures expressed as a percentage of GDP per capita. In general, average nominal spending on cohorts age 60 to 70 in the new EU member states is about four times that of average nominal spending on cohorts age 20 to 30 years; in comparison, average nominal spending on cohorts age 60 to 70 in the non-EU member states is about three times that of average nominal spending on cohorts age 20 to 30 years. Second, data needed to allow for adjustments related to death costs—that is, the difference in health care costs of those who die within a predefined short period of time and those who survive—are not available for most countries. They are imputed on the basis of the reported ratio of expenditures for those dying within a two-year period at a specified age to expenditures for those surviving in that period, as in Poland in 2004.[2]

Projection Results

Table 5.1 presents the projection results for the pure aging scenario. This scenario, like the others, assumes that health expenditures evolve in line with per capita GDP, using the forecast GDP growth rates over the projection period. Under this scenario, public spending on health between 2005 and 2050 is projected to increase only marginally in some countries and to fall marginally over time in others—including Albania and Turkey, two countries that have relatively young population age structures. This result is not surprising. Because health expenditure projections depend on assumptions related to demographic factors (such as population size and age structure) and nondemographic factors (such as GDP growth rates), a rise or fall in health expenditures as a percentage of GDP is entirely possible, even

TABLE 5.1

Projected Health Expenditures under the Pure Aging Scenario in Eastern European and Former Soviet Countries, 2005–50

Country	2005 (% of GDP)	2010 (% of GDP)	2020 (% of GDP)	2030 (% of GDP)	2040 (% of GDP)	2050 (% of GDP)	Change 2005–50
Albania	2.71	2.74	2.83	2.79	2.71	2.57	−0.15
Armenia	1.27	1.17	0.98	0.81	0.67	0.52	−0.75
Azerbaijan	0.90	0.93	0.99	1.01	1.02	0.98	0.08
Belarus	4.73	4.83	4.99	5.19	5.40	5.37	0.64
Bosnia and Herzegovina	4.56	4.62	4.42	4.10	3.73	3.31	−1.24
Bulgaria	4.32	4.38	4.50	4.62	4.67	4.69	0.37
Croatia	6.53	6.67	6.70	6.74	6.55	6.25	−0.28
Czech Republic	6.50	6.65	6.96	7.09	6.96	6.83	0.33
Estonia	4.19	4.27	4.37	4.46	4.54	4.56	0.37
Georgia	0.92	0.93	0.97	0.82	0.75	0.69	−0.23
Hungary	6.08	6.16	6.27	6.34	6.24	6.16	0.08
Kazakhstan	2.46	2.50	2.62	2.71	2.72	2.63	0.18
Kyrgyz Republic	2.19	2.24	2.32	2.38	2.40	2.31	0.12
Latvia	3.29	3.31	3.33	3.30	3.27	3.17	−0.12
Lithuania	4.92	5.02	5.04	5.04	4.97	4.72	−0.20
Macedonia, FYR	5.87	6.06	6.46	6.79	6.95	6.93	1.06
Moldova	4.43	4.73	5.08	4.26	4.12	3.99	−0.44
Poland	4.47	4.58	4.82	5.01	4.94	4.84	0.37
Romania	3.43	3.49	3.60	3.74	3.85	3.90	0.47
Russian Federation	3.16	3.20	3.27	3.37	3.38	3.32	0.17
Serbia and Montenegro	7.80	7.89	8.06	8.27	8.29	8.23	0.43
Slovak Republic	5.10	5.24	5.60	5.90	5.95	5.89	0.79
Slovenia	6.68	6.88	7.19	7.44	7.37	7.07	0.38
Tajikistan	1.02	1.07	1.43	1.47	1.50	1.58	0.55
Turkey	5.44	5.52	5.60	5.56	5.36	4.96	−0.48
Turkmenistan	2.41	2.46	2.65	2.28	2.16	1.98	−0.43
Ukraine	3.89	3.93	4.02	4.09	4.09	3.94	0.05
Uzbekistan	2.25	2.40	3.06	3.14	3.48	3.67	1.42

Source: World Bank staff calculations.

TABLE 5.2

Projected Health Expenditures under the Constant Morbidity Scenario in Eastern European and Former Soviet Countries, 2005–50

Country	2005 (% of GDP)	2010 (% of GDP)	2020 (% of GDP)	2030 (% of GDP)	2040 (% of GDP)	2050 (% of GDP)	Change 2005–50	Difference in 2050 compared with pure aging scenario
Albania	2.71	2.74	2.74	2.69	2.63	2.49	−0.22	−0.08
Armenia	1.27	1.17	0.90	0.79	0.65	0.51	−0.77	−0.02
Azerbaijan	0.90	0.93	0.97	0.99	1.00	0.96	0.06	−0.02
Belarus	4.73	4.83	4.69	4.93	5.24	5.18	0.45	−0.19
Bosnia and Herzegovina	4.56	4.62	4.30	3.97	3.63	3.21	−1.34	−0.10
Bulgaria	4.32	4.38	4.16	4.27	4.39	4.38	0.06	−0.31
Croatia	6.53	6.67	6.39	6.41	6.26	5.96	−0.57	−0.30
Czech Republic	6.50	6.65	6.25	6.39	6.39	6.17	−0.33	−0.66
Estonia	4.19	4.27	4.19	4.26	4.38	4.38	0.19	−0.17
Georgia	0.92	0.93	0.95	0.80	0.74	0.67	−0.24	−0.01
Hungary	6.08	6.16	5.76	5.83	5.96	5.88	−0.20	−0.28
Kazakhstan	2.46	2.50	2.50	2.58	2.67	2.58	0.12	−0.06
Kyrgyz Republic	2.19	2.24	2.24	2.29	2.36	2.27	0.08	−0.04
Latvia	3.29	3.31	3.19	3.16	3.17	3.06	−0.23	−0.11
Lithuania	4.92	5.02	4.72	4.68	4.76	4.51	−0.42	−0.22
Macedonia, FYR	5.87	6.06	6.46	6.79	6.95	6.93	1.06	0.00
Moldova	4.43	4.73	4.88	4.03	4.00	3.85	−0.58	−0.14
Poland	4.47	4.58	4.48	4.66	4.73	4.58	0.11	−0.26
Romania	3.43	3.49	3.43	3.56	3.71	3.75	0.32	−0.15
Russian Federation	3.16	3.20	3.10	3.18	3.30	3.23	0.08	−0.09
Serbia and Montenegro	7.80	7.89	8.06	8.27	8.29	8.23	0.43	0.00
Slovak Republic	5.10	5.24	5.31	5.59	5.67	5.58	0.48	−0.31
Slovenia	6.68	6.88	6.58	6.78	6.96	6.65	−0.03	−0.42
Tajikistan	1.02	1.07	1.42	1.46	1.49	1.56	0.53	−0.02
Turkey	5.44	5.52	5.54	5.49	5.27	4.87	−0.57	−0.09
Turkmenistan	2.41	2.46	2.60	2.23	2.13	1.95	−0.46	−0.03
Ukraine	3.89	3.93	3.79	3.84	3.99	3.83	−0.06	−0.11
Uzbekistan	2.25	2.40	3.04	3.10	3.44	3.61	1.36	−0.06

Source: World Bank staff calculations.

in countries with young population structures that are projected to have high rates of GDP growth (projected to be 6 percent in Albania and 5 percent in Turkey throughout the 2010 to 2050 period).

Table 5.2 presents the projection results under the constant morbidity scenario. Public spending on health in 2050 is projected to be lower than under the pure aging scenario. This result is expected, because improved health status will ease pressures on future health expenditures.

Table 5.3 presents the projection results under the compressed morbidity scenario. Public spending on health in 2050 is projected to be lower than projected spending under the constant morbidity scenario.

TABLE 5.3

Projected Health Expenditures under the Compressed Morbidity Scenario in Eastern European and Former Soviet Countries, 2005–50

Country	2005 (% of GDP)	2010 (% of GDP)	2020 (% of GDP)	2030 (% of GDP)	2040 (% of GDP)	2050 (% of GDP)	Change 2005–50	Difference in 2050 compared with pure aging scenario	Difference in 2050 compared with constant morbidity scenario
Albania	2.71	2.74	2.66	2.59	2.51	2.43	−0.28	−0.13	−0.06
Armenia	1.27	1.17	0.97	0.81	0.62	0.49	−0.78	−0.03	−0.01
Azerbaijan	0.90	0.93	0.96	0.96	0.96	0.94	0.04	−0.04	−0.02
Belarus	4.73	4.83	4.69	4.75	4.96	5.04	0.32	−0.32	−0.14
Bosnia and Herzegovina	4.56	4.62	4.10	3.85	3.45	3.13	−1.42	−0.18	−0.08
Bulgaria	4.32	4.38	3.89	3.99	4.04	4.12	−0.19	−0.56	−0.26
Croatia	6.53	6.67	5.98	6.00	5.88	5.70	−0.83	−0.56	−0.26
Czech Republic	6.50	6.65	5.44	5.60	5.73	5.53	−0.96	−1.30	−0.64
Estonia	4.19	4.27	3.94	4.01	4.17	4.23	0.04	−0.33	−0.15
Georgia	0.92	0.93	0.92	0.77	0.71	0.66	−0.26	−0.03	−0.01
Hungary	6.08	6.16	5.25	5.33	5.61	5.65	−0.44	−0.51	−0.23
Kazakhstan	2.46	2.50	2.41	2.48	2.54	2.53	0.07	−0.10	−0.05
Kyrgyz Republic	2.19	2.24	2.18	2.21	2.25	2.23	0.04	−0.08	−0.04
Latvia	3.29	3.31	3.06	3.05	3.02	2.96	−0.33	−0.21	−0.10
Lithuania	4.92	5.02	4.48	4.39	4.47	4.31	−0.61	−0.41	−0.20
Macedonia, FYR	5.87	6.06	6.46	6.79	6.85	6.84	0.97	−0.09	−0.09
Moldova	4.43	4.73	4.76	3.87	3.82	3.75	−0.68	−0.24	−0.10
Poland	4.47	4.58	4.21	4.39	4.43	4.36	−0.11	−0.48	−0.22
Romania	3.43	3.49	3.21	3.38	3.52	3.62	0.19	−0.28	−0.13
Russian Federation	3.16	3.20	2.95	3.02	3.11	3.15	0.00	−0.17	−0.08
Serbia and Montenegro	7.80	7.89	8.06	8.27	8.29	8.23	0.43	0.00	0.00
Slovak Republic	5.10	5.24	4.94	5.19	5.31	5.31	0.22	−0.57	−0.26
Slovenia	6.68	6.88	5.97	6.14	6.44	6.26	−0.42	−0.81	−0.39
Tajikistan	1.02	1.07	1.41	1.44	1.46	1.55	0.52	−0.03	−0.01
Turkey	5.44	5.52	5.34	5.26	5.04	4.79	−0.65	−0.18	−0.08
Turkmenistan	2.41	2.46	2.61	2.23	2.08	1.92	−0.48	−0.06	−0.02
Ukraine	3.89	3.93	3.59	3.63	3.76	3.74	−0.16	−0.21	−0.10
Uzbekistan	2.25	2.40	2.99	3.06	3.36	3.56	1.32	−0.11	−0.05

Source: World Bank staff calculations.

Table 5.4 presents the projection results for the pure aging scenario adjusted for death-related costs. Accounting for these costs, health expenditures are projected to be lower than under the pure aging scenario. Overall, the projected health expenditures under the pure aging scenario adjusted for death-related costs are closer to projected health expenditures under the constant morbidity scenario.

Figure 5.1 presents a summary of the projection results reported in tables 5.1 through 5.4. In general, the results suggest that health spending will increase in many countries in the region. Improvements in the health care status of the elderly will attenuate pressures on spending, especially as healthy life expectancy evolves broadly in line with age-specific life expectancy. Finally, the increase in health

TABLE 5.4

Projected Health Expenditures under the Pure Aging Scenario, Adjusted for Death-Related Costs in Eastern European and Former Soviet Countries, 2005–50

Country	2005 (% of GDP)	2010 (% of GDP)	2020 (% of GDP)	2030 (% of GDP)	2040 (% of GDP)	2050 (% of GDP)	Change 2005–50	Difference in 2050 compared with pure aging scenario
Albania	2.71	2.70	2.77	2.72	2.65	2.52	−0.20	−0.05
Armenia	1.27	1.14	0.94	0.77	0.65	0.50	−0.77	−0.02
Azerbaijan	0.90	0.94	0.98	0.99	1.01	0.97	0.07	−0.01
Belarus	4.73	4.57	4.71	4.87	5.13	5.10	0.37	−0.27
Bosnia and Herzegovina	4.56	4.44	4.27	3.97	3.63	3.25	−1.31	−0.06
Bulgaria	4.32	4.13	4.24	4.36	4.43	4.47	0.15	−0.22
Croatia	6.53	6.34	6.38	6.42	6.29	6.02	−0.51	−0.23
Czech Republic	6.50	6.32	6.59	6.72	6.65	6.53	0.03	−0.30
Estonia	4.19	4.04	4.15	4.23	4.31	4.34	0.15	−0.22
Georgia	0.92	0.89	0.92	0.78	0.72	0.66	−0.26	−0.03
Hungary	6.08	5.83	5.93	6.01	5.95	5.88	−0.20	−0.28
Kazakhstan	2.46	2.44	2.54	2.61	2.63	2.54	0.09	−0.09
Kyrgyz Republic	2.19	2.24	2.30	2.33	2.34	2.25	0.06	−0.06
Latvia	3.29	3.14	3.15	3.13	3.11	3.02	−0.27	−0.15
Lithuania	4.92	4.77	4.78	4.77	4.74	4.51	−0.41	−0.21
Macedonia, FYR	5.87	5.84	6.22	6.53	6.71	6.71	0.85	−0.21
Moldova	4.43	4.50	4.83	4.05	3.95	3.83	−0.60	−0.16
Poland	4.47	4.38	4.58	4.76	4.74	4.64	0.17	−0.20
Romania	3.43	3.32	3.42	3.55	3.66	3.73	0.30	−0.17
Russian Federation	3.16	3.02	3.07	3.16	3.21	3.15	−0.01	−0.17
Serbia and Montenegro	7.80	7.56	7.71	7.91	7.96	7.93	0.12	−0.30
Slovak Republic	5.10	5.01	5.33	5.61	5.70	5.65	0.55	−0.24
Slovenia	6.68	6.56	6.85	7.09	7.07	6.81	0.13	−0.25
Tajikistan	1.02	1.07	1.41	1.45	1.47	1.53	0.51	−0.04
Turkey	5.44	5.47	5.50	5.44	5.24	4.88	−0.56	−0.08
Turkmenistan	2.41	2.40	2.56	2.20	2.09	1.91	−0.49	−0.07
Ukraine	3.89	3.68	3.76	3.84	3.87	3.74	−0.15	−0.20
Uzbekistan	2.25	2.36	2.98	3.04	3.38	3.56	1.31	−0.11

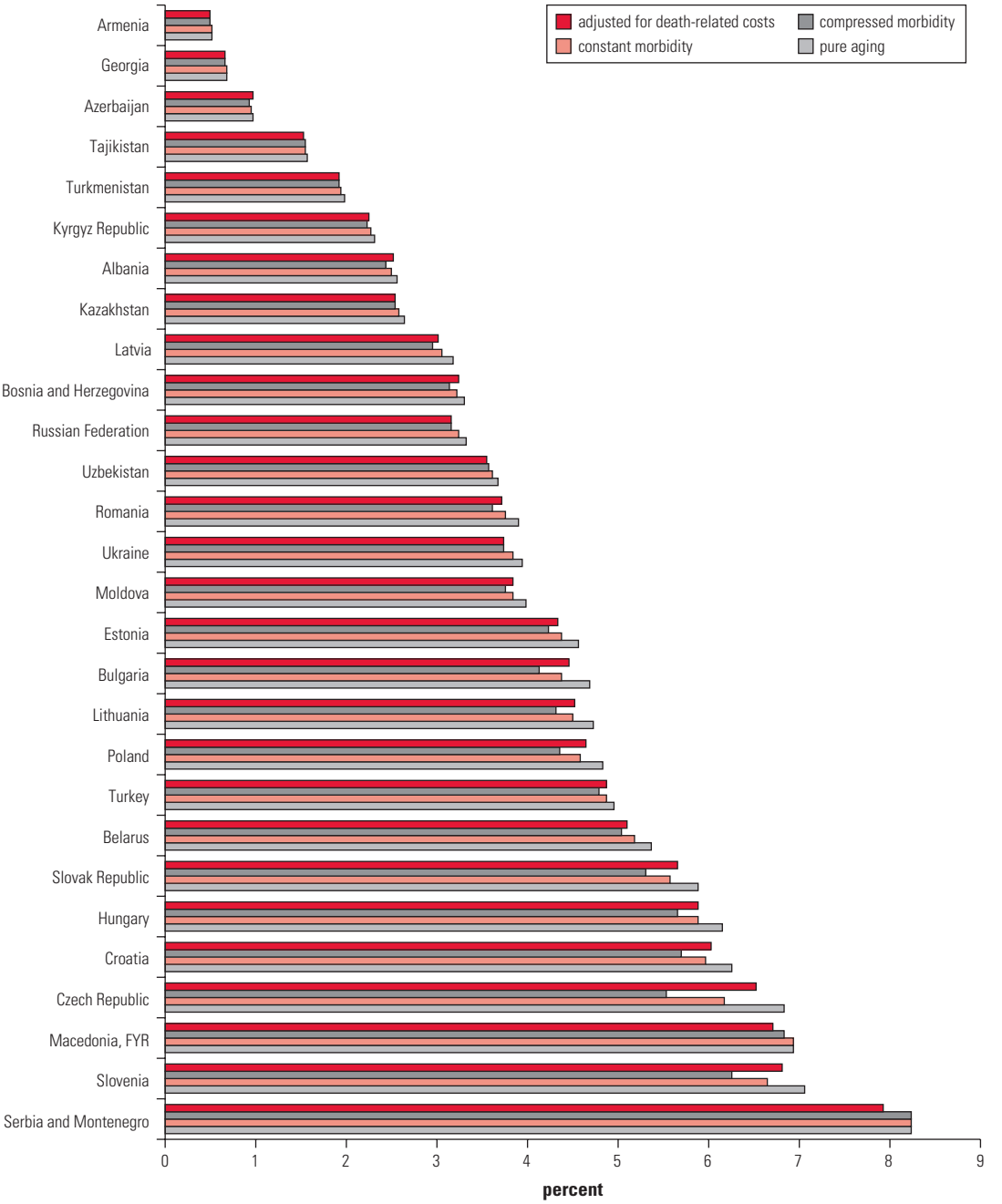
Source: World Bank staff calculations.

expenditures under the pure aging scenario will be slower if death-related costs are taken into account.

The results indicate that, at current benefit levels, public spending on health by 2050 will increase by more than 50 percent in Tajikistan and Uzbekistan compared with 2005 levels. The increase in spending will be relatively modest in Azerbaijan, Belarus, Bulgaria, Estonia, Poland, and Romania and will actually fall in Armenia, Bosnia and Herzegovina, Moldova, and Turkmenistan. Projected increases in health expenditures owing to aging are smaller under the compressed morbidity scenario in all countries, though much more in the new member states compared with others. The increase in projected expenditures is also smaller compared with that under the pure aging scenario adjusted for death-related costs, though it must be kept in mind

FIGURE 5.1

Projected Public Spending on Health as a Percentage of GDP under the Four Scenarios, Eastern European and Former Soviet Countries, 2050



Source: World Bank staff calculations.

that the data on death-related costs are not very reliable. Overall, the projection results indicate that changes in the health status of the elderly will have a large effect on health expenditures, with a considerable slowdown in the increase of health expenditures as health status improves. These results support the view that increases in spending on health care as a share of GDP will not be deterministically driven by demographic developments.

Long-Term Care

Long-term care is a complex subject that incorporates a broad mix of medical, social, and residential (housing) dimensions. Three general types of service groups can be distinguished: (a) home care, (b) sheltered housing and old-age homes, and (c) nursing homes. In addition, a wide variety of day programs may exist outside the home but in support of home care, including elder day centers, respite care centers, and educational and support programs for informal caregivers. Within each type of service is an additional range of distinctions. Home care can be provided by informal (nonprofessional, usually volunteer) or formal (professional) providers, and it can incorporate a wide range of clinical activities (nursing, drug therapy, physical therapy); social activities (food preparation, cleaning, shopping); and even physical construction activities (installing hydraulic lifts, renovating bathrooms and kitchens).

Sheltered housing and old-age homes are typically operated or paid for by public municipal, not-for-profit voluntary, or for-profit commercial organizations. Nursing homes vary by type and levels of service, with levels 1, 2, and 3 providing increasingly intensive care. Although it is reasonable to expect that the need for long-term care services will grow substantially as populations age, it is not clear what type or level of services will be most needed and what the likely costs of providing those services will be. Many policy makers and commentators logically believe that the need for these services—and for the funds to finance their delivery—will be dramatically higher as populations age. However, because long-term care consists of a broad continuum of services, with widely varying resource requirements, the impact of increased aging on long-term care costs will depend on policy choices regarding the level, scope, and delivery of those services.

Most long-term care in the region is provided in hospital settings or informally by families of dependent people, and the availability and use of institutional long-term care services is very limited in most

countries. Where it exists, the responsibility for delivering long-term care is vested in different agencies, including local governments, which are generally responsible for community care services. The long-term mentally ill are typically cared for in regional psychiatric hospitals.

Voluntary and nongovernmental organizations are playing a larger role as providers of nursing homes, hospices, and rehabilitation services and as providers of long-term residential care and care in the community. In some countries, such as Poland, voluntary organizations and domiciliary nursing agencies have begun to develop community services, such as home nursing and home help. Even in Western and Central Europe, the use of long-term services is not very high, ranging from about 12 percent of the elderly receiving institutional care in Northern European countries to about 3 percent in Italy and 1 percent in Greece. The corresponding figure in Poland is 1.8 percent (OECD 2005). In many countries, the largest percentage of the elderly who receive services use informal home care, as in Austria (80 percent) and Spain (82 percent) (OECD 2005). Nursing or residential homes and community arrangements are very limited, although this situation has been changing in some new EU member states in recent years. In Romania, more than 19,000 adults with disabilities were institutionalized in 150 long-term care centers belonging to the National Agency for Persons with Disabilities in 2003. At the same time, 11,000 children with disabilities were living in centers belonging to the National Authority for Child Protection and Adoptions.

Hutten and Kerkstra (1996) classify home care services (and, by extension, long-term care services generally) in Europe into the public service and social health insurance models. In the public service model, formal care (including institutional care) is provided largely by local municipal governments. It is typically funded by a mix of national and local tax revenues, along with a varying but relatively low level of copayments (often also means tested). This model is closely identified with the Nordic countries but is also found in Italy, Spain, and the United Kingdom, as well as in the Czech Republic, Hungary, and Poland. In the social health insurance model, funding comes from a publicly sponsored and regulated, private, not-for-profit, managed pool, into which salaried workers and their employers contribute on a mandatory basis (see Saltman, Busse, and Figueras 2004). Social insurance funds also cover informal and formal care, but the level of copayments tends to be larger than in the public service model.

Countries have various legislative arrangements governing long-term care. Annex 5.A summarizes the national legislation that

defines the provision and financing of long-term care in several European countries. Official programs for coverage of formal long-term care services—both in homes and in institutions—have been put in place in most countries. Belgium and Switzerland are two notable exceptions.

Funding for Long-Term Care

A variety of mechanisms are used to mobilize resources for the provision of long-term care services (table 5.5). They can be grouped under four different models: special long-term care insurance (as in Germany), general taxes (as in Austria), a combination of insurance and general taxes (as in Japan), and special programs (as in the Netherlands).

In Germany, public long-term insurance, which was introduced in 1994, is financed largely through contributions from employers and employees and administered by funds that are formally independent of, but closely tied to, the sickness funds. Both employers and employees currently pay 1.7 percent of gross earnings, up to an income ceiling of €3,375 per month. Retired people contribute to the insurance by paying half of the contribution; the other half is financed by pension funds. Contributions for the unemployed are completely financed by unemployment insurance. Civil servants are not part of the social health insurance program and are therefore obliged to take up private insurance, which is partly paid by their employer.

It takes five years to qualify for benefits from the insurance system. Apart from that, the only qualifying requirement is the need for care. The critical factors are the person's inability to perform activities of daily living combined with the frequency and duration of the need for assistance. If selected, beneficiaries receive benefits in the form of in-kind services, cash, or a combination of both. The aim of benefits in cash is to support private, family-based arrangements. Because all insurance benefits are capped, private copayment and means-tested social assistance still play a vital role, particularly in nursing home care. The benefits, in general, are not sufficient to cover the costs of professional care at home or at a nursing home. Although entitlement generally is independent of age, about 78 percent of all beneficiaries are age 65 or older, and more than 50 percent are at least age 80 (Comas-Herrera and Wittenberg 2003). At the end of 2003, 70 million people were covered by the public long-term care insurance and 9 million (2002 data) by private long-term care insurance. Thus, about 90 percent of Germany's population is part of the mandatory scheme. About 1.9 million persons received benefits from public long-term

TABLE 5.5

Funding for Elderly/Long-Term Care in Selected European Countries

Country	Funding source
Austria	Mainly general taxation (for example, home care allowance) as well as social health insurance contributions and private contributions.
Denmark	Municipality tax (and central government grants), county tax (and central government grants), and private funding, though local authorities are not allowed to demand payment for expenses relating to staff members providing personal care and practical assistance, but are allowed to charge for products and materials used. People pay a monthly rent for ordinary housing for older persons (Ministry of the Interior and Health (2002) and Ministry of Social Affairs and Gender Equality 2002).
Finland	Municipalities finance long-term care with municipal tax revenues (70 percent), central government subsidies (20 percent), and client fees (10 percent) (Vaarama and others; Salonen and Haverinen 2004). For temporary home care services (1–5 visits per month at the client's home), the municipality sets the fee. For regular home care services, maximum amounts are defined. For support services, such as cleaning and transportation, the municipality can charge without considering the income level of the client. For long-term care (defined as over 90 continuous days), clients pay 80 percent of their net income, regardless of the provider (Working Group Investigating the Significance of Non-Institutional and Institutional Care in Salonen and Haverinen 2004).
Germany	Social health insurance (public and private)/long-term care insurance contributions (for example, home care allowance); regional government tax revenue (various social services); central government tax revenue (investments in care facilities); and private funding (Roth and Reichert 2004).
Greece	State budget (public residential care institutions, home care, open care centers, subsidies to private nonprofit care institutions, and cash benefits to the elderly such as rent subsidies and heating allowances); insurance contributions (public residential care institutions, private nonprofit care institutions, home care, open care centers, and cash benefits to the elderly); and private contributions (private for-profit care institutions) (Sissouras and others 2004).
Hungary	Mandatory health insurance system (long-term health care services); central government (social care); local government (social care); private (for all social services, nonbasic health care services, and treatment in institutions outside catchment area) (OECD 2005).
Italy	Home care in the event of intensive care, integrated home care service, medical, rehabilitation, and nursing care; central government administrative services (50 percent), long-term home care (50 percent); home help services: local councils administrative services (50 percent), long-term home care (50 percent); private funding (Nesti and others 2004).
Luxembourg	Forty-five percent of total expenditure (including contribution to the reserve): central government; insurance contribution of private income, fixed at 1 percent (Feider and others 1999, chapter 8).
Netherlands	Elderly residential and home care funding: 84 percent special tax paid by all inhabitants in proportion to their income, no home care allowances; 16 percent private contributions (15 percent from clients and 1 percent from other sources such as sponsors, subsidies, donations, gifts, and commercial activities); and national government tax revenues (Provisions for the Disabled Act, implemented by local authorities).
Norway	Mainly central government tax; also user fees (OECD 2005).
Poland	National Health Fund: home care by professional nurses and specialized hospitals; general taxation: social care and nursing home and residential home care; private funding: residential home care and social care (OECD 2005; Szczerbinska 2005; Wieczorowska-Tobis 2005).
Sweden	Mainly taxes levied by the municipality (above 80 percent of cost of care and services for the elderly); central government grants directed to the municipalities; and fixed/proportional user fees of 4 percent of the costs (Ministry of Health and Social Affairs 2005).

Source: Saltman and Dubois 2005.

care insurance in 2003, while 117,000 received benefits from the private long-term care insurance.

In Austria, long-term care is financed through tax revenues. Introduced in 1993 as a joint effort between the federal government (Ministry of Labor, Health, and Social Affairs) and the governments of the nine Austrian states, long-term care is built around a system of

allowances payable to beneficiaries. The cost of the federal long-term care insurance was €1.4 billion in 2000. An additional €0.25 billion was contributed by the states and funds allowances for approximately 15 percent of the beneficiaries. Allowances based on the Federal Long-Term Care Allowance Act are administered and paid for by the Pension Insurance Fund, while regional authorities or municipalities are responsible for state allowances. To qualify for a long-term care allowance, a beneficiary must have a permanent need for personal services and assistance owing to a physical, mental, or psychic disability that is expected to last at least six months. Since 2005, the long-term care allowance has been determined on the basis of a seven-point scale, reflecting the severity of need. The monthly allowance ranges from €148.30 for the minimum need of care to €1,562.10 for the highest need of care. In 2002, 357,000 people received long-term care allowances, which accounts for roughly 3.5 percent of the total population.

In Japan, the mandatory long-term care insurance system (enacted in 1997 and effective since 2000) is financed equally by taxes and insurance premiums (50 percent each). Premiums of up to 0.6 percent of income are collected only from people age 40 or older and are shared equally between employer and employee. Family members are automatically covered. Half of the tax revenues are collected from national taxes, while local and regional taxes contribute 25 percent each. The premiums are collected at the national level and allocated to the approximately 3,200 municipalities that administer the long-term care insurance. In addition, all long-term services carry a copayment equivalent to 10 percent of costs of care. The long-term care insurance covers both institutional and home-based care. No cash benefits are provided. Eligibility for benefits is based solely on need and does not take into account the financial position or the family structure of the careseeker. The total turnover of the long-term care market in Japan was estimated to be about €60 billion in 2000, which corresponds to about 1.5 percent of GDP (Karlsson and others 2004).

In the Netherlands, long-term care insurance is provided under the Exceptional Medical Expenses Act of 1967, which covers all costs associated with long-term care or high-cost treatment that cannot be borne by individuals or adequately covered by private insurance. Eligibility is universal and includes all ages. Long-term care insurance does not set clear limits on the total budget for benefits per beneficiary, although it limits the amount of specific services (such as home nursing). Services are generally provided in kind for both home and institutional care. As part of an experimental program of "personal

budgets," limited cash benefits are provided to people who are eligible for home care to enable them to pay both formal and informal providers.

Informal Care

A central policy issue in both tax-funded and social health insurance systems is the provision of long-term care in nonformal settings, or simply informal care. Informal care is the least expensive method of providing care to elderly citizens in need of support—less expensive than formal, professional home care and (even if paid) substantially less expensive than nursing home care. Like recipients of all home care, the recipient of informal care is able to stay at home, thus avoiding the need for any financing for housing. Moreover, payments made to providers of informal care are typically less than payments made for professional in-home care. An additional benefit of informal care is that it reinforces the form of care that the elderly themselves most prefer—that is, remaining in their home. However, management and administration of informal care is organizationally difficult, reflecting the lack of coordination in care patterns and protocols and the absence of integration of informal caregivers into the broader health care system (Leichsenring 2004). Informal caregivers also typically lack training in how to deliver services appropriately and do not usually have respite care facilities when they need to take a break or if they themselves become temporarily ill.

Those problems notwithstanding, a number of governments recognize the advantages of informal care and have put in place specific programs to provide various types of support to informal caregivers. Some Nordic countries began making payments in the 1980s to informal caregivers, with Denmark and Norway even allowing relatives and neighbors who were providing regular home care to claim reimbursement for services provided. In Finland, informal caregivers receive a fixed fee from municipalities as well as from pension payments. In the 1990s, a number of other countries, including Austria, Germany, and Luxembourg, began providing a cash payment to recipients, who could then use those funds to pay informal caregivers. In Denmark, municipalities installed alarm systems in the homes of the elderly in the 1980s. Moreover, municipal nurses visit those older than 75 twice a year to assess potential risks—for example, from falls. In Sweden, the national insurance agency provides employees with up to 30 days per year of paid absence from work to take care of a seriously ill elderly family member. In the Netherlands, home care providers offer psychosocial guidance, advice, and instructional and

informational support to informal caregivers in instances when the individual provides both informal and formal care. Reinforcing these initiatives, the Dutch government created in 2001 a €10 million fund to support informal caregivers. Many similar initiatives can be found in the Czech Republic, Hungary, and Poland, though services are typically more restricted in number or funding.

Projections of Elderly Dependent Populations Needing Long-Term Care

Aging populations and the growing number of the elderly will put new pressures on the provision and use of long-term care services. The EPC also has projected future health expenditures for long-term care in the EU countries, with the latest projections done in 2006 (European Commission 2006). The basic exercise involves applying profiles of average long-term care expenditures by age and gender to a population projection. Future numbers of dependent elderly were computed under two different assumptions of the progression of disability with population aging—disability held constant at 2004 levels and disability rates evolving with changes in age-specific mortality rates. The dependent elderly population was split into three categories, depending on the type of long-term care they receive—informal care, formal care at home, or formal care in institutions. In one of the scenarios presented, the percentage of people receiving informal care was allowed to fall while the percentage of those receiving formal care was allowed to increase. Public spending on long-term care was estimated for the three settings, and average per user expenditure was assumed to increase with the age of the user. Total public spending on long-term care was estimated as the sum of the three different expenditures (informal care, formal care at home, and formal care in institutions).

Unfortunately, data limitations do not permit the replication of this exercise for most countries in the region. Indeed, even in the EPC study, age-related expenditure profiles for long-term care were available for only 15 countries—including the Czech Republic, Latvia, Lithuania, Poland, the Slovak Republic, and Slovenia. Even among those countries, very few provided all the data required. Instead of projecting future expenditures on long-term care, therefore, this exercise is restricted to providing estimates of the numbers of elderly who are likely to need long-term care in the future.

Country-specific, age-specific disability rates (defined in terms of the number of persons with two or more activities of daily living, or ADL)[3] are not available for all countries. Therefore, the reported

averages for the 65 to 70, 70 to 74, 75 to 79, and 80 and older age groups for the new EU member states are used for all countries. The probability of receiving care is held constant at the 2004 level; that is, it is assumed that there is no policy change from 2005 to 2050 that would affect the use of long-term services. Two scenarios are presented:

- **Pure aging scenario.** In this scenario, the proportion of the older population with disabilities who receive informal care, formal in-home care, or institutional care is held constant at 2004 levels, and this rate is applied to the projected dependent population. The prevalence of ADL dependency is assumed to remain unchanged over the projection period, implying that all gains in life expectancy are spent in bad health or with a disability.
- **Constant disability scenario.** In this scenario, inspired by the dynamic equilibrium hypothesis, age-specific disability rates are allowed to evolve in line with changes in age-specific mortality rates. Projected increases are smaller if age-specific disability rates evolve in line with changes in age-specific mortality rates than if they are held constant at 2004 levels.

Annex table 5.C.1 presents estimates of the elderly dependent populations for all the countries of the region for 2005.

The projected elderly dependent population in 2050 in Eastern European and former Soviet countries under the pure aging scenario is shown in table 5.6.[4] These results indicate that the number of dependent people will increase in all countries of the region. Table 5.7 shows projections for 2050 under the constant disability scenario.[5]

Figure 5.2 presents the projections of the elderly dependent population reported in tables 5.6 and 5.7 as a percentage of the country's total projected population in 2050. As the figure shows, Slovenia will have the largest relative share of dependent elderly by 2050, followed by the Czech Republic, Latvia, Lithuania, and the Slovak Republic.

These projections underscore the challenge that the region faces in the future with the care of the dependent elderly. Under the conservative assumption that only 5 percent of the elderly dependent population with disabilities will receive formal institutionalized care and that 5 percent will receive informal care (10 percent for new EU member states), expenditures on long-term care under the pure aging scenario will double in almost all countries of the region, accounting for between 0.5 and 1.0 percent of GDP. However, if institutionalized care is provided to 20 percent of elderly people with disabilities, expenditures on long-term care alone will consume between 2 percent and 4 percent of GDP. Because public expenditures on formal and informal long-term care depend on policies that govern eligibility

TABLE 5.6

Projections of Elderly Dependent Population under the Pure Aging Scenario in Eastern European and Former Soviet Countries, 2050

thousands

Country	65–70 years		70–74 years		75–79 years		80 years and older		Total
	Male	Female	Male	Female	Male	Female	Male	Female	
Albania	6.82	10.53	6.14	11.78	8.53	13.58	14.96	47.19	119.52
Armenia	5.82	10.72	4.80	11.78	5.39	10.97	13.02	43.20	105.70
Azerbaijan	18.32	30.74	15.94	34.39	21.23	38.32	42.38	128.14	329.44
Belarus	17.89	31.21	16.22	36.44	19.84	41.11	31.02	125.96	319.69
Bosnia and Herzegovina	7.95	11.47	9.50	15.89	13.40	18.79	23.82	60.62	161.44
Bulgaria	14.27	20.49	17.76	30.28	23.14	34.04	33.24	97.65	270.87
Croatia	9.30	13.25	11.04	18.36	15.14	21.70	31.86	78.05	198.70
Czech Republic	21.80	30.55	32.26	52.33	45.41	61.38	73.13	180.05	496.91
Estonia	2.70	4.23	2.69	5.21	3.65	6.34	5.54	21.42	51.77
Georgia	7.17	12.03	7.39	15.76	10.27	17.67	19.39	58.08	147.76
Hungary	19.53	28.48	28.51	49.05	37.41	55.43	54.85	165.17	438.41
Kazakhstan	24.78	43.99	23.71	53.70	28.71	55.80	41.00	149.92	421.61
Kyrgyz Republic	11.36	18.05	10.85	20.55	13.57	21.95	20.50	55.18	172.00
Latvia	4.47	6.86	4.51	8.36	6.26	10.42	10.53	41.02	92.43
Lithuania	6.46	10.06	6.34	12.06	9.57	16.55	17.73	64.25	143.01
Macedonia, FYR	4.76	6.49	5.38	8.49	7.13	9.49	12.19	29.40	83.32
Moldova	9.23	14.29	9.22	16.71	10.79	16.93	16.90	48.64	142.70
Poland	94.36	136.96	103.97	177.28	129.11	188.05	223.82	643.60	1,697.13
Romania	43.10	63.92	56.93	99.60	71.17	107.69	106.92	300.93	850.25
Russian Federation	243.39	450.92	225.89	534.57	273.53	578.09	447.08	1,805.56	4,559.02
Serbia and Montenegro	22.58	31.49	25.34	41.24	33.93	46.13	59.00	135.76	395.47
Slovak Republic	12.99	18.89	15.94	27.40	20.18	29.76	33.52	93.29	251.98
Slovenia	4.47	6.02	5.86	8.91	8.18	10.60	16.90	42.47	103.40
Tajikistan	12.99	21.43	10.56	21.24	12.88	21.76	20.78	54.81	176.45
Turkey	187.72	275.61	209.38	350.17	262.91	371.07	334.06	800.42	2,791.34
Turkmenistan	11.08	18.05	10.46	20.41	12.18	20.46	17.17	47.92	157.73
Ukraine	67.45	125.02	66.62	157.00	89.78	181.72	144.32	563.74	1,395.66
Uzbekistan	64.75	98.42	60.96	107.55	74.82	110.67	117.73	282.41	917.30

Source: World Bank staff calculations.

and benefits, as well as on the manner of provision of long-term care services, it is critical that countries in the region make very deliberate and careful policy choices related to entitlement, provision, and financing of long-term care services.

Policy Implications

Public expenditures on health have been growing at rates faster than GDP in almost all countries of the region, thereby imposing a huge burden on governments, which must inject increasing amounts of funds to bail out their health systems. But how much of this expenditure growth can be attributed to demographic change? In fact, the

TABLE 5.7

Projections of Elderly Dependent Population under the Constant Disability Scenario in Eastern European and Former Soviet Countries, 2050

thousands

Country	65–70 years		70–74 years		75–79 years		80 years and older		Total
	Male	Female	Male	Female	Male	Female	Male	Female	
Albania	5.31	8.20	4.52	8.68	5.77	9.19	8.77	27.66	78.09
Armenia	4.43	8.15	4.50	11.05	5.17	10.52	8.19	27.17	79.17
Azerbaijan	15.45	25.92	13.37	28.85	18.03	32.54	37.56	113.58	285.30
Belarus	13.16	22.96	11.67	26.22	13.82	28.64	20.36	82.66	219.50
Bosnia and Herzegovina	6.60	9.52	7.72	12.91	10.66	14.95	18.72	47.63	128.70
Bulgaria	10.55	15.15	12.47	21.26	15.14	22.27	19.59	57.54	173.95
Croatia	7.58	10.81	8.88	14.77	11.96	16.75	24.44	59.87	155.06
Czech Republic	16.38	22.96	23.24	37.70	8.84	11.95	47.01	115.75	283.84
Estonia	2.24	3.51	2.23	4.31	3.00	5.20	4.45	17.19	42.13
Georgia	5.98	10.04	6.06	12.93	8.31	14.31	15.66	46.91	120.20
Hungary	14.94	21.79	21.50	36.99	27.34	40.50	37.40	112.61	313.07
Kazakhstan	18.49	32.83	17.68	40.04	21.53	41.85	31.35	114.64	318.42
Kyrgyz Republic	8.86	14.08	8.29	15.71	10.12	16.37	14.85	39.98	128.27
Latvia	3.78	5.79	3.84	7.11	5.39	8.97	9.19	35.83	79.90
Lithuania	5.22	8.13	5.04	9.60	7.53	13.02	13.91	50.42	112.88
Macedonia, FYR	—	—	—	—	—	—	—	—	—
Moldova	5.61	8.69	5.22	9.47	5.54	8.70	7.47	21.51	72.22
Poland	75.13	109.04	80.79	137.75	97.67	142.26	164.75	473.76	1,281.15
Romania	35.21	52.22	45.56	79.71	55.49	83.98	80.63	226.93	659.72
Russian Federation	173.08	320.65	156.72	370.88	188.09	397.52	311.60	1,258.42	3,176.95
Serbia and Montenegro	—	—	—	—	—	—	—	—	—
Slovak Republic	10.34	15.04	12.38	21.28	15.27	22.52	24.77	68.95	190.56
Slovenia	3.56	4.78	4.54	6.91	4.81	6.24	11.72	29.45	72.00
Tajikistan	10.98	18.10	8.98	18.06	11.04	18.65	17.99	47.46	151.25
Turkey	152.45	223.82	166.24	278.03	203.50	287.21	251.83	603.39	2,166.47
Turkmenistan	8.59	14.00	8.05	15.70	9.30	15.62	13.06	36.44	120.76
Ukraine	49.37	91.50	47.43	111.77	61.46	124.39	93.11	363.70	942.73
Uzbekistan	52.38	79.61	48.78	86.06	59.49	87.99	96.59	231.72	742.63

Source: World Bank staff calculations.

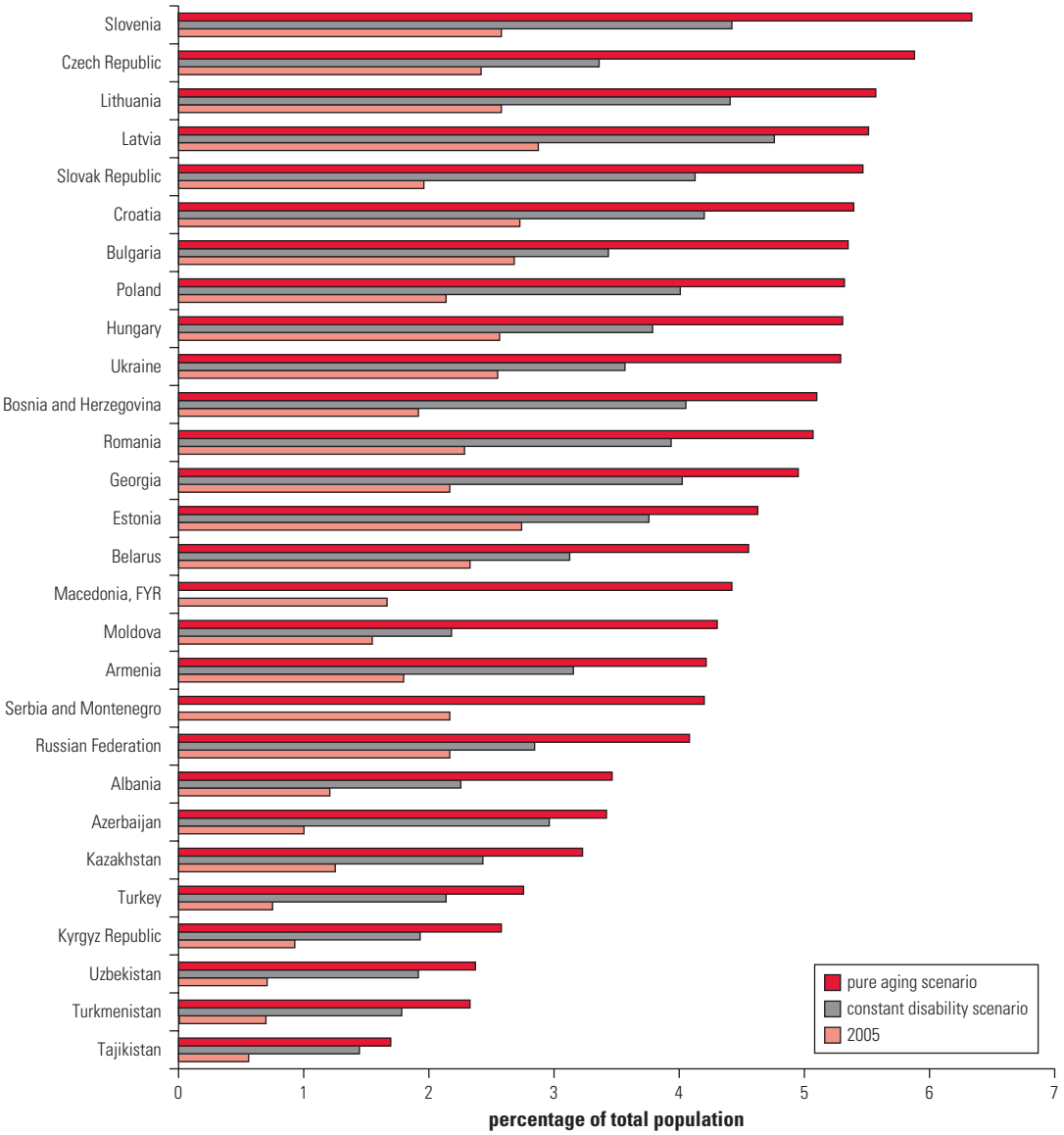
Note: — = not available.

analysis reported in this chapter leads to the conclusion that changes in population size and age structure are not highly influential factors in overall health care expenditures over the medium and long terms. This conclusion is consistent with findings from other studies.[6]

Nonetheless, regardless of how one interprets the data, there is no doubt that increased numbers of elderly will have at least some effect on aggregate national health expenditures and certainly an effect on long-term care expenditures. However, governments are not helpless in the face of projected future costs caused by an aging population, because most factors critical to the development of health expenditures—and particularly long-term care expenditures—can, in varying degrees, be managed through public policy. A range of

FIGURE 5.2

Elderly Dependent Population as a Percentage of Total Population in Eastern European and Former Soviet Countries, 2005, and Projections for 2050 under the Pure Aging and Constant Disability Scenarios



Source: World Bank staff calculations.

policy changes could reduce the demand for health or long-term care services or the overall cost of providing those services.

Many necessary policy reforms are common across all countries of the region, irrespective of the organization of their health systems. First, promoting a healthier old age is perhaps the most effective way

of ensuring better health and lower health expenditures for aging populations. It is also the most long-term policy strategy; it involves the adoption of preventive medical and social approaches at earlier ages to forestall the needs of the elderly for clinical or long-term care services. These approaches include changes in lifestyle, especially regular exercise and diet and weight control, as well as adoption of preventive measures to ward off illness and morbidity. The potential payoff is considerable in that a healthier old-age cohort would collectively use fewer medical and long-term care services.

Second, reforms that improve financing and delivery of long-term care will be fundamental to containing the potential explosion of expenditures on such care. The key lies in designing delivery arrangements, including configuration of services and their accessibility to elderly clients, that are substantially less expensive for public sector budgets than current arrangements. Examples of such designs are the neighborhood- and community-based arrangements termed *care-friendly districts* in the Netherlands and *open care centers* in Greece. These approaches introduce a category of care that is part medical and part social, located between home care and primary care, and designed to meet elderly needs in a more accessible way than do normal primary care services.

Third, it is important to recognize and strengthen the centrality of informal caregivers in order to develop a cost-efficient long-term care system. This proposal responds to two major threats to the provision of long-term care. The first is that the predominant source of supply for caregivers—women who are not working full-time—either has shrunk or is projected to shrink. Thus, although a high proportion of the elderly have at least one surviving child, there is a decreasing likelihood that those children will be available to provide care. The second concern is the capacity and willingness of informal caregivers to continue providing informal care. There is a real danger of unpaid informal caregivers becoming overloaded and feeling compelled to move their family members into institutional settings.

Some countries have already taken measures to address these issues; they offer valuable lessons for the Eastern European and former Soviet countries. Direct measures include incorporating cash as well as service benefits in what is provided to elderly clients, thereby making it possible to provide some financial reward to informal caregivers. This strategy has already been adopted in a number of social health insurance countries (for example, Austria and Germany) as well as in several Nordic tax-based systems, where informal caregivers also receive pension credits. In the Netherlands, both paid care and informal care can be combined for certain patients through individual

budgets, thereby allowing informal caregivers to obtain professional assistance with more difficult tasks. Over the longer term, to the extent that policy measures can influence household formation and reduce the number of elderly single-person households, the conditions for providing informal long-term care will be favorably affected.

In addition to these reforms, which are needed throughout the region, population aging has some specific policy implications for different groups of countries in Eastern Europe and the former Soviet Union.

New EU Member States

The health systems of most of the new EU member states are already quite stretched for resources, and almost all are struggling to contain expenditures and manage their fiscal balances. These fiscal problems persist even though most countries have already undertaken large-scale and comprehensive health sector reforms. Although these reforms have succeeded in securing spending levels commensurate with their levels of development and ensuring health outcomes at levels commensurate with spending on health, they have left a number of issues unresolved.

First, although financing reforms have generally succeeded in safeguarding allocations to the health sector and protecting it from exogenous shocks, the accompanying reforms in efficiency have not contained costs. On the delivery side, the shift from the more resource-intensive inpatient care to less expensive outpatient care has not been accomplished, and the culture of overhospitalization and overuse of specialized care persists. Recent gains from reductions in the length of hospital stays per episode and increases in bed occupancy rates in individual facilities have been negated by slow progress in addressing the oversupply of hospital infrastructure. Furthermore, not all health care systems have been able to find mechanisms of reimbursement that are appropriate for motivating providers to deliver better-quality services and to produce them efficiently and cost-effectively.

Second, reforms in most countries have avoided the contentious issue of the scope of services to be covered by the public system. The bases for determining the scope of services covered by the health insurance system are laid down in the constitutions of most countries. They are generally interpreted to imply universal coverage and free access to health care services through the means of compulsory health insurance built on the principles of solidarity and the right of protection of individual health.

Third, health sector reforms in these countries have had little or no effect on the pervasiveness of informal payments from patients to providers, which constitute a financial burden, especially for the poor, and have a negative impact on equity in health care financing. Fourth, most new EU member states do not have a well-functioning system of quality assurance that regularly incorporates evidence-based medicine in the production, delivery, and financing of health care services.

At the same time, all new EU member states have populations that are old and aging, which imposes added pressure to complete this reform agenda. The key to managing incremental health expenditures caused by aging is to focus on completing the reforms necessary to address the existing deep-rooted structural faults in the design of the health systems. In addition, long-term care strategies need to be formulated in ways that ensure that costs do not spiral out of control. The general approach of relying primarily on home care and informal caregivers, as opposed to basing the system on institutionalized provision of long-term health care services, needs to be at the forefront of the long-term care strategy in these countries—especially as they come under peer pressure from the older EU member states to provide for the long-term needs of the elderly.

Southeastern European Countries

The former Yugoslav republics—Bosnia and Herzegovina, Croatia, FYR Macedonia, Montenegro, and Serbia—have a tradition of organized health care that dates back more than 70 years. The health system guaranteed universal access to a liberal package of services, but the provision of health care was marked by an overreliance on hospital services and an underuse of primary care and preventive measures. Health spending was historically high, and it increased even more following the political and economic changes in the 1990s. Currently, these countries are among the highest spenders on health, with public expenditures as high as 7.8 percent of GDP in Serbia and Montenegro, more than 6.5 percent in Croatia, and 5.9 percent in FYR Macedonia. These high levels of health spending have not been sustainable, and the substantial financial deficits in recent years have required sizable infusions of funds to keep systems afloat.

In all the countries of Southeastern Europe, the number and proportion of elderly will increase significantly over the next two decades. That increase will apply new pressures to the ongoing reforms, which are in very early stages of formulation and implementation. As in the new EU member states, the key to managing the

potential increase in health expenditures lies first in completing the reforms necessary to bring fiscal discipline to the health system and in realigning the incentives so as to sustain the gains of these reform measures. In addition, these countries should formulate their long-term care strategies by building on their strong traditions of public health and by developing strategies to ensure that the elderly spend increasingly more years in good health. Long-term care is nascent in these countries; to make sure that the costs do not get out of control, the system should rely primarily on home care and informal care instead of on institutionalized provision of services.

Middle-Income Former Soviet Countries

Public expenditures on health in the middle-income countries of the former Soviet Union—Belarus, Kazakhstan, Russia, and Ukraine—are about 4 percent of GDP, which is moderate by international standards. All citizens have free access to basic health care in public facilities, though in practice a large amount of out-of-pocket spending in the form of voluntary and informal payments occurs there. Inefficiencies in the provision of health care are generally acute. All middle-income former Soviet countries have extensive hospital infrastructures (on average, more than 30 percent more hospital beds per population than in new EU member states), and more than 80 percent of the limited resources are spent on staff salaries and utilities, leaving little for supplies, equipment, maintenance, and repairs. Although some health indicators have improved over the past few years (such as infant and maternal mortality), others have remained stagnant or have deteriorated (such as the mortality of men age 25 to 39 and the incidence of tuberculosis and HIV). On balance, most of the health status indicators for the middle-income former Soviet countries are lower than those of the new EU member states.

Aging and changing demographics pose a particular challenge for these countries, with huge declines in their populations and substantial increases in the percentage of the elderly expected over the next two decades. Given the high levels of mortality and morbidity among young adults in these countries, there is a real concern that the relatively healthier surviving cohorts who will constitute the large majority of the elderly in 2025 will be more vulnerable to illnesses at an old age. Furthermore, if the elderly cohorts in these countries suffer increasing disability with age, then the health systems will face inordinately high fiscal and capacity pressures in coping. The biggest and most immediate challenge for these countries, therefore, is to improve the health status of the adult population, especially targeting

the proximate causes of morbidity and mortality in the 25 to 45 age groups.

Low-Income Former Soviet Countries

Despite improvements in recent years, the health sectors in the low-income former Soviet countries of Armenia, Georgia, and Moldova continue to face problems related to the financing, access, and use of health services and to efficiency in the use of existing resources. With continuous underfunding exacerbated by misallocation of scarce resources, large numbers of health conditions go untreated, and the poor in these countries suffer disproportionately. Fiscal constraints limit the availability of public funds for the health sector, and private out-of-pocket spending on health is large, placing a huge burden on household incomes. Indeed, for a majority of people in these countries, the possibility of illness or injury looms as one of the most frightening aspects of poverty, with health expenditures on inpatient care being particularly catastrophic.

Overall use of health services is low compared with other countries, and not everybody who reports an illness seeks care. The general health status of the populations of these countries is poor and—combined with inadequate levels of public funding and high poverty rates—it is unlikely that these countries will be able to achieve the Millennium Development Goals and other priority targets in population health. In addition, these countries are experiencing a fast-growing HIV/AIDS epidemic, although prevalence is still relatively low. Recent years have seen increases in the number of communicable diseases (especially those that are sexually transmitted) and noncommunicable diseases (including cancers and diseases affecting the endocrine system, nervous and sensory organs, circulatory system, and respiratory organs).

Aging and the changing demographic structures pose new challenges for the already beleaguered health systems in Armenia, Georgia, and Moldova. Given the current poor levels of population health and very low rates of use of health services, it is likely that the majority of the current adults who live beyond 65 years by 2025 (and thus form the elderly cohort) will be in relatively poor health. The exponentially increasing health needs of the elderly will stretch the system even further and put tremendous pressures on the currently inadequately funded public system. In preparing to meet these challenges, these countries need to make significant changes now across almost all aspects of health financing, production, and delivery. First,

total spending on health needs to increase significantly. With the current levels of poverty, further increases in private out-of-pocket spending on health are unlikely to be achieved, which suggests that at least for the next few years public allocations to the health sector will have to increase. Second, a significant proportion of public spending on health will need to be directed toward prevention and promotion of lifestyle changes that ensure better and improved health. Third, it will be necessary to educate the population on the expected surge in the demand for long-term care in two decades, and to prepare families and communities to produce and provide the associated health services at home and in community settings.

For all governments in the region, adopting and sustaining a policy mix to address health system issues that are being exacerbated by aging populations will require consistency and persistence. Such a policy will also involve careful coordination across a range of governmental actors both within national governments and between public and private actors at the national and local levels. This effort will present a considerable challenge to governments that feel pressure to resolve important policy matters within a single electoral cycle.

Annex 5.A: Legislation on Long-Term Care in Europe

Annex table 5.A.1 summarizes the national legislation that defines the provision and financing of long-term care in these European countries: Austria, France, Germany, Hungary, Luxembourg, the Netherlands, Norway, Poland, Sweden, and the United Kingdom.

Annex 5.B: Gross Domestic Product and Public Expenditures on Health

Annex table 5.B.1 shows general government health expenditures, general government health expenditures per capita, and the gross domestic product of Eastern European and former Soviet countries.

Annex 5.C: Elderly Dependent Population

Annex table 5.C.1 shows estimates of the elderly dependent population in the countries of Eastern Europe and the former Soviet Union in 2005. Annex table 5.C.2 provides an estimate of the elderly

TABLE 5.A.1

National Legislation on Long-Term Care in Selected European Countries

Country	Year	Act	Content and services covered
Austria	1993	Federal act governing long-term care benefits	As of July 1, 2003, a new system of long-term care benefits replaced the cash benefit system, standardizing provision for long-term care allowances throughout the country. It is based on a catalog of services and quality standards for the outpatient and inpatient sectors. It provides for cash (flat-rate) and in-kind benefits. The allowance depends on the level of care rather than on income (Brozek 2004; Grilz-Wolf and others 2004; and Rubisch and others 2004).
France	2002	Personalized independence allowance	An allowance was created and jointly funded by the state and general councils. It varies according to the level of disability of the person and is paid to the facility providing assistance to the dependent person or to the people themselves if they live in their own home. The benefit pays the wages of caregivers assisting the disabled person. Means-tested user fees are covered by beneficiaries. The allowance is available only to the seriously dependent, while those with lesser degrees of dependency are covered by the social assistance programs of old-age insurance funds (EIRO 2003).
	2004	National Independent-Living Support Fund	A specific insurance fund was created for dependent, elderly people. Proceeds from a 0.3 percent tax on earned income, a 0.3 percent tax on financial investment income, and a 2 percent tax on income from property, the impact of which is offset for companies by the elimination of one day's public holiday for employees, are to be allocated to the fund. The fund also balances funding between the various *départements* in order to ensure that major disparities do not get worse (EIRO 2003).
Germany	1994 (implemented 1995–96)	Social Code Book XI (statutory long-term care insurance)	Costs were shifted from the local, community-based public assistance system to the state- and federally based mandatory social long-term care insurance system (Geraedts and others 2000). It covers both home care and nursing home services. Nursing home coverage includes basic care, medical care, and therapeutic social activities, but not room and board or capital costs. Residents are responsible for 25 percent of the costs. Sickness funds pay flat monthly amounts for institutional care, depending on the level of disability. "For people receiving care outside of an institution, the program allows the choice of cash rather than services that are paid for by sickness funds up to a set amount. The service benefit may be thought of as a 'voucher' for approved services, the cash benefit as an 'income supplement.' Persons electing cash receive less than half the value of the service benefits, but the use of cash is unrestricted" (Cuellar and Wiener 2000).
Hungary	1993	Social Care Act	Eligibility for social services was defined (OECD 2005).
	2003	Government decree on the upcoming tasks of modernization of the health care system	The direction was set for the introduction of insurance for long-term care and medical savings accounts (Gaál 2004).

Luxembourg	1998 (implemented 1999)	Law on the Introduction of the Long-Term Care Social Insurance Scheme	Home and institutional nursing care, rehabilitation, home aid, nursing appliances, counseling, and other support are covered. Cash payments also can be used for informal care.
	1998	Law on the Regulation of the Relations between the State and the Organizations Working in the Social, Familial, and Therapeutic Fields	Provision of an official license to all institutions and organizations offering long-term care in the new insurance scheme (Feider and others 1999; European Social Network 2005).
Netherlands	1967	Exceptional Medical Expenses Act	A tax was created to cover the medical costs for all chronic care that individual patients cannot meet through their normal health insurance. Every patient pays income-related premiums that are fixed every year.
	1994	Disabled Persons Provisions Act	Municipalities provide equipment (for living and transportation) for disabled people to enable them to participate in society and to live at home.
Norway	1986 (implemented 1988)	Municipal Health Services Act	Payments for informal care were established and responsibilities for nursing home care were allocated to the municipalities (Elstad 1990; OECD 2005).
	1991	Social Services Act	Municipalities were made responsible for social services (Furuholmen and Magnussen 2000).
Poland	1990	Social Care Act	Definition of general rules of social care and its finances are provided (Szczerbińska 2005).
	1998	Decree of the minister of health	The decree established long-term hospital and ward referral rules.
	2004	New social care law	Definitions of general rules of social care and its finances are provided (Wieczorowska-Tobis 2005).
Sweden	1982	Social Services Act	It was articulated that the elderly have the right to receive public service and help at all stages of life (Glenngård and others 2005).
	1992	Ädel Reform	Responsibility of care for the elderly was shifted from the county councils to the municipalities; financial incentives were introduced to offer home-based care for hospital patients upon discharge (Glenngård and others 2005).
	1993 (implemented 1994)	Act Concerning Support and Service for Persons with Certain Functional Impairments	Support such as personal assistance with daily activities was provided for people with functional impairments.
	2001	Social Services Act	Municipalities were obliged to provide social services (Ministry of Health and Social Affairs 2005).
United Kingdom	1990 (implemented 1993)	National Health Service and Community Care Act	The act devolved responsibility for the funding of long-term care to local authorities and gave the National Health Service only a residual role in long-term care.

Source: Saltman and Dubois 2005.

TABLE 5.B.1

GDP and Public Expenditures on Health in Eastern European and Former Soviet Countries, 2004

Country	General government health expenditures (US$ millions)	General government health expenditures per capita (US$)	Gross domestic product (US$ millions)
Albania	207.75	66.76	7,591.03
Armenia	46.29	15.30	3,555.04
Azerbaijan	77.12	9.23	8,521.97
Belarus	1,077.19	109.80	22,888.53
Bosnia and Herzegovina	381.40	97.56	8,307.30
Bulgaria	1,033.84	132.88	24,132.06
Croatia	2,240.72	493.58	34,307.82
Czech Republic	7,000.39	685.84	107,693.27
Estonia	469.59	351.73	11,233.17
Georgia	47.47	10.51	5,200.83
Hungary	6,018.51	595.48	99,453.21
Kazakhstan	1,001.94	67.52	40,742.96
Kyrgyz Republic	48.76	9.37	2,205.81
Latvia	445.56	192.17	13,579.63
Lithuania	1,095.11	318.74	22,386.55
Macedonia, FYR	314.64	154.96	5,355.17
Moldova	114.88	27.24	2,594.65
Poland	10,533.33	275.89	235,641.60
Romania	2,499.45	114.71	73,166.83
Russian Federation	18,282.78	127.05	582,313.29
Serbia and Montenegro	1,787.87	170.11	22,889.42
Slovak Republic	2,076.80	385.88	40,721.54
Slovenia	2,151.19	1,077.21	32,181.77
Tajikistan	19.62	3.05	1,904.07
Turkey	16,634.27	231.71	301,057.34
Turkmenistan	299.84	62.91	12,266.76
Ukraine	2,513.65	53.49	65,039.11
Uzbekistan	271.98	10.38	11,951.19

Source: World Bank staff calculations.

Note: GDP = gross domestic product.

dependent population in 2025 under the pure aging scenario. An estimate of the elderly dependent population in 2025 under the constant disability scenario is shown in annex table 5.C.3.

Annex 5.D: Sensitivity of Projection Results to Data Assumptions

The projection results are predicated to a large extent on the basic assumptions that drive the use of data as well as the methodology, and these caveats qualify all the calculations presented in this chapter. In this context, three sets of assumptions—related to availability of data on specific variables of interest, presumed values of specific parameters of interest, and projected future values of macroeconomic variables—deserve specific discussion.

TABLE 5.C.1

Estimates of Elderly Dependent Population, 2005

thousands

Country	65–70 years		70–74 years		75–79 years		80 years and older		Total
	Male	Female	Male	Female	Male	Female	Male	Female	
Albania	3.62	4.79	3.46	5.07	3.31	5.39	2.77	9.44	37.85
Armenia	4.19	7.61	3.84	7.26	5.74	9.30	3.88	12.34	54.17
Azerbaijan	7.10	12.50	7.39	14.25	8.18	13.02	5.26	16.70	84.40
Belarus	13.21	28.58	12.96	33.70	17.23	42.59	14.68	64.61	227.56
Bosnia and Herzegovina	7.17	11.94	6.82	12.88	6.79	11.35	4.43	13.43	74.80
Bulgaria	12.57	20.96	15.84	30.28	20.01	31.81	22.44	53.36	207.26
Croatia	8.02	13.54	8.93	18.63	10.44	19.53	10.53	34.49	124.10
Czech Republic	13.42	22.28	15.46	31.24	20.88	37.94	26.32	79.50	247.03
Estonia	1.99	4.14	2.02	5.07	2.61	6.14	2.49	11.98	36.43
Georgia	7.46	12.88	6.53	13.02	9.40	16.37	6.65	24.68	96.97
Hungary	13.35	26.23	14.98	35.07	20.01	40.36	26.04	83.49	259.52
Kazakhstan	16.40	31.40	9.70	21.24	15.66	34.78	9.97	45.74	184.88
Kyrgyz Republic	3.76	6.39	3.26	6.71	4.52	8.37	3.05	12.71	48.78
Latvia	3.62	7.33	3.36	8.91	4.18	10.79	3.60	24.68	66.47
Lithuania	4.62	9.40	5.09	12.47	6.44	14.88	7.48	27.95	88.32
Macedonia, FYR	2.63	4.04	2.09	5.07	3.13	4.84	3.32	7.99	33.10
Moldova	4.54	8.84	4.32	9.73	5.39	10.60	5.26	16.36	65.04
Poland	46.93	83.28	53.18	113.71	66.82	128.53	78.95	250.47	821.87
Romania	34.29	58.19	37.25	72.47	46.81	74.03	50.97	121.24	495.24
Russian Federation	201.00	439.17	155.33	422.23	224.11	569.35	174.79	919.48	3,105.46
Serbia and Montenegro	15.62	25.10	18.43	34.25	22.79	35.34	24.65	50.82	227.01
Slovak Republic	5.82	10.72	6.43	14.52	8.18	16.37	11.63	32.31	105.98
Slovenia	3.05	4.89	3.26	6.85	4.18	7.81	4.16	16.34	50.53
Tajikistan	3.48	5.17	2.69	4.77	3.83	5.02	3.05	8.35	36.35
Turkey	49.06	80.93	56.26	90.28	58.99	82.03	47.92	85.31	550.77
Turkmenistan	2.84	4.70	2.40	4.80	2.96	5.39	2.22	8.35	33.65
Ukraine	79.59	164.22	59.90	149.19	91.52	216.13	77.28	346.67	1,184.51
Uzbekistan	16.05	24.91	13.82	25.21	17.92	27.71	15.51	48.28	189.42

Source: United Nations 2005, author's calculations.

Data on Specific Variables of Interest

Data on age-related public expenditures on health are not available for most countries, especially non–European Union (EU) member states, so an average age-cost profile is used for the purposes of projecting future health expenditures in this exercise. This may be a limiting assumption: for instance, if average nominal spending on cohorts age 60 to 70 in the non-EU member states is four times nominal spending instead of the stipulated average of three times nominal spending on cohorts age 20 to 30, the projected expenditure figures will underestimate actual expenditures. Even more limiting is the assumption made about death-related costs, which are not available for almost any of the countries in the study sample and are assumed for the purposes of these projections to have the same ratio between

TABLE 5.C.2

Estimates of Elderly Dependent Population under the Pure Aging Scenario in Eastern European and Former Soviet Countries, 2025

thousands

Country	65–70 years		70–74 years		75–79 years		80 years and older		Total
	Male	Female	Male	Female	Male	Female	Male	Female	
Albania	6.04	8.65	5.38	8.91	6.09	8.56	6.37	19.60	69.58
Armenia	5.33	10.62	4.51	10.69	4.00	7.63	6.93	20.33	70.03
Azerbaijan	13.63	23.97	10.37	21.37	7.48	12.83	14.68	42.83	147.17
Belarus	15.83	32.62	14.69	39.18	12.35	29.39	17.45	78.77	240.29
Bosnia and Herzegovina	7.81	12.22	8.64	15.76	9.74	15.75	15.79	42.11	127.82
Bulgaria	13.70	22.47	15.74	30.83	20.36	34.60	23.82	70.42	231.94
Croatia	9.59	14.85	11.04	19.59	13.40	20.83	19.11	55.18	163.59
Czech Republic	19.74	29.70	25.54	46.31	35.32	55.43	41.27	119.06	372.37
Estonia	2.13	4.23	2.21	5.48	2.61	8.95	3.60	17.06	46.27
Georgia	7.74	13.82	7.49	15.76	8.00	14.32	11.63	34.85	113.61
Hungary	18.39	30.93	22.46	46.85	25.06	46.69	32.96	121.24	344.58
Kazakhstan	18.96	38.26	17.66	44.80	12.88	27.90	19.94	74.78	255.18
Kyrgyz Republic	6.60	11.56	5.57	11.65	4.87	8.74	6.37	17.79	73.15
Latvia	3.98	7.24	3.84	8.63	4.35	9.30	6.65	35.57	79.56
Lithuania	5.82	10.72	5.47	12.60	5.92	12.46	11.63	45.01	109.64
Macedonia, FYR	3.91	5.64	4.13	7.12	4.35	6.70	5.26	15.25	52.35
Moldova	7.24	13.07	7.10	15.07	6.61	11.90	7.76	25.05	93.80
Poland	81.44	130.57	88.70	174.26	97.27	168.70	292.51	812.03	1,845.48
Romania	38.20	62.98	42.82	83.84	47.85	79.42	65.37	88.21	508.69
Russian Federation	229.69	487.39	214.94	577.04	214.19	515.03	246.81	1,078.47	3,563.57
Serbia and Montenegro	19.17	28.48	23.42	41.24	26.10	38.13	36.29	81.31	294.14
Slovak Republic	10.79	17.20	11.81	23.29	12.35	22.13	14.96	51.18	163.72
Slovenia	4.40	6.58	5.38	8.91	6.26	9.11	8.31	25.77	74.72
Tajikistan	6.32	10.43	4.61	9.18	4.00	6.32	6.37	13.79	61.03
Turkey	107.57	156.89	97.82	166.59	100.22	138.94	100.27	215.62	1,083.93
Turkmenistan	5.61	10.15	4.32	9.45	3.65	6.88	4.16	11.98	56.20
Ukraine	69.65	145.89	70.66	181.39	71.86	163.68	112.46	442.50	1,258.08
Uzbekistan	32.66	52.83	25.63	48.50	21.92	34.60	32.69	75.87	324.69

Source: World Bank staff calculations.

decedents and survivors as is observed in Poland in 2004. Projections of health expenditures adjusted for death-related costs are thus carried out for only the pure aging scenario and are illustrative at best.

Presumed Values of Specific Parameters of Interest

Note that all projections in this study assume that the ratio of health expenditures across age groups remains constant throughout the period of projections. Thus, if in 2005 the health expenditure on a 60 year old is 10 times that on a 25 year old, it is assumed to remain 10 times as much even in 2050. This may be a limiting assumption, because changing innovations and inventions in medical and related sciences may well change present-day protocols and the practice of

TABLE 5.C.3

Estimates of Elderly Dependent Population under the Constant Disability Scenario in Eastern European and Former Soviet Countries, 2025

thousands

Country	65–70 years		70–74 years		75–79 years		80 years or older		Total
	Male	Female	Male	Female	Male	Female	Male	Female	
Albania	5.31	7.60	4.59	7.60	5.00	7.02	4.94	15.21	57.27
Armenia	4.56	9.09	4.64	10.99	4.24	8.09	5.47	16.07	63.15
Azerbaijan	12.40	21.80	9.44	19.45	6.90	11.84	14.01	40.89	136.73
Belarus	13.23	27.26	12.10	32.28	10.04	23.88	13.91	62.77	195.48
Bosnia and Herzegovina	7.10	11.10	7.76	14.14	8.70	13.61	14.21	37.90	114.51
Bulgaria	11.82	19.37	13.34	26.11	16.77	28.51	18.72	55.33	189.97
Croatia	8.67	13.43	9.98	17.72	12.02	18.70	16.76	48.37	145.65
Czech Republic	16.34	24.60	20.63	37.41	27.70	43.47	31.25	90.15	291.54
Estonia	1.92	3.81	1.99	4.95	2.35	5.36	3.20	15.14	38.72
Georgia	6.98	12.46	6.71	14.11	7.15	12.79	10.44	31.27	101.90
Hungary	15.67	26.36	18.96	39.55	20.79	38.73	26.47	97.36	283.90
Kazakhstan	16.21	32.71	15.13	38.36	11.12	24.10	17.60	65.98	221.20
Kyrgyz Republic	5.81	10.17	4.86	10.17	4.21	7.56	5.45	15.21	63.44
Latvia	3.61	6.58	3.51	7.90	4.00	8.56	6.14	32.87	73.18
Lithuania	5.10	9.39	4.74	10.92	5.60	11.80	10.01	38.74	96.31
Macedonia, FYR	—	—	—	—	—	—	—	—	—
Moldova	5.50	9.93	5.25	11.15	4.71	8.48	5.22	16.86	67.11
Poland	72.10	115.60	77.81	152.86	84.17	145.98	247.82	687.97	1,584.31
Romania	33.89	55.88	37.54	73.52	41.59	69.02	56.80	76.64	444.89
Russian Federation	192.25	407.96	179.25	481.22	178.67	429.62	205.67	898.73	2,973.38
Serbia and Montenegro	—	—	—	—	—	—	—	—	—
Slovak Republic	9.59	15.28	10.37	20.45	10.75	19.26	13.01	44.51	143.20
Slovenia	3.82	5.71	4.61	7.64	5.25	7.64	6.65	20.62	61.93
Tajikistan	5.81	5.81	9.59	4.27	8.50	3.74	5.90	5.98	49.60
Turkey	96.74	96.74	141.09	87.19	148.48	88.90	123.25	89.48	871.85
Turkmenistan	4.88	8.84	8.84	3.76	8.32	3.18	5.99	3.63	47.45
Ukraine	58.55	122.64	122.63	58.48	150.14	58.61	133.49	90.70	795.23
Uzbekistan	29.33	47.44	47.44	23.00	43.53	19.62	30.96	29.75	271.09

Source: World Bank staff calculations.

Note: — = not available.

medicine, which, in turn, will change the ratio of health expenditures across age groups. The assumption that the probability of seeking or receiving care will remain constant at 2004 levels is also potentially limiting, because both insurance coverage and gross domestic product (GDP) growth have an influence on patterns of use.

Projected Future Values of Macroeconomic Variables

Macroeconomic variables such as GDP growth rates are most difficult to predict beyond a couple of years into the future. Any exercise attempting to project health expenditures as a percentage of GDP for the period extending to 2050 necessarily must be based on a number of

imaginative assumptions. For the purposes of this study, projections of GDP growth rates are drawn from the *World Economic Outlook* (IMF 2006), which projects GDP growth rates for five-year periods. Note that these projections themselves are based on a number of assumptions about such factors as the exchange rates, oil prices, interbank interest rates, and national policies. In particular, the projections presented in the *World Economic Outlook* (IMF 2006) assume that

- Real effective exchange rates will remain constant at their average levels during February 9, 2006, to March 9, 2006, except for the currencies participating in the European Exchange Rate Mechanism II. Those currencies are assumed to remain constant in nominal terms relative to the euro.
- Established policies of national authorities will be maintained: the average price of oil will be US$61.25 per barrel in 2006 and US$63.00 per barrel in 2007, and those prices will remain unchanged in real terms over the medium term.
- The six-month London interbank offered rate on U.S. dollar deposits will average 5.0 percent in 2006 and 5.1 percent in 2007.
- The three-month euro deposit rate will average 3.0 percent in 2006 and 3.4 percent in 2007.
- The six-month Japanese yen deposit rate will yield an average of 0.3 percent in 2006 and of 0.9 percent in 2007.

The *World Economic Outlook* goes on to caution that these GDP projections are working hypotheses and not forecasts and that uncertainties add to the margin of error that accompanies all projections (IMF 2006). This caution is sobering, because the average price of oil in 2006 already was much more than US$61.25 per barrel, a price that forms one of the bases for projected GDP growth rates. Given the high probability of the short-term projections being off the mark, it is almost impossible to project GDP growth rates all the way to 2050—which poses a particular problem for the purposes of the present exercise.

The sensitivity of the projected results to assumed GDP growth rates is best illustrated by comparing the results for the new EU member states as produced in the EPC report (annex table 5.D.1) with the projected health expenditure figures in this report (table 5.1, reproduced in annex table 5.D.2).

Besides differences in data on public spending on health and data on population projections, the main reason for the huge variations in the two sets of results lies in the widely different projections of GDP growth rates used in the two studies (annex table 5.D.3). The

TABLE 5.D.1

Projection Results as Percentage of GDP under the Pure Aging Scenario in Selected Eastern European and Former Soviet Countries, 2010–50: Economic Policy Committee Report

Country	2010 (% of GDP)	2030 (% of GDP)	2050 (% of GDP)	Change 2010–50
Czech Republic	6.7	7.7	8.3	1.5
Estonia	5.6	6.0	6.3	0.7
Hungary	5.7	6.2	6.5	0.8
Latvia	5.3	5.6	5.9	0.6
Lithuania	3.8	4.1	4.4	0.6
Poland	4.3	5.0	5.4	1.1
Slovak Republic	4.6	5.5	6.1	1.5
Slovenia	6.6	7.4	7.8	1.2

Source: European Commission 2006.

TABLE 5.D.2

Projection Results as Percentage of GDP under the Pure Aging Scenario in Selected Eastern European and Former Soviet Countries, 2010–50: from Table 5.2

Country	2010 (% of GDP)	2030 (% of GDP)	2050 (% of GDP)	Change 2010–50
Czech Republic	6.65	7.09	6.83	0.18
Estonia	4.27	4.46	4.56	0.29
Hungary	6.16	6.34	6.16	0.00
Latvia	3.31	3.30	3.17	−0.14
Lithuania	5.02	5.04	4.72	−0.30
Poland	4.58	5.01	4.84	0.26
Slovak Republic	5.24	5.90	5.89	0.65
Slovenia	6.88	7.44	7.07	0.25

Source: World Bank staff calculations.

TABLE 5.D.3

Projected Annual Growth of GDP in Selected Eastern European and Former Soviet Countries, 2010–50

percent

	2010		2020		2030		2040		2050	
Country	EPC	WB	EPC	WB	EPC	WB	EPC	WB	EPC	WB
Czech Republic	3.6	3.8	2.5	3.8	1.9	3.8	0.4	3.8	0.8	3.8
Estonia	5.6	6.1	2.7	6.1	2.3	6.1	1.3	6.1	0.6	6.1
Hungary	3.3	4.1	2.5	4.1	2.1	4.1	0.8	4.1	1.1	4.1
Latvia	7.4	4.3	2.9	4.3	2.1	4.3	1.2	4.3	0.4	4.3
Lithuania	6.1	5.8	3.0	5.8	1.9	5.8	1.3	5.8	0.4	5.8
Poland	5.0	5.0	3.2	5.0	2.2	5.0	0.7	5.0	0.4	5.0
Slovak Republic	5.3	5.1	3.3	5.1	2.0	5.1	0.4	5.1	0.3	5.1
Slovenia	3.6	3.9	2.4	3.9	2.0	3.9	1.0	3.9	1.1	3.9

Source: EPC values: European Commission 2006. WB values: IMF 2006.

Note: EPC = Economic Policy Committee; WB = World Bank.

column labeled "EPC" presents the projected GDP growth rates as used in the Economic Policy Committee study, which are much lower than the projected growth rates used in this study (the column labeled "WB"). With such huge differences in projected growth rates, it is not surprising that the projected share of health expenditures in GDP are so much higher in EPC calculations compared with the conclusions of this study, which holds the 2010 projected GDP growth rate constant to 2050.

Notes

1. In particular, the SHARE study finds that "the proportion of unique or multiple overnight hospital stays is higher in the older age categories up to 80 to 84 years ($p < 0.0001$). At this age, more than one in five persons reported one or more hospital admissions over the last twelve months. The proportion of repeat hospitalizations reaches 8 percent at the age of 75–79; it is slightly lower in older age groups . . . whilst 9 percent of individuals aged 50–54 had inpatient or outpatient surgeries in the past twelve months, the proportion in the 75–79 age category is 14 percent. Lower rates are observed at the age of 80–84 (13 percent) or 85+ (9 percent)" (Börsch-Supan and others 2005: 137).
2. See annex table 5.B.1 for the base data on health expenditures used in this exercise.
3. A measure of physical functioning of adults, first developed by Katz and others (1963), ADL (activities of daily living) evaluate difficulties in performing such activities as dressing, bathing, eating, toileting, transferring from bed to chair, walking across a small room, and the like. In recent years, this assessment of functional abilities has been further refined into three general categories of activity: basic, instrumental, and advanced activities. Basic activities of daily living (BADL) encompass those covered by the original ADL and include the ability to bathe, dress, use the toilet, transfer from bed to chair, and feed oneself independently. Instrumental activities of daily living (IADL) include using the telephone, shopping, preparing meals, housekeeping, taking medications, and handling finances. Advanced activities of daily living (AADL) are primarily assessed in clinical settings as person-specific recreational, occupational, and community participation; changes in these daily habits may reflect dysfunction.
4. See annex table 5.C.2 for estimates for 2025.
5. See annex table 5.C.3 for estimates for 2025.
6. In addition to research reported earlier in this chapter, Kotlikoff and Hagist (2005) conclude that growth in real benefit levels (that is, health expenditures per person at a given age) in 10 OECD countries explains as much as 89 percent of overall health care spending growth.