



# HEALTH AND ECONOMIC DEVELOPMENT IN SOUTH-EASTERN EUROPE





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## ABSTRACT

Health is increasingly seen as a robust predictor of economic growth. In the present report the contribution of health to economic development is examined in the context of south-eastern Europe, where the dynamics of health cooperation gained momentum following the Second Ministerial Health Forum co-organized by the Council of Europe Development Bank, the Council of Europe and the WHO Regional Office for Europe, with the special participation of ministers of finance. The report presents the socioeconomic context and the evolution of the health sector. It examines the trends and patterns observable in the areas of disease burden and socioeconomic inequalities in health, and the development of health systems and policies as well as the way they should evolve in order to meet the future specific health challenges. The report demonstrates the economic importance of health for the countries of south-eastern European. Health, as a human capital ingredient, is especially relevant for sustained economic development and social cohesion. These two political objectives figure prominently on the EU agenda and play a central role in the European Union's Lisbon agenda.

### Keywords

ECONOMIC DEVELOPMENT  
DELIVERY OF HEALTH CARE – trends  
FINANCING, HEALTH  
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## NOTE TO THE READER

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This report was drafted and edited before the Declaration of Independence adopted on 3 June 2006 by the National Assembly of Montenegro. All references to Serbia and Montenegro appearing in this report refer to the legal situation prevailing before that date. The Republic of Montenegro has applied for membership of the United Nations but not, as yet, deposited an instrument of acceptance of World Health Organization's Constitution, thereby becoming member of World Health Organization (WHO). Pursuant to the decision of the Committee of Ministers of the Council of Europe, on June 14 2006, the Governing Board of the Council of Europe Development Bank (CEB) noted on June 16 that, following the declaration of independence of the Republic of Montenegro, and in accordance with Article 60 of the Constitutional Charter of the State Union of Serbia and Montenegro, the Republic of Serbia will continue membership of the State Union in the CEB and will assume the attendant obligations and commitments.

Paris, June 28 2006

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## ACKNOWLEDGEMENTS

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The present report follows on the Second Health Ministers' Forum with the special participation of ministers of finance, *Health and Economic Development in South-Eastern Europe in the 21st Century*, co-organized by the Council of Europe Development Bank (CEB), the Council of Europe and the World Health Organization (WHO) Regional Office for Europe (Skopje, The former Yugoslav Republic of Macedonia, 25–26 November 2005). Ministers held an in-depth discussion on the report's findings which was moderated by Krzysztof Ners (Vice-Governor, CEB) and Nata Menabde (WHO Deputy Regional Director for Europe). This report was prepared by a core team led by the Council of Europe Development Bank and the WHO Regional Office for Europe, comprising Ivana Bozicevic, Bernd Rechel and Professor Martin McKee (London School of Hygiene and Tropical Medicine), Donata Favaro (University of Padua), Dimo Iliev (CEB) and Marc Suhrcke (WHO). The authors would like to express their special gratitude to Dora Mircheva-Dimitrova, Maria Haralanova and Erio Ziglio from WHO, Thierry Poirel and Michèle Meunier from the CEB, and Alexander Vladychenko and Piotr Mierzewski (Council of Europe) for their support in preparing the report. The authors are also grateful for comments received by the members of the SEE Health Network under the auspices of the Stability Pact for South-eastern Europe. The involvement of the WHO Centre for Investments in Health in Venice was extremely valuable.

The document has been edited by Rosemary Bohr.

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## FOREWORD

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Great attention is being attached to the importance of health for economic progress in south-eastern Europe. Governments across the region are increasingly concerned with ensuring the physical well-being and better health of their populations. This focus on health reflects the political commitment embodied in the cooperation process launched in 2001 in Dubrovnik at the First South-East European Health Ministerial Forum.

The painful economic and social transition process of recent years in south-eastern Europe has had a severe effect on the health of the population. For most health indicators, the south-east European states show on average a lower health status than the wealthier European Union countries, and the gap is widening rather than narrowing.

Ministers of health and finance from eight south-eastern European countries<sup>1</sup> and their development partners met in Skopje in November 2005 to discuss ways to improve the effectiveness of their health systems and to increase domestic and external resources for health. A higher level of financial resources allocated to public health and greater political and organizational efforts could achieve real improvements in health. Investment in health through both the health systems and non-health sectors is an integral part of the overall strategy to achieve sustained economic growth and reduce poverty. It is also important for narrowing the health gap between south-eastern Europe and the countries of the European Union.

Significant evidence relating to the potential contribution of health to the economy has been accumulated since the first report of WHO's Commission on Macroeconomics and Health. Recently, the European Commission published a study entitled *The contribution of health to the economy of the European Union*. This report on *Health and economic development in south-eastern Europe*, which our two institutions have the honour to present in this book, brings forward concrete evidence regarding the potential contribution of improved health to economic development in south-eastern Europe. It is the first attempt to put together evidence at regional level demonstrating the positive effect on earnings and labour supply of good health.

This report focuses on the specific disease burden in the region and its economic consequences. It underlines the links between organizational and managerial issues relating to the health care systems and the potential for improvements in health. The report was discussed at the Skopje Forum and stimulated a promising discussion that we are convinced will continue across the region and beyond.



Raphaël Alomar  
Governor  
Council of Europe Development Bank



Marc Danzon  
Regional Director  
WHO Regional Office for Europe

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<sup>1</sup> Albania, Bosnia and Herzegovina, Bulgaria, Croatia, Republic of Moldova, Romania, Serbia and Montenegro, The former Yugoslav Republic of Macedonia.



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## INTRODUCTION<sup>2</sup>

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Health is increasingly seen as a robust predictor of economic growth. Very recently, the European Commission published a report on the contribution of health to the economy in the European Union, which illustrated the relevance of the work of the WHO Commission on Macroeconomics and Health (CMH) to high-income countries such as those in the European Union (EU). In December 2001, the CMH, chaired by Jeffrey Sachs, presented its report assembling evidence of the economic benefits attributable to improving health in developing countries and putting forward recommendations for action on this evidence.

The CMH report concluded that investment in public health in developing countries, as well as being a worthwhile goal in itself, produces enormous economic benefits both for the people concerned and for the countries as a whole. In the analyses undertaken for the report, the typical quantitative impact of life expectancy on economic growth was estimated to be of the following magnitude: a 10% increase in life expectancy at birth increases economic growth by at least 0.3–0.4% of gross domestic product (GDP) per year. The report also identified a number of cost-effective investments that would save millions of lives and result in billions of dollars worth of economic growth. It concluded that investment in essential health services for the poor would help millions of people to emerge from poverty as well as contribute in important ways to overall economic growth.

There is little doubt that the CMH report has helped to bring about a paradigm shift according to which health is seen not merely as an end in itself, but also a means for simultaneously bringing about tangible economic benefits. This finding has important policy implications: policy-makers who are interested in improving economic outcomes should have a strong interest in considering health investment as one of the options by which to meet their economic objectives.

To what extent do these findings apply to the countries of south-eastern Europe (SEE)? The focus of the CMH has been on the developing world, where the predominant disease burden is in communicable diseases, maternal and antenatal conditions and nutritional deficiencies (accounting for almost two thirds of the total burden of disease, measured in disability-adjusted life-years). The SEE countries, on the other hand, suffer an overwhelming burden of noncommunicable diseases and injuries. A different health pattern coupled with a different socioeconomic context may well limit the direct transferability of the results.

Although the analysis is limited by data and methodological constraints, we find substantial evidence that (i) poor health negatively affects various labour market outcomes in south-eastern Europe, and (ii) the SEE economies as a whole would have much to gain from improved public health.

This is important from an EU policy standpoint in at least two ways. First, as some SEE countries are aspiring to EU membership, an investment in public health made as an integral part of the pre-accession support could directly benefit both the health of the population and the prospects for economic development, thereby increasing the probability of successful future enlargement. Second, for those SEE countries not on the verge of joining the EU, an investment in public health could further the specific aims of the EU's wider neighbourhood policy to avoid drawing new dividing lines in Europe and to promote stability and prosperity within and beyond the new borders of the Union (EC, 2005).

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<sup>2</sup> By Dimo Iliev and Marc Suhrcke.



The current report demonstrates the economic importance of health – not merely of health care – for south-eastern Europe. Good health is especially relevant for sustained economic development and social cohesion. These two political objectives are of vital importance for the EU, since human capital plays a central role in its Lisbon Agenda.

The break-up of the former Yugoslavia in 1991 and the collapse of communism resulted in profound system-wide changes and the rapid emergence of macro-level stressors such as the erosion of safety nets, the restructuring of markets, the deepening of poverty and inequalities through unemployment and the devaluation of real wages, pensions and social benefits. This was followed by a decade of loss in human and social capital, although the countries concerned have started, more or less successfully, to rebuild this capital in recent years. It has been estimated that a total of three million people left their homes during violent conflicts in the 1990s. As Gligorov points out (Gligorov, 2002; Gligorov et al., 2003), during the 1990s economic development in the south-eastern part of Europe fell significantly compared to the countries of central and eastern Europe (CCEE) that joined the EU in 2004, and even more so compared to the member states of the European Union before May 2004 (EU-15).<sup>3</sup> The region – with the exception of Croatia – has a low level of GDP per capita compared to the new EU members. While other economies in transition experienced a recovery from the “transformational recession” after 1992/1993, the south-east European economies experienced a deeper fall during 1989–1993, and a period of stagnation until 1999.

Apart from Romania, the unemployment rates across the region are high, and a “black” or “grey economy” is an established feature of the employment market in the region. Limited evidence on these trends does not allow for a careful analysis of the impact of these unfavourable events on population health and on the extent and distribution of socioeconomic inequalities in health.

The present study examines the contribution of health to economic development in the context of south-eastern Europe, where health cooperation is gaining momentum thanks to the organization of the Second Health Ministers’ Forum with the special participation of ministers of finance. The conference, which took place in Skopje on 25 and 26 November 2005, had three main objectives:

- to consolidate the established health alliance at regional level by increasing cross-border opportunities for local partners to work together to improve health;
- to support ministries of health in assuming ownership of regional health projects and to help them inspire and empower health professionals to ensure sustainable long-term improvements in public health;
- to demonstrate the economic potential of health – an ingredient of human capital – as a means of increasing productivity and reducing public expenditure related to illness: a healthy population works better and produces more.

In the wake of the ministerial conference, the present report examines three main themes. It starts with a brief presentation of the region, its demography and economy (Chapter 1). This is to describe the economic challenge of achieving sustained economic growth and a reduction in poverty. The rest of the report develops the argument that investments in health, both within and beyond the health system, can play a hitherto untapped role in achieving those economic policy objectives.

<sup>3</sup> Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, Netherlands, Portugal, Spain, Sweden and the United Kingdom of Great Britain and Northern Ireland.

Major benefits from investments in health can only be expected if in the first place there is sufficient scope for improving public health in the SEE countries. Chapter 2 therefore describes the principal health challenges in terms of the overall disease burden, epidemiological trends and in the unequal levels of health within the countries.

Additionally, there could only be very limited expectations of gains from a scaling-up of policy efforts to improve health, however these were defined, if current and previous policy efforts (again both inside and outside the health system) were already running at maximum capacity. Chapter 3 discusses the scope for improving policy-making, specifically as it relates to reform and financing of health systems, and maps out some important trends in health care expenditure, external assistance to health and reform of health services delivery.

There are certainly important health challenges in the region, and there is little doubt that health policy has so far not kept pace with these challenges. This, however, is not by itself sufficient to suggest that improvements in health would be good for the SEE countries' economies. Some regionally relevant evidence is needed that poor health has been responsible for a significant economic burden in these countries and, more importantly, that improvements in the general standard of health can be expected to improve subsequent economic development. To the best of our knowledge, no study has so far made a direct examination of the impact of health on economic outcomes in south-eastern Europe. The present report is a first step towards filling this gap. This is the task of Chapter 4.

Finally, Chapter 5 summarizes the main findings of the report and discusses the policy implications.

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EC (2005). *The contribution of health to the economy of the European Union*. Brussels, European Commission.

Gligorov V (2002). *Southeast Europe: History of divergence*. Vienna, Vienna Institute for International Economic Studies.

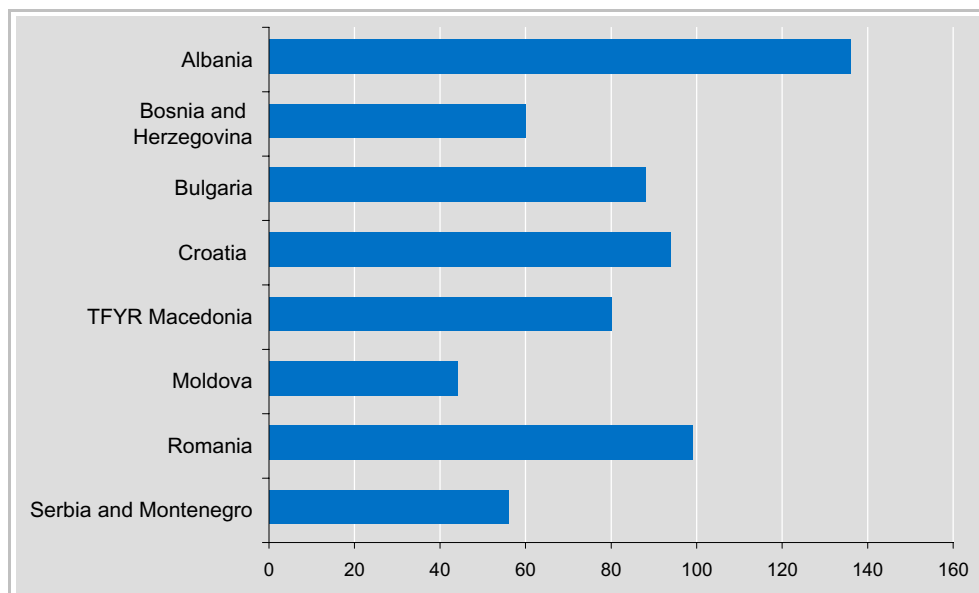
Gligorov V, Holzner M, Landesmann M (2003). *Prospects for further (South) Eastern European enlargement: from divergence to convergence?* Vienna, Vienna Institute for International Economic Studies.

## 1. DEMOGRAPHIC AND ECONOMIC TRENDS IN SOUTH-EASTERN EUROPE<sup>4</sup>

South-eastern Europe was home to a population of 57.7 million people at the end of 2003, according to a Council of Europe demographic report covering 2004 (Council of Europe, 2005). The most heavily populated country is Romania, with 38% of the total population of the area. Two main demographic trends are of particular concern in south-eastern Europe: low rates of population growth and ageing populations (CEB, 2005). Population growth remained negative until 2003 in Bulgaria, the Republic of Moldova and Romania. Where the age of the population is concerned, three SEE countries are among the ten countries in Europe with the highest share of the youngest age group (0–14 years) in the total population. These are Albania (32% of its total population in 2000), the Republic of Moldova (19%) and The former Yugoslav Republic of Macedonia (20%). However, the other countries in the area are faced with serious decreases in the proportion of young people in the total population and growing numbers of people aged 65 years and over.

After the break-up of the former Yugoslavia, SEE countries experienced a sharp increase in poverty, driven in large part by the collapse in incomes and increasing inequality. Since the beginning of the new century, however, they have been experiencing a period of rapid growth. Despite the recent recovery of south-eastern European GDP growth rates, however, real GDPs are still much lower than in the late 1980s. In 2004, the GDPs of Bosnia and Herzegovina, the Republic of Moldova and Serbia and Montenegro, for example, were less than 60% of their 1989 levels (Fig. 1).

Fig. 1. Estimated levels of real GDP in south-eastern European countries, 2004 (1989=100)



Authors' calculations on the basis of data from the European Bank for Reconstruction and Development (EBRD). TFYR Macedonia = The former Yugoslav Republic of Macedonia.

<sup>4</sup> By Donata Favaro, Marc Suhrcke and Dimo Iliev.

The recent good performance of SEE countries has been favoured by a strong global economy, in particular by robust growth in the United States and China, and by low global interest rates and credit spreads. In addition, growth in these countries continued to be supported by relatively high levels of aid and remittances from workers living abroad (EBRD, 2005). On the other hand, although the resurgence of growth between 1998 and 2003 resulted in a significant decline in poverty, the prospects for this to continue are less propitious. Very few countries have been successful in replacing jobs previously destroyed and the employment-to-population ratios are well below those in OECD countries. The positive effect of growth on reducing poverty in the future risks being limited by the persistence of low employment-to-population ratios and high inequality levels (World Bank, 2005a).<sup>5</sup>

The SEE countries still appear to be in difficulty as regards pursuing their goals of sustained growth and reducing poverty. The recent trends in growth driven by international aid and exceptional conjunctural factors do not appear to be sustainable. The World Bank has pointed out that structural investments are needed to increase productivity, support employment and diminish inequality. The SEE countries need to focus on policies that will accelerate rates of growth and ensure that benefits are widely shared among the population. In addition, efficiency and equity concerns warrant a stronger delivery of education and health services and public utilities and enhancement of social protection (World Bank, 2005a).

## Economic development in south-eastern Europe

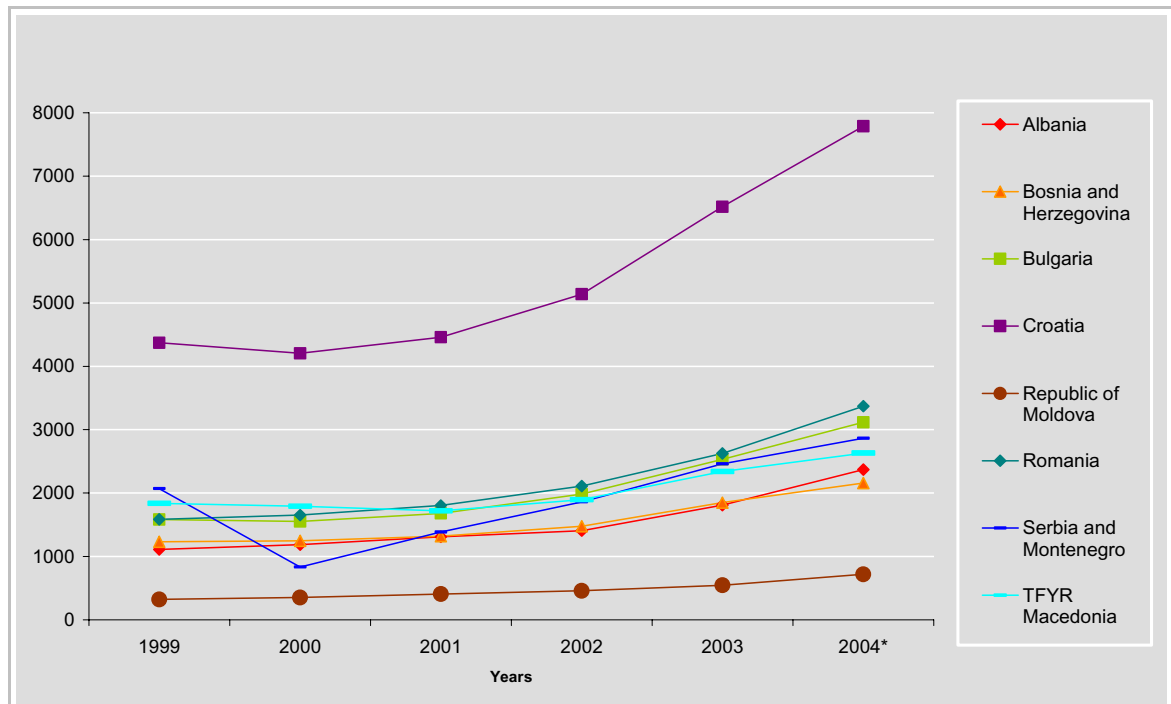
The break-up of the former Yugoslavia, the wars and the ensuing societal and political transition led to tremendous economic decline across south-eastern Europe during the 1990s. Real per capita GDP sharply decreased in the whole area during the 1990s, with the exception of Albania. Although this decline was partially reversed during the first years of the new millennium, as yet most of the countries have not recovered to the GDP levels of the years before to the Yugoslavian crisis.

As shown in Fig. 2, Albania is performing better than other SEE countries: in 2004 its GDP exceeded the 1989 level by 36 percentage points. The Romanian GDP in 2004 was almost equal to its level prior to the 1990s, while the Bulgarian GDP improved by 18 percentage points, rising from 69.9% in 2001 to 88% in 2004. The trends in The former Yugoslav Republic of Macedonia, Serbia and Montenegro and the Republic of Moldova were similar to those in other countries, albeit improving more slowly. In 2004, The former Yugoslav Republic of Macedonia still ranked among the leading countries in terms of recovery, although its GDP had increased by only 5 percentage points since 2001. The GDP of Serbia and Montenegro increased from 41.6% of its 1989 level to 56%, while the Republic of Moldova remained the last, with a GDP equal to 44% of its 1989 level (improving by only 14 percentage points between 2001 and 2004). Growth in real GDP in the SEE countries was quite different during the two periods 1993–1999 and 2000–2005. Throughout the 1990s, growth was characterized by sharp oscillations with countries experiencing positive growth rates one year and negative growth rates the next. Growth rates in Bosnia and Herzegovina as well as Serbia and Montenegro and the Republic of Moldova fluctuated widely. Since 2000, however, growth throughout south-eastern Europe has stabilized around positive rates. In 2004 the whole region grew by a record 6.4% on a weighted average basis, up from 4.4% in 2003. The average growth in GDP for

<sup>5</sup> The extent to which growth can affect the reduction of poverty is strictly correlated with the level of inequality in a country (World Bank, 2005a).

the whole area in 2005 is estimated to be around 4.9%. The reasons for this good performance are well known. The strong global economy –helped by robust growth in the United States and China and by low global interest rates and credit spreads – has been an important factor. The region, however, benefited from strong domestic demand boosted by fast credit growth and rises in wages. Increased bank lending, foreign and domestic investments, as well as exports have also contributed to the regional growth.

Fig. 2. GDP per capita in south-east European countries, 1999 -2004 (US\$)



Authors' calculations based on EBRD data.

\* The values for 2004 are estimates.

Within the region, average growth in GDP remained robust at about 6.5% in 2004 in Bulgaria, Croatia and Romania, where the prospect of EU membership has continued to act as a catalyst for reforms. In Bulgaria and Romania, which are scheduled to join the European Union in 2007, growth rates reached an estimated 5.5% and 8.3%, respectively. In contrast, Croatia recorded lower growth than in 2003 as a result of a fall in private consumption. Economic growth was sustained in the western Balkans (Albania, Bosnia and Herzegovina, The former Yugoslav Republic of Macedonia and Serbia and Montenegro), with the exception of The former Yugoslav Republic of Macedonia where the weak industrial performance offset recovery in the agricultural sector (EBRD, 2005).

Economic growth in the SEE countries in 2005 was expected to slow to just below 5%. After their exceptionally strong performance in 2004, growth rates could level off. Despite global events, the best performing SEE countries are expected to keep on attracting capital inflows: the positive effect of future EU membership should sustain flows of capital towards the EU acceding (Bulgaria and Romania) and candidate countries (Croatia), as in 2004. In the rest of the region, on the contrary, a tighter global environment is expected to affect capital inflows negatively. In those countries aid flows will be maintained but at a slower pace, and capital inflows will be insufficient to replace the declining official flows (EBRD, 2005). Although south-eastern Europe has been performing well in terms of growth in recent years, levels of GDP per capita are still low compared to the EU and the region is still the poorest in Europe. However, some distinctions have to be made among the SEE countries (Fig. 2). Croatia has the highest level of GDP per capita and performed quite well throughout the whole period 1999–2004. In 2004, Croatia, Romania and

Bulgaria had some of the highest levels of GDP in the region (with US\$ 7789, US\$ 3372 and US\$ 3116, respectively), whereas Albania, Bosnia and Herzegovina and the Republic of Moldova had the lowest (US\$ 2372, US\$ 2158 and US\$ 719, respectively). However, even the best-performing countries – and EU candidates (Bulgaria, Croatia, Romania) – had some of the lowest levels of GDP in the EU in 2004. Adjusting for purchasing power standards, GDP per capita as a percentage of the EU-25 average is equal to 46% in Croatia, 32% in Romania and 30% in Bulgaria.<sup>6</sup>

## Trends in levels of poverty

In 2000, the World Bank showed how the SEE countries had been characterized throughout the transition period by a deterioration in living standards, as evidenced by higher poverty, inequality and unemployment (World Bank, 2000). The transition to a market economy brought new opportunities for some but resulted in loss of jobs or prolonged nonpayment of salaries, loss of savings and a deep erosion of the traditional social supports for many others. The report underlined that at the time it was written good progress had been made in achieving macroeconomic stability, whereas progress on structural reforms and institutional development had lagged, especially when compared to the economies of central Europe and the Baltic states. Thus, the World Bank underlined that gains in macroeconomic stability were fragile and the prospects for these economies to move on to a sustainable growth path were not good without deeper reforms, a strengthening of institutions and governance and measures to reduce poverty.

In the year the World Bank report was written, growth rates in SEE countries had become positive. As shown above, they have enjoyed a strong economic performance since the beginning of the new century, growing at an average of around 4.7 percentage points; inflation decreased towards levels of 6% in 2004 and net total capital inflows increased to more than US\$ 20 000 million. In addition, poverty rates have been diminishing since the turn of the century. Table 1 presents a comparative analysis of poverty in SEE countries, making use of some world development indicators. In order to evaluate poverty in a comparative and historical perspective, two different measures of poverty are taken into consideration: the percentage of people living on less than US\$ 2.15 a day, and the percentage of people living on less than US\$ 4.30 a day. Both measures have been constructed by the World Bank for the report on growth, poverty and inequality and are based on comparable consumption aggregates; values are made comparable across countries and over time by using the 2000 purchasing power parity (ppp) exchange rates.

As shown in Table 1, until the end of the 1990s poverty was getting worse. Since 2000, the trend in poverty – whatever index is used to measure it – seems to have been following a decreasing trend.

However, as the report *Growth, poverty, and inequality: eastern Europe and the former Soviet Union* (World Bank, 2005a) underlines, the reduction in poverty over the last few years is the result of a unique combination of factors, the most important of which is economic growth, and the prospects of this reduction continuing are less propitious. SEE countries, even those that have made the most progress in reducing poverty, have been unsuccessful in creating jobs to fully replace those that have been destroyed. The employment ratio is well below that in the Organisation for Economic Co-operation and Development (OECD) countries. If it persists, this failure to expand employment will fundamentally limit the impact of growth on reducing poverty and act as a brake on the further reduction of absolute poverty. The World Bank suggests a substantial agenda of reforms if countries

<sup>6</sup> EUROSTAT news release, 75/2005. GDP per capita in 2004.

wish to reduce poverty in all its dimensions over the coming years. While specific action will vary from country to country, all countries need to focus on policies that will accelerate rates of growth and ensure that benefits are widely shared among the population. In addition, efficiency and equity concerns warrant stronger delivery of education and health services and public utilities and enhancement of social protection (World Bank, 2005a and 2005b).

Table 1. Poverty indices, 2005

	Poverty indices, US\$ PPP 2.15/day			Poverty indices, US\$ PPP 4.30/day		
	Rate	Depth	Severity	Rate	Depth	Severity
	P0 <sup>a</sup>	P1 <sup>b</sup>	P2 <sup>b</sup>	P0	P1	P2
<i>Albania</i>						
2002	24	5	2	71	28	14
<i>Bosnia and Herzegovina</i>						
2001	5	1	0	40	10	4
2004	4	1	0	35	9	4
<i>Bulgaria</i>						
1995	3	1	1	20	6	3
2001	10	3	1	36	13	6
2003	4	1	0	33	9	4
<i>The former Yugoslav Republic of Macedonia</i>						
2002	4	1	0	23	7	3
2003	4	1	0	24	7	3
<i>Republic of Moldova</i>						
1998	67	29	16	93	56	38
1999	79	37	22	96	64	46
2000	77	35	19	96	62	44
2001	70	29	15	94	57	39
2002	56	20	10	90	48	30
2003	43	13	5	85	41	23
<i>Romania</i>						
1998	14	3	3	63	21	9
1999	19	4	4	69	25	12
2000	20	5	5	72	26	13
2001	16	4	4	64	22	10
2002	16	4	4	62	22	10
2003	12	3	3	58	19	9
<i>Serbia and Montenegro</i>						
2002	6	1	1	42	12	5

Source: *Growth, poverty and inequality. eastern Europe and the former Soviet Union* (World Bank, 2005a) (staff estimates using the ECA Household Surveys Archive).

<sup>a</sup>P0 reported in %.

<sup>b</sup>P1 and P2 are multiplied by 100.



## Poverty and health in south-eastern Europe

As with the heterogeneities observed in the burden of disease across the region (see Chapter 2), marked differences also exist in the extent and nature of poverty, as well as the magnitude of health inequalities. It is argued that the distribution of poverty has changed in some countries, the most notable example being Bulgaria where during the mid-1990s poverty was a transient phenomenon resulting from hyperinflation and sharply increased unemployment, whereas at the beginning of the 2000s poverty seems to be more concentrated among specific population groups such as the Roma, unemployed, large households and those living in rural areas. On the other hand, a different pattern of widespread poverty exists in Kosovo (Serbia and Montenegro), which has implications for interventions to alleviate poverty.

The most recent estimates of poverty presented in this chapter suggest that the lowest proportion of poor people can be found in Croatia (10%), followed by Bosnia and Herzegovina and The former Yugoslav Republic of Macedonia (20%), Albania (25%) and Romania (29%). Moreover, almost half of the populations of the Republic of Moldova and Kosovo (Serbia and Montenegro) live in poverty. In addition, 5% of the population in Albania and 12% in Kosovo (Serbia and Montenegro) live in extreme poverty. Large numbers of people suffering from injuries and psychological war traumas impose additional demands on the health systems in the countries of the former Yugoslavia, as seen in the worse health status of internally displaced persons (IDPs) and refugees and their lack of access to health care.

In all the countries for which data have been available, the poor are more likely to face economic barriers to obtaining health care, which is to some extent due to the large proportion of uninsured people among the poor and their inability to afford health care. Overall, a substantially larger proportion of the insured use health services compared to the uninsured, meaning that the current systems do not meet the goal of universal coverage. Although most of the countries have free access to health services, such access is in reality not equitable. The widespread out-of-pocket expenditure is another impediment to equitable access to health services. The threshold for seeking care varies with income status. Health inequalities are also evident in the greater relative spending of resources on health care by the poor compared to the rich. They are, consequently, more exposed to financial losses due to ill health. Considerable inequalities in access to health services are evident in Albania, Bosnia and Herzegovina and Kosovo (Serbia and Montenegro). As seen in Bosnia and Herzegovina, 10% of the working age population suffers from chronic mental problems which probably also affect their job performance.

The data presented suggest a divergence in health status between social groups and a connection between the lack of economic means and less than good health. Although the Living Standard Measurement Survey (LSMS) methods vary between the countries, the results suggest a disproportionate burden of poor health and chronic diseases in specific population groups, for example, the elderly and unemployed in Albania, particularly women, and those without education in Kosovo (Serbia and Montenegro). People living in extreme poverty in Kosovo (Serbia and Montenegro), and in particular older women, have considerably worse health. In Kosovo (Serbia and Montenegro), ethnic minorities and those living in rural areas also suffer from poorer health. The data also suggest high out-of-pocket expenditure on health in Albania, particularly in the hospital sector: 10% of the Albanian population is considered extremely poor after health expenditure is taken into account. The differences in use of the health services between the poor and non-poor were widest among children and the elderly. Albania is also the country with the highest gender

differences in health outcomes, with women reporting considerably worse health status and higher use of the health services.

One fifth of the population in Bosnia and Herzegovina does not have health insurance and they suffer from significantly worse health than those who are insured. The lack of health insurance or inability to pay for health services is an important impediment to use of the health services in Bosnia and Herzegovina, where more than half of those that needed health care could not get it because of a lack of financial resources and an additional 20% because they were not insured. A significantly lower proportion of men with a chronic disease visited primary health care (38%) compared to women (50%), as against Bulgaria, where similar proportions of men and women received health care if they were chronically ill (50%).

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## 2. HEALTH IN SOUTH-EASTERN EUROPE: RECENT TRENDS, PATTERNS AND SOCIOECONOMIC INEQUALITIES IN HEALTH<sup>7</sup>

This chapter examines the patterns and trends in the population health status and existing evidence on socioeconomic inequalities in health in the countries of south-eastern Europe (SEE) that benefit from the Stability Pact initiative. However, it needs to be noted that health data for these countries have limited validity for the 1990s due to the large-scale population movements which were difficult to estimate, unrecorded deaths and different estimates of mortality and population that were in use at the time. Data since 2001 have generally better validity as censuses have been carried out in all the countries except Bosnia and Herzegovina and Kosovo (Serbia and Montenegro) (Bozicevic et al., 2001). Censuses were carried out in Albania, Bulgaria and Croatia in 2001, in Serbia and The former Yugoslav Republic of Macedonia in 2002, and in Montenegro in 2003. No census has been carried out in Bosnia and Herzegovina since 1991.

The first part of the chapter provides an overview of the health status in these countries since 1990 in comparison to the EU-15 and the eight countries of central and eastern Europe (CCEE) that joined the EU in 2004.<sup>8</sup> This is followed by an assessment of the socioeconomic inequalities in health and access to health care services from the available survey data. The third part focuses on the health of the Roma people. The main findings of the chapter are included in Chapter 5, Concluding remarks and recommendations.

It is essential to identify the population's health problems in order to develop informed and evidence-based choices for the planning and delivery of health services (Porter, 1999). Most health problems arise from a combination of causes associated with structural factors in society and factors related to individual behaviour. The health field concept divides the inputs to health into four categories: genetic predisposition, environmental circumstances, individual behaviour and lifestyle, and health services (Lalonde, 1974). The challenges that health policy-makers face in devising health strategies are influenced by the main determinants of health and the socioeconomic context in which they occur. Evidence about the size of the gap between rich and poor in south-east Europe has been slowly emerging although the public health consequences of widening income and health inequalities, polarization of wealth and reduction in social spending have been less well explored. However, there has been increasing interest in linking together an understanding of economic growth and development with population health outcomes, particularly since the establishment of the larger-scale initiatives to tackle the wider determinants of health, such as the Social Cohesion Initiative of the Stability Pact.

### Socioeconomic development and health

A variety of terms have been used in the epidemiological literature exploring the socioeconomic influences on health, including social class, social stratification, and social and income inequality. The term "socioeconomic position" is used to address the social and economic factors that influence the position(s) individuals and groups hold within the structure of society, i.e. which social and economic factors serve as the best indicators of the location in the social structure that may influence health (Berkman, 2000). The critical factor in health is a person's location in a social hierarchy: those with greater

<sup>7</sup> By Ivana Bozicevic

<sup>8</sup> The Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Slovakia, Slovenia. Known in this report as "the eight EU-CCEE".

socioeconomic resources have wider social, psychological and economic means to cope with less advantageous events. The process of health and social stratification takes place along many dimensions, such as power (authority at home, control in the workplace), social assets (access to social networks) and human resources (skills, training). As Kawachi points out, as the hierarchy of income falls, the rates of poor health increase (Kawachi, 2000). The income gradient in health exists in nearly every measure of health outcomes, including mortality, life expectancy, morbidity, disability and perceived health status. In his research, Wilkinson found evidence suggesting that the health of a population depends on equality of income distribution rather than average income; thus rising average incomes can be associated with declining health if the resulting wealth is concentrated among a few (Wilkinson, 1996). At least three distinctive pathways have been proposed by which income inequalities may affect health: (i) they lead to underinvestment in human capital; (ii) they disrupt the social fabric and lead to disinvestment in “social capital”; (iii) they result in poor health through direct psychological pathways (Kawachi & Kennedy, 1997; Kaplan, 1996).

Some of the most consistent evidence on socioeconomic inequalities in health comes from British mortality data. During the 1980s and 1990s, mortality was consistently lower among men in the higher socioeconomic classes (I, II, III non-manual) than in the lower (III manual, IV and V), regardless of employment status. As Wilkinson showed, the relationship between income and life expectancy is steeply linear up to a level of about US\$ 5000 gross national product (GNP) per capita. Beyond that point further increments to GNP make little difference to life expectancy and the curve appears to plateau (Wilkinson, 1996). Greater dispersion of income is also associated with lower mean life expectancy. By examining cross-sectional data from 11 OECD countries, Wilkinson demonstrated a strong correlation between income inequality and life expectancy. LeGrand explored the relationship between average age of death in 17 developed countries and GDP per capita, per capita expenditure on health care and the proportion of national income earned by the least well-off 20% of the population (LeGrand, 1987). He found age at death to be most closely correlated with income distribution.

The 1980 report by Sir Douglas Black on health inequalities made a distinction between fundamental and proximal causes of health inequalities (Black et al., 1982). Researchers and health policy-makers have increasingly been thinking about the social and economic factors (an example of fundamental causes of health inequalities) that explain the prevalence of smoking (an example of proximal causes of health inequalities), and whether these should be given priority in attempts to reduce the differentials. The recent research is remarkably consistent in the finding that socioeconomic inequalities in health in eastern Europe are as wide as, or wider than, in western countries in respect to mortality, cardiovascular risk factors, birth weight and self-rated health (Bobak et al., 2000; Nolte & McKee, 2004; Malyutina et al., 2004).

The *Atlas of mortality in Europe* demonstrates the striking differences in mortality in the WHO European Region (WHO, 1997). In general, the further east, the higher the mortality rates. Lifestyle, behaviour and diet probably had a substantial impact in the east-west differences in life expectancy. For example, Peto estimated that about a half of the east-west gap was caused by smoking (Peto et al., 1992) while Leon and colleagues believe that much of Russian mortality is due to alcohol (Leon et al., 1997). This gradient is stronger among men and is apparent for major causes of death. By 1989, there was already a striking gap in life expectancy between eastern and western Europe (Bobak & Marmot, 1996). What was notable about this trend was the similarity among eastern European countries, except for the former Yugoslavia and Albania (Gjonca & Bobak, 1997). In the Russian Federation, the gap in life expectancy between women and men was 13.6 years in 1994, the widest in the world. The explanation for this is not clear but it suggests that

women were less affected by the causes of high mortality in some countries of eastern Europe (Shkolnikov et al., 2001). No research has yet been undertaken to explain in more detail and with greater precision the factors that have contributed to the gap in mortality between south-eastern and western Europe.

## Methods

This section focuses on the conditions that contribute to the highest burden of disease, as measured by morbidity and mortality indicators; describes the levels of most important risk factors; and presents some composite measures of population health, such as healthy life expectancy (HALE) and disability-adjusted life expectancy (DALY). Several data sources have been used to describe the health status and patterns in health inequalities in south-eastern Europe. The WHO European health for all database (WHO 2005b) has been used to describe the trends in the main causes of morbidity and mortality that have contributed to the heaviest burden of disease in south-eastern Europe since 1990. Very limited population health data are available for Bosnia and Herzegovina for that period. A literature search has been carried out to identify more recent publications, as a comprehensive literature review on the health status of the SEE countries was done in 2002 (Rechel & McKee, 2003).

Data from the Living Standards Measurement Studies (LSMS) have been used to explore the determinants of self-reported health and, where possible, the extent of health inequalities assessed by reporting of poor health or chronic diseases across different demographic, social and economic strata. The LSMS were developed by the World Bank in 1980 to explore ways of improving the type and quality of household data collected by government statistical offices in developing countries, and to monitor progress in raising levels of living. The LSMS collect data on many dimensions of well-being, including consumption, income, savings, employment, health, education, fertility, nutrition, housing and migration. This makes it possible to assess the important relationships between different aspects of quality of life. LSMS-type surveys have been carried out in the CCEE since the early 1990s. Among the SEE countries, the latest LSMS survey and panel data are available for Albania (2003), Bosnia and Herzegovina (2001), Bulgaria (2001) and Kosovo (Serbia and Montenegro) (2000).<sup>9</sup> LSMS data are of particular relevance for Bosnia and Herzegovina and Kosovo (Serbia and Montenegro) due to the lack of other health data that would be nationally representative, including mortality data, and generally poorer functioning of the public health surveillance systems.

The available information on health and health inequalities of school-aged children was also examined from the reports of the 2001/2002 Health Behaviour in School-Aged Children (HBSC) Surveys for Croatia and The former Yugoslav Republic of Macedonia, and the United Nations Children's Fund (UNICEF) reports from Multiple Indicator Cluster Surveys (MICS 2) carried out in 2000 in Albania, Bosnia and Herzegovina, the Republic of Moldova and Serbia and Montenegro.

The report also draws on the evidence provided by WHO world health reports, the WHO Global Burden of Disease project, and the *European health report* (WHO, 2005c).

<sup>9</sup> World Bank, Living Standards Measurement Study (LSMS) (<http://www.worldbank.org/html/prdph/lsm/lsmshome.html>, accessed 17 May 2006).

## Epidemiological pattern of diseases in south-eastern Europe and main causes of the burden of disease

This section describes the recent trends in the population health status in south-eastern Europe and the existing gap in health indicators between the SEE countries and the EU-15 and, where applicable, the eight EU-CCEE. The majority of the figures show aggregated, regional-level data for the SEE countries compared to the EU-15, while trends in the related mortality and morbidity are described for the individual countries in order to avoid omitting substantial heterogeneities in these indicators among the countries. The WHO Burden of Disease Study divided WHO Member States into five mortality strata on the basis of their levels of mortality in children under 5 years of age and in males aged 15–59 years. Croatia is included in category A; Albania, Bosnia and Herzegovina, Bulgaria, Romania, Serbia and Montenegro and The former Yugoslav Republic of Macedonia in category B, and the Republic of Moldova in category C.<sup>10</sup>

The health status of the SEE countries lags a long way behind that of the EU-15; more importantly, this divergence is more pronounced now than it was at the beginning of the 1990s.<sup>11</sup> This heterogeneity in health status is a result of a complex pattern of trends in determinants of population health, some of which originate in the past while others might be a consequence of more recent circumstances.

The gap in life expectancy in men between the SEE countries and the EU-15 widened from 6 years in 1990 to 6.5 years in 2002 (Fig. 3a). No data on life expectancy has been available for Bosnia and Herzegovina since 1992. The highest life expectancy can be observed in Albania, although it has been falling since 2001. While the EU-15 countries experienced an increase in life expectancy of 3 years in men between 1990 and 2002, Croatia and Albania experienced an increase of 2.5 and 4 years, respectively, while other countries have been less fortunate: the increase was only 0.6 years in Bulgaria, 0.8 years in Romania and 0.7 years in the Republic of Moldova. Data for Albania, Serbia and Montenegro and The former Yugoslav Republic of Macedonia have been available since 1992, and the increase in the last two countries was 1.1 years and 1 year, respectively.

The gap in life expectancy for women between the SEE countries and the EU-15 is slightly less than in men: on average it was 6.2 years in 2002 and 5.5 years in 1990 (Fig. 3b). While the EU-15 witnessed an increase in women's life expectancy of 2.2 years from 1990 to 2002, Croatia experienced an increase of 2 years, followed by 1.6 years in Romania and 0.6 years in Bulgaria. Life expectancy in Albania, Serbia and Montenegro and The former Yugoslav Republic of Macedonia has increased since 1992 by 2.3 years, 0.8 and 0.6 years, respectively. The Republic of Moldova, on the other hand, has experienced a decrease of 0.2 years.

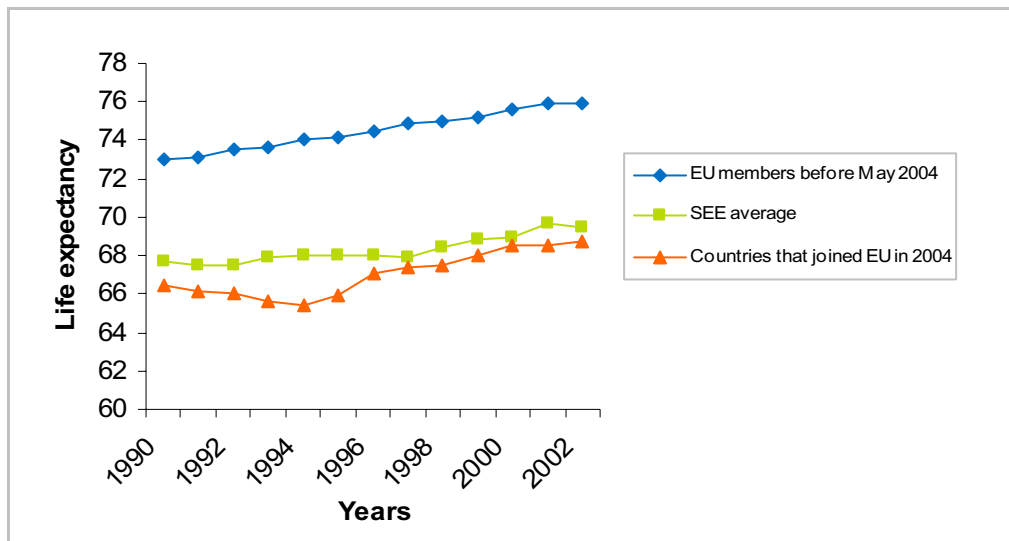
There are gender-related differences in the trends in life expectancy in comparison to the eight EU-CCEE, with life expectancy being slightly higher in men and lower in women in south-eastern Europe.

In 2002, healthy life expectancy in men estimated by the WHO Global Burden of Disease project ranged from 57.2 years in the Republic of Moldova to 63.8 years in Croatia. Likewise, for women the lowest was estimated to be in the Republic of Moldova (62.4 years) and the highest in Croatia (69.3 years). In Albania, in contrast to life expectancy at birth, healthy life expectancy was relatively low (59.5 years for men and 63.3 years for women).

<sup>10</sup> A: very low child, very low adult; B: low child, low adult; C: low child, high adult.

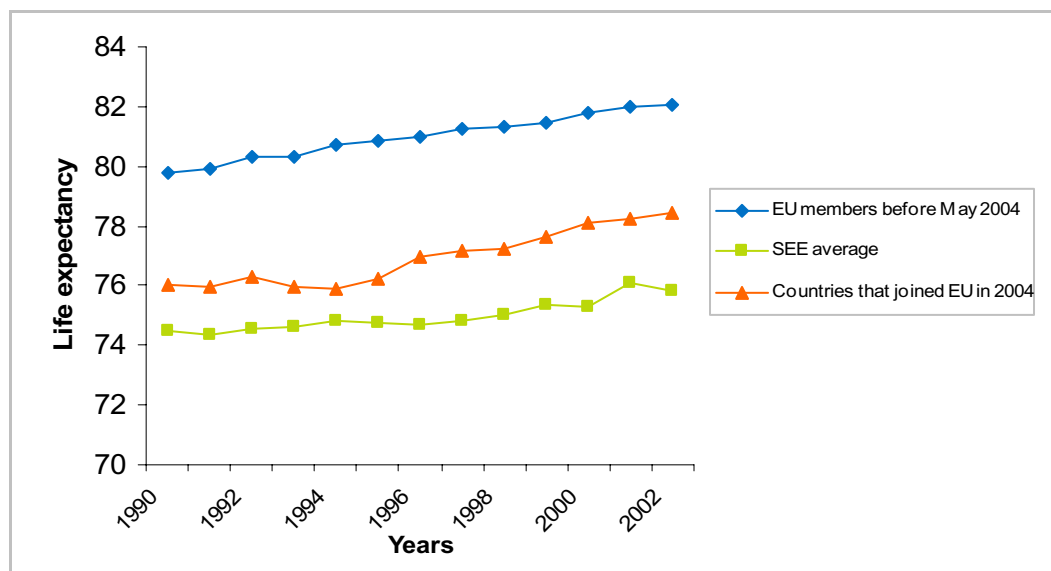
<sup>11</sup> The latest data for all the countries (including the EU-15) were available for 2002.

Fig. 3a. Life expectancy at birth, in years, males



Source: European health for all database, January 2005 (WHO 2005b).

Fig. 3b. Life expectancy at birth, in years, females

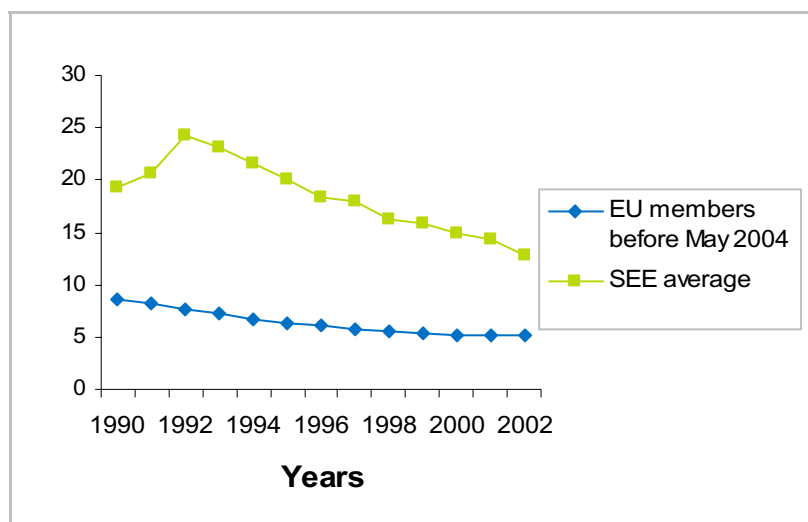


Source: European health for all database, January 2005 (WHO, 2005b).

More favourable achievements can be observed in terms of reductions in infant mortality. The gap between south-east Europe and the EU-15 has narrowed since 1990 (Figs 4a and 4b). Infant mortality remains highest in Romania and the Republic of Moldova, with levels as much as four times higher than in the EU-15. Although the levels in Croatia are the lowest in the SEE countries, they are still 50% higher than in the EU-15. Infant mortality ranged in 2002 from 7.7/1000 in Croatia to 19.0/1000 in Romania in male infants (compared to the EU-15 rate of 5.1/1000), and 6.3/1000 in Croatia to 15.6/1000 in Romania in female infants (compared to 4.1/1000 in the EU-15).

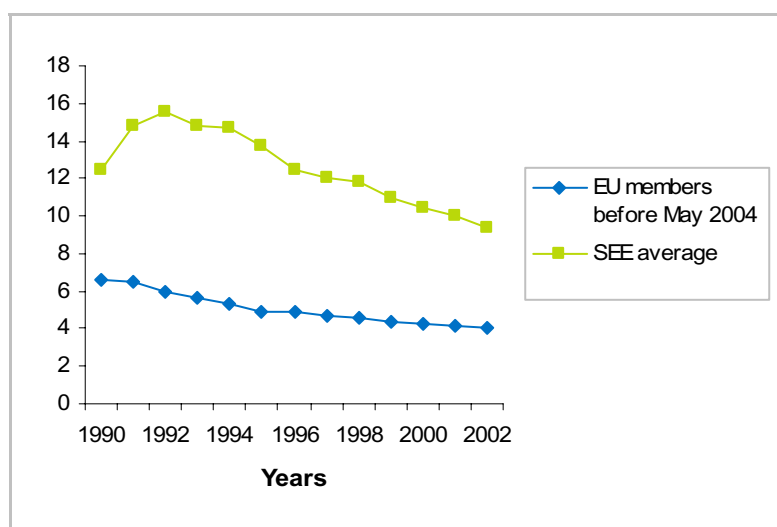


Fig. 4a. Infant deaths per 1000 live births, males



Source: European health for all database, January 2005 (WHO, 2005b).

Fig. 4b. Infant deaths per 1000 live births, females

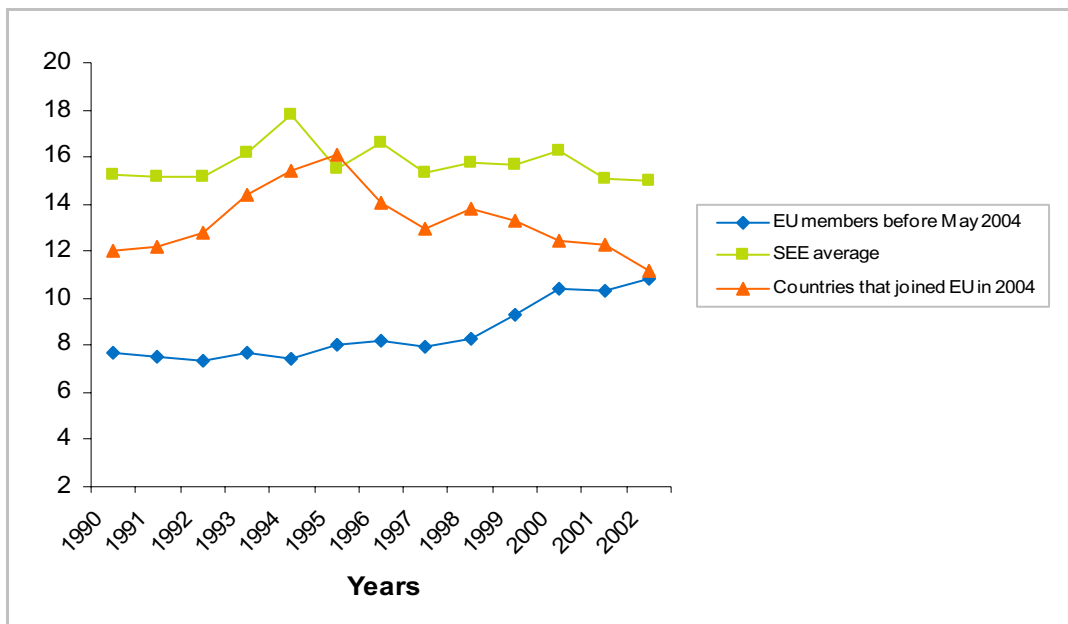


Source: European health for all database, January 2005 (WHO, 2005b).

## Epidemiological trends in communicable diseases

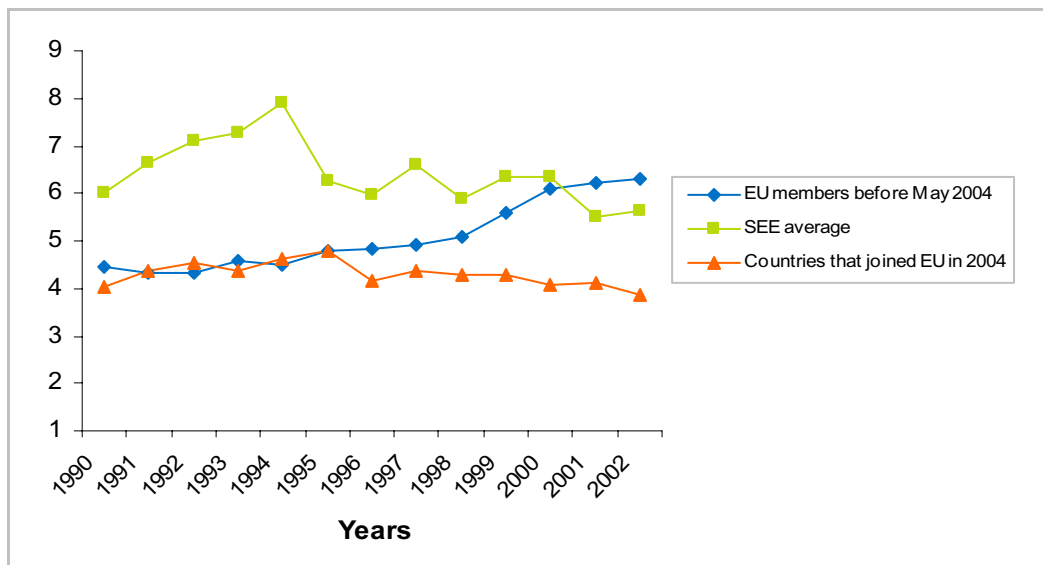
The gap in communicable disease mortality has also been narrowing (Figs 5a and 5b), which seems to be more related to increases in deaths from communicable disease in the EU-15. The eight EU-CCEE have experienced a decline in *infectious disease* mortality since the mid-1990s in men and lower rates in women compared to the EU-15 and the SEE countries. Interestingly, mortality from communicable diseases in women in south-eastern Europe seems to be lower than in the EU-15. Mortality from infectious diseases is particularly high in the Republic of Moldova in men (in 2003 it was 34.1/100 000 in men, compared to the EU-15 average of 10.9/100 000). The latest data suggest that in 2003 the mortality rates in women in the Republic of Moldova were remarkably lower (as much as six times) than those observed in men, and the gap between Moldovan women and those in the EU-15 was consequently lower. Deaths from infectious diseases have been increasing in men in the Republic of Moldova and Romania since the early 1990s. Data also suggest that Albania and Serbia and Montenegro have lower mortality from infectious diseases than the EU-15. Such evidence would need to be examined in the context of the quality of the communicable disease surveillance systems.

**Fig. 5a.** Standardized death rate (SDR), infectious and parasitic diseases, all ages per 100 000, males



Source: European health for all database, January 2005 (WHO, 2005b).

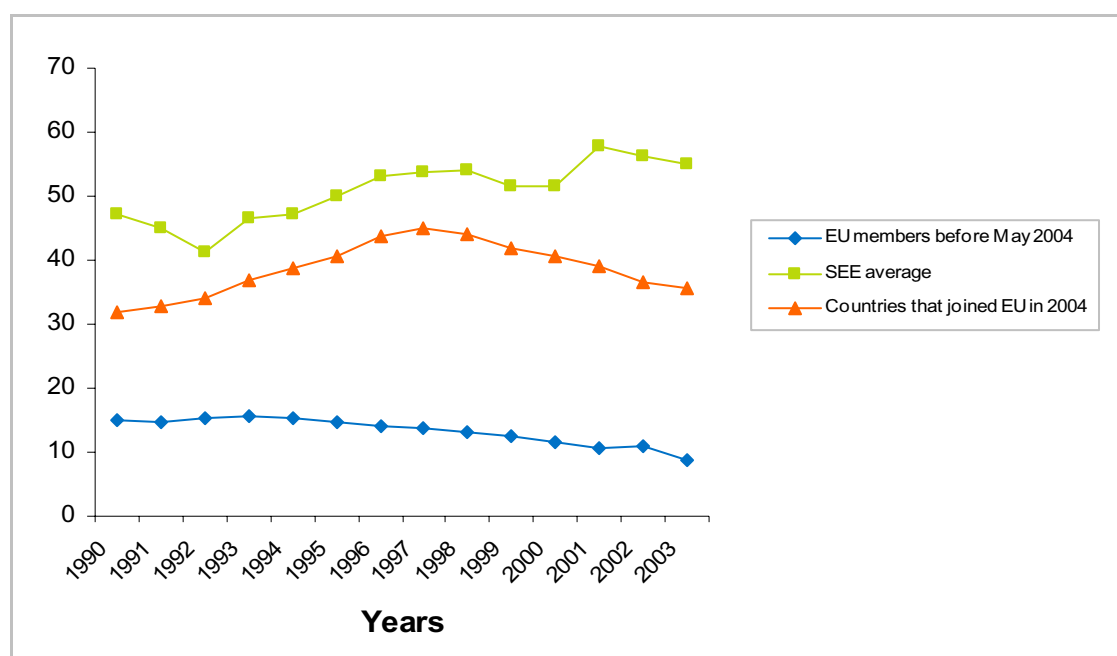
**Fig. 5b.** SDR, infectious and parasitic diseases, all ages per 100 000, females



Source: European health for all database, January 2005 (WHO, 2005b).

As shown in Fig. 6, *tuberculosis* incidence rates in the SEE countries are substantially higher than those in the EU-15. Considered as a social disease, tuberculosis plays a leading role as the indicator of failing health and social services (Dye, 2005). Wide disparities exist among the SEE countries and between them and the EU-15 and EU-CCEE. In the eight EU-CCEE, tuberculosis incidence has shown a downward trend since mid-1990s, while in south-eastern Europe incidence it has increased since 1990. In 2003, the rates ranged from 17.5/100 000 in Albania to 130.4/100 000 in Romania, as against 8.7/100 000 in the EU-15, where it fell by 42.8% between 1990 and 2003. Over the same period, tuberculosis incidence increased in Romania by 86%, the Republic of Moldova by 188% and Bulgaria by 56% but fell substantially in Albania, Bosnia and Herzegovina, Croatia and The former Yugoslav Republic of Macedonia. Serbia and Montenegro experienced a sudden increase in 2001 and 2002, but in 2003 the rates dropped again to the 2000 levels of 25/100 000. Such big differences between the countries, and the low notified rates in some of them, would indicate the need for a more detailed assessment of the tuberculosis notification systems and implementation of prevalence studies in the vulnerable populations (prisoners, poor people, injecting drug users).

Fig. 6. Tuberculosis incidence per 100 000, males and females



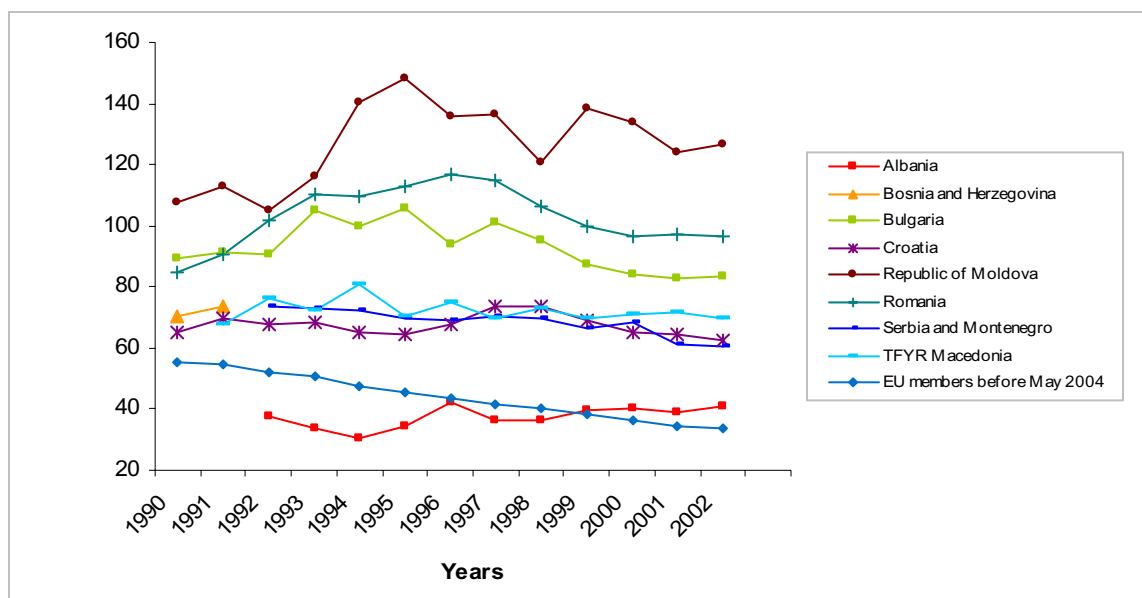
Source: European health for all database, January 2005 (WHO, 2005b).

The SEE countries are thought to have a low prevalence of the *human immunodeficiency virus (HIV)*. Data from the WHO Centralized Information System for Infectious Diseases (CISID) show that the incidence ranged in 2002 from 0.2/100 000 in The former Yugoslav Republic of Macedonia to 6.1/100 000 in the Republic of Moldova, in comparison to 11.6/100 000 in the United Kingdom and 27.6/100 000 in the Russian Federation. However, this would also need to be explored in the context of the effectiveness of the surveillance systems and the availability of data on HIV, sexually transmitted diseases (STIs) and sexual behaviour in the subpopulations that drive these epidemics (commercial sex workers, injecting drug users and homosexual men). Such data have been largely inadequate in the region, although most of the countries have recently become recipients of resources from the Global Fund to Fight AIDS, Tuberculosis and Malaria which should enable HIV, STI and behavioural surveillance systems to be set up in the sub-populations where the greatest needs are.

## Epidemiological trends in noncommunicable diseases

The EU-15 have experienced a continuous decrease in mortality due to *ischaemic heart disease* in those aged under 65 years since the 1990s, with the rates in 2002 being 38.4% lower than in 1990 in men and 40.8% lower in women (Figs 7a and 7b). In contrast with the EU-15 in the same period, death rates in the SEE countries fell by 7.5% in men and only 4% in women (Fig. 8). Albania features the best in terms of comparisons with the EU-15, although it has been experiencing an increase in mortality since 1997 in both genders. Deaths from ischaemic heart disease and cerebrovascular disease in the age group 0–74 years are considered amenable to health care, as are deaths from malignant neoplasm of the cervix uteri and the breast in the same age group. This is the reason for describing these causes of mortality in the region, although the age limit was set at 65 years due to lower life expectancy (Nolte & McKee, 2003).<sup>12</sup> Although there are debates over the contribution of health care to reduced death rates from ischaemic heart disease, it is estimated that up to 50% of premature mortality from ischaemic heart disease may be amenable to health care (Tobias & Jackson, 2001; Capewell et al., 1999).

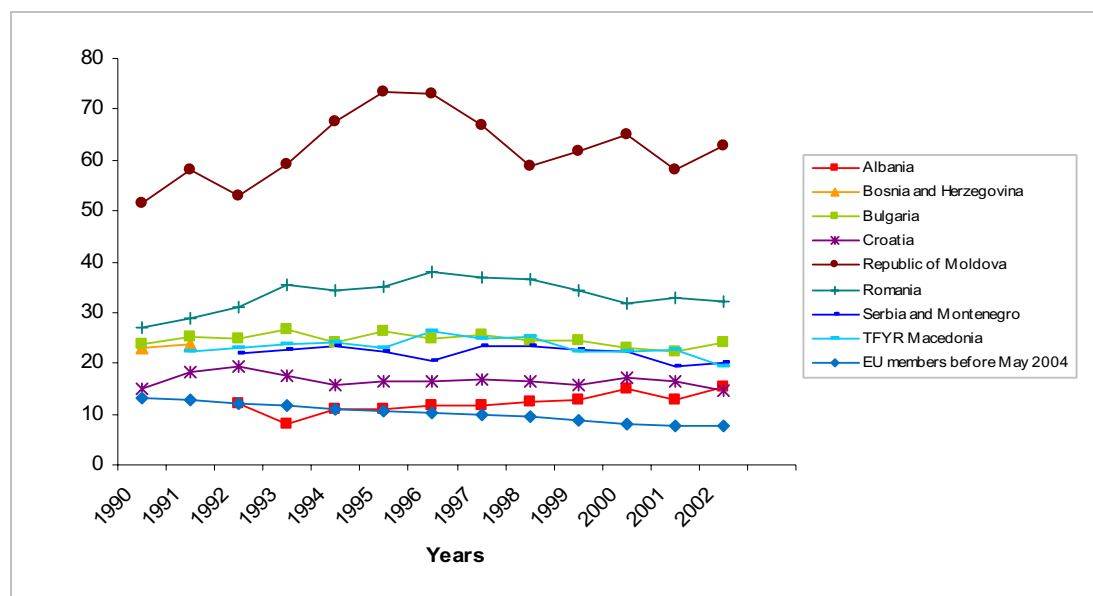
Fig. 7a. SDR, ischaemic heart disease per 100 000 males aged 0–64 years



Source: European health for all database, January 2005 (WHO, 2005b).  
TFYR Macedonia = The former Yugoslav Republic of Macedonia.

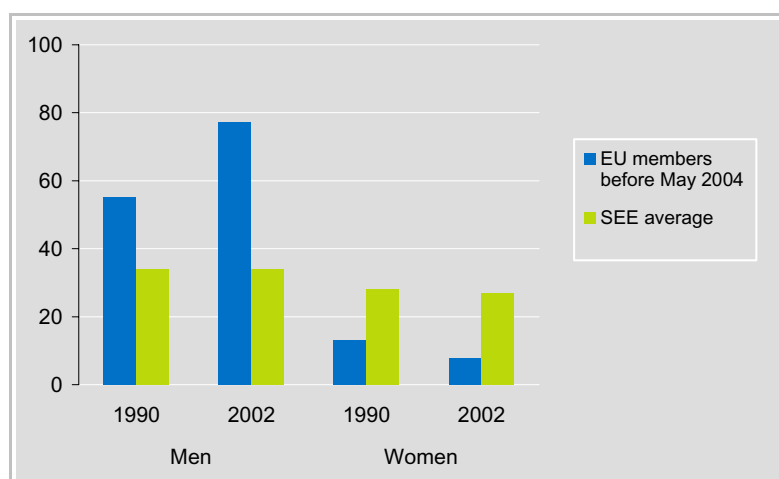
<sup>12</sup> Deaths from diabetes in those aged under 50 years are considered avoidable, as the preventability of deaths at older ages from diabetes remains controversial. The concept of avoidable mortality was originally developed by Rutstein and is used to identify the contribution of health care and public health to population health.

Fig. 7b. SDR, ischaemic heart disease per 100 000 females aged 0–64 years



Source: European health for all database, January 2005 (WHO, 2005b).  
TFYR Macedonia = The former Yugoslav Republic of Macedonia.

Fig. 8. Average SDR from ischaemic heart disease in men and women aged 0–64 years in the EU and the SEE countries, 1990–2002



The Republic of Moldova has the highest mortality due to ischaemic heart disease in those aged 0–64 years in both genders in the region (four times higher in men and nine times higher in women than the EU-15), followed by Romania and Albania. The Republic of Moldova witnessed a general increase in deaths from heart disease, while in the rest of the countries the trend was stable in contrast to the marked decrease in mortality in the EU-15. Although the levels of premature mortality from ischaemic heart disease in women in the Republic of Moldova and Romania have clearly increased compared to pre-transition levels, it seems that men in Bulgaria, the Republic of Moldova and Romania were harder hit by mortality due to heart disease than women.

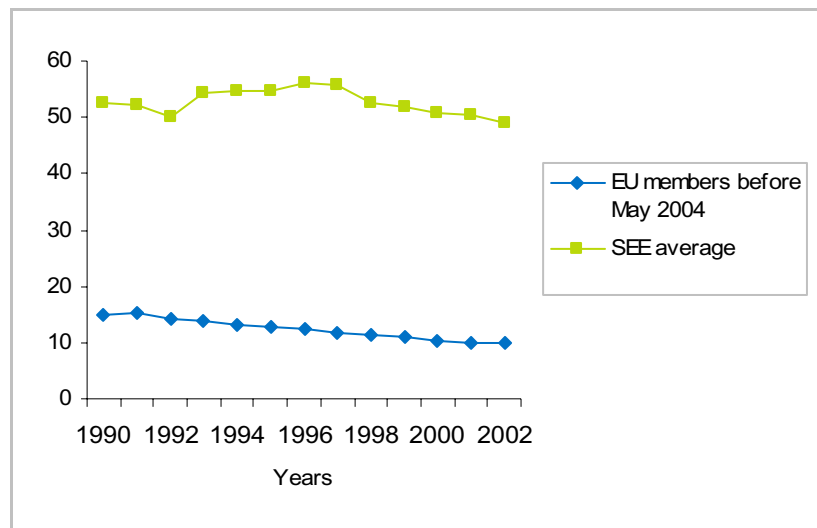
Levels of mortality in men are similar in Croatia, Serbia and Montenegro and The former Yugoslav Republic of Macedonia (around 65/100 000), and in women Bulgaria, Serbia and Montenegro and The former Yugoslav Republic of Macedonia (around 22/100 000).

It is important to get a better understanding of the factors that drive such large differences in the premature mortality from ischaemic heart disease between south-eastern Europe and

the EU-15, and to untangle the contribution of prevailing health behaviour such as smoking and alcohol intake on the one hand, and the availability and effectiveness of health services on the other. The research data suggest that alcohol might have played a role in the fluctuations in cardiovascular disease mortality the in Russian Federation since the 1980s (McKee et al., 2001), with binge drinking increasingly being regarded as an important cause of sudden cardiac death (Chenet et al., 1998).

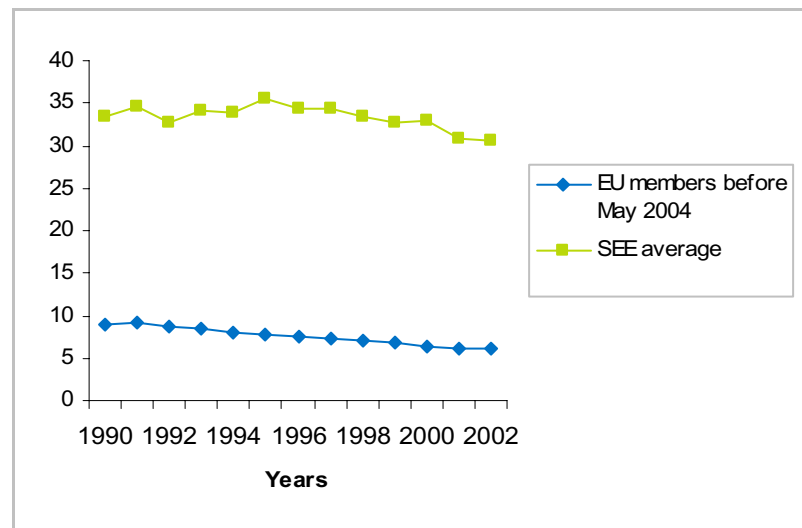
Figs 9a and 9b show standardized death rates from *cerebrovascular diseases* in people aged under 65 years. As with mortality due to ischaemic heart disease, in 2002 the death rates from cerebrovascular disease in the EU-15 were approximately 32% lower than in the early 1990s. The same fall could be seen during this period in Albania, Bulgaria and Croatia. However, there was a wide gap in mortality in both men and women between the EU-15 and the SEE countries: the rates in the latter were 2–7 times higher than in the former. Romania and the Republic of Moldova experienced an increase in mortality from the 1990 levels in both men and women, which was particularly pronounced during 1992–1999 but fell back afterwards to the 1990 levels.

Fig. 9a. SDR, cerebrovascular disease per 100 000 males aged 0–64 years



Source: European health for all database, January 2005 (WHO, 2005b).

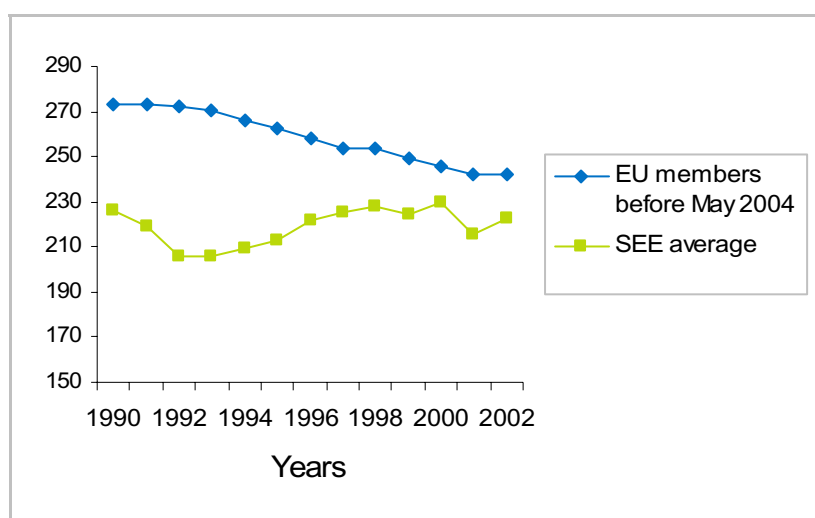
Fig. 9b. SDR, cerebrovascular disease per 100 000 females aged 0–64 years



Source: European health for all database, January 2005 (WHO, 2005b).

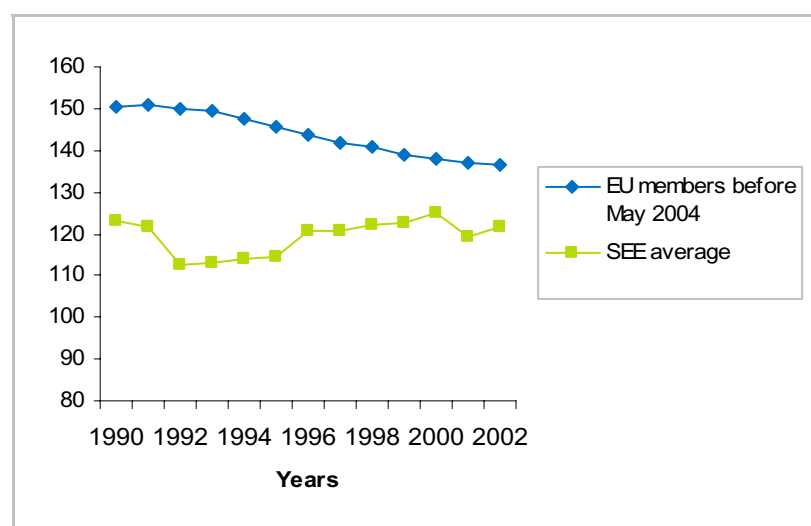
The rates of death due to *malignant neoplasms* (Figs 10a and 10b) have been lower than in the EU-15, with the exception of Croatia, which has the highest cancer mortality in south-east Europe. In contrast to almost all the SEE countries, the EU-15 have experienced a continuous, albeit slow, decline in cancer deaths in both men and women. The trends in all the SEE countries have been rising, with a particularly steep increase observed in Serbia and Montenegro. Albania has the lowest mortality due to cancers in men and women, although both an increase and substantial fluctuations in mortality can be observed, with the latter reflecting a possible lower validity of data. It remains to be seen whether this pattern will continue in the future. Given the high uptake of smoking in the young and middle-aged, in particular women, an increase in cancer mortality could be expected.

Fig. 10a. SDR, malignant neoplasms, all ages per 100 000, males



Source: European health for all database, January 2005 (WHO, 2005b).

Fig. 10b. SDR, malignant neoplasms, all ages per 100 000, females

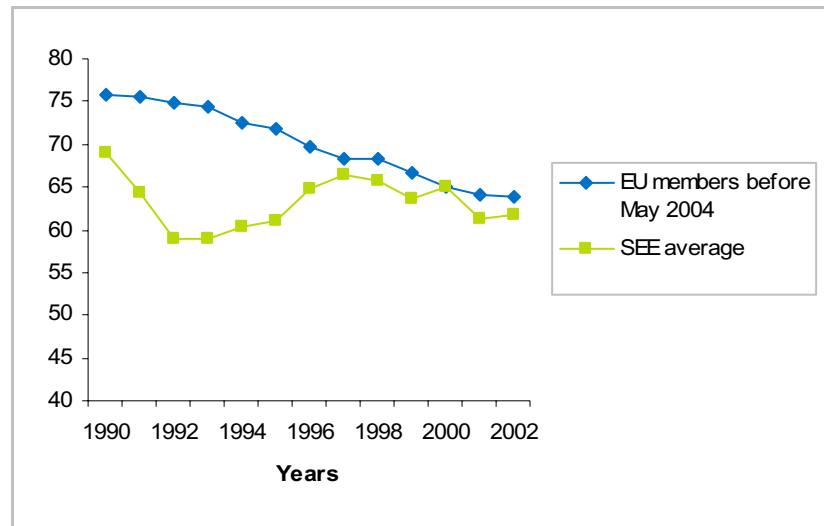


Source: European health for all database, January 2005 (WHO, 2005b).

Croatia has the highest *lung cancer* mortality rate in men in the region, higher also than those in the EU-15. In women, on the other hand, the EU-15 have higher mortality rates than the SEE countries (Figs 11a and 11b). Lung cancer mortality in men shows an increase in Serbia and Montenegro, Romania, Bulgaria and The former Yugoslav Republic of Macedonia. Bosnia and Herzegovina experienced an increasing trend from 1985–1991 but no recent data are available. In almost all the SEE countries, trends in

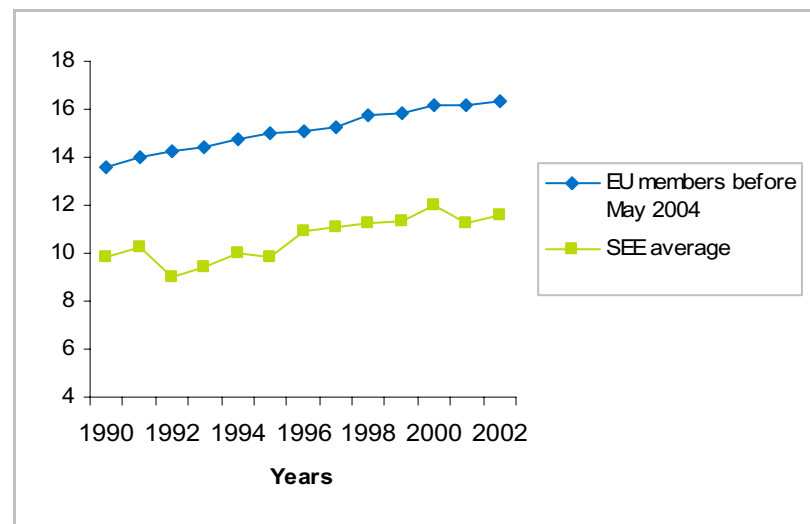
women fluctuate considerably; this should not be the case with lung cancer mortality and it is therefore difficult to draw any conclusions. It is evident that Serbia and Montenegro, Croatia and Albania are experiencing an increasing trend in lung cancer deaths in women. By Richard Peto's estimates (Figs. 12 and 13), in 1995 one third of deaths in Bulgaria and Romania and somewhat more in the former Yugoslavia were attributable to tobacco. Although in women the proportion was much lower, at 5–10%, this represents a large increase since 1985.

Fig. 11a. SDR, trachea/bronchus/lung cancer, all ages per 100 000, males



Source: European health for all database, January 2005 (WHO, 2005b).

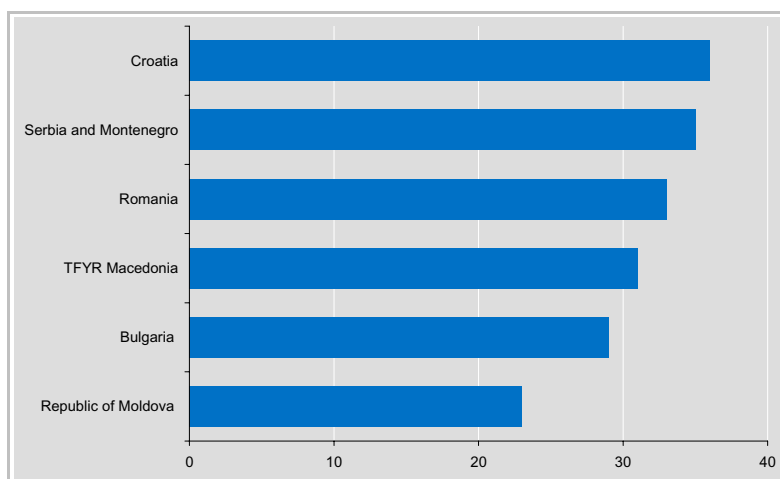
Fig. 11b. SDR, trachea/bronchus/lung cancer, all ages per 100 000, females



Source: European health for all database, January 2005 (WHO, 2005b).

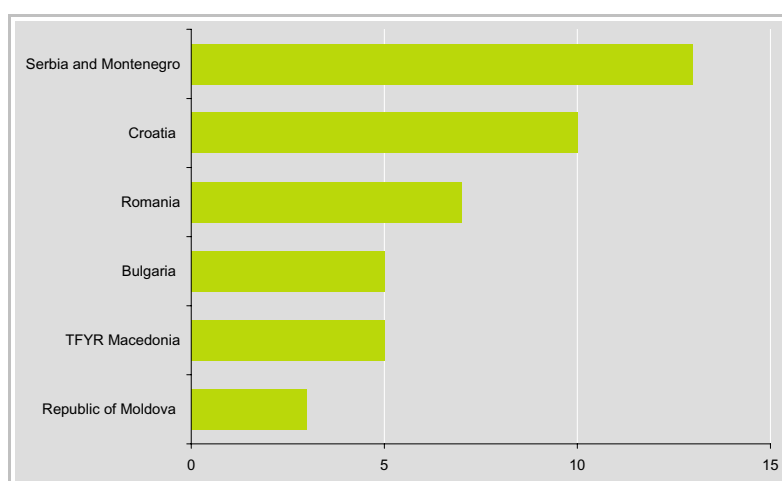


Fig. 12. Deaths attributed to smoking in men aged 35–69 years (%)



Source: Tobacco control database (WHO, 2005d).  
TFYR Macedonia = The former Yugoslav Republic of Macedonia.

Fig. 13. Deaths attributed to smoking in women aged 35–69 years (%)



Source: Tobacco control database (WHO, 2005d).  
TFYR Macedonia = The former Yugoslav Republic of Macedonia.

The available data on smoking in men suggest that it is a highly prevalent risk behaviour and well-established addiction, with rates of over 40% seen in Albania, Bosnia and Herzegovina, Bulgaria, the Republic of Moldova and Serbia and Montenegro (Table 2). Compared with male smoking patterns, smoking in women is less common, although it is frequent in Serbia and Montenegro and Croatia, which is reflected in the higher lung cancer mortality in women in those countries. In addition, smoking is now significantly more common in the younger generations, particularly in Bulgaria and Croatia. The prevalence data combined with data on the disease burden confirm the long-standing high smoking rates in men and the rising lung cancer mortality in women. In Albania and Romania, smoking by women remains relatively uncommon. It is important to note the lack of data for The former Yugoslav Republic of Macedonia, although high cigarette consumption levels and high rates of smoking among health professionals suggest that rates in the general population are likely to be high. Cigarette consumption data are of limited accuracy given the high rates of smuggling in the region but suggest that in 1999, average per capita cigarette consumption in south-eastern Europe was 35.2% higher than the EU-15 and higher than levels in the CCEE (Bozicevic et al., 2004).

Table 2. Prevalence of smoking in adults and young people

Countries	Adults			Young people (aged 15 years) <sup>a</sup>		
	Men	Women	Year	Men	Women	Year
Albania	43.6	8.2	1999–2001	NA	NA	
Bosnia and Herzegovina	49.2	29.7	2002–2005	16.8	10.2	2004
Bulgaria	43.8	23	1999–2001	28.7	26.4	2002–2005
Croatia	34.1	26.6	1999–2001	23.3	24.9	2002–2005
Republic of Moldova	46	18	1999–2001	NA		
Romania	32.3	10.1	1999–2001	NA		
Serbia and Montenegro	48	33.6	1999–2001	12.5	16.3	2002–2005
The former Yugoslav Republic of Macedonia <sup>b</sup>	NA	NA		12.7	14.6	2003

Source: Tobacco control database (WHO, 2005d). NA= not available.

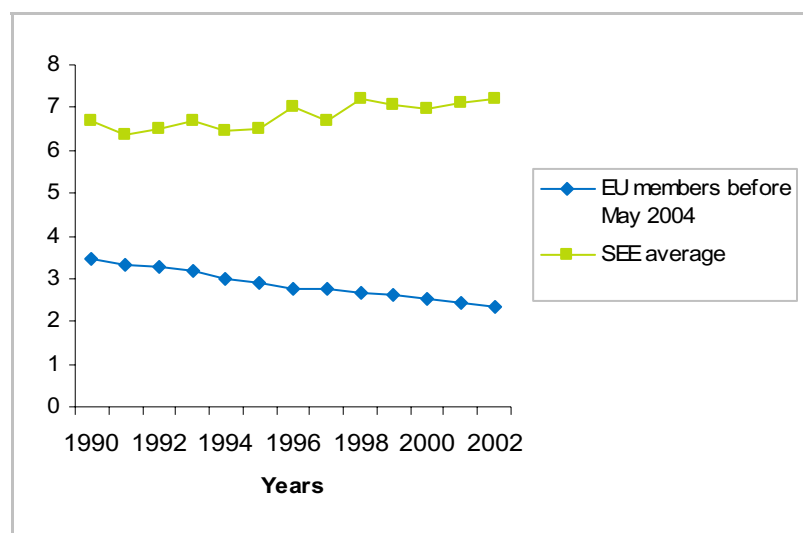
<sup>a</sup> Most of the data on smoking in young people come from the Global Youth Tobacco Surveys (GYTS).

<sup>b</sup> The GYTS surveys carried out in The former Yugoslav Republic of Macedonia in 2003 found rates of 2.5% in boys and 1.0% in girls aged 13–15 years.

There have been considerable changes in the tobacco industry in the region since the breakdown of communism. The previously state-owned tobacco monopolies have either undergone, or are undergoing, privatization and the transnational tobacco companies have increased their imports and investments in the region. This raises concerns for tobacco control and may lead to increased consumption through a number of mechanisms, most notably through an increase in competition, which drives down prices, and increased advertising (Gilmore et al., 2005; Simpson, 1999).

*Reproductive health*, as seen from the markedly higher death rates of cancer of the cervix uteri, is also of concern (Fig. 14). The mortality rates of cancer of the cervix are considerably higher in Romania, the Republic of Moldova and Serbia and Montenegro than in the EU-15, with no signs of recovery since 1990. Thus, for example, in 2002 the death rates in Romania were 15.4/100 000 compared to the EU-15 levels of 2.4/100 000. This might imply an urgent need to strengthen screening for cervical cancer as a means of secondary prevention.

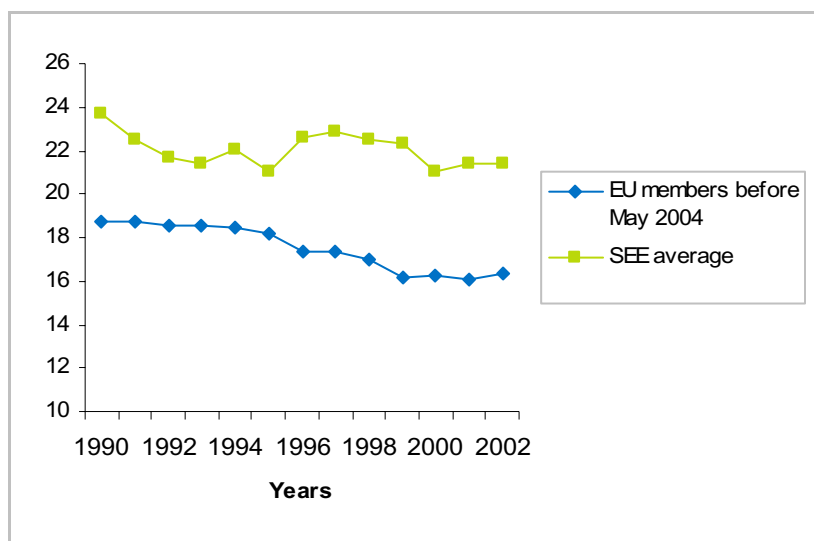
Fig. 14. SDR, cancer of the cervix, all ages per 100 000



Source: European health for all database, January 2005 (WHO, 2005b).

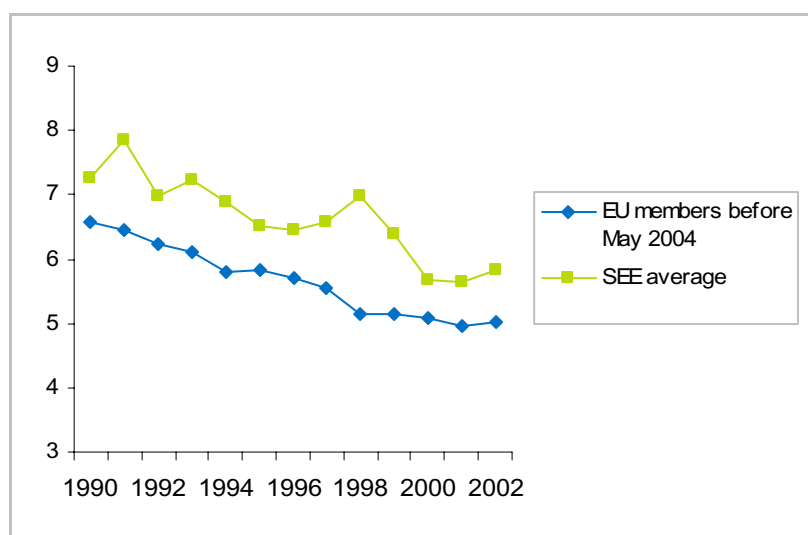
The *suicide* rates shown in Figs 15a and 15b are higher in men in all the SEE countries compared to the EU-15, except Albania and The former Yugoslav Republic of Macedonia. The highest rates can be observed in Croatia and the Republic of Moldova, which are almost twice those of the EU-15. The data suggest that male suicide rates are on the increase in Romania and Serbia and Montenegro. Suicides by women are decreasing in all the countries except Albania and Romania, but the rates are considerably higher in Croatia and Serbia and Montenegro compared to the EU-15. In 2002, the suicide rate in men was 31% higher in the SEE countries than the EU-15; the corresponding figure for women was 16%.

Fig. 15a. SDR, suicide and self-inflicted injury, all ages per 100 000, males



Source: European health for all database, January 2005 (WHO, 2005b).

Fig. 15b. SDR, suicide and self-inflicted injury, all ages per 100 000, females

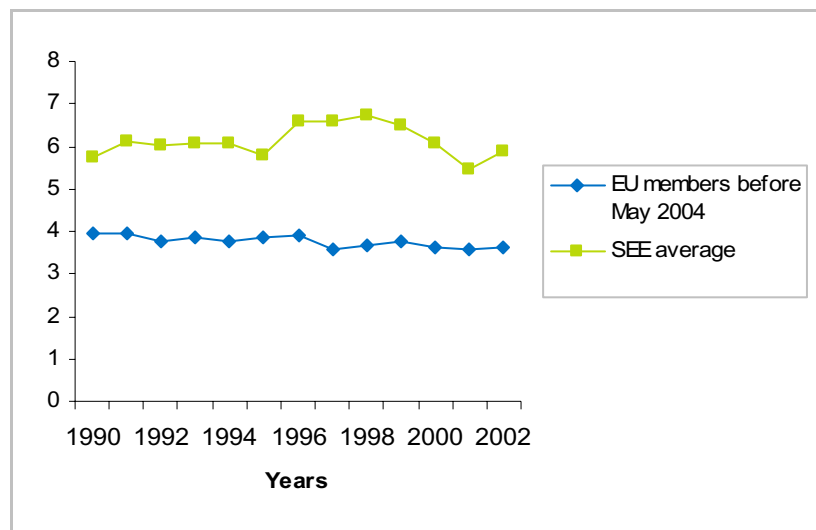


Source: European health for all database, January 2005 (WHO, 2005b).

Mortality from *diabetes* in those aged 0–65 years in 2002 was on average 39% higher in men and 58% higher in women than in the EU-15 (Figs 16a and 16b). In men aged 0–64 years, diabetes death rates were three times higher in Serbia and Montenegro and The former Yugoslav Republic of Macedonia than in the EU-15. Since 1990, the rates in men have been increasing in these two countries and in the Republic of Moldova, which might

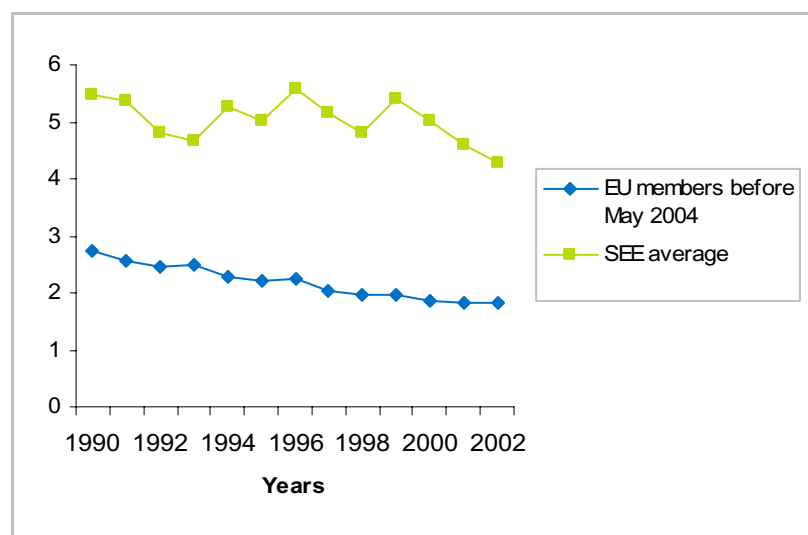
reflect a deterioration in the related health services. The situation in women is similar, with the mortality being lowest in Albania and highest in Serbia and Montenegro and The former Yugoslav Republic of Macedonia, followed by the Republic of Moldova and Bulgaria. In both men and women the rates fluctuate considerably, which could be due either to the small numbers or to inaccuracies in reporting.

Fig. 16a. SDR, diabetes, males aged 0–64 years, per 100 000



Source: European health for all database, January 2005 (WHO, 2005b).

Fig. 16b. SDR, diabetes, females aged 0–64 years, per 100 000



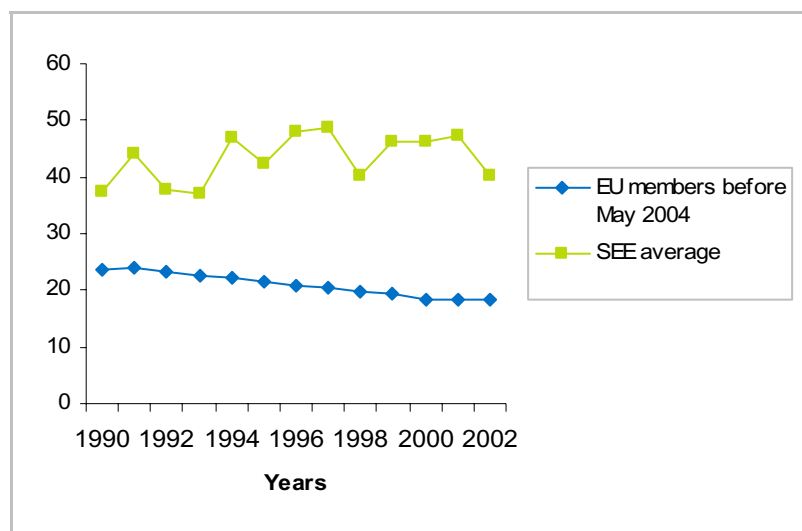
Source: European health for all database, January 2005 (WHO, 2005b).

Mortality from *chronic liver disease and cirrhosis*, which is mainly attributed to alcohol, is markedly higher in south-eastern Europe, with the rates in 2002 being 54% higher in men and 70% higher in women than in the EU-15. The death rates from liver disease and cirrhosis have fallen in the EU-15 countries by 22% in men and women since 1990 (Figs 17a and 17b). Albania has reported almost no cases in both men and women since 1995, and in 1993 the rates were 11.3/100 000 in men and 7.5/100 000 in women. In Bulgaria and Croatia the mortality in men declined, although it is still higher than the EU-15 average, particularly in Croatia. In both men and women the rates are very high in the Republic of Moldova, reaching 114.5/100 000 in men and 96.2/100 000 in women in 2003. In Romania, the rates in women were 38% higher in 2002 compared to 1990.

Consumption of pure alcohol in 2002 was highest in Croatia (10.95 litres per capita), followed by the Republic of Moldova, while the lowest was reported in Albania (Table 3).

The latest estimates for 2002 and 2003 from the WHO Alcohol Control Database (WHO, 2005a) suggest that the rates of road traffic accidents involving alcohol ranged from a low of 0.5/100 000 in Albania to 8.1/100 000 in the Republic of Moldova. The exception was Croatia with rates as high as 74.3/100 000, which were outnumbered, in the WHO European Region, only by those in Greece and Slovenia.

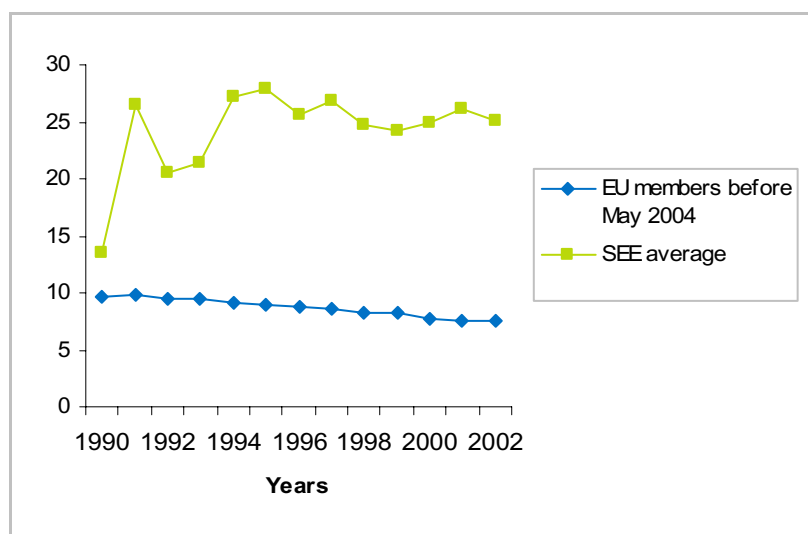
Fig. 17a. SDR, chronic liver disease and cirrhosis, all ages per 100 000, males<sup>a</sup>



Source: European health for all database, January 2005 (WHO, 2005b).

<sup>a</sup> The rates in Albanian men were around 0.05/100 000 in 1995, 1998, 2002 and 2003.

Fig. 17b. SDR, chronic liver disease and cirrhosis, all ages per 100 000, females<sup>a</sup>



Source: European health for all database, January 2005 (WHO, 2005b).

<sup>a</sup> The rates in Albanian women were 0.03/100 000 in 1998 and then fell to 0 in 2002 and 2003.

**Table 3.** Consumption of pure alcohol, litres per capita, 2002

Countries	Consumption of pure alcohol
Albania	1.95
Bosnia and Herzegovina	9.92
Bulgaria	5.4
Croatia	10.95
Republic of Moldova	10.0
Romania	6.2
Serbia and Montenegro	6.8
The former Yugoslav Republic of Macedonia	1.85

Source: Alcohol control database, March 2005 (WHO, 2005a).

### Main contributors to the overall burden of disease, by country

Table 4 shows that noncommunicable diseases are the predominant cause of mortality in the SEE countries, with injuries being a more important contributor to overall mortality in the Republic of Moldova and Albania. Tables 5 and 6 show that cardiovascular diseases are the major causes of mortality from noncommunicable disease in all the countries, while malignant neoplasms (particularly in men) emerge as a priority in Albania, Croatia and Serbia and Montenegro.

**Table 4.** Estimated mortality due to communicable and noncommunicable diseases and injuries, all ages, 2002 (% in the overall burden of mortality)

Countries	Men			Women		
	Noncommunicable diseases (%)	Communicable diseases (%)	Injuries (%)	Noncommunicable diseases (%)	Communicable diseases (%)	Injuries (%)
Albania	80.2	7.6	12.2	86.6	9.2	4.2
Bosnia and Herzegovina	88.9	3.4	7.7	94.9	2.6	2.5
Bulgaria	91.9	2.7	5.3	95.7	2.2	2.0
Croatia	89.5	3.4	7.1	93.3	3.3	3.4
Republic of Moldova	80.3	6.5	13.2	92.8	2.9	4.3
Romania	86.8	5.5	7.7	93.5	3.8	2.7
Serbia and Montenegro	91.5	3.3	5.2	95.4	2.5	2.1
TFYR Macedonia	84.1	3.5	12.3	93.8	2.9	3.3

Source: Global Infobase. 2005 (WHO, 2006).  
TFYR Macedonia = The former Yugoslav Republic of Macedonia.

According to data on mortality and DALYs attributable to ten leading causes in the SEE countries, cerebrovascular disease and ischaemic heart disease are among the two leading causes of mortality in all the countries. They also contribute to the highest proportion of DALYs lost, and are followed by unipolar depressive disorder which was estimated as the leading cause of DALYs in Albania. Self-inflicted injuries are among the top ten causes of deaths in Bosnia and Herzegovina, Bulgaria, Croatia and the Republic of Moldova.

## Health of children and adolescents

In 2000, the United Nations Children's Organization (UNICEF) carried out Multiple Indicator Cluster Surveys (MICS) in four SEE countries (Albania, Bosnia and Herzegovina, the Republic of Moldova and Serbia and Montenegro) to assist countries in filling data gaps for monitoring the health and social situation of children and women.<sup>13</sup>

**Table 5.** Estimated burden of specific causes of mortality in overall noncommunicable disease mortality, men, all ages, 2002

Countries	Cardiovascular diseases (%)	Malignant neoplasms (%)	Diabetes (%)	Chronic respiratory diseases (%)
Albania	66.9	27.4	1.1	4.6
Bosnia and Herzegovina	70.4	24.1	1.7	3.8
Bulgaria	79.3	16.9	2.1	1.8
Croatia	59.8	35.1	1.6	3.6
Republic of Moldova	77.7	15.7	1.2	5.5
Romania	70.7	24.2	4.4	0.7
Serbia and Montenegro	68.0	24.1	2.6	5.4
The former Yugoslav Republic of Macedonia	67.1	26.1	3.1	3.7

Source: Global Infobase (WHO, 2005).

**Table 6.** Estimated burden of specific causes of mortality in overall noncommunicable disease mortality, women, all ages, 2002

Countries	Cardiovascular diseases (%)	Malignant neoplasms (%)	Diabetes (%)	Chronic respiratory diseases (%)
Albania	75.9	19.4	1.3	3.4
Bosnia & Herzegovina	78.5	15.9	2.7	2.9
Bulgaria	81.7	14.7	2.4	1.2
Croatia	72.1	23.9	2.3	1.8
Republic of Moldova	81.8	12.9	1.4	3.8
Romania	78.5	17.8	2.7	0.9
Serbia and Montenegro	75.0	18.0	3.6	3.4
The former Yugoslav Republic of Macedonia	74.5	17.7	4.7	3.1

Source: Global Infobase (WHO, 2005).

In Albania, the infant mortality rate calculated from the survey using the UN QFIVE method<sup>14</sup> in 2000 was 28/1000, apparently substantially higher than the WHO health for all estimate of 12.6/1000 in male and 10.6/1000 in female infants in the same year. Some

<sup>13</sup> Unicef. Monitoring the situation of children and women (<http://childinfo.org/>, accessed 17 May 2006).

<sup>14</sup> A statistical programme developed by the UN Population Division that is used for estimations of child mortality.

4% of children under the age of 5 years were found to be underweight; by the age of 1 year, 80% had been immunized against tuberculosis and 71% against diphtheria, pertussis and tetanus. Acute lower respiratory infections (ARI) are among the leading causes of child mortality in Albania, and 83% of children with ARI had been taken to an appropriate health provider. Knowledge of HIV remains relatively low: only 25% of women aged 15–49 years knew all three main ways of preventing the transmission of HIV; only 23% of women of reproductive age knew where to get tested for HIV; and a third did not know that HIV can be transmitted from mother to child. Some 58% of married women or those in union reported currently using contraception. The women's education was strongly associated with use of contraception. Virtually all women received some type of prenatal care.

In 2000 the MICS was carried out in Serbia and Montenegro, revealing that 14% of children aged under 5 years were overweight and 2% were underweight. In the 1996 survey, there was no stunting or wasting (apart from in Kosovo (Serbia and Montenegro), where stunting reached a prevalence of 8.6%). However, in 2000, 5% of children aged under 5 years were stunted and 4% wasted, and it was recommended that this should be closely monitored. The prevalence of stunting and wasting was more common in children of less educated mothers. Just under half the women aged 15–49 years knew two ways to prevent the sexual transmission of HIV, more among women with more education. Some 45% of women knew where to get tested for HIV and 6% had been tested, while 61% of women knew that HIV could be transmitted from mother to child. Some 43% of women with primary education and 61% of those with secondary education (both married women and women in union) reported currently using contraception. All children received BCG vaccination and 97.6% had received the first dose of DPT. Importantly, the prevalence of wasting and stunting was substantially higher among children who were refugees or internally displaced (8% and 17.2%, respectively). They were also more likely to have been ill within the two weeks prior to the survey and to have received less schooling, which points to the higher vulnerability of these children and the need to provide them with appropriate health and social services.

The MICS survey carried out in 2000 in the Republic of Moldova also showed high immunization coverage for BCG and DPT by the age of 12 months (98% and 95%, respectively). Some 73% of mothers identified at least two signs for seeking care if a child was ill, with significant differences observed according to educational level. Despite this, it appeared that only 27% of ill children received increased fluids and continued eating as recommended under the IMCI programme. Only 20% of women aged 15–49 years knew the main ways to prevent HIV transmission; 62% knew where to get tested for HIV and 12% said that they had had an HIV test. Eighty-nine percent of women knew that HIV could be transmitted from mother to child. Some 62% of both married women and women living in a union reported currently using contraception.

In the Bosnia and Herzegovina MICS, almost 4% of children aged under 5 years were underweight and less than 1% were classified as severely underweight. Every tenth child was found to be stunted and 6% were wasted; the prevalence of these nutritional disorders was more common in children of women with less education. Obesity is another cause of concern as 13% of children were overweight and 5% obese. All children with health cards received BCG vaccination by the age of 12 months, and 99% had received the first dose of DPT. However, it is not known what the coverage was among children without health identification documents. Just 18.4% of women with primary education knew all three ways of preventing HIV transmission, compared to 34% of women with secondary and higher education. A third of women did not know that HIV could be transmitted from mother to child. The use of contraception was reported by 48% of women, both married or living in union.



## Health Behaviour in School-Aged Children studies and European School Survey Project on Alcohol and Other Drugs

Health Behaviour in School-Aged Children studies (HBSC) were conducted in Croatia and in The former Yugoslav Republic of Macedonia in 2001/2002, enabling assessment of health behaviour and socioeconomic inequalities among children aged 11, 13 and 15 years attending school. Each survey questionnaire looks at demographic and social background, family structure, individual and social resources, health behaviour (physical activity, alcohol and tobacco use, eating habits) and health outcomes (self-reported health, life satisfaction). In 2000/2001, the surveys were conducted in 35 European countries and the United States. The results showed that among 15-year-olds, 18.6% of boys and 36.8% of girls in Croatia rated their health as fair/poor, as did 10.2% of boys and 16.3% of girls in The former Yugoslav Republic of Macedonia (Currie et al., 2004). The corresponding HBSC average was 16.1% and 27.2%, respectively, and the country with the highest proportion of those reporting such outcomes was Ukraine, followed by the Russian Federation. This would imply that young Croatians, in particular girls, felt less well compared to their European counterparts. In the same age group, 23.2% of boys and 24.9% of girls in Croatia reported smoking at least once a week, compared with 12.7% and 14.6%, respectively, in The former Yugoslav Republic of Macedonia. The HBSC average was 23.9% and 23.3% respectively. In terms of alcohol intake, 35.9% of boys and 24.8% of girls in Croatia reported drinking an alcoholic drink every week compared to 26.2% of boys and 10.8% of girls in The former Yugoslav Republic of Macedonia, respectively. The corresponding HBSC average was 34.3% in boys and 23.9% in girls.

Socioeconomic inequalities were assessed by several measures. The number of households without a computer was higher in Croatia and The former Yugoslav Republic of Macedonia (48.6% and 52.5%, respectively) than the HBSC average of 23.4%, and the averages of some other transitional countries such as the Czech Republic, Estonia, Poland and Slovenia. The family affluence scale (FAS)<sup>15</sup> developed for earlier HBSC surveys as a measure of family wealth, was also used in the 2001/2002 survey. Importantly, results suggest that 43.2% of respondents in Croatia and 42.7% of respondents in The former Yugoslav Republic of Macedonia lived in poorer families compared to the HBSC average of 27.6%. Some 13.6% and 13.3% of children, respectively, live in better-off families compared to 29.3% of the HBSC average.

Data on consumption of alcohol, drugs and tobacco have been collected in the three waves of the European School Survey Project on Alcohol and Other Drugs (ESPAD). Data from the latest wave in 2003 are available for Bulgaria, Croatia and Romania. The age group studied was 16-year-olds. As shown in Table 7, ESPAD estimates suggest a higher prevalence of smoking in all three countries compared to the WHO tobacco control database (WHO, 2005d). It is important to notice a high proportion of boys who practised binge drinking in all three countries.

Some trends in ESPAD data available for Croatia (Fig. 18) suggest an increase in smoking among young women and stabilization of smoking trends in young men. Alcohol consumption shows alarming trends. In 1995 in Croatia, 7% of boys and 1% of girls reported that they had consumed alcohol 10 times or more in the previous 30 days; by 2003, these figures had increased markedly to 15% among boys and 11% among girls.

<sup>15</sup> FAS comprises the following four items: family ownership of a car, a bedroom to oneself, travelling away on holiday with the family in the previous 12 months, number of computers owned by the family.

## Poverty and socioeconomic inequalities in health and health care access in south-eastern Europe

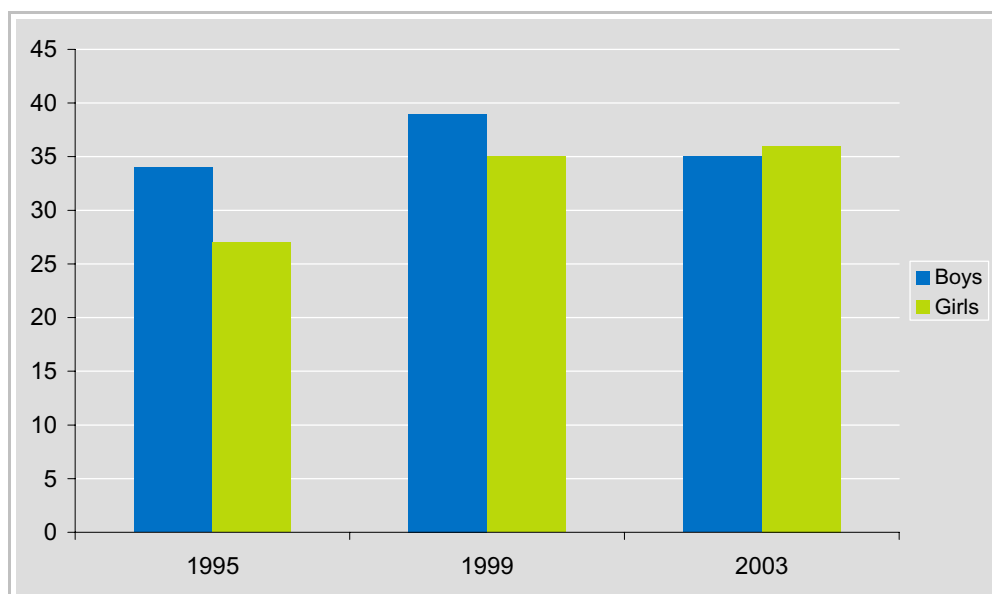
There has been relatively little research investigating the size of inequalities in health and the impact of socioeconomic changes brought about by transition on the health status of different population groups in south-eastern Europe. Poor health and poverty are mutually reinforcing, as poor people lack the means to seek appropriate health care, and poor health reduces individuals' ability to find employment (Black et al., 1982). Illness can impoverish people that are clustered just above the poverty line and can deepen the poverty of those below it.

**Table 7.** Proportion of boys and girls using tobacco, alcohol and drugs

	Smoked during the previous 30 days (%)	Any alcohol consumption 10 times or more in the previous 30 days (%)	Binge drinking 3 times or more in the previous 30 days (%)	Lifetime use of ecstasy (%)
<i>Boys</i>				
Bulgaria	42	13	26	3
Croatia	36	15	19	5
Romania	32	9	19	1
<i>Girls</i>				
Bulgaria	50	7	16	2
Croatia	37	11	10	4
Romania	26	3	5	0

Source: ESPAD, 2003.

**Fig. 18.** Proportion of boys and girls smoking in the previous 30 days, Croatia



Source: ESPAD, 1995–2003.

Although a relationship between self-reported poor health and an excess mortality risk has been well established for industrialized countries, there is little research considering developing countries. A recent study in Indonesia showed that in a low-income setting, as in more advantaged parts of the world, individuals who perceive their health to be poor are significantly more likely to die in subsequent follow-up periods than those who view their health as good (Frankenberg & Jones, 2004). The recent results from a study conducted in 10 European countries demonstrated the persistent nature of socioeconomic inequalities in health (Kunst et al., 2005). More favourable trends are seen in the Nordic countries, suggesting that their welfare states were better able to control the adverse effects of economic crises on the health of disadvantaged groups. Nationally representative data on morbidity levels stratified by educational and other socioeconomic status indicators have been obtained from health interviews or similar surveys in western European countries since the late 1980s (Cavelaars et al., 2005).

In a recent study that describes the changes in the levels and extent of poverty in eastern European countries, the World Bank estimated that working adults and children form most of the poor in Romania and the Republic of Moldova (Alam et al., 2005). The World Bank poverty assessment reports for the SEE countries describe different aspects of poverty, and where possible make use of the Living Standards Measurement Studies (LSMS) carried out since 1995 in Albania, Bosnia and Herzegovina, Bulgaria and Kosovo (Serbia and Montenegro). The LSMS analyse poverty by consumption-based measurement of welfare. Poverty is defined in terms of the food poverty line, which is based on the cost of a minimum food basket to provide 2100 calories per adult, and the complete poverty line, which assumes that households are able to consume goods other than non-food. Based on this, the extremely poor are defined as those whose household consumption is below the food poverty line, and poor households are those whose consumption is below the complete poverty line.

This section presents the main findings from these reports, as well as the results of analyses of LSMS data that concern self-reported health status. A description of the results of the LSMS data analysis of socioeconomic inequalities is in Annex 1. Self-reported health status has been shown to be a reliable and valid indicator of health and well-being, and WHO recommends it for international comparisons (Lundberg & Manderbacka, 1996; De Bruin et al., 1996). Comparisons between countries are limited by the different time intervals of the surveys and, more importantly, the different questions used to assess self-reported health and other health-related indicators. For example, surveys carried out in Kosovo (Serbia and Montenegro) and Albania asked participants to assess their health status ranging from very poor to very good, while some asked questions about the presence of chronic disease without asking the respondents to rate their health. In this report, self-rated health has been stratified as “poor” or “very poor” or, if that information was not available, the main outcome of interest has been the reporting of chronic disease.

WHO estimates that expenditure on health as a percentage of GDP since 1995 has been on average lower in the SEE countries compared to the EU-15 (see Chapter 3). The latest estimates suggest that in 2001 Croatia spent 9% of its GDP on health, similar to the EU countries. In the same year Serbia and Montenegro spent 8.2%, followed by Bulgaria. The Republic of Moldova is the only country that spent less on health. In contrast, in Bosnia and Herzegovina, Romania, Serbia and Montenegro and The former Yugoslav Republic of Macedonia, spending has increased substantially since 1998. Albania spends the least on health, 3.5%, which has remained largely unchanged since 1995. Table 8 shows that healthy life expectancy generally follows the levels of GDP per capita (€ at PPP), and that the lowest and highest values can be found in Albania and Croatia, respectively.

Table 8. Healthy life expectancy (HALE) and GDP per capita, 2002 data

Countries	Healthy life expectancy	GDP/capita (€ at PPP)
Albania	61.4	4080
Bosnia and Herzegovina	64.3	5490
Bulgaria	64.8	6070
Croatia	66.6	9260
Romania	63.1	6040
Serbia and Montenegro	63.8	4940
The former Yugoslav Republic of Macedonia	63.4	5210

*Source:* Data on GDP/capita from the Vienna Institute for International Economic Studies; on HALE from the Global Burden of Disease project.

## Health issues of the Roma and their access to health care

Approximately 5.2 million Roma live in eastern Europe. The great majority of them are found at the very bottom of the socioeconomic structures. Mistrust and discrimination by the majority populations in the countries where they live have been common feature of their lives. The transition to market economies has led to an increase in poverty among the Roma, partly because high unemployment affects them to a greater extent as they were either unemployed or over-represented in low-skill jobs before the collapse of communism (Ringold et al., 2003).

It is generally accepted that the Roma suffer worse health than do the other populations in the countries where they live due to their higher exposure to a range of unfavourable structural factors that influence health, such as poverty, inadequate education and lower social integration. Most Roma live in small, compact settlements where housing conditions often lack basic sanitation, which contributes to their poorer health. In terms of health, the transition has affected the Roma particularly badly. Their health experience is referred to as the bimodal paradox of high levels of both communicable and noncommunicable diseases (Zeman et al., 2003). The situation of the Roma in south-eastern Europe is compounded by a number of additional aggravating factors, most importantly conflicts and migration within and out of the region. Country-specific information is in Annex 2.

Their distinctive health needs and patterns of disease have received little attention so far, particularly in the countries of the former Yugoslavia. The next section presents the available evidence on Roma health, the extent of which differs between the countries.

Several reviews of published literature on the health of the Roma people identified the serious lack of research and, the fact that when it is carried out, it mainly covers topics in child health and infectious diseases with very little coverage of noncommunicable diseases and health-related behaviour. Studies have also documented different access to health services, with some diseases being dealt within the Roma community and others requiring the services of the formal health care system (Hajioff & McKee, 2000). The review conducted by Zeman found that 50% of published articles on Roma health dealt with genetics and congenital anomalies, 12% covered infectious diseases and 15% covered other patterns of disease. Most of the studies were descriptive, thus lacking explanatory power. The studies that covered infectious diseases identified higher rates of seropositivity to hepatitis A, B, C and E, which was attributed to overcrowded homes, a lack of clean water and inadequate waste handling. Rates of immunization were also found to be lower among the Roma.

Van Cleemput et al used the Euroqol health status measure (EQ-5D)<sup>16</sup> to compare the health status of the Roma people with that of the general population in the United Kingdom and showed that the health outcomes of the gypsy travellers were significantly poorer than those of the lowest socioeconomic population group (Van Cleemput & Parry, 2001). Compared to the general population, a significantly greater proportion of travellers reported problems on all dimensions except pain and discomfort. This study also demonstrated the feasibility of using EQ-5D as a validated tool to assess the health status of Roma. Vernon found infant mortality among the Roma in the United Kingdom to be five times the national average and the stillbirth rate 17 times the national average (Vernon, 1994).

In the eastern European countries, there is better documentation about Roma health in the Czech Republic and Slovakia. The review conducted in 2000 found studies that reported a higher prevalence of low birth weight and prematurity in Roma children in North Bohemia (Dejmek et al., 1996; LSE, 2000). Another study conducted in southern Slovakia found that the Roma had a much higher prevalence of type-2 diabetes and cardiovascular disease than the majority population (Vozarova de Courten et al., 2003).

Reliable statistical information on the health of the Roma in SEE countries has been difficult to find. Routine mortality and morbidity data are not disaggregated by ethnicity or nationality and there are almost no health surveys that describe with sufficient validity the health status of the Roma in more detail, particularly in the countries of the former Yugoslavia. Some fragmentary data (described in the next section) do, however, show wide discrepancies in health status and accessibility to health services between the majority and the Roma population. At the beginning of the millennium, the United Nations Development Programme (UNDP) and the International Labour Organization (ILO) undertook the first comprehensive quantitative survey of the Roma populations in Bulgaria, the Czech Republic, Hungary, Romania and the Slovak Republic. The survey covered 5034 respondents and the findings indicate that health in the Roma communities deteriorated sharply during the 1990s. Only 54% of the respondents in Bulgaria and 63% in Romania said they had health insurance and, accordingly, many felt unable to buy medicines and pay the patient contributions required by health insurance policies. The survey data also suggested that respondents lacked adequate information about their health care rights. The health of Roma children and women has been identified as a special area of concern owing to socioeconomic factors (poverty, inadequate nutrition, lack of access to health services) and to cultural patterns of behaviour (early and numerous births). In the UNDP/ILO survey, information regarding health relied on self-reported data. Over 45% of respondents in all five countries assessed their health as either “tolerable” or “bad”, substantially more of them in Hungary and Romania than in the other countries. Approximately 30% of respondents in Romania and 22% in Bulgaria assessed their children’s health as tolerable or bad.

One important issue that has a major effect on the ability of the Roma to access health services is a lack of personal documents, including birth certificates, identity documents, residence permits and documents proving eligibility for state-provided social welfare and health insurance. The lack of identity documents is an obstacle to obtaining employment and the rights to health care, education and social benefits. Little is known about the extent to which Roma girls and boys are involved in trafficking and drug use, including links to child commercial sex activities. Despite the lack of data on sexual health, human rights organizations indicate that poverty and discrimination among the Roma drive them into

<sup>16</sup> EQ-5D is a standardized instrument for use as a measure of health outcomes. It consists of assessment of five dimensions: mobility, self-care, usual activities, pain/discomfort, and anxiety/depression.

high-risk behaviour and put them at a higher risk of HIV/AIDS. The review of existing evidence on HIV/AIDS epidemiology in Bulgaria and Romania found little information available on risk behaviour and almost none on the incidence or prevalence of HIV and STIs among the Roma (UNDP, 2003/2004).<sup>17</sup> The report also acknowledges the urgent need to assess their vulnerability to HIV due to the very small amount of usually low quality information available.

### **Policy responses: The Decade of Roma Inclusion (2005–2015)**

The Decade of Roma Inclusion was launched in February 2005 in Sofia, Bulgaria. This Initiative, adopted by eight countries in central and south-eastern Europe (Bulgaria, Croatia, the Czech Republic, Hungary, Romania, Serbia and Montenegro, Slovakia and The former Yugoslav Republic of Macedonia), and supported by the international community represents the first cooperative effort to change the lives of the Roma in Europe.<sup>18</sup> The priority areas include education, employment, health and housing. Ensuring their access to health care has been identified as of major importance in all countries. Some of the specific projects include helping the Roma to join health insurance systems (Romania), public information campaigns for vulnerable groups (Croatia), amendments to legislation (Serbia, The former Yugoslav Republic of Macedonia) and pro-active outreach by health institutions (The former Yugoslav Republic of Macedonia). Since 1993, the Roma and Travellers issue has featured in three of the Council of Europe's top priorities: the protection of minorities, the fight against racism and intolerance, and the fight against social exclusion.<sup>19</sup> One area that will be addressed within the Initiative includes increasing the evidence base on the health of the Roma. In addition to surveys, which should help to increase the general knowledge of their health status, other activities are aimed at improving knowledge about their access to health institutions, and preventive health care in Roma communities (Montenegro), or promoting intercultural education among medical personnel (Romania). Additional projects include affirmative approaches and increased opportunities for Roma to become health care providers (The former Yugoslav Republic of Macedonia), increasing the number of Roma nurses, doctors, and social workers through scholarships (Hungary, Croatia, Romania), and the introduction of Roma health mediators to work with Roma communities and health providers (Serbia). Several countries (Bulgaria, Croatia, Serbia and Montenegro) focus on more vulnerable groups among the Roma, in particular women and children, and on the health of Roma in informal settlements (Croatia, Serbia).

<sup>17</sup> In 2005, HIV and STI seroprevalence studies were conducted in Kosovo (Serbia and Montenegro) and Albania that also included assessment of these and other sexual behavioural outcomes among Roma communities. These data were expected to be available by the end of 2005.

<sup>18</sup> <http://www.romadecade.org/en/>, accessed 16 May 2006.

<sup>19</sup> [http://www.coe.int/T/DG3/RomaTravellers/Default\\_en.asp](http://www.coe.int/T/DG3/RomaTravellers/Default_en.asp), accessed 18 May 2006.

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### 3. HEALTH SYSTEMS AND POLICIES IN SOUTH-EASTERN EUROPE<sup>21</sup>

In the period since 1989, the countries of south-eastern Europe have invested significant efforts in the pursuit of wide-ranging reform of their health sectors, addressing issues of financing, organization and management of health care services. These efforts were a reaction to the inadequacies of the health systems inherited from the communist era, the pressures arising from political and economic transition, a collapse in the funding available for health care and, to differing degrees, the effects of wars, conflicts and economic sanctions. While the countries have followed different trajectories, their overall aims in the health sector have often been similar and there is much that can be learned from comparing and contrasting their experience to date in the process of reform. By doing so, it is possible to distinguish common challenges for the future as well as areas where a greater effort needs to be made in some countries of the region than in others.

Health systems have four main functions: provision of services, generation of resources, financing and stewardship (WHO, 2000b). This chapter devotes a section to each of these four functions. It begins by examining the pressures for reform that constitute the background to the reform efforts being made in the region.

#### The pressures for reform

##### **The legacy of the past: inappropriate and inefficient health systems**

With the exception of the former Yugoslavia, all the SEE countries followed the Semashko model of health care provision developed in the USSR in the 1920s, well into the 1990s. In the Semashko system, health policy was centrally planned and administered and all health personnel were state employees. There was a severe scarcity of certain forms of capital (modern technology and pharmaceuticals), as it was often necessary to buy them on the world market using scarce foreign currency reserves. In addition, access to some forms of western technology (such as computers) was blocked for security reasons. In contrast, labour was cheap because underpaid and, for the most part, poorly trained health care workers were unable to move to higher paid jobs abroad. For these reasons, the Soviet-style health system was heavily weighted towards labour-intensive and highly inefficient hospital care, with a lack of investment in the organizationally more complex primary care.

Consistent with the policy of central planning, the allocation of state funds was driven by norms derived from historical levels of infrastructure and staffing, rather than by needs or outcomes. Management was hierarchical, with little room for adaptation to local circumstances, and there were few incentives for efficiency in the provision of good quality health care.

Health care was funded on the residual principle, in that the health sector received what was left when other needs had been met. This, combined with poor macro-economic performance, meant that health funding was very low and has remained so compared to the European Union. What funds were available were often spent inefficiently, and the

<sup>21</sup> By Bernd Rechel and Martin McKee. The authors are grateful to Nadia Jemai, Victor Olsavszky, Emilia Tontcheva, Antoinette Kaic-Rak, Skender Sylja, Lidia Mladenova Georgieva and Fatime Qosaj for their help in sourcing relevant documents for this chapter.

impact of the economic crisis on the health sector was exacerbated by corruption and mismanagement (Agovino, 2001).

The inherited infrastructure has been a powerful force in shaping the current system. Major reconfigurations of facilities are expensive, and it has been easier and cheaper to work on the basis of what is already in place. As a consequence, health care facilities are generally inappropriate to current needs and perpetuate outmoded forms of clinical management. In the Republic of Moldova, for example, around 80% of official funding for health was spent on hospitals in 1999, with only 20% for primary health care even though this is the setting for 80% of clinical encounters (UNICEF, 2000). In 2000, the Republic of Moldova had only 0.5% of the volume of health care funding found in the United Kingdom but attempted to maintain three times as many hospitals and hospital beds (World Bank, 2000a). This distortion of the health economy has threatened the provision of the most basic health services, such as immunization, which almost completely stopped in the Republic of Moldova between 1990 and 1993 (Maclehose, 2002).

### **Consequences of wars, conflicts and sanctions**

In Albania, Bosnia and Herzegovina, Croatia, and Serbia and Montenegro, much of the health infrastructure and equipment was destroyed and many health personnel were either killed or left the country as a result of wars, conflicts or civil unrest. In Bosnia and Herzegovina, the health system was already under strain when the country became independent in 1992, with the subsequent war (1992–1995) destroying about 30% of the country's health facilities and leading to the loss of 30% of health professionals (Horton, 1999; Ministry of Health and Public Health Institute, 1999; UNDP, 2001; Cain et al., 2002).

In Albania, a quarter of city health centres and one third of village health posts were destroyed in the 1991 and 1992 disturbances (Nuri, 2002). In the 1997 crisis, health centres and hospitals were looted, losing drugs and equipment, and about 30% of medical staff abandoned their posts (Nuri, 2002). During the crisis in Kosovo (Serbia and Montenegro), Albania faced enormous challenges following the arrival of large numbers of undernourished and ill refugees (Nuri, 2002).

Access to specialist pharmaceuticals and technology was impeded as a consequence of the sanctions imposed by the international community, severely impacting on people with complex disorders such as cancer or who were in need of dialysis or organ transplants. The lack of fuel degraded emergency medical services, reduced heating in hospitals, and impaired transport to hospitals (UNICEF, 2005).

### **Collapsing health funding**

The combined effect of these events was that, in the 1990s, health funding collapsed in all countries of the region. In The former Yugoslav Republic of Macedonia, for example, state funding for the health sector declined by 40% between 1991 and 1995 (Hajioff et al., 2000). In Bosnia and Herzegovina or Kosovo (Serbia and Montenegro), health care services suffered an almost complete breakdown (UNDP, 2002), with many avoidable diseases and deaths. Services that had functioned previously deteriorated. In the former Yugoslavia, home visits declined by about 50% in cities and up to 90% in rural areas (UNICEF, 2005). Throughout south-eastern Europe, the already low salaries of health care staff dropped further and buildings and equipment could not be maintained. The volume of services provided was reduced and medicines became increasingly unaffordable to the population. The burden of health care costs shifted from the public sector to households and individuals. Health facilities and essential drugs became increasingly inaccessible at a time when demand was increasing.

## Steps towards health reform

Despite the serious problems encountered in the health sector, in many countries of the region, health sector reform has often been approached less eagerly than economic reform (UNICEF, 2005). While by 2002 health sector reform in Bosnia and Herzegovina was more advanced than in the other social sectors (Cain et al., 2002), in Serbia and Montenegro, the health system retained the key elements of the inherited Yugoslav model throughout the 1990s, although reforms have now been initiated (UNDP, 2002). In Albania, health reform has not been high on the political agenda and remains hampered by political instability and poverty (Nuri, 2002). In Bulgaria, health reform remained on the periphery of public sector reform until the late 1990s and little changed until 1997, when action to mitigate the worst effects of the imminent collapse of the health system became unavoidable (Ministry of Health 2001; Koulaksazov et al., 2003). The Republic of Moldova attempted to maintain its excessive health infrastructure during the 1990s, and only recently began much needed structural reforms (World Bank, 2000a).

## Provision of services

While the principal objective of health systems is to improve people's health, their chief function is the delivery of health services (WHO, 2000b). This section considers in turn primary health care, secondary and tertiary health care, and public health services in south-eastern Europe.

### Primary health care

In many countries of south-eastern Europe, the primary care system has been one of the main targets for post-communist reform. As already mentioned, the countries of the region that had adhered to the Semashko model of health care had overemphasized hospital care, while neglecting primary care. In Bulgaria, for example, where reform of the primary sector started only in 1999, outpatient care (primary and specialized ambulatory health care) was until then provided by specialists in free-standing district polyclinics and polyclinics attached to hospitals, so that it was often difficult to distinguish between primary and secondary care (Koulaksazov et al., 2003; Georgieva & Salchev, 2004).

Although in many places the primary health care system that existed in the former Yugoslavia was destroyed in the conflicts, the countries that emerged from the federation inherited both a tradition of primary care and a basic infrastructure of health centres and primary care stations (Nelson et al., 2003). In those countries, primary health care was traditionally provided in health centres (*dom zdravljas*). These are outpatient clinics providing not only first-line care, but also an array of specialized services. They are supported by outlying health stations (*ambulanta*). The pressure for primary health care reform in the countries of the former Yugoslavia emanated from greater recognition of issues such as the overspecialization of doctors and the redundancy of structures and equipment (Cain et al., 2002).

All countries of south-eastern Europe have now – to varying degrees – embarked on primary health care reforms, although some, such as Croatia in 1993, began the reform process earlier than others. While the starting point has varied, the aims and content of primary health care reform have been very similar throughout the region. In general, the reforms aimed at introducing the role of a family doctor or general practitioner (GP), establishing an effective gatekeeping system whereby primary care providers would control referrals to specialists, renovating the primary health care infrastructure, and giving patients greater freedom of choice. An increased role for family doctors in primary

care is considered key to enhancing efficiency and improving access to care for families, in particular children (UNICEF, 2005).

The reforms have generally been accompanied by changes in primary health service provision and financing. Often, the provision of primary care is linked to the introduction of health insurance schemes, with family doctors entering into contracts with health insurance funds. Some countries, such as Albania and Bosnia and Herzegovina, have put an emphasis on family medicine teams, as opposed to individual medical practices (Cain et al., 2002; Nuri, 2002). In Bulgaria, in 1999, polyclinics were functionally and institutionally separated from hospitals (Koulaksazov et al., 2003), and a similar change was initiated in the same year in Romania (Vladescu et al., 2000). In Bosnia and Herzegovina and Serbia and Montenegro, the pre-war *ambulantas* and *dom zdravljas* have remained. Primary health care facilities are, in general, owned by municipal governments (Cain et al., 2002; Simic, 2006). In Croatia, too, local governments operate most public primary health care services. While the facilities receive funds for operating expenditure through their contracts with the health insurance agency, the local authority is responsible for the maintenance of the infrastructure and, increasingly, for capital investments (Golna et al., 2005).

Throughout the region, private providers are assuming an increasing role in primary care. In the Former Yugoslav Republic of Macedonia, for example, the private provision of outpatient care was legalized soon after independence. In 2002, private physicians accounted for nearly 10% of all physicians and for 22% of physicians in primary health care (Nordyke and Peabody, 2002). In Croatia, the private provision of health care services was legalized in 1993. Although the majority of health care providers remained under public ownership, private providers have grown in number, notably in primary care, pharmacies, dental services, specialized clinics and dispensaries (Golna et al., 2005). Primary care practitioners were allowed to lease public facilities from the county authorities at a low cost (Golna et al., 2005). By 1999, there were some 2570 private medical doctors, representing about 25% of the total (Golna et al., 2005), and privatized primary care practices were found to be more accessible to patients (Hebrang et al., 2003). In Serbia and Montenegro, the private health sector is still underdeveloped and not yet incorporated into the health insurance system (Simic, 2006).

In Bulgaria, private practice was legalized in 1991. Throughout the country, most pharmacists and dentists now work in the private sector. The reforms so far are an important step towards the provision of comprehensive primary care services. There has also been progress in extending coverage to the whole population. By the end of 2002, 97.4% of the population had registered with a general practitioner (Georgieva & Salchev, 2004).

The reform of primary care in the region is, however, far from complete. In most countries there is still a long way to go before a comprehensive primary health care system is established (World Bank & Government of Moldova, 1999; WHO, 2000a; Ministry of Health, 2001b; Government of the Republic of Serbia, 2002; Maclehose, 2002; Rechel & McKee, 2003). There have also been some setbacks, such as when in The former Yugoslav Republic of Macedonia the “selected physician reform” was abandoned in 1998, with adverse consequences for the development of general practice or family medicine (Hajioff et al., 2000).

One of the most serious obstacles to the development of primary care services in south-eastern Europe has been that the formal adoption of primary health care reforms has not always been followed by the allocation of increased resources. In a number of countries, primary care facilities are severely under-resourced. As was noted with regard to the Republic of Moldova, the health system continues to be heavily weighted in favour of

tertiary care (Maclehose, 2002). As will be discussed in more detail below, low salaries for health care workers in general serve to undermine the provision of quality services and lead to informal out-of-pocket payments by patients.

In the former Yugoslav Republic of Macedonia it has been noted that there is still no clear distinction between primary and secondary care (Hajioff et al., 2000) and it can be assumed that there are still challenges in establishing the gatekeeping role for primary care services throughout the region. In Albania, bypassing of lower level health facilities has been reported as extensive (PHRplus, 2004). In view of the under-investment in the primary care sector, the inadequate qualifications of many primary care physicians and nurses and their low salaries, it is perhaps not surprising that low patient satisfaction and health service utilization have been reported, as in Bulgaria (Pavlova et al., 2003) and the Republic of Moldova (Maclehose, 2002). In Albania, a high level of patient dissatisfaction has been reported and has been attributed to the poor quality of care, the lack of diagnostic and curative services and the existence of under-the-table payments, so that many patients seek health services in countries such as Greece, Italy or Turkey (Ministry of Health, 2004b).

A final problem facing efforts to provide comprehensive primary health care services is the persistence of geographical inequities, as was noted, for example, with regard to Albania (Ministry of Health, 2004b), Bulgaria (Koulaksazov et al., 2003) and the Former Yugoslav Republic of Macedonia (Hajioff et al., 2000). There have been some innovative attempts to fill primary medical practices in rural and underprivileged areas in Bulgaria (Koulaksazov et al., 2003; Rechel & McKee 2003), but gaps still remain.

#### **Box 1. Reforms in mental care**

Governments in south-eastern Europe have recognized the need for wide-ranging reforms in mental health services, entailing the shift from institutional to community-based care. While this process is still in its beginnings in many countries of the region, reforms in this area have been particularly successful in Bosnia and Herzegovina, as the reconstruction of the many facilities damaged in the war provided an opportunity to develop new models of community care.

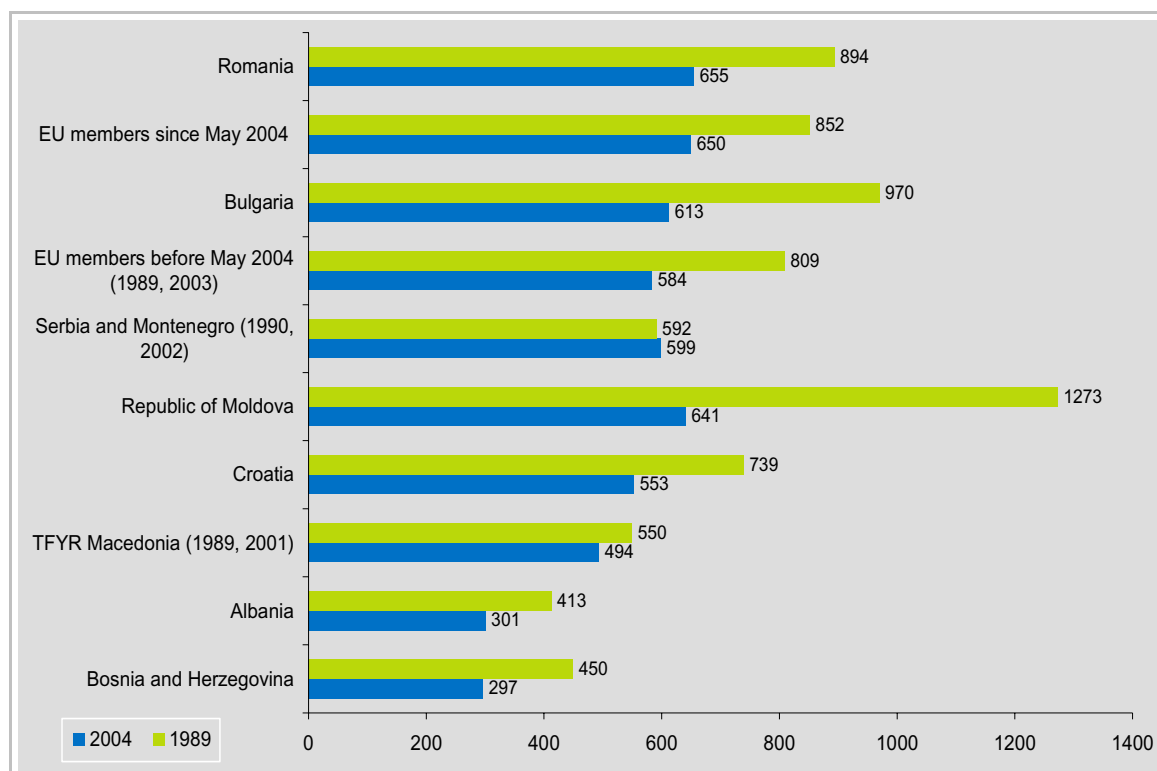
*Source:* Rechel & McKee, 2003.

## **Secondary and tertiary care**

The Semashko model of health care left a legacy of an extensive and inappropriate system of specialized hospital services in several countries of the region. In these countries, a reduction in hospital capacity has become one of the cornerstones of health reform. Since 1989, the number of hospital beds has been cut in almost all countries of the region (Serbia and Montenegro being the exception), even where the ratio of beds to population was already much lower than in the countries of the European Union (Fig. 19). The reduction was most pronounced in the Republic of Moldova, where major efforts to reform the extensive network of specialist care were embarked upon in 1998, and by 2002 staffing and bed numbers had been reduced by over half (Maclehose, 2002). In Bulgaria, bed numbers were reduced by 28% between 1997 and 2000, and by 2003 about one third of municipal hospitals and one third of regional hospital beds had been closed, a development that has been linked to an accreditation procedure that removed approval from many sub-standard facilities (Koulaksazov et al., 2003). The early years of the transition in Romania, in 1991 and 1992, saw a reduction in the number of hospital beds which partially addressed the problem of low bed occupancies (Vladescu et al., 2000).

However, it still retains far more beds in relation to its population than many countries in western Europe, as does Bulgaria, despite the lack of financial resources to support them (Koulaksazov et al., 2003). In Bulgaria and The former Yugoslav Republic of Macedonia, excessive and often unnecessary use of hospital beds has been reported (Hajioff et al., 2000; Koulaksazov et al., 2003), highlighting areas where further efficiency improvements seem to be possible.

Fig. 19. Hospital beds per 100 000 population, 1989 and 2004 or latest available year (in parentheses)



Source: European health for all database (WHO, 2006).  
TFYR Macedonia = The former Yugoslav Republic of Macedonia.

The rationalization of the hospital sector that has taken place so far in the region has been accompanied by changing provider arrangements. In Albania, many rural hospitals were transformed into health centres (Nuri, 2002). In Bulgaria, all polyclinics had become “trading companies” by 2000 (Koulaksazov et al., 2003). As a legacy of the communist past, however, a number of Bulgarian ministries continue to own, manage and finance their own health care facilities. Tertiary care continues to be provided in national institutes and centres, which are owned, administered and financed by the Ministry of Health (Koulaksazov et al., 2003).

Throughout the region, secondary and tertiary facilities have remained predominantly publicly owned and administered, although a growing share of hospital expenditure is being financed from health insurance funds. In Albania, the Ministry of Health retains control of secondary and tertiary health care (Nuri, 2002). In Romania, where most hospitals are still under public ownership and administration, there has been a plan to transfer the majority of hospitals from the ownership of the Ministry of Health to local councils (Vladescu et al., 2000).

Privatization of the hospital sector has remained much more limited than in the primary care sector. In Bulgaria, by 2000, private hospitals provided only 0.5% of beds, although since the 2000 reforms the 32 regional hospitals have been autonomous entities, in a contractual relationship with the health insurance fund (Koulaksazov et al., 2003).

## Public health services

In the health systems that existed in south-eastern Europe before the start of the transition, public health programmes were mostly geared towards the control of communicable diseases, with an emphasis on ensuring high levels of immunization. Little attention was paid to the prevention of diseases and injuries through intersectoral public health policies. In many countries of the region, reform of public health services has been lagging behind the reform process in other areas of health care. Often, the structures inherited from communism are still in place, while in primary health care little attention is given to the prevention of diseases (Hajioff et al., 2000; Ministry of Health, 2001a; Cerbu, 2002). Typically, the narrow medical view of public health as a hygiene and epidemiological service still prevails.

Although the governments of the region have now generally embraced the ideas of modern health promotion and disease prevention, changes are often little more than rhetorical and confined to policy documents, with no actual restructuring of public health services or changes in the allocation of resources. The development of modern public health services is generally not seen as a priority in view of the current scarcity of resources. As a result, public health services remain weak and under-funded. Skill levels are often low, training is inappropriate, and poor salaries do not attract highly qualified staff.

In Bulgaria, which has nominally recognized the need to increase public health capacity as a priority within health care reform (Ministry of Health, 2001b), less than 1% of national health expenditure is allocated to health promotion and disease prevention (Aarva et al., 2002), while the public health services retain the basic structure that has existed since the 1950s (Koulaksazov et al., 2003; Georgieva & Salchev, 2004). Although a National Centre for Health Promotion was established in 1991, it has faced difficulties in developing activities to promote health and healthier lifestyles (Koulaksazov et al., 2003). In Albania, too, inadequate public health services continue to be provided in an obsolete institutional framework (Ministry of Health, 2004b). An assessment of public health laboratories in Albania in 2002 concluded that the equipment was outdated, operations were subject to power cuts, and staff received little training and support (Clinical Center et al., 2002).

In the Republic of Moldova, public health remains focused on the traditional functions of the old sanitary-epidemiological (san-epid) service, with a narrow emphasis on laboratory-based control of communicable disease and environmental health, activities that are run as separate vertical programmes in parallel structures (Maclehose, 2002). A further complication in the Republic of Moldova is the status of the breakaway enclave of Transdnistria, which is outside the control of the government of the Republic of Moldova and where public health surveillance is especially weak and not integrated within the international surveillance system (McKee & Atun, 2006).

Even in the former Yugoslavia, where the prevention of disease was once considered the flagship of the national health system, it remains far behind curative services in terms of resource allocation (Aarva et al., 2002). Croatia has a long-standing public health tradition under the leadership of the Andrija Štampar School of Public Health, which has initiated a number of high profile health-promoting activities. Croatia has also played an important role in many international programmes such as Healthy Cities. However, the level of public spending on public health programmes by both central and local governments remains low (Golna et al., 2005). In Bosnia and Herzegovina, public health services continue to be run in chronically understaffed epidemiology and hygiene departments within primary care delivery institutions, and there is no comprehensive strategy to tackle smoking, fight cardiovascular diseases or HIV/AIDS and promote healthy lifestyles (Cain et al., 2002). In The former Yugoslav Republic of Macedonia, public health services have



been strengthened but major investment in capacity is still required (Hajioff et al., 2000). An assessment of the public health network in the Republic of Serbia in 2002 found that there was no integrated public health policy, the Institute of Public Health Network was outdated, a multidisciplinary approach was lacking, and mechanisms for financing public health were unclear (Aarva et al., 2002; Simic, 2006).

There are, however, some hopeful signs. While much more needs to be done, there has been important progress in public health training. New postgraduate training programmes in public health have been established or strengthened throughout the region (Vladescu et al., 2000; Levett, 2002; Roshi & Burazeri, 2002; World Bank, 2002). Population health surveys have been conducted in Serbia and Croatia. In addition, a Public Health in South-Eastern Europe (PH-SEE) Network has been created within the framework of the Stability Pact for south-eastern Europe, with the aim of strengthening collaboration among training and research institutions in the region. Beginning in 2001, the Open Society Institute sponsored a partnership for training between government institutions in Croatia, Serbia and Montenegro and The former Yugoslav Republic of Macedonia and the US Centers for Disease Control and Prevention (CDC) in Atlanta (Simmons et al., 2005). In addition, throughout the region, new health information systems are currently being established.

One of the main challenges in the area of public health services in south-eastern Europe is the translation of formal policy commitments into a restructuring of public health services and an increased allocation of resources to health promotion and disease prevention.

## Resource generation

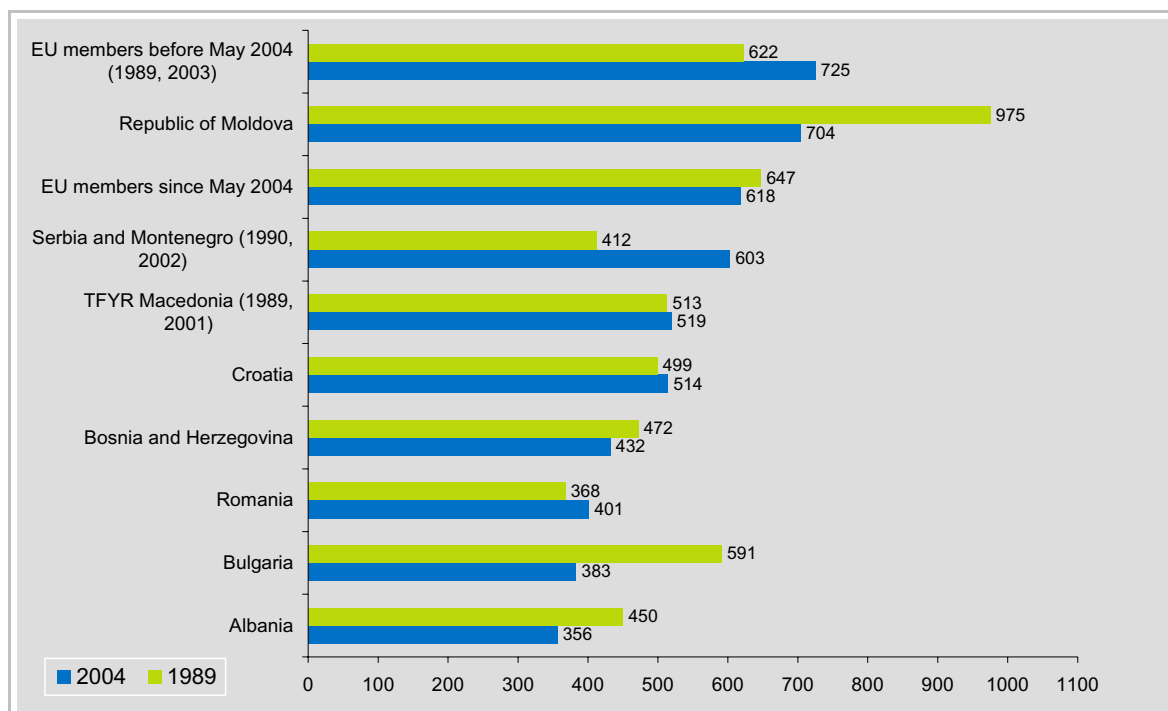
Health systems require three principal inputs: human resources, physical capital and consumables (WHO, 2000b).

### Human resources

There are considerable differences between the SEE countries as regards the supply of human resources. Most, however, are lagging behind EU averages for nurses and physicians (Figs. 20 and 21). In Albania there is a particular shortage of physicians and nurses and the comparatively few health professionals are concentrated in hospitals (Nuri, 2002). Between 1994 and 1999, the number of graduating physicians fell by more than half (Nuri, 2002). Likewise in Kosovo (Serbia and Montenegro), the numbers of doctors (139 per 100 000 in 2000) and nurses (361 per 100 000) are among the lowest in Europe (Ministry of Health, 2004a). The ratio of physicians per population is also very low in Bosnia and Herzegovina, but the comparatively few physicians were still struggling to find employment (Cain et al., 2002). A high level of unemployment among physicians has also been reported in the former Yugoslav Republic of Macedonia, and medical schools there have reduced their intake of students (Hajioff et al., 2000). Despite reductions in recent years, the Republic of Moldova still employs a comparatively large health workforce (Maclehose, 2002).

One of the main problems in the area of human resources in south-eastern Europe is connected with the outflow of professionals both from the region or, within the region, from the health sector, as noted with regard to Bulgaria (Koulaksazov et al., 2003), Croatia (Vulic & Healy, 1999) and the Republic of Moldova (Maclehose, 2002). According to some sources, 40% of professors and researchers left Albania between 1990 and 1997 (Nuri, 2002). Nurses with university degrees are also leaving the country in large numbers, primarily to take jobs in the Italian health system (Nuri, 2002).

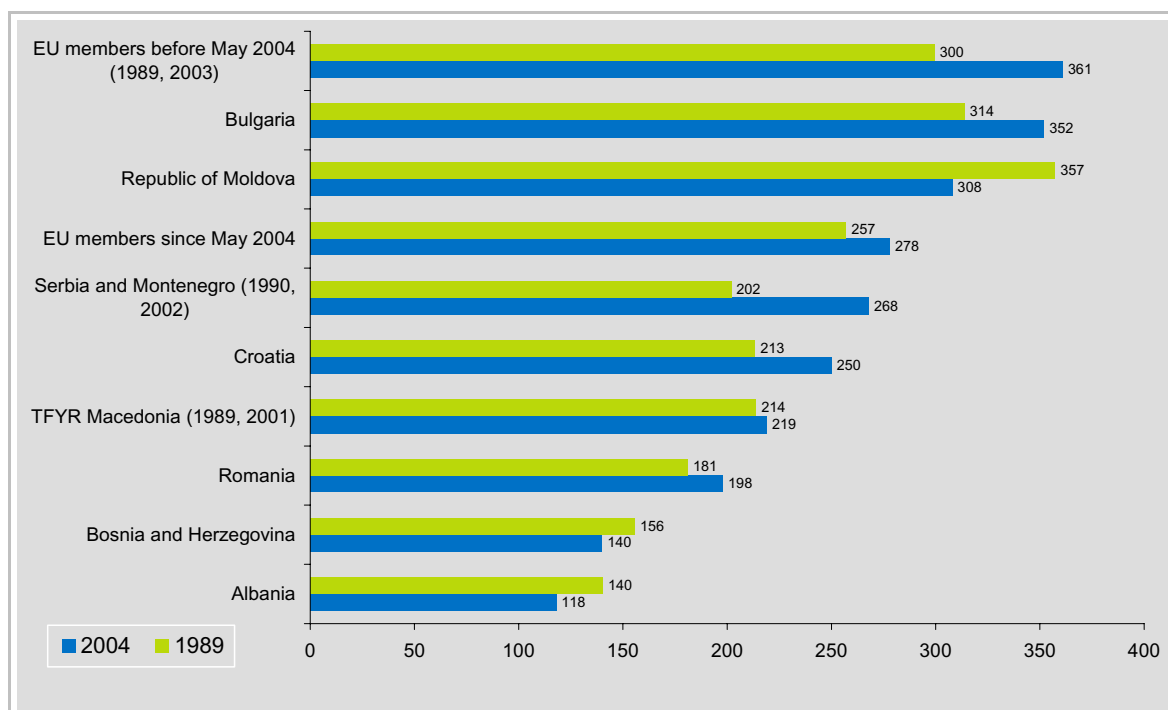
Fig. 20. Nurses per 100 000 population, 1989 and 2004 or latest available year (in parentheses)



Source: European health for all database (WHO, 2006).

TFYR Macedonia = The former Yugoslav Republic of Macedonia.

Fig. 21. Physicians per 100 000 population, 1989 and 2004 or latest available year (in parentheses)



Source: European health for all database (WHO, 2006).

TFYR Macedonia = The former Yugoslav Republic of Macedonia.

Another challenge for the management of human resources in south-eastern Europe is the unequal geographical distribution of medical staff. In Bosnia and Herzegovina, Romania and Serbia and Montenegro, the distribution of specialists across the country has been described as one of the main problems in the area of human resources and management (Vladescu et al., 2000; Cain et al., 2002; World Bank, 2003). In Albania, many

communities have no health services as physicians have abandoned their work in remote rural areas (Nuri, 2002; Ministry of Health, 2004b). A lack of doctors in rural areas has also been observed in Kosovo (Serbia and Montenegro) (Qosaj, 2003). In the Republic of Moldova, it was estimated in 2002 that around 15% of rural areas were not covered by doctors (Maclehose, 2002), while in 1998 there were ten times more urban than rural doctors (Maclehose, 2002).

In view of the outflow of medical staff, the unequal geographical distribution of health professionals, and the mismatch between supply and employment, there appears to be an urgent need for comprehensive systems for the planning of human resources. However, such systems appear to be absent in all countries of the region. In Bulgaria, by 2003 there was still no national strategy to plan human resources and improve education and training (Koulaksazov et al., 2003); nor was there in Albania (Ministry of Health, 2004b).

## Working conditions

There also seems to be much room for improvement with regard to the working conditions of health professionals. One of the main problems facing the provision of both primary and higher levels of health care throughout the region is the low pay of health professionals (Vulic & Healy, 1999; Hajioff et al., 2000; Vladescu et al., 2000; Cain et al., 2002; Maclehose, 2002; Nuri, 2002; Koulaksazov et al., 2003; Qosaj, 2003). In some countries, such as the Republic of Moldova, payment of salaries is often delayed by three to four months (Maclehose, 2002). In 2001, the salary for a hospital doctor in the Republic of Moldova was about US \$ 10 per month, covering only 14.5% of the minimum consumption basket. Until 1999, when Bulgaria's health system was drastically reformed, physicians there received a state salary of around €100 per month, with a small additional amount for experience and specialization (GVG and EC, 2002).

Low salaries for health professionals in south-eastern Europe lead to professional dissatisfaction, poor staff morale, the outflow of health professionals, and the request for informal out-of-pocket payments by patients. In The former Yugoslav Republic of Macedonia, low salaries have been described as "an incentive for [physicians] to seek alternative sources of income" (Hajioff et al., 2000), either by requesting informal payments or by leaving the medical sector. Nurses often have fewer possibilities for informal earnings and their profession has very low prestige, as has been noted in Albania (Nuri, 2002), Bulgaria (Koulaksazov et al., 2003) and Romania (Vladescu et al., 2000).

## Training

Throughout the region, the education of physicians and nurses has been reformed, with the introduction of training in general medicine and public health and the gradual upgrading of nursing training.

### Box 2. Family medicine in Bosnia and Herzegovina

A family medicine model has been introduced in both entities of Bosnia and Herzegovina under the World Bank-financed Basic Health Project. In the late 1990s, Bosnia and Herzegovina had at least six different approaches to the development of family medicine. Today, a single curriculum for family medicine has been developed and adopted through legislation in both entities.

Source: Cain et al., 2002.

One challenge for the future is the training of primary care workers. Specialist training in family medicine started in 1997 in Romania (Vladescu et al., 2000) and the Republic of Moldova (Maclehose, 2002) and has now been established in all countries of the region. Continuing medical education is also developing rapidly. In Croatia, a project aimed at

ensuring that all doctors working in the family medicine service had appropriate specialist qualifications began in 2003 (Katic et al., 2004).

Because of the time it takes to complete the specialization, however, there continues to be a lack of adequately trained GPs throughout the region and the health care sector is still burdened with specialists, working inappropriately in primary care settings, without training in modern general practice. Thus, with the exception of Albania, there is an oversupply of specialists in most countries, reflecting the high norms for the production of doctors in the communist system.

Put simply, many doctors currently working as GPs are not qualified as such (Koulaksazov et al., 2003; Qosaj, 2003). In Croatia, for example, about one third of primary care physicians specialize in general medicine, a smaller proportion in family medicine and the rest have qualifications in paediatrics, dentistry, gynaecology and emergency medicine (Golna et al., 2005). In Bosnia and Herzegovina, too, much primary care continues to be in the hands of specialists (Cain et al., 2002), while the lack of effective professional development has been identified as an impediment to the delivery of primary care in Serbia and Montenegro (Nelson et al., 2003). As noted in Albania, the speciality of family medicine continues to be “the most discriminated and despised speciality” (Ministry of Health, 2004b). The training of nurses is another area that will require increased attention in the future.

### Box 3. Introducing continuing medical education

A number of countries in south-eastern Europe have now introduced systems of continuing medical education. In Romania, continuing medical education became compulsory in 1999 for physicians seeking to renew their right to practise. A programme for continuing medical education, with a focus on primary health care, has also been introduced in The former Yugoslav Republic of Macedonia, where a School of Continuing Medical Education has been established.

*Source:* Rechel & McKee, 2003.

Another challenge in the area of human resources is the lack of management skills at both ministerial level and in health facilities. A lack of managerial expertise and management skills has been noted in Albania (Ministry of Health, 2004b), Bulgaria (Koulaksazov et al., 2003), Kosovo (Serbia and Montenegro) (Ministry of Health, 2004a), The former Yugoslav Republic of Macedonia (Hajioff et al., 2000) and Romania (Vladescu et al., 2000). In Albania, poor management has been identified as the most acute issue that affects the performance and quality of services in hospitals (Ministry of Health, 2004b). Throughout the region, knowledge of modern health care management has remained limited and is rarely a requisite for those heading health care institutions (Hajioff et al., 2000; Vladescu et al., 2000; Cain et al., 2002; Ministry of Health, 2004b).

## Physical capital

Capital investment has been running at low levels in most SEE countries over recent decades, leading to outdated or missing equipment at all levels of care. In Kosovo (Serbia and Montenegro), there was hardly any capital investment during the 15–20 years preceding the conflict (Ministry of Health, 2004a), while in Bosnia and Herzegovina even before the war most equipment was already outdated (Cain et al., 2002).

While throughout south-eastern Europe a large number of primary care facilities have been refurbished and reconstructed in recent years, often with the help of external agencies, more needs to be done. Throughout the region, poor, outdated or absent equipment is still a crucial impediment to the delivery of primary care (Hajioff et al., 2000; Nuri, 2002; Nelson et al., 2003). The Ministry of Health of Albania, for example,

has acknowledged that the poor quality of primary health care services results in their infrequent use by the public (Ministry of Health, 2004b), while in the Romanian primary care sector in 2000, diagnostic and treatment equipment was found to be practically non-existent (Vladescu et al., 2000).

As in the primary care sector, one of the challenges facing secondary and tertiary care facilities is absent or outdated equipment, often compounded by inadequate drug supplies. In Romania, a survey in 1998 found that the vast majority of equipment in hospitals and polyclinics was obsolete (Vladescu et al., 2000), mirroring similar findings in Bosnia and Herzegovina (Cain et al., 2002). The quality of care is often poor, treatment regimes are often obsolete, and in Albania, the public hospital sector is unable to deliver many basic diagnostic and curative services (Nuri, 2002; Ministry of Health, 2004b). In Bulgaria, too, there was very little capital investment throughout most of the 1990s, so that more than three quarters of the country's medical equipment items have been reported to be over 20 years old (Koulaksazov et al., 2003). In a number of hospitals, patients have to bring bed linen and pay for drugs and consumables (Ministry of Health, 2001b).

In the Republic of Serbia in 2001, only 23% of equipment was less than 10 years old (DACU, 2001). In Albania, more than 40% of health facilities in five districts visited in 1999 were reported not to have running water, while such basics as gloves and antibiotics were lacking (Albania Health Reform Project, 2001). In the Republic of Moldova in 1999, the majority of health facilities were found to be in a very poor state of repair; and some were without heating, ventilation or lighting (WHO, 1999). Other reports in the Republic of Moldova tell of a lack of warm water, heating, bed linen or adequate nutrition (World Bank, 2001), while basic drugs were often lacking (Maclehose, 2002). Geographical imbalances pose another problem in the region, with hospitals being concentrated in urban areas.

## Pharmaceuticals

The production and distribution of pharmaceuticals has been privatized in recent years throughout the region (Vulic & Healy, 1999; Cain et al., 2002; Nuri, 2002; Ministry of Health, 2004b). In Romania, pharmacies were among the first health facilities to be privatized (Vladescu et al., 2000). In Albania in 2002, about 80% of pharmacists worked in private facilities (Nuri, 2002). The majority of pharmacists in The former Yugoslav Republic of Macedonia now also work in the private sector (Hajioff et al., 2000). In the Republic of Moldova, too, many pharmacies have been privatized, although the state remains a shareholder in a number of privatized enterprises (Maclehose, 2002). In Bulgaria, the production and distribution of pharmaceuticals is now done by 28 separate mostly state-owned companies (Koulaksazov et al., 2003).

In most post-communist countries, pharmaceuticals account for a high proportion of national health expenditure. This also tends to be the case in south-eastern Europe. The privatization of the production and distribution of pharmaceuticals has generally improved the supply of drugs but also increased expenditure on pharmaceuticals, as in many countries of the region most drugs need to be imported (Vulic & Healy, 1999; Cain et al., 2002; Maclehose, 2002; Koulaksazov et al., 2003). In Bulgaria in 1999, drugs accounted for 25.4% of government expenditure on health, but this figure does not include the substantial out-of-pocket spending by patients (Koulaksazov et al., 2003). Similarly, in Albania in 1999, pharmaceuticals accounted for 25% of official expenditure on health (Nuri, 2002). In Croatia, expenditure on drugs increased from 7% of total health expenditure in 1990 to 16% in 1997, partly due to the increasing cost and volume of foreign imports (Vulic & Healy, 1999). In Bosnia and Herzegovina, prices for pharmaceuticals were especially high, due to the fragmentation of the health system and subsequent low purchasing power (Cain et al., 2002).

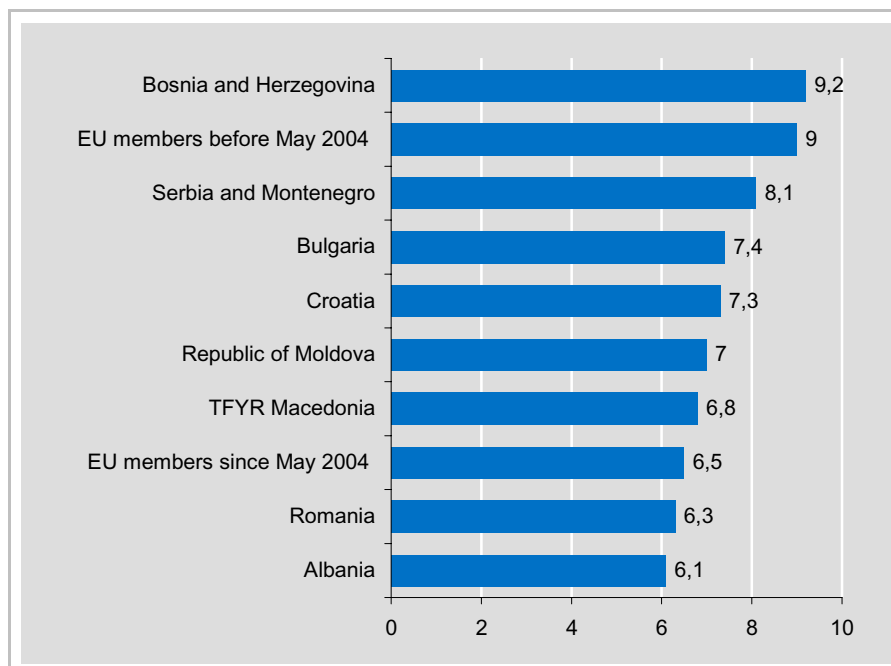
Some countries of the region, including Bosnia and Herzegovina (Cain et al., 2002), the Republic of Moldova (Maclehose, 2002) and The former Yugoslav Republic of Macedonia (Hajioff et al., 2000), have attempted to contain the costs of pharmaceuticals by establishing limits on profit margins by retail pharmacies and wholesalers. All SEE countries also appear to have drawn up essential lists of pharmaceuticals that are supposed to be reimbursed by health insurance funds or governmental health expenditure. In practice, however, many pharmaceuticals have to be paid for directly by patients (Cain et al., 2002; Koulaksazov et al., 2003), many of whom cannot afford them (Maclehose, 2002). It has been estimated that in the Republic of Moldova, in 2003, 80.6% of total pharmaceutical expenditure came from private sources (WHO, 2006).

## Health expenditure and financing

### Health expenditure

Despite the serious limitations of official data on health expenditure, population numbers and the size of the economy, it is possible to observe a great variety in the SEE countries in terms of total expenditure on health as a percentage of GDP. With the exception of Bosnia and Herzegovina, all countries of the region lag behind the average percentage of GDP spent on health in the EU-15. The lowest relative amount on health is spent in Albania and Romania, both below the average of the eight EU-CCEE, while the highest share is spent in the countries of the former Yugoslavia (Fig. 22).

Fig. 22. Total health expenditure as % of GDP in 2002, WHO estimates



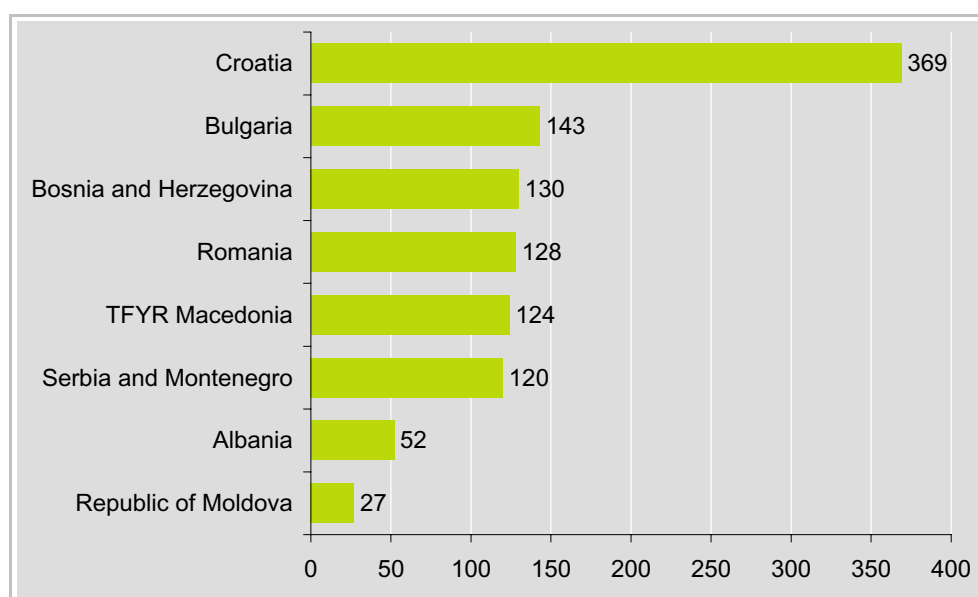
Source: European health for all database (WHO, 2006).  
TFYR Macedonia = The former Yugoslav Republic of Macedonia.

In Bosnia and Herzegovina, the share of health services in the overall economy was high even before the war, with health care expenditure estimated at 8.2% of GDP in 1991 (Cain et al., 2002). The health system as currently organized is expensive, with high overheads associated with the financial and other institutional costs of 13 health ministries and health insurance funds. Although the country spends a high percentage of its small GDP on health care, serious problems remain, in particular with regard to equity, in both geographical access and finance (Cain et al., 2002).

In Bulgaria, public spending on health care has been a low priority (Koulaksazov et al., 2003). In Albania, in 2003, public expenditure amounted to 2.3% of GDP and total expenditure on health may have been in the area of 4–5% of GDP (Ministry of Health, 2004b). The National Strategy for Social and Economic Development envisages an increase of public expenditure to 3.2% of GDP for 2006 (Ministry of Health, 2004b). Investment in the health sector contributes to socioeconomic development. There is a particular need for sustained investment in those SEE countries that only spend a small percentage of their GDP on health.

Total health expenditure in absolute terms is very low in many of the countries of the region, especially Albania and the Republic of Moldova. This has far-reaching consequences for health care provision, as some inputs into the health care system, such as technology and pharmaceuticals, have to be obtained at world market prices. According to estimates by the World Bank, US\$ 369 per capita were spent on health in Croatia in 2002, compared to only US\$ 27 per capita in the Republic of Moldova (Fig. 23).

Fig. 23. Total health expenditure, US\$ per capita, 2002, World Bank estimates



Source: *World development indicators* (World Bank, 2005).  
TFYR Macedonia = The former Yugoslav Republic of Macedonia.

There are also huge sub-national differences in the allocation of resources to the health sector. Within Romania, for example, while per capita health spending in Bucharest in 1997 was 167% of the national average, in Giurgiu it was only 52%. There is, however, a redistribution system that is seeking to address this imbalance (Vladescu et al., 2000).

## Revenue collection

In all countries of the region, profound changes in the generation of resources for the health sector have taken place since the end of communist rule. While a health insurance system existed in The former Yugoslavia prior to 1989, in the remaining countries of south-eastern Europe health services were mainly financed from general state funds. These countries have now introduced payroll-based health insurance as an additional source of revenue. In addition, throughout the region, out-of-pocket payments, both formal and informal, have become a major source of health financing, while in some countries foreign assistance has been substantial.

## General government revenues

For several countries of the region, general government revenues derived from various direct and indirect taxes, tariffs and other charges, remain a major source of health revenue or have only recently been complemented by health insurance schemes. In the Republic of Moldova and Albania, general revenues continue to be the most important source of public health funding, amounting to 89% in Albania in 2004 (Maclehose, 2002; Foubister et al., 2004). In Romania, general government revenues were the main source of public funding until 1997, when the Health Insurance Law transformed the Romanian health system from a Semashko model to an insurance-based model. Since then, earmarked payroll contributions are the main source of funding, although taxes continue to be an important source (Vladescu et al., 2000). In Bulgaria, general funds from the national and municipal budgets only ceased to be the main source of public health funding in 2000 (Koulaksazov et al., 2003; Balabanova & McKee, 2004).

## Health insurance

All countries of the region have now either introduced or re-affirmed systems of health financing based on the Bismarckian model – a mandatory health insurance system in which health insurance payments are deducted from incomes, with pooling of contributions and thus risks.

In the former Yugoslavia, local institutions, the “self-managed communities of interest”, provided health insurance, social security and disability insurance to employees and their families (Cain et al., 2002). However, resources were used inefficiently and the health system was fragmented, highly decentralized and expensive (Golna et al., 2005). The wars further undermined health services and their financing. In Croatia, the Health Care Law of 1993 consolidated the health-financing system within a single public entity, the Croatian Health Insurance Institute (Hindle, 2003).

In Bulgaria and Romania, the first health insurance systems had been developed prior to the Second World War but were abolished by the post-war communist regimes. Romania re-introduced health insurance in 1997, followed by Bulgaria in 1998. Albania introduced social health insurance in 1995, but the pace of reform of health financing has been slow (Nuri, 2002). The Republic of Moldova passed a Law on Compulsory Health Insurance in 1998, but initially no major changes in national financing arrangements followed, except for the introduction of charges for some health services (World Bank, 2001; Maclehose, 2002). Implementation of the law only started in 2004.

The uptake of voluntary insurance has remained limited throughout the region. In 2002, Croatia introduced a supplementary insurance scheme (Hindle, 2003; Kovacic, 2004), but the number of people covered remained just over 20 000, a small proportion of a population of approximately 4.4 million (Golna et al., 2005).



While the SEE countries have thus followed very different trajectories towards the establishment of health insurance systems, the new systems generally share the following common characteristics or reform aims:

- health insurance is mandatory, payroll-based and paid by employee and employer;
- funds are pooled by the health insurance institutes, which purchase health services based on contracts, establishing a split between providers and purchasers of health services;
- a package of health services and a list of prescription drugs covered by insurance have been defined.

Although in all countries of the region, mandatory payroll-based insurance has been established, the contribution rates differ widely (Table 9).

Table 9. Contribution rates in the region

Countries	%	Employer/employee split
Bulgaria	6% (2003)	initially shared by employer and employee in the proportion 5:1, with an envisaged proportion of 1:1 by 2007
Romania	14% (2000)	split equally
Croatia	15% (2004)	split equally
Bosnia and Herzegovina (Republika Srpska)	15% (2001)	split equally
Bosnia and Herzegovina (Federation of Bosnia and Herzegovina)	on average 18% (2001)	13% paid by the employee and 5% by the employer

Source: Koulaksazov et al., 2003; Vladescu et al., 2000; Kovacic, 2004; Cain et al., 2002).

While contributions vary, all countries face the problem that, with high levels of unemployment, low wages and large informal sectors, the formal employment base for generating resources is extremely small in relation to need and provides considerable scope for the avoidance of payment.

The economically inactive part of the population is generally exempt from making health care contributions and, with the notable exception of Bulgaria (Koulaksazov et al., 2003), dependants of an insured person have free access to health insurance. Health insurance for exempted categories of the population, such as the unemployed, the elderly, children up to the age of 18 years, students and the military, is generally paid by transfers from the central and local government budget to the health insurance fund. In Romania, up to 25% of funds must be set aside for redistribution among the districts (Vladescu et al., 2000).

Throughout the region, the health insurance funds are in the process of assuming the role of the principal purchaser of health services. In many countries, health care providers have become administratively independent and are contracted by the health insurance funds, provided they meet quality and accreditation criteria. In Bulgaria, while the contractual framework has now been established, there is as yet no active purchasing, so that the expected benefits have yet to materialize (Koulaksazov et al., 2003). In Albania, the role of the health insurance fund is also changing (Foubister et al., 2004).

With the establishment of health insurance funds, a basic benefits package of health services and a list of prescription drugs covered by insurance have been defined in most countries of the region. In Bulgaria and Romania, a national framework contract is negotiated annually between the health insurance funds and certain professional associations (Vladescu et al., 2000; Koulaksazov et al., 2003). In the case of Bosnia and Herzegovina (Republika Srpska), the emerging package provides benefits only for the insured, which puts the government under pressure to ensure funding for vulnerable groups that are otherwise excluded from coverage. In the case of Bosnia and Herzegovina (Federation of Bosnia and Herzegovina), the aim is to establish a uniform, Federation-wide package and to ensure equal access to it (Cain et al., 2002). In Albania, there is as yet no explicit benefits package (Foubister et al., 2004). The health insurance scheme covers payments to family doctors and part of the costs of drugs are included for those preparations on the essential drugs list (Ministry of Health, 2004).

Given the need for extensive transfers for the uninsured and to compensate for shortfalls in revenue collection, in practice health insurance funds only contribute to varying degrees to overall public health financing in south-eastern Europe. In Bosnia and Herzegovina, Bulgaria, Croatia, Romania and The former Yugoslav Republic of Macedonia, the bulk of public financing now comes from health insurance funds. In Bosnia and Herzegovina, collection of money from payrolls was interrupted by the war, but afterwards the pre-war collection arrangements were resumed (Cain et al., 2002). In Bulgaria, the share of total public health expenditure assumed by the health insurance fund increased from 36% in 2001 to 52% in 2003 (Georgieva & Salchev, 2004). In Croatia, the Health Insurance Institute is the main purchaser of health services, accounting for 94% of public spending and an estimated 80% of total health expenditure (Golna et al., 2005). As already mentioned, in Albania and the Republic of Moldova, general revenues continue to be the most important source of public health funding. The Albanian Health Insurance Institute now accounts for between 10.5% and 11% of public expenditure on health care (Foubister et al., 2004).

It is, however, open to some doubt whether a system of social health insurance can function effectively in south-eastern Europe, a region which in many places is characterized by excessive poverty and unemployment, a large informal sector and high levels of corruption. As already noted, in many countries of the region the health insurance funds have faced difficulties in collecting payroll taxes, for example Albania (Nuri, 2002; Foubister et al., 2004) and Bosnia and Herzegovina (Cain et al., 2002). According to the 2002 Living Standards Measurement Survey (LSMS) in Albania, only about 39% of the total population reported holding a health insurance card (Foubister et al., 2004). In Romania and Bulgaria, many Roma have been unable to obtain health insurance coverage. In both these countries, commentators have stressed how the future success of the health insurance scheme will depend on the collection of insurance contributions (Vladescu et al., 2000; Koulaksazov et al., 2003).

Croatia has been struggling with a health funding crisis, as the health insurance fund has faced growing deficits and looming financial insolvency in recent years (Langenbrunner, 2002; Kovacic, 2004). The ageing population and the changing epidemiological situation has contributed to a rapid increase in public spending on health care, while the proportion of the population contributing to insurance has decreased (Harvey et al., 2004; Golna et al., 2005). In Serbia and Montenegro, too, the health insurance fund is facing a funding crisis (Simic, 2006). There have been arrears in payments of transfers to the health insurance fund in Serbia, which, together with hospitals and health centres, has accumulated debts (World Bank, 2003).

Apart from securing health insurance contributions, the health insurance systems in the region face additional challenges. In Romania, for example, 10–15% of health insurance income was initially extracted to reduce the deficit in the public sector (Vladescu et al., 2000). In some places, marginalized groups remain excluded from the health insurance systems. In Bulgaria, those without health insurance have little or no access to even basic services, affecting in particular the long-term unemployed, many of whom are Roma (Koulaksazov et al., 2003). The Bulgarian example also highlights the importance of involving the population in changes to health financing. The introduction of the health insurance system was poorly communicated to the public, leading to widespread criticism by the public and the media (Koulaksazov et al., 2003).

### **Private out-of-pocket payments**

Throughout the region, out-of-pocket payments have become another major source of health financing. They have taken on the form of formal, official co-payments and informal, unofficial under-the-counter payments, with far-reaching implications for the equity of health services.

#### ***Formal co-payments***

In all SEE countries, formal co-payments for medical services have been introduced during the last 15 years. In Bulgaria, official out-of-pocket payments were introduced in 1994 and have covered an increasing range of services since 1998 (Koulaksazov et al., 2003). Now, patients have to pay a figure equivalent to 1% of the national minimum salary for each initial visit to a physician and dentist and 2% for each day in hospital (Ministry of Health, 2001b). In Albania, co-payments were set at a low level as they were not intended to be a major source of revenue (Nuri, 2002). A survey in 2002, however, showed that for inpatients, total out-of-pocket payments averaged 50% of monthly per capita household expenditure (Hotchkiss et al., 2005). According to Ministry of Health estimates, private, out-of-pocket spending accounts for about one third of total health expenditure in Albania (Nuri, 2002).

In Croatia, private out-of-pocket payments for health care have increased in recent years (Golna et al., 2005). To supplement social insurance funding, official out-of-pocket co-payments were also introduced in The former Yugoslav Republic of Macedonia in 1994 (Hajioff et al., 2000) and in Bosnia and Herzegovina (Republika Srpska) (Cain et al., 2002). In Romania, they have been in place since 1983 (Vladescu et al., 2000). In 1999, the Republic of Moldova began to legalize formal payments for some health services (Maclehose, 2002). Both formal and informal payments form an increasing source of financing for health care, which may even match the level of government funding (Maclehose, 2002). The share of private payments for treatments in the Republic of Moldova's state medical institutions reached 38.9% of the total health budget in 2001 (Cerbu, 2002).

In most countries, mechanisms have been introduced in an attempt to protect vulnerable groups and to maintain equitable access to health services. In the Republic of Moldova, a law to this effect was adopted in 1999, but its scope has since been restricted and it has not yet been fully implemented (World Bank, 2001). In Croatia, groups exempt from paying co-payments include children under 18 years, students, the disabled, the military and the unemployed (Golna et al., 2005).

Another important area of private out-of-pocket payments is expenditure on drugs which, as already noted, has also been shifted to households in recent years. Subsidies have been curbed throughout the region, while the prices of pharmaceuticals have often increased dramatically.

### ***Informal payments***

While formal co-payments have become common throughout the region, they have in many cases failed to replace widespread informal payments for health care. These under-the-counter payments are thought to account for a substantial share of health expenditure. As was noted in Bulgaria, informal payments may provide an important incentive for the medical profession to resist any attempts at reform (Koulaksazov et al., 2003).

#### **Box 4. Informal payments**

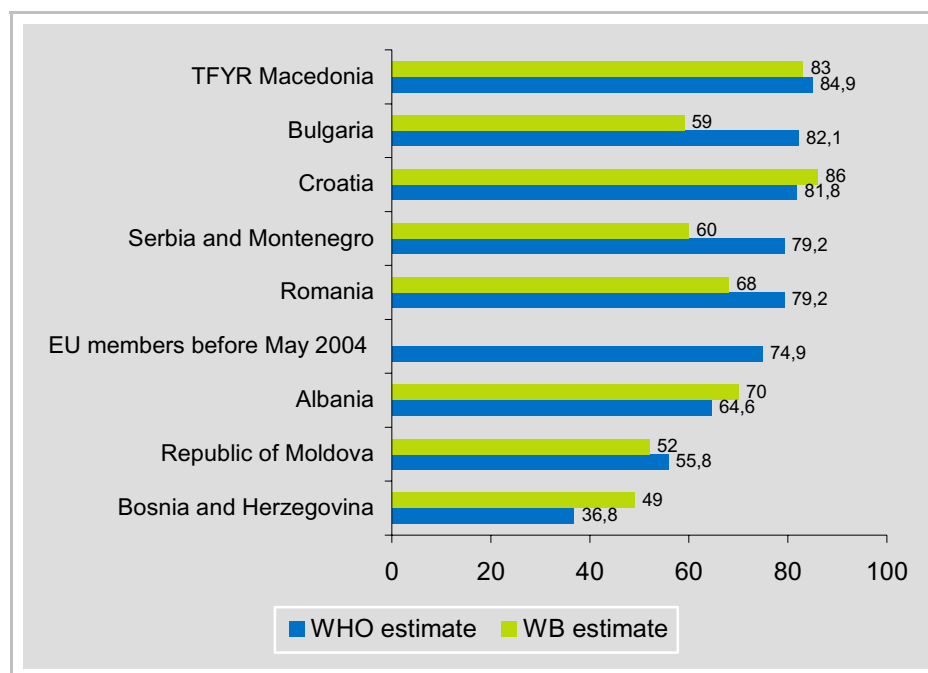
Throughout the region, out-of-pocket payments, both formal and informal, have become a major source of health financing, undermining equitable access to health care. In Croatia, for example, preliminary results from a 2002 study in Zagreb suggest that about 44% of respondents who used health services had made some kind of informal payment (Simic, 2006; Golna et al., 2005). Any attempt to tackle informal payments must take account of the low salaries of health care workers.

In the Republic of Moldova, a recent study reported that 70% of respondents had made informal payments. In Albania and Bulgaria this figure was 22% and 23%, respectively (UNICEF, 2005). Data from the 2002 LSMS in Albania show that informal payments are common throughout the health system, but are particularly pronounced in secondary care where they may account for 25% of all expenditure on hospital care (Foubister et al., 2004; PHRplus, 2004). In a 1999 survey, physicians in the Republic of Moldova confirmed that up to 70% had been paid informally by their patients, while 91.5% of patients claimed that they had made informal payments (World Bank, 2000a). A representative survey in 1997 revealed that 80% of women giving birth in the Republic of Moldova had to pay for the care provided (UNICEF, 1999).

In Bulgaria, a survey in 1997 showed that informal cash payments were universal for operations, childbirth and lifesaving procedures in hospitals and elite urban facilities (Balabanova & McKee 2002). A 1998 study in Bulgaria revealed that 51% of respondents paid for the services of a physician or dentist (Ministry of Health, 2001b). By the end of the 1990s, around 50% of medicines and medical procedures in the former Yugoslavia were purchased privately (UNICEF, 2005). A study in Bulgaria, the Czech Republic, Slovakia and Ukraine concluded that hospital doctors were only rivalled by traffic police and customs officials for taking money or gifts from clients (Miller et al., 2000).

Worldwide, the share of private health financing tends to be larger in countries where income levels are lower (WHO, 2000b). Fig. 24 shows the most recent estimates of the share of public and private health expenditure in SEE countries. Although there are some discrepancies between the estimates by WHO and the World Bank, both sources estimate the share of private expenditure to be largest in some of the poorest countries of the region, such as Bosnia and Herzegovina and the Republic of Moldova, where the population can least afford private payments for health.

Fig. 24. Public health expenditure as % of total health expenditure, 2002



Sources: *World development indicators* (World Bank, 2005); European health for all database (WHO, 2006).  
 TFYR Macedonia = The former Yugoslav Republic of Macedonia.  
 Note: Public health expenditure includes health insurance funds.

### ***Implications for equity***

Formal or informal out-of-pocket payments are the most inequitable form of health financing, which has the greatest negative impact on the lower income groups who are also at greatest risk of ill health (Mastilica, 1999; WHO, 2000b). A large number of people have to forego medical treatment due to financial constraints or only seek it when it is too late. One of the fundamental purposes of health systems is to ensure equity in access to health services (WHO, 2000b). This principle of equal access to health care has been effectively abandoned in many parts of the region during the last 15 years (Rechel & McKee 2003).

A survey in Croatia in 1994 showed that the share of income paid by low income groups for out-of-pocket medical payments was six times greater than the share of income paid by high income groups (Mastilica, 1999). In the Republic of Moldova, total private payments for health care, including formal and informal payments, have been estimated to constitute 50% of per capita health expenditure. Fifteen percent of households have been estimated to forego treatment regularly, while another 40% of households are estimated to have foregone necessary treatment at least once (UNICEF, 2000; World Bank, 2000; Berdaga et al., 2001). A survey in the Republic of Moldova in 2001 found that 54% of respondents had not sought care in the preceding year because they could not afford the treatment (Balabanova et al., 2004). In the LSMS undertaken in Kosovo (Serbia and Montenegro) in 2000, 26.4% of respondents reported not seeking treatment because it was too expensive (World Bank, 2000b). In Albania, a third of respondents in a World Bank study reported the inability to obtain health care for household members to be a major problem in their lives (World Bank, 2005). The poor and those living in rural areas are particularly affected (PHRplus, 2004). In Bulgaria, formal and informal payments are a serious burden for lower income groups (Koulaksazov et al., 2003), and in Romania, too, access to public health services varies significantly with income (Vladescu et al., 2000; Bara et al., 2003).

## International assistance

In a number of countries in the region, foreign assistance to the health sector has been substantial. Table 10 shows the most recent World Bank estimates of external resources to the health sector in south-eastern Europe.

It is striking that in the Republic of Moldova, in 2000, external resources are estimated to have amounted to 33% of total health expenditure. Albania, Bosnia and Herzegovina and, to a lesser degree, The former Yugoslav Republic of Macedonia have also received considerable external funding. In Albania, the health system has been heavily dependent on humanitarian aid and money sent home by emigrants (Nuri, 2002). The health system of Bosnia and Herzegovina was only able to operate for long periods during the war because of massive humanitarian assistance and out-of-pocket payments from users (Cain et al., 2002). As the World Bank estimates show, however, there is a clear downward trend in international assistance in recent years. Even more crucially, health care has been, overall, a very low priority for external agencies active in the region (Rechel, Schwalbe et al., 2004). In many SEE countries, allocations to the health sector have amounted to less than 1% of total external assistance (Rechel & Schwalbe 2004; Suhrcke et al., 2005).

Table 10. External resources for health (% of total expenditure on health)

Countries	1998	1999	2000	2001	2002
Albania	12	14	16.7	9.5	6.8
Bosnia and Herzegovina	9.5	3.9	5.2	3	1.8
Bulgaria	0.1	0.5	1.9	1.7	1.4
Croatia	0.5	1	1	1.1	1.1
The former Yugoslav Republic of Macedonia	3.2	4.2	1.3	4	0.9
Republic of Moldova	1.1	16.1	33	8.4	2.8
Romania	2.7	2.6	2	1.7	0.8
Serbia and Montenegro	0.1	1.1	1.7	1.1	0.3

Source: World Bank, 2005.

## Payment of providers

The reform of the health sector in the region has generally been accompanied by changing mechanisms for the allocation of health care resources to health care providers, taking different forms in primary and higher levels of care.

### *Primary care*

In the primary care sector, current reforms have largely aimed to improve the efficiency and quality of health care by introducing a payment for providers based on capitation (the number of registered patients), sometimes adjusted for performance. This builds on evidence from elsewhere that the most appropriate payment in primary care is a mix of methods, with incentives finely tuned to the objectives being pursued but with a strong element of capitation. In Croatia, those family doctors who are contracted by the national insurance fund are now paid according to capitation, supplemented with payments related to performance (Hindle & Kalanj, 2004; Katic et al., 2004; Kovacic, 2004). In Romania, family practitioners are also paid according to a mix of weighted capitation (70%) and fee-for-service payments (30%) (Vladescu et al., 2000). In Bulgaria, general practitioners are now paid by capitation and specialists by the number of visits they have received (Koulaksazov et al., 2003).

Primary care doctors in Albania too are paid by capitation, with a weighting for the region in which they are working in order to encourage a more equitable distribution within the country (Foubister et al., 2004). A key proposal in the health reform in The former Yugoslav Republic of Macedonia, where funding has continued to be based on historical and infrastructure-related norms (Ivanovska & Ljuma, 1999; Hajioff et al., 2000), is the implementation of a capitation-based payment system for primary health care physicians (Nordyke & Peabody, 2002). In Serbia and Montenegro, a payment for primary care providers based on capitation has been introduced on a pilot basis.

### ***Secondary and tertiary care***

Throughout the region, resources allocated to health institutions during the communist period had been mainly based on input criteria, such as bed numbers, number and qualifications of employees and historical running costs, removing any incentive to increase efficiency. Since the end of communism, most countries have moved towards allocations based in some way on outputs. Detailed line item budgeting, which gave managers no flexibility to move funds between expenditure categories, is generally being replaced by global budgets.

In Romania, global budgets for health care institutions were introduced in 1999. Seventy percent of hospital funds now arise on an historical basis, with 30% according to performance criteria (Vladescu et al., 2000). In the Republic of Moldova, a new financing mechanism for hospitals was introduced in 2001, which based funding on the number of patients treated rather than the number of beds (Maclehose, 2002). In The former Yugoslav Republic of Macedonia, line item budgeting persisted in primary and secondary care until 2000, while funding continued to be based on historical and infrastructural factors (Hajioff et al., 2000). In Albania, secondary and tertiary health care facilities are owned and funded by the Ministry of Health, so that there is no separation between purchasing and provision (Foubister et al., 2004). The development of payment based on health insurance for the hospital sector is still at an early stage and hospitals continue to be financed on an historical basis (Ministry of Health, 2004b). In Croatia, elements of case-based payments were introduced in 2002, but were then replaced by a system based on expenditure in previous years (Kovacic, 2004).

## **Stewardship (governance)**

The organization, planning and management of health services in south-eastern Europe have changed significantly since 1989. In the countries that were not part of the former Yugoslavia, as well as in Bosnia and Herzegovina, a process of decentralization has been set in motion. In contrast, the remaining post-Yugoslav countries have generally aimed to strengthen central control. Throughout the region, it will be necessary to improve the technical capacities for health management at local level and find ways to involve patients in the ongoing reform process.

### **Changing role of the ministries of health**

With the breakdown of communism and the dissolution of the former Yugoslavia and the Soviet Union, all of the countries of the region faced the challenge of developing mechanisms for decision-making and planning in the changing political and economic environment.

In those countries of the region that had adhered to the Semashko model of health care, the role of the ministries of health generally changed after 1989 from an integrated provider and purchaser of health services to an entity involved in policy, planning and coordination, generally responsible for:

- development and implementation of national health policies and programmes;
- definition of general goals and priorities;
- supervision and regulation of the private and public sector;
- the legal and regulatory framework (Vladescu et al., 2000; Maclehose, 2002; Koulaksazov et al., 2003).

The exception is Albania, where the Ministry of Health remains the major funder and provider of health care (Nuri, 2002; Hotchkiss et al., 2005). However, it is gradually assuming the function of managing the health services and compiling national health policies and programmes (Ministry of Health, 2004b).

### **Decentralization**

The Dayton Agreement that brought the Bosnian war to an end gave the responsibility for health care organization, financing and delivery to the two entities constituting Bosnia and Herzegovina. In 1997 this division was confirmed in laws enacted by the governments of the Federation of Bosnia and Herzegovina and the Republika Srpska, establishing two autonomous systems. The situation is, however, complicated further by the confederal nature of the state, with 13 health ministries and complex legal divisions. The system suffers from two key and interrelated problems: inefficiency and lack of access to health care services. There is no national health mandate and it is not possible to transfer funds between entities or even cantons (Cain et al., 2002).

In the Republic of Moldova, the inherited system was highly centralized and health care planning was based on norms. The creation of regional health administrations in 1999 formally established a high level of decentralization in the health sector. In theory, the regional health authorities are now responsible for collection of local taxes, planning how they will be spent and administering their expenditure. However, this process has been limited by the inadequate funding of regional administrations (Maclehose, 2002). In Bulgaria, there has also been some decentralization. Ownership of many health care facilities was transferred to municipalities in 1992 and the Ministry of Health further decentralized many administrative roles to the 28 regional health centres in 1995. In addition, some responsibility for monitoring standards has been delegated to professional associations (Koulaksazov et al., 2003).

In Romania, administrative decentralization began in 1992. Subsequently, the role of the district health directorates has been strengthened, in particular following the introduction of the health insurance fund. The Ministry of Health has also delegated some of its responsibilities to the College of Physicians (Vladescu et al., 2000). In Albania, the health system still remains highly centralized and hierarchical (Nuri, 2002). There has been a partial transfer of management powers to local authorities, but the expected positive effect on primary health care services has not been achieved (Ministry of Health, 2004b). In Kosovo (Serbia and Montenegro), a law on municipal self-government was passed in 2000, making the municipalities responsible for primary health care, consumer protection and public health (Ministry of Health, 2004a).



## Centralization

Health care services in the former Yugoslavia were highly decentralized, as they were owned and operated by local municipalities (Hajioff et al., 2000). However their activities were poorly coordinated, with overprovision and duplication of services, leading to considerable inefficiency (Hajioff et al., 2000; Golna et al., 2005). In contrast to other countries of the region, the countries of the former Yugoslavia (with the exception of Bosnia and Herzegovina) have moved towards a strengthening both of central control and of peripheral accountability. Croatia, Serbia and Montenegro and The former Yugoslav Republic of Macedonia have moved from a decentralized system of municipality-funded health services to a social insurance funded model with central coordination and planning (Hajioff et al., 2000; Golna et al., 2005; Simic, 2006).

## Management skills and patient involvement

In several countries in the region, a lack of managerial expertise and experience has been noted, for example in Bulgaria (Koulaksazov et al., 2003). In Romania, it has been observed that the new responsibilities of the Ministry of Health have not yet been accompanied by “significant changes in skills and competencies” (Vladescu et al., 2000), and managerial issues have been described as one of the main obstacles to health reform (Vladescu et al., 2000). In Albania, too, the lack of managerial competencies in the health sector remains a major challenge for the future (Nuri, 2002). The Ministry of Health has still very limited technical capacity to compile policies, strategies and national plans, as it has not been successful in attracting sufficiently qualified professionals, with many of those who are still in the country working outside the public sector (Ministry of Health, 2004b). Although health system reform has so far remained limited in Bosnia and Herzegovina, great strides have been made in the development of strategic plans, laying the foundation for future reforms (Cain et al., 2002). In Croatia, the strengthening of policy, planning, monitoring and evaluation has been identified as a priority for the future (Golna et al., 2005).

Throughout the region, more needs to be done to involve citizens in health policy planning and implementation. As has been recognized in Albania, there is neither a tradition nor mechanisms for taking into consideration citizens’ ideas in the stewardship of health policy (Ministry of Health, 2004b).

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## 4. HEALTH AS A DRIVER OF ECONOMIC DEVELOPMENT: CONCEPTUAL FRAMEWORK AND RELATED EVIDENCE FOR SOUTH-EASTERN EUROPE<sup>22</sup>

In Chapter I some macroeconomic facts about south-eastern Europe were discussed. In this chapter, the results of different micro- and macro-economic original analyses are presented. The objective is to measure the economic burden of poor health in the SEE countries in terms of productivity, participation in the labour market, labour supply and growth rates. The conceptual framework used to analyse the inter-relationship between health and economic development is introduced, and evidence from other high-income countries on the economic benefits of health (or the costs of ill health) briefly reviewed.

### Conceptual framework

Health is determined by genetic, economic, social, cultural and environmental factors. But the health of a population may also, in return, influence the economic context. As Fig. 25 illustrates in a simplified manner, health contributes to economic outcomes (at both individual and country level) mainly in four ways: higher productivity, higher labour supply, higher skills as a result of more education and training, and more savings available for investment in physical and intellectual capital. These are represented on the right side of Fig. 25.

The left side of Fig. 25 shows the manifold factors upon which health depends: genetic endowments, lifestyle, living and working conditions (access to and use of health care services, education, wealth, housing, occupation) and the more general socioeconomic, cultural and environmental conditions.<sup>23</sup> Several of these determinants of health can be influenced by public policies.

In assessing the contribution that health can make to economic growth, it is important to keep in mind the potential feedback effects from economic outcomes to health. There are two ways in which income can influence health: via a direct effect on the material conditions that have a positive impact on biological survival and health, and via the effect on social participation, the opportunity to control life circumstances, and the feeling of security (Marmot 2002).

The main interest of this chapter is to review the evidence for the positive effects of health on the economy, not the reverse, which has been widely documented elsewhere (Marmot 2002). Four ways by which health is linked to economic outcomes are shown, although others may exist: enhanced labour productivity, greater labour supply, education and training that foster higher skills, and more savings available for investment in physical and intellectual capital. They are described in turn below.

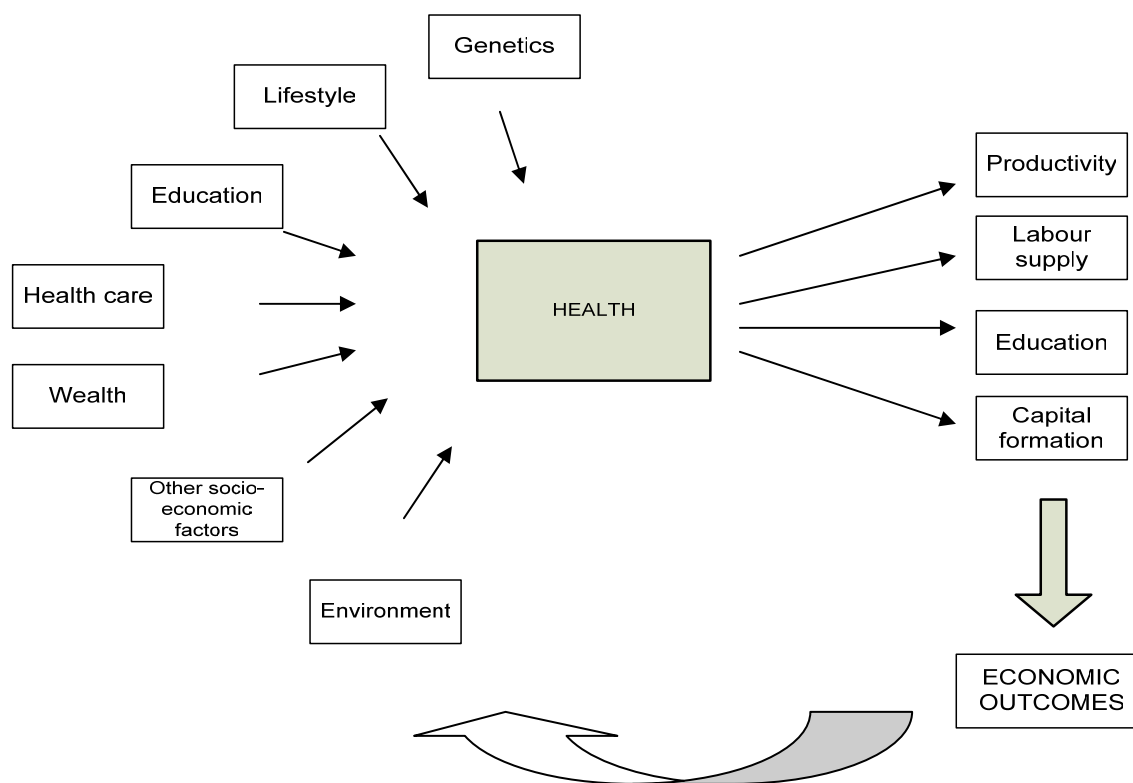
*Labour productivity.* Healthier individuals could reasonably be expected to produce more per hour worked. On the one hand, productivity could be increased directly by enhanced physical and mental activity. On the other hand, more physically and mentally active individuals could make a better and more efficient use of technology, machinery and

<sup>22</sup> By Donata Favaro and Marc Suhrcke.

<sup>23</sup> Definition of health determinants in the website of the EU Directorate-General of Health and Consumer Protection ([http://europa.eu.int/comm/health/ph\\_determinants/healthdeterminants\\_en.htm](http://europa.eu.int/comm/health/ph_determinants/healthdeterminants_en.htm), accessed 18 May 2006).

equipment. A healthier labour force could also be expected to be more flexible and adaptable to changes (e.g. changes in tasks and the organization of labour), reducing job turnover with its associated costs (Currie & Madrian, 1999).

Fig. 25. Health inputs and health outputs



Source: Suhrcke et al (2005).

*Labour supply.* Somewhat counter-intuitively, economic theory predicts a more ambiguous impact of health on labour supply. The ambiguity results from two effects working to offset each other. If the effect of poor health is to reduce wages through lower productivity, the substitution effect would lead to more leisure and therefore a lower labour supply as the return to work diminishes. On the other hand, the income effect would predict that as lifetime earnings are reduced through lower productivity, individuals would seek to compensate by increasing the labour supply. The income effect is likely to gain importance if the social benefit system fails to cushion the effect of reduced productivity on lifetime earnings. The net impact of the substitution and income effects ultimately becomes an empirical question (Currie & Madrian, 1999).

*Education.* Human capital theory suggests that more educated individuals are more productive (and obtain higher earnings). If children with better health and nutrition attain a higher level of education and are less likely to play truant or drop out of school early, then improved health in young people would contribute to future productivity. Moreover, if good health is also linked to longer life, healthier individuals would have more incentive to invest in education and training, as the rate of depreciation of the gains in skills would be lower (Strauss & Thomas, 1998).

*Savings and investment.* The health of an individual or a population is likely to have an impact on both the level of income and its distribution between consumption, savings and investment. Individuals in good health are likely to have a wider time horizon so their

savings ratio may be higher than that of individuals in poor health. A population experiencing a rapid increase in life expectancy may, therefore, be expected (other things being equal) to have more savings. This should also contribute to any propensity to invest in physical or intellectual capital (Bloom, Canning & Graham, 2003).

### **Microeconomic evidence: the economic effect of health at the individual level**

In the context of high-income countries, most of the existing empirical evidence relates to the effect of health on the labour supply and labour productivity. As this is the area that the SEE-related evidence focuses on in the next section, only a brief review is given here of the relevant empirical evidence from high-income countries. In a recent review of the existing evidence on the impact of health on the economy in EU countries, Suhrcke et al (2005) have summarized a significant number of studies that assessed the impact of health on various labour market outcomes in a number of EU countries, as well as in other high-income countries, along the lines suggested by the above theoretical considerations.<sup>24</sup> The report cites European evidence of the effect of ill health on participation in the labour force, for instance in Germany (Riphahn, 1998; Lechner & Vazquez-Alvarez, 2004), Ireland (Gannon & Nolan, 2003), the Netherlands (Van de Mheen et al., 1999), Spain (Pagán & Marchante, 2004) and Sweden (Lindholm, Burström & Diderichsen, 2001). The effect of ill health as a factor that anticipates retirement has been shown for several EU countries by Jiménez-Martin et al (1999), for Germany by Siddiqui (1997) and for the United Kingdom by Disney, Emmerson & Wakefield (2003). The effect on earnings or wages has been shown for instance by Contoyannis & Rise (2001) and Gambin (2004) for the United Kingdom. D'hombres & Brunello (2005) have demonstrated a wage-depressing effect of obesity in several EU countries, especially for women.

### **Macroeconomic evidence: the effect of health on economic growth**

Recent worldwide empirical evidence strongly suggests that health is a robust determinant of economic growth (Bloom, Canning & Graham, 2003; Kalemli-Ozcan, Ryder & Weil, 2000; Strauss & Thomas, 2001; Alsan, Bloom & Canning, 2004; Bloom, Canning & Sevilla, 2004; Barro, 1996; Bhargava, Jamison & Murray, 2001; Bloom, Canning & Sevilla, 2001; Jamison, Lau & Wang, 2004, and many more). Studies examining the impact of health on income levels or income growth differ substantially in terms of country sample, time frame, control variables, functional form, data definitions and configurations, and estimation techniques. Nevertheless, parameter estimates of the effects of life expectancy on economic growth have been remarkably comparable and robust across studies (Levine & Renelt, 1992; Sala-I-Martin, Doppelhofer & Miller, 2004). In some studies, initial health status, typically proxied by life expectancy or adult mortality, proved to be a more significant and more important predictor of subsequent growth than the education indicators employed (Barro, 1997). Bhargava, Jamison & Murray (2001), for instance, show in the context of a panel regression that the 5-year growth rate of GDP per capita depends on a country's adult mortality rate, among other factors. They also show that the direction of causality runs unambiguously from adult mortality to growth. The last section of this chapter (The impact at the macroeconomic level) will apply a simple version of this worldwide empirical relationship in order to project different future pathways in GDP per capita, conditional on plausible future mortality scenarios.

<sup>24</sup> See also Currie & Madrian (1999) for a review of the effect of health on the labour market in developed countries.



## Empirical evidence on the economic impact of health in SEE

This section tries to assess quantitatively the economic impact of ill health in the SEE countries both from a macro perspective, for the countries as a whole, and from a micro point of view, i.e. at household and individual level. On the macro level this involves a simulation of the likely impact of improved health on economic growth. On the micro level, the research aims to evaluate the effect of ill health on labour market participation, on productivity (and wage ratios), on earnings and on hours worked. The analysis is carried out making use of the World Bank Living Standards Measurement Surveys (LSMS) available for Albania, Bosnia and Herzegovina, Bulgaria and Kosovo (Serbia and Montenegro).

A major difference between the micro- and macroeconomic assessments is that the former focuses on the effects of health as they are revealed in the various available sources, while the latter takes a forward-looking approach by asking what would be the economic benefits if each of the SEE countries analysed managed to reduce its adult mortality rates, according to certain plausible scenarios, compared to a situation in which no progress would be made.

### The impact at individual and household level

In this section the impact of health on individual working outcomes is examined and the average impact of ill health on wage-employment, labour supply, the wage rate and earnings evaluated. Following the predictions of the human capital model, good health would be expected to have a positive effect on individual productivity and hence the wage rate. However, hours of work can be either positively or negatively correlated to better health conditions, so the impact of health on wages is not certain. All calculations are carried out on LSMS country data.

The simultaneity between health and labour market participation/labour supply/wage rate/wages (see the framework described above) introduces a first difficulty in the empirical evaluation of the impact of health on economic development. The endogenous nature of health in determining labour market participation, wages (either wages or wage rates) and labour supply does not allow for the estimation of labour market outcome equations with health as an exogenous explanatory variable. A complete empirical model testing the relationship between health and labour market outcomes would be needed in order to detect exactly the effect of health status on wages and, conversely, the impact of wages on health.

A second difficulty arising when the effect of health on some labour market outcomes is investigated concerns the availability of a proper measure of health status. The failure to measure health properly can result in over- or underestimating the effects of other individual characteristics on participation/wages. As an example, if healthier individuals also reach higher educational levels, the inclusion in the wage equation of a wrong measure of health would imply overestimated returns to education. Different measures of health usually predict different results. As an example, Anderson & Burkhauser (1984) found that the estimated coefficient of health on wages has a value of 0.074 when self-reported health is used and a value equal to 0.364 when health is valued by a measure of mortality.

The ideal measure of health should capture individual work capacity. Unfortunately, commonly available health measures do not satisfy this requirement. Most of them are related to self-reported health status, health limitations or utilization of medical care. Self-reported measures of health are generally recognized as the most directly related to productivity; unfortunately, they may also be affected by reporting bias. Self-reported

measures could be influenced by an individual's working conditions: inactive individuals or workers who have reduced their working hours may want to justify their occupational condition through declaring a lower health status. As a consequence, estimates could be affected by a measurement error unlikely to be random. Other measures of health are strictly related to the loss of days of activity because of illness/disability. This measure is more objective but less directly related to productivity, and it is only available for employed individuals.

The empirical analyses make use of different health measures and adopt the methodological procedures suggested by the literature to overcome statistical challenges. The methodology employed in every analysis will be discussed either in the text or in Annex 3.

## **The impact of health on wage-employment**

As already discussed, very few SEE countries have fully succeeded in creating new jobs to replace those that have been lost. As a consequence, the employment ratio is well below that found in OECD countries. This failure to expand employment acts as a strong limit on countries' capacity to reduce poverty through growth (Alam, Murthi, Yemtsov et al., 2005). Moreover, many low-income countries (the Republic of Moldova, for example) are expanding employment through encouraging self-employment and are not acting to encourage wage-employment.

This section attempts to evaluate the extent to which health affects wage-employment in SEE countries. The analysis is carried out following several econometric estimates where each employment outcome (wage-employment versus unemployment and inactivity) is modelled in function of individual and household characteristics plus a measure of health. The following tables present the results of two different models. Both models allow for the evaluation of the impact of ill health on the probability of being wage-employed.

The first model consists of a wage-employment equation including among the explanatory variables either a dichotomous variable with unitary value if the individual is affected by any chronic disease, or several dummies, each controlling for a specific chronic disease.

The second model is based on the contribution of Stern (1989). Self-reported health is included among the explanatory variables of the model and a two-step procedure is carried out in order to derive structural estimates of the impact of health on the employment/non-employment outcome. Estimates of this kind could only be carried out for those countries whose data contain self-reported health. Applying this specification, it is possible to evaluate the marginal contribution to the probability of being wage-employed in response to different degrees of ill health. The procedure requires the definition of some instrumental variables uncorrelated with the random part of the model. Following Stern (1989), the presence of selected chronic diseases is used. This methodology is described as the "two-step method". A detailed description of the methodology applied is included in Annex 3.

Table 11 presents a selection of statistically significant estimates of the first model. In particular, the results of those chronic diseases whose coefficients are negative are reported.<sup>25</sup> In general, a significant and negative effect is found on the probability of being wage-employed through being affected by any chronic disease. In Albania, the chance of being wage-employed for an individual affected by any chronic disease is 7% lower than for an individual in good health (other things being equal). The effect is slightly less in Bosnia and Herzegovina (3%). In Albania, the highest negative impact on the probability

<sup>25</sup> See Annex 3, Tables A.3.2 (a), A.3.2 (b), A.3.6 (a), A.3.6 (b) and A.3.9 for the full set of results.

of being wage-employed is from “psychological disorders” and “nervous system and sensory organ diseases”. “Psychological diseases” also have a serious effect on employment outcomes in Bosnia and Herzegovina, with an impact equal to about 20%, although there is a stronger effect from “multiple sclerosis”. In Bulgaria, no statistically significant result was found when controlling for a synthetic variable capturing the presence of at least one chronic disease. When controlling for any different type of disease, a high negative impact on wage-employment of “respiratory problems/asthma” (23.5%) was seen.

**Table 11.** Change in the probability of being wage-employed due to some chronic disease<sup>a</sup>

Country	Type of disease	Reduction in the probability of wage-employment (%)
Albania	At least one chronic disease	-7.1
	Diseases of respiratory organs	-7.5
	Psychological disorders	-24.3
	Bones and connective tissue disease	-7.7
	Nervous system and sensory organ diseases	-15.3
	Other unclassified diseases	-20
Bosnia and Herzegovina	At least one chronic disease	-3.2
	High blood pressure	-4.9
	Psychological disease	-19.8
	Multiple sclerosis	-23.8
	Diabetes	-2.8
	Other unclassified diseases	-10.9
Bulgaria	At least one chronic disease	Not significant
	Respiratory problems/asthma	-23.5
	Kidneys/urine retention	-12.7

Source: authors' estimates on LSMS data.

<sup>a</sup>Complete tables are in Annex 3.

The two-step method has only been applied to Albania and Kosovo (Serbia and Montenegro). A lack of self-reported health measures on other countries' datasets makes it impossible to extend this methodology to them. A detailed explanation of the procedure can be found in Annex 3. As previously described, the two-step methodology allows for the evaluation of the marginal impact on the probability of being wage-employed of different degrees of ill health (Stern, 1989).

Table 12 shows the estimated average impact of any degree of ill health on the probability of being wage-employed. The benchmark category corresponds to very poor health, and the percentage value is indicative for an individual with sample average characteristics (detailed estimates of marginal effects are in Annex 3, Tables A.3.1 (a), A.3.1 (b), A.3.12 (a) and A.3.12 (b)). Any row evaluates the percentage increase in the probability of being employed as health improves above a very poor level.

**Table 12.** Impact of different self-reported levels of health status on the probability of being employed – two-step method

	Change in the probability of being employed	
	Albania (%)	Kosovo (Serbia and Montenegro) (%)
Base category: very poor health		
Poor health	+ 19	+ 21
Average health	+ 26	+ 27
Good health	+ 26	+ 29
Very good health	+ 27	+ 36

*Source:* authors' estimates on LSMS data.  
Complete tables are in Annex 3.

In Albania, an individual with average characteristics and self-reporting a poor health condition has a probability of being employed which is 19 percentage points higher than the probability of an individual declaring a very poor health condition. The probability increases with a better health condition, but at decreasing rates: the chance of being employed for an individual reporting an average health status is 7% higher than it is for an individual self-reporting a very poor health status. The probability of being wage-employed increases by 19% between very poor and poor health; it increases by 7% from poor to average health, but there is no increase between average and good health and only a 1% increase between good and very good health.

The results for Kosovo (Serbia and Montenegro) show a higher premium for better health conditions than in Albania: an individual with average characteristics and self-reporting a poor health condition has a 21% higher probability of being employed than a person self-declaring a very poor health condition. The probability of being wage-employed thus increases by 6% between poor and average health, by 2% from average to good health, and by 7% from good to very good health.

These results highlight the strong negative effect that ill health can have on the chance of being wage-employed and therefore the urgent need for health policies to increase the employment-to-population ratio. However, the bulk of the effect is concentrated at the lowest end of the health spectrum.

## **The impact of ill health on wages, productivity, labour supply and retirement**

This section discusses the results of selected econometric analyses carried out on data from the LSMS. As in the previous sub-section, the objective is to evaluate the average impact of ill health in the SEE countries. The average effect of health on working outcomes is derived from the estimation of econometric models predicting individual behaviour in terms of labour supply, wages, probability of being wage-employed and retirement. Here again, the same methodological challenges need to be tackled as described above and in Annex 3.

### ***The impact of ill health on productivity (hourly wages)***

Different models are specified and different measures of ill health employed in order to evaluate the relationship between health and labour market productivity, as proxied by the wage rate (i.e. the hourly wage). A first evaluation of the impact of health on hourly wages is made for Albania and Kosovo (Serbia and Montenegro) by using the available self-

reported health measure and by applying the methodology proposed by Lee (1982), and a linear model estimated of the logarithm of hourly wages, controlling for the endogeneity of self-reported health status. No evidence is found of an effect of health on productivity. It is important to point out that this result is compatible with the theoretical predictions of the human capital model, according to which the two effects of ill health – the income and substitution effects – work to offset each other, at least partially. The net effect of ill health is indeed an entirely empirical question.

A second model is estimated using a different measure of ill health generally recognized by the literature as a good proxy of health status: the number of days missed due to disability.<sup>26</sup>

A significant marginal effect is found in Albania, equal to -0.052, meaning that one more day missed (in a month) because of disability leads to a 5.2% reduction in hourly wages, i.e. in productivity (Annex 3, Table A.3.4). The estimates do not detect any significant effect in Bulgaria and Kosovo (Serbia and Montenegro). The results for Bosnia and Herzegovina are statistically significant (Annex 3, Table A.3.7), detecting a negative effect of ill health on productivity. The size of the effect is, however, rather small: one day missed because of illness reduces productivity by 0.1%.

### ***The impact of ill health on annual earnings***

In this sub-section, wage equations are estimated for annual earnings. As before, for Albania and Kosovo (Serbia and Montenegro), self-reported health status is used and the effect of health on total earnings estimated.<sup>27</sup> A statistically significant negative impact of health on yearly earnings is found. In Albania, the marginal impact of predicted self-reported health is equal to -0.06 (Annex 3, Table A.3.3), while in Kosovo (Serbia and Montenegro) the coefficient is equal to -0.318 (Annex 3, Table A.3.13). However, the applied methodology and the types of variable used do not allow for the coefficients to be interpreted as a quantitative measure of the size of the impact of health on earnings. The results can only give a qualitative indication of whether or not health has an impact on earnings.<sup>28</sup>

A similar analysis was carried out using the variable “number of missed days of activity due to disability” as a proxy of health. This investigation allows for the quantitative assessment of the impact of disability on earnings. In terms of marginal effects, a non-significant effect is detected in Bulgaria and Kosovo (Serbia and Montenegro). In Albania the effect is significant and the coefficient is equal to -0.017, meaning a reduction of 1.7% in annual earnings due to one extra day missed because of disability (Annex 3, Table A.3.4). The analysis is significant for Bosnia and Herzegovina but not particularly relevant in size: the reduction in annual wages due to one day missed because of disability amounts to 0.6% (Annex 3, Table A.3.7).

<sup>26</sup> A two-step estimation methodology is used. In the first step a Tobit model is estimated in the first step for predicting the “number of days of inactivity due to disability”, and the prediction of this estimate is added in the second stage (as a regressor of the equation explaining hourly wages).

<sup>27</sup> Estimates are obtained through a two-step regression methodology. In the first step, we apply a regression analysis of self-reported health conditions on different individual and family characteristics plus some instrumental variables. The prediction of this first stage is included in the second stage regression estimating the logarithm of annual earnings.

<sup>28</sup> The econometric methodology (two-step methodology) used allows for the estimation, in the first step of the procedure, of a continuous prediction of the self-reported categorical health measure. Subsequently, the predicted health measure is no longer a categorical variable and it is not possible to interpret its coefficient, at the second stage, as the marginal impact of an improvement in the degree of ill health.

### ***The impact of ill health on labour supply (hours of work)***

A two-stage regression model is also used to evaluate the impact of disability on labour supply (in terms of the effect of the number of days missed because of disability on the hours of work). The results for Albania are not significant. In Kosovo (Serbia and Montenegro) and Bulgaria, by contrast, it is possible to estimate a significant and negative impact of disability on the labour supply. The results are quite similar: one more day of inactivity because of disability brings a reduction in labour supply equal to 0.6% in Bosnia and Herzegovina (Annex 3, Table A.3.7) and 0.9% in Kosovo (Serbia and Montenegro) (Annex 3, Table A.3.14).

### ***Impact of ill health on retirement***

This sub-section looks at a very specific potential effect of ill health on the labour supply: the impact of chronic illness on the decision to retire from the labour force. It complements the preceding analysis that partly looked at labour supply.

In order to evaluate the impact of ill health on retirement and to estimate the probability of departure from the labour force, a Cox regression methodology is used. Controlling for other relevant determinants of a decision to retire (e.g. age, gender, income), an assessment is made of the effect of chronic illness on the probability that an individual will retire in a given year after the first year of employment.<sup>29</sup> The methodology and the complete tables are in Annex 3. The limitation of using this methodology is that it is not possible to be entirely sure about the direction of causality – does ill health predict retirement or vice versa? Individuals affected by some chronic diseases are more likely to retire than other workers, independently of their age. Table 13 shows that being affected by some chronic disease has a positive impact on an individual's probability of retiring. In all countries, there is a significant estimated coefficient of the variable "chronic disease", implying an increase in the probability of retirement (other things being equal) for individuals affected by any chronic disease. The effect is particularly strong in Albania but appears to be somewhat lower in Bulgaria and Bosnia and Herzegovina.

**Table 13.** Results of Cox regression model on age to retirement

	Coefficients		
	Albania	Bosnia and Herzegovina	Bulgaria
Age	1.112 <sup>b</sup>	-0.044 <sup>b</sup>	-0.135 <sup>b</sup>
Age squared	-0.009 <sup>b</sup>	0.000 <sup>b</sup>	0.001 <sup>b</sup>
Female	8.152 <sup>b</sup>	0.137	0.328
Age female <sup>a</sup>	-0.105 <sup>b</sup>	-0.001	0.006
Married	0.302	0.000	-0.029
Chronic disease	0.359 <sup>b</sup>	0.03 <sup>b</sup>	0.142 <sup>b</sup>
Observations	3757	95 888	6126

<sup>a</sup> significant at 5%; <sup>b</sup> significant at 1%.

<sup>29</sup> Given the lack of information of the LSMS datasets, 18 years is taken as the age of entry into employment.

Various channels have been examined through which health has an impact on labour market outcomes in those SEE countries for which data was available. In sum, there is a considerable amount of evidence demonstrating the negative impact of ill health on the labour market. Among the various effects, there appears to be more evidence supporting an impact on labour *supply* than on labour *productivity*. This is not surprising, as the theory also predicts an ambiguous effect of ill health on productivity. The findings are in line with those from a growing body of literature on health and the economy in other countries, both rich and poor.

This section has focused on the microeconomic perspective and has assessed the *actual* impact of health. The next section takes a macroeconomic perspective and looks ahead to ask: what would the economic benefits be to the economy if the adult disease burden were reduced by a certain extent over a defined period of time?

## The impact at the macroeconomic level

This section aims to present the estimated dynamic effects of adult health. Recent worldwide empirical evidence suggests strongly that health is having positive effects on economic growth.

Different plausible improvements in adult mortality rates throughout the period 2002–2025 have been considered, using as a benchmark the WHO mortality rates for the most recent available year and an estimate made of the increase in GDP following a reduction in the mortality rate. In addition to the benchmark scenario, in which it is supposed that there will be no change in the mortality ratios in the SEE countries throughout the period considered, two other likely scenarios are considered: a “middle scenario”, in which an annual reduction in mortality rates by 1.5% is postulated, and a “best scenario” in which mortality rates decrease by at most 3% a year. The three scenarios have been used to predict future GDP levels in the SEE countries by applying a simple version of the growth regressions proposed by Bhargava, Jamison & Murray (2001).

The methodology consists of estimating<sup>30</sup> a panel regression for the 5-year growth rate of GDP per capita in function of lagged mortality rate, lagged fertility rate, country openness and lagged GDP per capita. Estimates are obtained through two different econometric models: ordinary least squares (OLS) and fixed effects (FE) models and have been carried out for a worldwide sample of countries. Based on the estimated coefficients, GDP per capita forecasts are derived by substituting fertility rate forecasts and future mortality rates for the three hypothesized scenarios.

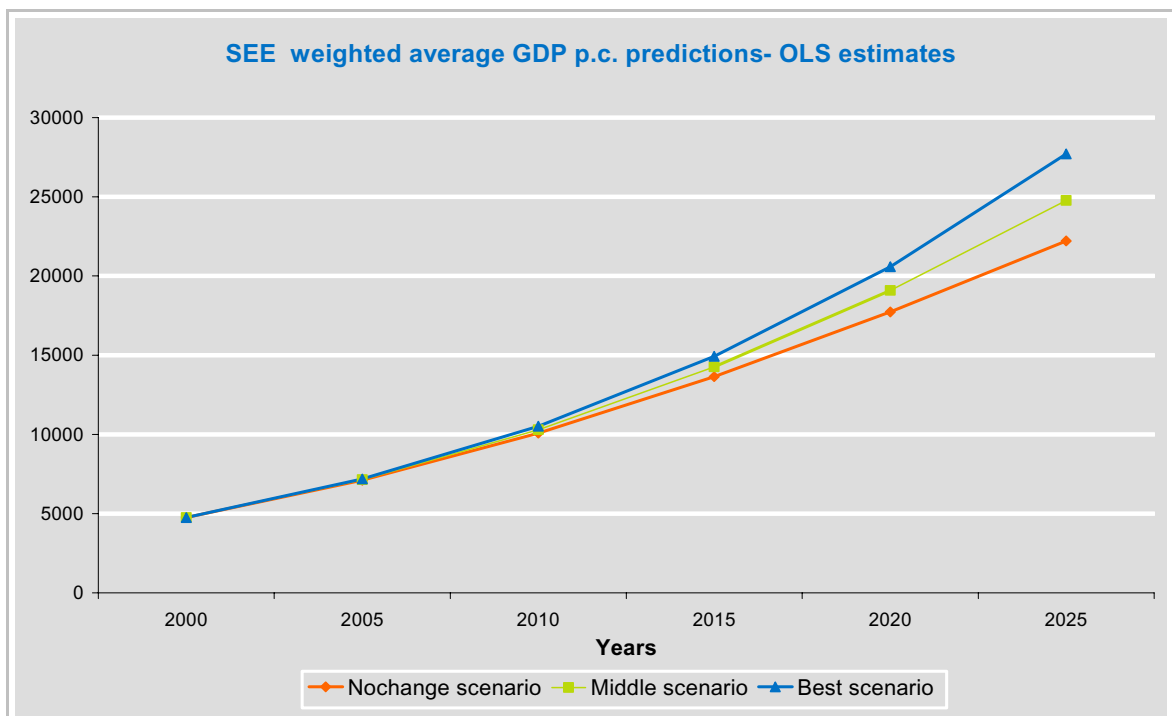
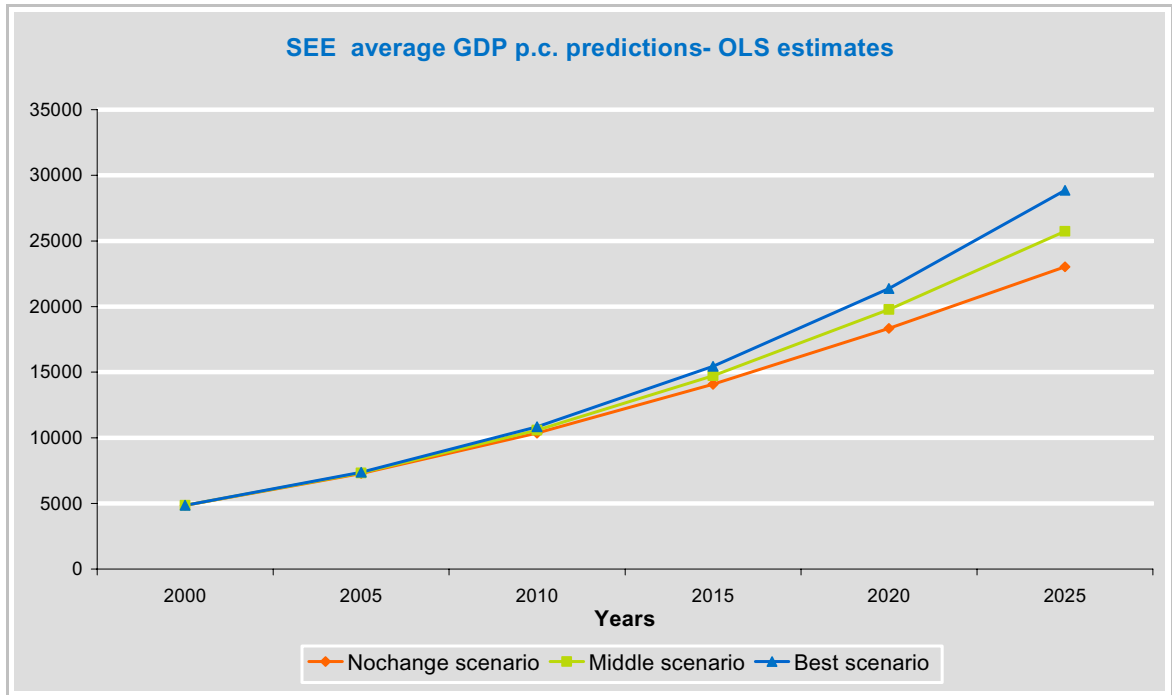
It cannot be emphasized enough that these estimates should be interpreted with caution and viewed as indicative only. Cross-country regressions for identifying the determinants of growth have numerous drawbacks. These include a persistent problem of multicollinearity, the difficulty of disentangling symptoms from causes, a wide divergence from more robust microeconomic analyses, and the limited utility of results based on cross-country averages for inferring country-specific lessons (see Pritchett (2006) for a full discussion of the limits of cross-country growth analytics).

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<sup>30</sup> Detailed results are reported in Annex 3.

Fig. 26 presents the average GDP per capita forecasts for south-eastern Europe, based on the OLS estimates. The first graph shows the trend of the simple average of the predicted GDP per capita in the region. The second graph represents the weighted average of GDP per capita forecasts, in which every country population forecast is used to weigh the corresponding country's GDP per capita forecasts. Table 14 synthesizes the sum of the discounted value in 2000 of each year's gains in GDP per capita due to a reduction in future mortality rates.

Fig. 26. SEE Average GDP per capita predictions – OLS estimates





As Table 14 shows, the SEE countries can make rapid gains in terms of GDP per capita by investing in health and reducing mortality rates. Independently of the scenarios evaluated here, the sum of the discounted yearly gains in terms of GDP per capita amounts to around three times the value of GDP per capita in 2000.

**Table 14.** Sum of discounted gains 2000–2025 as a percentage of GDP per capita, 2000

	Middle scenario	Best scenario
Sum of discounted gains as a percentage of GDP per capita, 2000	281%	318%

Note: Authors' estimates. OLS forecasts. Discount rate equal to 3%.

In this chapter we presented the first comprehensive steps to assess the economic impact of adult ill health in south-eastern Europe. The evidence used clearly underlines that:

- (i) ill health has a negative impact on individual and household economic outcomes in several countries for which data were available,
- (ii) reducing the disease burden on adults in a sustained manner would produce substantial economic benefits for the economies of all the countries considered.

We believe that these two important findings will be duly taken into account by policy-makers in the region in their decision-making process. Countries in the region should further exploit the economic potential of good health.

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## 5. CONCLUDING REMARKS AND RECOMMENDATIONS

Research increasingly indicates that a healthy population is not an automatic by-product of economic development, but can drive economic growth. Similarly, at the level of the individual, good health is an important determinant of economic productivity. This finding has important policy implications: national and international policy-makers interested in promoting the economic development of a country should seriously consider the role that health investment and efficient use of resources could play in achieving their economic policy goals. Not much is known about the direct relevance of these recent findings for the countries in south-eastern Europe that are facing a very particular health challenge, predominantly in noncommunicable disease and injuries. This study takes a first step toward analysing the issue in south-eastern Europe and addresses, *inter alia*, five important questions.

1. Is there any specific pattern in the burden of disease in south-eastern Europe?
2. What is known about the magnitude of the health inequalities in this region?
3. What effect has adult ill health had on the economic outcomes of the people living in south-eastern Europe?
4. What role do the health care systems play and what reforms are still needed?
5. If the excessive burden of adult ill health in south-eastern Europe were reduced, what economic benefits could result?

### Burden of disease

The report shows that by taking into account different measurements of population health status that included mortality, morbidity and composite health indicators (HALE, DALYs) and the available data on the presence of proximal and distal determinants of health, it is possible to identify most important current and future health challenges in south-eastern Europe. Such analyses ultimately depend on the quality and completeness of various data sources, which might differ across time and across the countries.

The observed heterogeneities in the health status between the SEE countries and the EU-15, as well as those existing among the countries in the region, may be explained by different stages of the epidemiological transition. Some countries experienced improvements in health status as evident from increases in life expectancy and this might be linked to better socioeconomic conditions and more effective preventive and disease control programmes that, for example, have reduced tuberculosis transmission or led to a decreased burden of premature mortality of circulatory diseases. However, most of the countries have been unsuccessful in their attempts to bring down the high rates of noncommunicable diseases, in particular lung cancer, circulatory diseases and alcohol liver disease, and this could be the main driving factor behind the widening gap in health status between south-eastern Europe and the EU-15.

Noncommunicable diseases are the major cause of mortality, although communicable diseases and injuries contribute to a considerable proportion of deaths in Albania and the Republic of Moldova. Among noncommunicable diseases, cardiovascular causes of deaths are predominant, although approximately a quarter of deaths in men (apart from in Bulgaria and the Republic of Moldova) are attributed to malignant neoplasms, as are 15–24% of deaths in women. A considerable proportion of these deaths could be avoided if

greater efforts were made in the public health and health services arenas to tackle effectively the main risk factors leading to the observed patterns in burden of disease: tobacco, alcohol, hypertension, overweight and inadequate vegetable and fruit consumption. A further priority is to reduce the morbidity linked to mental disorders that contribute to the high proportion of DALYs lost in the region.

High smoking rates in young people, particularly in women, will have a major impact on the population health status in future decades. The second important proximal determinant of health is alcohol, which acts over shorter periods. It is difficult to find valid data on alcohol consumption in the region and patterns of drinking and their influence on population-health should be explored in greater detail.

### **Country-specific disease burden**

In terms of the country-level epidemiological situation, the Republic of Moldova and Romania exhibit similar patterns of high mortality of communicable and noncommunicable disease. Albania still experiences the highest life expectancy in the region, which is interesting in the context of its relatively low GDP, although the estimates of healthy life expectancy for Albania are among the lowest in the region. Albanian data on communicable diseases need to be assessed in the light of the effectiveness of the communicable disease surveillance system. Similarly, the growing prevalence of less healthy behaviour might worsen Albanian health status indicators. Croatia, on the other hand, has very high mortality due to cancers but improvements in mortality due to circulatory diseases. Premature mortality from diabetes and cervical cancer in women in Serbia and Montenegro and The former Yugoslav Republic of Macedonia is high and points to the need to improve prevention and control services in this area. Data on sexually transmitted infections have low validity and this could be addressed in greater detail by the surveillance institutions, particularly the validity of reporting practices of health professionals.

The greatest health gains could be achieved by reducing the burden of noncommunicable disease and tackling the most common risk factors such as smoking, alcohol, hypertension, high cholesterol, overweight and physical inactivity. Both public health and health services have a role to play in primary and secondary prevention in collaboration with other sectors. This particularly relates to reducing ill health and mortality related to injuries, which affects the younger population groups, and where such cross-governmental collaboration is crucial for success.

Although this report identifies regional and country-level health priorities, it also acknowledges that health priorities are ultimately set through a national health policy-making process. Differences in health status among the SEE countries have implications for priority-setting at country level. For example, Croatia and Serbia and Montenegro have very high cancer mortality, particularly from lung cancer; the Republic of Moldova has high alcohol-related mortality; there is a high tuberculosis incidence in Romania and the Republic of Moldova; and Serbia and Montenegro and The former Yugoslav Republic of Macedonia have high mortality from diabetes. This might imply gaps in the provision of health services in some countries, at least as related to certain causes of morbidity, which can be reflected in a high burden of avoidable mortality.

Public health practitioners have a leading role to play in promoting healthy behaviour and implementing a range of evidence-based and effective interventions, while more effective and better-equipped health services are important in making further reductions in infant mortality, diabetes and cerebrovascular diseases.

## Socioeconomic inequalities in health

The results of this study indicate that there are socioeconomic inequalities in health, with poor people exhibiting a worse health status while being less likely to use health services. Health in the region is compromised by low incomes, unemployment, lack of education and lack of health insurance among some population groups. The health of the Roma is additionally compromised by social exclusion, and their health needs remain less well explored than in the other parts of Europe. In all the countries surveyed by the Living Standard Measurement Surveys (LSMS), the most important reason people gave for not obtaining health care in the case of illness was the cost.

The report finds evidence that low welfare levels are correlated with poorer health outcomes, and that this should inform strategies to reduce poverty and health inequalities. Evidence from the Albanian LSMS suggests that the differences in health services utilization were largest among poor and non-poor children and the elderly. In Bosnia and Herzegovina, the risk of poverty is higher in children, internally displaced persons (IDPs) and refugees and unemployed workers; interestingly, the prevalence of reported chronic diseases is higher in men, particularly middle-aged men.

Most countries have formulated strategies for improving the conditions of the Roma and established institutions to develop and administer projects on improving human rights and fostering education and employment opportunities. While such initiatives would certainly contribute to better advocacy for the Roma population and provide opportunities to alleviate poverty, most have not been followed by substantial implementation and the situation of the Roma has remained largely unchanged.

From the available evidence it is rather difficult, if not impossible, to assess with a reasonable degree of confidence the health status of Roma in south-eastern Europe, particularly in the countries of the former Yugoslavia. Their position in Bosnia and Herzegovina and Kosovo (Serbia and Montenegro) is particularly difficult due to a large proportion of them being affected by the war and having the status of IDPs and refugees. Their lack of identity documents and consequent inability to obtain health insurance is a common and highly prevalent problem that requires immediate attention and action. Poverty among the Roma is multidimensional and low educational qualifications hinder their possibilities of getting better paid work. This also illustrates the need for broadly-based strategies involving legislation and sustainable schemes of social and health insurance as well as innovative, community approaches to secure better health outcomes.

An important issue that health policy-makers need to consider is how to improve the quality of data coming from the public health surveillance systems, so as to ensure that health investments are properly channelled with the potential to reduce inequalities and ensure longer-term improvements in health. Also urgently needed are (i) a more comprehensive assessment of the health needs of the Roma that would include an assessment of the burden of communicable and noncommunicable diseases, and (ii) an exploration of the ways in which their health and disease status could be more consistently monitored.

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There is an urgent need for a more comprehensive assessment of the health needs of the Roma that would include an assessment of their burden of communicable and noncommunicable diseases, as well as explore the ways in which their health and disease status could be more consistently monitored.

Implementation of both research studies and policy responses would help to clarify the options for policy intervention in order to improve the health status of the population and to contribute to economic growth.

The LSMS surveys provide some information on utilization patterns and self-reported health and are enabling the countries to establish a poverty monitoring system. Countries could attempt to find ways to measure health inequalities at the population level that would provide a basis for the development of targeted policies and the monitoring of their successes and failures. Such statistical systems exist in, for example, the United Kingdom.<sup>31</sup> More data are needed on the existence and relative importance of informal payments so that policies can be designed to help give greater financial protection to poor people in case of illness. In Bosnia and Herzegovina, the government needs to improve coordination among the national and entity-based statistical institutes and other data collectors with the aim of creating countrywide statistical data. Also, given that many factors other than health status influence whether an individual will seek care for a particular condition, it is important to supplement quantitative data with qualitative to assess a range of contextual issues influencing access to health services.

The Council of Europe draft recommendations on better access to health care for Roma and Travellers in Europe suggest a number of strategies that should be developed to improve a range of health and health-related issues.<sup>32</sup> The draft recommendations acknowledge that this should be achieved by ensuring access to adequate health information and services throughout the life cycle, in part through access to free (or cheaper) care for screening, access to adequate housing and equal access to education. Importantly, the draft recommendations emphasize the need to build a knowledge base and health policy indicators to assess the health needs of the Roma. Access to identity cards, birth certificates and other official documents should be a primary step in ensuring that they get better access to health care.

In the countries that need to monitor the health status of the Roma, systems should be established in clinics or outreach, community-based services. This would provide a step further from self-reported to clinical, and thus more, valid health data. Given the wide heterogeneities of Roma populations in south-eastern Europe and their distinctive beliefs and behaviour as regards health, there is a need for qualitative studies and operational research to get a better understanding of how to increase their utilization of health services and the best ways to deliver health services to them. As a large proportion of Roma live in poverty, it might be necessary for various health programmes to target poor communities where Roma live rather than singling them out explicitly, as this might lead to further marginalization.

<sup>31</sup> UK National Statistics ([http://www.statistics.gov.uk/about/national\\_statistics/gss.asp](http://www.statistics.gov.uk/about/national_statistics/gss.asp), accessed 17 May 2006).

<sup>32</sup> Draft version on the recommendation on better access to health care for Roma and Travellers in Europe (discussed at the 19th meeting of the Committee of Experts on Roma and Travellers on 7 April 2005). Strasbourg, Council of Europe, April 2005.

## The evolving role of health systems and policies in south-eastern Europe

While in many countries of the region, health reform has often been approached less eagerly than economic reform, wide-ranging reforms of the health sector have now been initiated. The stabilization of the political situation in the region and signs of an economic recovery provide an opportunity to carry forward outstanding changes in the health sector. Although both the starting points and the reform paths followed have been very different in the various SEE countries, all of them have embarked in recent years on substantial reforms of health care provision, financing and management.

Even so, while the countries have achieved noticeable progress in adjusting their health systems to the new economic and political circumstances, many challenges for the future remain.

In the area of health care provision, all countries have now embraced the aim of strengthening the primary health care sector. These efforts will have to be sustained by an increased investment in physical and human resources, with a particular emphasis on training and the acquisition of appropriate equipment. In the secondary and tertiary care sectors, equipment is often lacking or outdated, there is a need to strengthen management, and in some countries there is scope for a further reduction in bed numbers. Overall, patient dissatisfaction with health services seems to be widespread, and their quality and affordability will have to be improved. While there has been important progress in public health training, public health services have generally been neglected by the reform process and remain under-funded. They are one of the main areas that will need to be developed in the future reform process.

## Health expenditure, use of health care resources, sources of financing

In terms of total health expenditure, both in absolute terms and as a percentage of GDP, the countries of the region vary widely. The countries of the former Yugoslavia are notable for their comparatively high health care spending as a percentage of what is, however, a low GDP. The other countries spend fewer of their national resources on health and most of them are striving to increase their future allocations to the health sector. This will be of particular importance, as total health expenditure in absolute terms is very low in some of these countries, especially Albania and the Republic of Moldova. In view of the limited resources available for health, gains in efficiency will be crucial, *inter alia* because the demand for health services can easily outstrip the growth in national income.

The experiences of the health sectors in the region have shown the importance of combining the reform in health care provision with new mechanisms for the allocation of health care resources. In the primary care sector, countries have moved towards more sophisticated systems of payment for providers, with a major emphasis on capitation and the incorporation of performance measures. In the secondary and tertiary care sectors, reforms in provider payments have been lagging behind reforms in the primary care sector. The countries of the region are now generally moving towards an emphasis on outputs and global budgets, but there is much scope for improvement.

In all the SEE countries, profound changes have taken place in the way that resources are generated. All have either re-affirmed or introduced a payroll-based health insurance system, which has become the main source of public health revenues in the majority of countries. Important future challenges for the health insurance scheme are the collection of funds and, in some places, high contribution rates and the failure to include the whole population.

Throughout the region, out-of-pocket payments, both formal and informal, have become a major source of health financing since 1989. This has particularly affected lower income groups and undermined equal access to health care. The establishment of sustainable health financing systems that ensure universal access to care is perhaps the single most important challenge for the countries of the region. It will be of particular importance to tackle these informal out-of-pocket payments: increasing the salaries of health care workers will be one of the main ways of doing so. In a number of countries in the region, foreign assistance to the health sector has been substantial, but health care has been a neglected area of international assistance and donors are now moving elsewhere.

The organization, planning and management of health services in south-eastern Europe have changed significantly since the end of communism, with evolving roles for the ministries of health. While some countries have engaged in decentralization, others have pursued centralization. One of the main challenges for the future will be the improvement of technical capacities for the management of the health sector and the reform process, and the strengthening of patients' rights and their involvement in the reform process.

While the countries of south-eastern Europe have achieved great progress in their efforts at reform, the process is not yet complete. In the past, the health sector has often taken a back seat in the broader political and economic transition. With the economic recovery of the region, it will be crucial to intensify reform efforts, so that they can contribute to improvements in population health, itself a crucial ingredient of socioeconomic development and regional stability.

## **Economic consequences of ill health in south-eastern Europe**

This report is the first comprehensive step in assessing the economic impact of adult ill health in south-eastern Europe, and the findings clearly indicate that:

- ill health has negatively affected individual and household economic outcomes in several countries for which data were available, and
- a sustained reduction in the adult disease burden would produce substantial economic benefits for the economies of all the countries considered.

These insights are consistent with evidence on the impact of ill health in other countries. This assessment adds value to previous studies of other countries that largely confined their economic impact assessment of health to issues around infectious disease or child and maternal health conditions – diseases that characterize developing countries and may have limited relevance to European countries. Some might have thought that diseases that allegedly strike the individual at a later stage in life would have only very minor economic importance, but the analyses here show that this hypothesis does not stand up to empirical scrutiny. Adult health matters not only intrinsically, but also economically.

The policy implications are that:

- investing in adult health is a sound investment strategy likely to yield tangible economic returns, on top of the human benefits;
- policymakers interested in the economic future of south-eastern Europe and its people would have a greater likelihood of success by incorporating health into their portfolio of investment strategies (there may be a particular case for the EU to consider health investment as a key area of its pre-accession policy as well as its wider European neighbourhood policy); and
- given the magnitude of economic benefits that can be expected from improving adult health in SEE countries, any reasonable and well-designed increase in the resources devoted to health, both within and outside the health system, would produce a significant economic return.

The challenge is of course not solely to increase resources but also to put existing resources to better use. Evidence abounds as to how this should be done most effectively. It was beyond the scope of the present study to analyse in detail the various options in this very diverse set of countries. This choice depends at least as much on the available evidence as on the political and societal preferences in every country.

The overarching message from the findings is unambiguous: poor adult health negatively affects economic well-being at the individual and household level in several SEE countries for which data were available; if effective action were taken, improved health would play an important role in promoting sustained economic growth in those countries. Despite a recent rebound in growth in several of the countries, in large parts of the region poverty continues to be widespread; all countries need to focus on policies that accelerate rates of growth, strengthen delivery of education, health and public utilities services, and enhance social protection.

These findings bear an obvious implication for economic policymakers in south-eastern Europe as well as for international organizations interested in the countries' social and economic development. Investing in the health of the south-eastern Europe population should be seriously considered as one (of several) means by which to achieve economic policy goals. No direct account has been taken of the costs of different health interventions – the next logical step towards a full economic assessment, but the expected economic benefits would easily exceed any reasonable increase in investments to maintain and promote health, both within and outside the health system. Another logical step will be to assess the benefits that would accrue from the reductions in morbidity expected from those same investments.



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## ANNEX 1

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### NOTES ON COUNTRY-SPECIFIC INFORMATION ON POVERTY AND HEALTH

#### Albania

Despite the signs of economic growth, poverty remains at a high level in Albania.<sup>33</sup> Migration is the country's most important political, social and economic phenomenon, based on estimates that approximately one fifth of the total population is living abroad. In 2004 the registered unemployment rate was 14.9%. The LSMS was carried out in 1996 and the subsequent panel surveys in 2002 and 2003.

The results from the 2002 LSMS suggested that one quarter of population (780 000 people) fall below the poverty line and 5% (150 000 people) live in extreme poverty. There are considerable regional differences in the distribution of poverty: as much as 34.8% of the rural population is considered poor. Low levels of education and unemployment have been identified as the main root causes of poverty. Only 33% of those aged over 15 years hold full-time jobs, while another 21% work part-time. The unemployment rate among the extremely poor is over 30%.

The World Bank poverty assessment report notices large regional and income inequalities in health status and in access to health care services. As outlined earlier, Albania spends about 3.5% of total GDP on health, the lowest in the SEE countries and also lower than its 1991 level of 4.8%. LSMS data for 2002, combined with administrative data on public expenditure, indicate that public spending in 2002 constituted only 30% of total expenditure on health care. Most of such expenditure is out of pocket, which has resulted in income inequalities in access to health care services. People living in Tirana were found to pay significantly less for their outpatient care services than people living outside the capital. This has been explained by the higher health insurance coverage in Tirana. Out-of-pocket expenditure on health care is estimated to be particularly high in the hospital sector, where 60% of people reported making under-the-table payments. Although the poor pay less in absolute terms, they spend a larger proportion of their income on health than the rich. The households in the poorest quintile of the income distribution spend almost 10% of their per capita monthly consumption on health (as a percentage of total consumption), in contrast to 5% spent by the wealthiest families; they pay on average twice as much for their medicines, and they are more likely to incur catastrophic health expenditure (defined as constituting over 10% of total income).

A quarter of Albanians have per capita incomes below the full poverty line, and income per capita of almost 34% of the population falls below the poverty line after health expenditure is subtracted from incomes. Although only 5% of the population is considered extremely poor before health expenditure is taken into account, almost 10% of the population falls below the food poverty line after such expenditure is subtracted. Evidence from the 2002 LSMS suggested that differences in use of the health services were greatest among children and the elderly – care was sought for 66% of non-poor children when they were ill but only for 50% of poor children. The observed differences were even wider for the elderly: about 70% of the non-poor elderly received outpatient care when ill, compared with 41% of the poor.

A population-based survey undertaken in Tirana in 2001 provides valuable evidence of risk behaviour and certain health conditions in the Albanian capital likely to influence the burden of

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<sup>33</sup> *Albania poverty assessment*. Washington DC, World Bank, 2003 (Report No. 26213-AL) (<http://web.worldbank.org/wbsite/external/topics/extpoverty/extpa/0.contentMDK:20205053~menuPK:443282~pagePK:148956~piPK:216618~theSitePK:430367,00.html>, accessed 30 May 2006).

disease in the near future. The study found that over three quarters of the participants were too heavy and every fourth man and every third woman aged over 25 years were obese. The prevalence of obesity was found to be considerably higher in this part of Albania than in Mediterranean countries such as Italy and Spain (Shapo et al., 2003a).<sup>34</sup> Women with a lower education were more likely to be obese than those with higher educational achievements. Some 19.3% of male and 28.4% of female respondents reported a low level of physical activity at work, and a high proportion of respondents reported smoking (37.6% and 19.3%, respectively) (Shapo et al., 2004).<sup>35</sup> Smoking was commonest among those aged 25–34 years, with over a half of men and a third of women reporting that they smoked. The high rates of smoking among young men and women suggest that tobacco will make an increasingly large contribution to premature morbidity and mortality in the future (Shapo et al., 2003b).<sup>36</sup>

## Results of the analysis of LSMS data in Albania

The second wave of the LSMS survey data, collected in 2003 and including 4469 respondents, was used to assess the reported health status of the population across gender and socioeconomic strata, as well as the prevalence of smoking and exposure to environmental tobacco smoke (Tables A.1.1–A.1.4). The results of the data analysis demonstrated that one tenth of men and 14% of women aged over 18 years perceived their health as poor or very poor, with significant differences in self-reported health between men and women. Correspondingly, a higher proportion of women (28.5%) than men (21.4%) reported a chronic disease (in the majority of respondents diagnosed by a health professional), and a higher proportion of women reported that they used both primary and secondary health services. Poor health is, as expected, more common in those aged over 60 years, and in women in this age group (41.8%, as opposed to 25.8% of men).

A significantly higher proportion of unemployed men and women aged 18–59 years tended to report that they were in poor health compared to those that were employed. The prevalence of smoking in men and women was 33.4% and 2.3%, respectively. Smokers reported poorer health status, with particularly high differences observed among women, although the smoking rates in women from this survey were substantially lower than those in Shapo's data (Shapo et al., 2003b). Exposure to environmental tobacco smoke seems to be high: only 16.6% of men and 38.2% of women reported that they were never exposed to smoke at work or at school. In addition, more than two thirds of the respondents were exposed to tobacco smoke at home.

Among those who reported that they had suffered a chronic illness in the previous year, 45.5% of men and 48.4% of women had sought outpatient care in the previous month. A small proportion of those with chronic illnesses had visited a private doctor in the previous month (5.2% of women and 6.9% of men). Three per cent of men and 5.3% of women reported that they had been hospitalized in the previous year; among those suffering from chronic illnesses, 11% reported a hospital stay.

<sup>34</sup> Shapo L et al (2003a). Body weight patterns in a country in transition: a population-based survey in Tirana City, Albania. *Public Health Nutrition*, 6(5):471–477.

<sup>35</sup> Shapo L et al (2004). Physical inactivity in a country in transition: a population-based survey in Tirana City, Albania. *Scandinavian Journal of Public Health*, 2004, 32(1):60–67.

<sup>36</sup> Shapo L et al (2003). Prevalence and determinants of smoking in Tirana city, Albania: a population-based survey. *Public Health*, 117(4):228–236.

**Table A.1.1.** Rating of health and assessment of chronic illness/disability status in men and women aged over 18 years, Albania, 2003

	Men (%)	Women (%)
<b>Health rating</b>		
Very good/ good/average	90.4	86.0
Poor/ very poor	9.6	14.0
Total	2320	2608
<b>Any sudden illness or injury in the previous 4 weeks</b>	8.2	13.1
Total	2298	2647
<b>Reporting of chronic illness</b>	21.4	28.5
Total	2320	2608
<b>Reporting of chronic illness by age groups (years)</b>		
18–24	2.0	1.7
25–34	5.7	6.1
35–44	10.7	13.4
45–59	29.6	29.8
>60	52.1	49.0
Total	497	742
<b>Years with chronic illness/disability</b>		
0–1	5.6	2.5
2–4	22.2	20.3
5–10	40.1	42.5
>11	32.2	34.7
Total	422	648
<b>Illness diagnosed by a professional</b>	98.8	98.8
Total	497	742
<b>Currently taking medication, if reporting chronic illness</b>	86.5	89.2
Total	491	732

Source: LSMS Albania, 2003.

**Table A.1.2.** Smoking status and exposure to smoking, men and women aged over 18 years, Albania, 2003

	Men (%)	Women (%)
<b>Current smokers</b>	33.4	2.3
Total	2320	2608
<b>Prevalence of smoking by age groups (years) (total number in brackets)</b>		
18–24	17.2 (316)	0.3 (413)
25–34	32.9 (388)	0.8 (499)
35–44	41.8 (524)	1.6 (563)
45–59	44.2 (606)	2.6 (592)
>60	47.7 (484)	7.4 (539)
Total	38.8 (2320)	2.7 (2608)
<b>Exposure to smoking at work or school in previous 7 days</b>		
Often	38.3	12.6
Occasionally	27.0	22.9
Rarely	18.0	26.3
Never	16.6	38.2
Total	1732	1433
<b>Exposure to smoking at home in previous 7 days</b>		
Often	30.8	27.2
Occasionally	22.1	21.5
Rarely	25.7	26.9
Never	21.4	24.5
Total	2320	2608

Source: LSMS Albania, 2003 data.



**Table A.1.3.** Use of health services in the previous 4 weeks and previous 12 months, men and women aged over 18 years, Albania, 2003

	Men (%)	Women (%)
<b>Visited any outpatient health care in previous 4 weeks <u>if reporting any chronic illness/ disability</u></b>		
Total	45.5 497	48.4 742
<b>Visited a private doctor in previous 4 weeks <u>if reporting any chronic illness/disability</u></b>		
Total	5.2 497	6.9 742
<b>Stayed in hospital in previous 12 months <u>if reporting any chronic illness/disability</u></b>		
Total	11.6 497	11.1 88.9

Source: LSMS Albania, 2003 data.

**Table A.1.4.** Prevalence of poor/very poor health across sociodemographic and poverty categories, Albania, 2003

	Men (%)	Women (%)
<b>In employment (18–59 years)</b>		
Yes	3.0 (1426)	3.9 (1114)
No	13.5 (409)	10.2 (954)
<b>Age groups (years)</b>		
18–24	3.0 (316)	1.0 (413)
25–34	3.0 (388)	3.3 (499)
35–44	4.7 (524)	5.4 (563)
45–59	8.6 (606)	15.0 (592)
>60	25.8 (485)	41.8 (539)
<b>Ever smoked</b>		
Yes	13.0 (908)	30.5 (70)
No	6.4 (1690)	12.4 (2782)

Source: LSMS Albania, 2003 data.

## Bosnia and Herzegovina

The 2001 LSMS survey provided the first data on the levels of poverty in Bosnia and Herzegovina and its distribution across different population groups.<sup>37</sup> The survey differs in some respects from the other LSMS, as the migration module was considered to be very important for the country and the health module contained questions on depression to determine its prevalence in the post-conflict setting.

Human and health losses in Bosnia and Herzegovina caused by the war were enormous, and attributed to the increase in poverty. It is estimated that 250 000 people died during the war and 175 000 were injured. Some 30–40% of all hospitals were damaged and approximately a third of all health care practitioners were lost due to emigration or as victims of war.

One of the key findings of the LSMS was that there was no extreme or food poverty, although almost 20% of the population have been classified as poor. The survey revealed several groups with a risk of poverty above the national average: children (particularly in Republika Srpska), IDPs and refugees and unemployed workers. The unemployed and those with a poor education had at least double the risk of poverty compared to the employed. Elderly people were less likely to be poor than the average person. The authors also noticed that groups such as the Roma and IDP in collective centres were not well covered by the LSMS. Around a third of all poor people were aged under 18 years, and two thirds of them lived in families with children. Overall, 60% of the poor lived in households where someone was employed, thus falling into the category of working poor.

Five distinct features characterize poverty in Bosnia and Herzegovina:

- in no other country of the former Yugoslavia do children have poverty levels as high as in Bosnia and Herzegovina;
- most poor households include someone who works, usually a single earner;
- female participation in the labour market is low;
- poverty is concentrated among IDPs and refugees;
- the majority of the poor live in households where the head of the household has only primary education or less.

Smoking is a common health risk in Bosnia and Herzegovina, with approximately 50% of men and 22% of women smoking. Nineteen per cent of men in the Federation of Bosnia and Herzegovina and 21.9% of men in Republika Srpska reported a chronic disease, as well as 24.8% and 30.7% of women, respectively.

Bosnia and Herzegovina has a social insurance model that is paid out of employers' and employees' contributions. However, this does not ensure universal access due to the high prevalence of unregistered unemployment and the informal economy. LSMS data indicated that 30% of the poor in the Federation of Bosnia and Herzegovina and 50% in the Republika Srpska are uninsured. Young people aged 14–24 years have the lowest rate of coverage, especially in poor households. It is estimated that 64% of those actually unemployed are registered, and among them only 84% have health insurance. The failure of employers to pay insurance contributions, combined with the informal sector, is one of the driving factors behind the large percentage of people without insurance in the total population. Insured children are taken to a paediatrician more than twice as many times as non-insured children are. Moreover, 4.7% of uninsured people reported a hospital stay in the preceding 12 months compared to 7.1% of those insured.

<sup>37</sup> *Bosnia and Herzegovina poverty assessment. Vol. 1. Main report.* Washington DC, World Bank, 2003 (Report No. 25343-BIH) ([http://www-wds.worldbank.org/servlet/WDSContentServer/WDSP/IB/2003/12/02/000012009\\_20031202165606/Rendered/PDF/25343.pdf](http://www-wds.worldbank.org/servlet/WDSContentServer/WDSP/IB/2003/12/02/000012009_20031202165606/Rendered/PDF/25343.pdf), accessed 2 June 2006).

The high costs of the system are partly caused by its fragmentation. Some cantons in the Federation of Bosnia and Herzegovina do not provide all secondary and tertiary health care services, and cantonal health insurance schemes do not cover services provided in other cantons so that patients have to pay out of their own pockets. Data from LSMS also show that poor households spend on average an estimated 10% of their total consumption on health care, while the richest 20% of households spend only 5%. The Labour Market Survey conducted in 2002 indicated that 10% of the population of working age suffer from chronic mental problems.

### **Results of analysis of the LSMS data for Bosnia and Herzegovina**

The second wave LSMS survey data from 2003 were used to assess reported health status, prevalence of mental disorders and differences in self-reported health status across gender and socioeconomic strata.

The analysis showed that the prevalence of reported chronic diseases is high, as one in five men and women aged over 18 years reported such disorders. High blood pressure was the commonest disease, followed by arthritis. Twenty percent of respondents did not have health insurance, and of these, 18% of men and 22% of women reported a chronic disease. Importantly, over 25% of men in the groups aged 35–44 years and 45–59 years reported a chronic disease, more than in women, which is at odds with the pattern observed in the other countries of the region. Other studies would need to explore in more detail why middle-aged men have such a high prevalence of ill health, as there is no comprehensive health information system in Bosnia and Herzegovina. This is also different from other settings, where it is usually more common for women to report less than good health. In contrast, men who reported a chronic disease made fewer visits to the primary health care services in the previous month than women (38% of men and 51% of women).

One fifth of those who had needed health services in the previous month did not get them. The most common reason, reported by more than half the respondents, was the excessive cost, followed by lack of health insurance. Suicidal feelings were present in 8% of men and 5% of women in the week prior to the survey, and their prevalence increased with increasing age. Almost half of the respondents had recalled the most painful events experienced during the war in the previous week.

**Table A.1.5.** Rating of health and assessment of chronic illness/disability status in men and women aged over 18 years, Bosnia and Herzegovina, 2001

	Men (%)	Women (%)
<b>Reporting a chronic illness</b>	20.8	19.6
<b>Type of disease</b>		
High blood pressure	5.30	6.0
Arthritis	6.1	7.6
Bronchial asthma	2.2	1.2
Chronic bronchitis	0.3	0.6
Ulcer	1.6	2.4
Diabetes	2.7	1.9
Malignant disease	0.7	0.5
Psychological disorder	2.1	0.8
<b>No health insurance</b>	19.7	19.8
<b>Needed medical services in the previous 4 weeks but did not get them</b>	22.4	20.3
<b>Reasons for not getting medical services</b>		
Minor health issues	8.8	18.7
No health insurance	25.4	19.9
Too expensive	56.6	58.6
Too far	2.7	1.5
Poor services	4.5	1.4
Institution closed	0.1	0.2
Other	0.4	0.1
<b>Felt suicidal in the previous week, all ages (row proportions)<sup>a</sup></b>	2.3	1.3
18–24 years	3.3	1.3
25–34 years	5.7	1.8
35–44 years	5.1	2.4
45–59 years	4.8	3.7
>60 years	4.6	2.7
<b>Recalled in the previous week most painful events experienced during the war (all ages) (row proportions)</b>		
18–24 years	34.2	36.8
25–34 years	40.7	34.4
35–44 years	42.2	35.8
45–59 years	42.2	38.8
>60 years	40.6	38.4

Source: LSMS Bosnia and Herzegovina, 2001 data.

<sup>a</sup> Includes a little, quite a bit, extremely often.

**Table A.1.6.** Prevalence of chronic diseases across sociodemographic categories, 18 years and older, Bosnia and Herzegovina, 2001

	Men	Women
<b>Education</b>		
Primary	16.9	20.3
Secondary	21.6	19.9
Tertiary	14.6	16.9
<b>Age groups (years)</b>		
18–24	5.1	7.8
25–34	12.3	12.9
35–44	25.1	17.5
45–59	27.3	21.0
>60	27.0	23.5
<b>Insurance</b>		
Yes	21.3	10.8
No	18.4	21.8
<b>Visited primary health care in previous 4 weeks if reporting chronic disease</b>	37.7	51.1
<b>Smoking</b>		
Yes	22.4	20.8
No	26.0	20.7

Source: LSMS Bosnia and Herzegovina, 2001 data.

## Bulgaria

In 2001, it was estimated that the poverty rate in Bulgaria was 12.8%.<sup>38</sup> As the World Bank report noted, ethnicity is an important correlate of poverty in Bulgaria, as 60% of the poor are from ethnic minorities. The Roma are ten times more likely to be poor than ethnic Bulgarians, and the Turks four times more likely. The poverty profile assessed in 2001 suggests that poverty has become more concentrated among specific groups such as unemployed people, children, the rural population and ethnic minorities. Consistent with findings from the other countries in the region, most pensioners are not poor apart from those aged over 75 years who live alone and in rural areas. Unemployment remains one of the greatest challenges, particularly long-term unemployment. In 2001, 64% of unemployed people had been out of work for more than one year.

### Results of analysis of LSMS in Bulgaria

Almost a third of men and 27% of women reported that they had suffered from a chronic disease in the previous year, and 50% of them were receiving treatment at the time of the survey. Sixteen per cent of those who needed treatment but had not received it said that it was too expensive.

A high proportion of those who visited health services in the previous month went to private providers (42% of men and 60% of women). A third of those aged over 35 years suffered from chronic disease, which points to a high prevalence of ill health in the middle-aged population. The analysis showed that those who achieved higher levels of education reported suffering from a chronic illness more frequently, but this could also be influenced by age-related patterns.

**Table A.1.7.** Health rating and assessment of chronic illness/disability status, men and women aged over 18 years, Bulgaria, 2001

	Men (%)	Women (%)
<b>Suffered from disability and/or chronic disease in the previous year</b>	28.9	26.7
Total	3927	4216
<b>Receives treatment now if reporting a chronic disease</b> (includes home, hospital, nursing home, sanatorium)	49.8	50.2
Total	1136	1127
<b>Type of disease</b>		
Heart problems	9.7	8.1
Locomotor system	2.1	1.9
Mental problems	0.8	0.9
Arthritis	0.4	0.8
Diabetes	2.0	1.0
Respiratory problems	1.9	1.6
High blood pressure	0.3	0.2
Stomach problems	1.9	1.6
Neurological problems	1.9	1.8
Total	3927	4216
<b>Reason for not having medical consultation in the previous 4 weeks, if needed</b>		
Not needed	61.8	60.4
Not too sick	16.4	15.1
Too far	0.9	1.4
Wait too long	0.7	1.0
Quality poor	0.4	0.6
Too expensive	15.9	16.3
Other	3.9	5.3
Total	767	722
<b>If visited health services during previous 4 weeks, were they public or private?</b> (all ages)		
Public	58.4	39.7
Private	41.6	60.3
Total	565	662

Source: LSMS Bulgaria, 2001 data.

<sup>38</sup> *Bulgaria poverty assessment*. Washington DC, World Bank, 2002 (Report No. 24516-BUL) ([http://www-wds.worldbank.org/servlet/WDSContentServer/WDSP/IB/2002/12/06/000094946\\_02112204044990/Rendered/PDF/multi0page.pdf](http://www-wds.worldbank.org/servlet/WDSContentServer/WDSP/IB/2002/12/06/000094946_02112204044990/Rendered/PDF/multi0page.pdf), accessed 2 June 2006).

**Table A.1.8.** Prevalence of chronic disease across sociodemographic categories, Bulgaria, 2001

	Men (%)	Women (%)
<b>Education (age 18–59 years)</b>		
No education	18.9	24.2
Primary	30.0	27.9
Secondary	31.6	29.1
Tertiary	35.9	34.2
<b>Employment (age 18–59 years)<sup>a</sup></b>		
Yes	32.3	28.0
No	29.9	28.6
<b>Age groups (years)</b>		
18–24	18.5	22.1
25–34	27.9	25.1
35–44	32.7	32.7
45–59	38.2	31.0
>60	37.6	31.3
<b>Native language</b>		
Bulgarian	29.6	27.5
Roma	29.6	24.3
Turkish	22.7	22.7

Source: LSMS Bulgaria, 2001 data.

<sup>a</sup> Defined as working for a wage or revenue during the previous 7 days.

## Croatia

The World Bank poverty assessment for Croatia was based on the first representative survey of household income and expenditure in 1998, which included 3123 households.<sup>39</sup> The findings indicate that the incidence of absolute poverty in Croatia was low at 4%. The poverty rate measured by the nationally specific poverty line was at 8.4%. However, if IDPs were included, the level of poverty would rise to 10%. Poverty in Croatia is concentrated among poorly educated individuals and the elderly. Forty per cent of the poor live in households whose head is retired. The main causes of poverty are the limited nature of economic opportunities and the limited capacity of the poor to benefit from such opportunities, as well as inadequate social safety nets. Children from poor families have severely limited access to upper secondary and higher education. Importantly, the gap between rich and poor in Croatia is wider than in some other middle- and low-income countries such as Hungary and Poland. The report estimated that the elasticity of poverty with respect to growth was only 2.1%, which means that for 1% growth in consumption poverty falls by 2.1%.<sup>40</sup> The reallocation of social assistance spending towards better targeted programmes would offer better social protection. It was also estimated that post-primary education in Croatia lags behind that in other countries in transition.

<sup>39</sup> *Croatia: economic vulnerability and welfare study*. Washington DC, World Bank, 2001 (Report No. 22079-HR) ([http://www-wds.worldbank.org/servlet/WDSContentServer/WDSP/IB/2001/05/11/000094946\\_0104270504592/Rendered/PDF/multi0page.pdf](http://www-wds.worldbank.org/servlet/WDSContentServer/WDSP/IB/2001/05/11/000094946_0104270504592/Rendered/PDF/multi0page.pdf), accessed 2 June 2006).

<sup>40</sup> Using data from over hundred countries, Ravallion and Chen estimated that the average elasticity of poverty with respect to growth is 3.1% (Ravallion M, Chen S (1997). What can new survey data tell us about recent changes in distribution and poverty? *World Bank Economic Review*, 11(2):357–382).

## The former Yugoslav Republic of Macedonia

The poverty assessment conducted in 1996 by the World Bank relied on both quantitative data (1995 household budget surveys) and a qualitative or social assessment (1998) to evaluate the extent of poverty.<sup>41</sup> According to the OECD standards, individuals with consumption below 60% of median annual 1996 adult equivalent consumption (about US\$ 50 per month) were defined as poor. Poverty increased from 4% in 1991 to approximately 20% in 1996, with two thirds of the poor living in rural areas. The World Bank report identified three distinct groups among the poor: (i) the traditional poor – rural, agricultural households with more than three children have among the highest incidence of poverty in the country, (ii) the new poor – non-agricultural households have replaced agricultural households as the largest group of the poor, and (iii) the chronic poor (the elderly poor and disabled). The report noticed that low education levels, particularly among women, coupled with poor living conditions, are the main determinants of low health status among the poor, and that the problem is more severe in rural areas. The decline in real income and wages and growing unemployment are the main reasons for increasing poverty in the country. There have been very limited data on inequalities in health according to classes of poverty and the extent of reporting of poor health by respondents to the survey.

## Republic of Moldova

The poverty assessment study conducted in the Republic of Moldova noticed that the decline in public spending was a contributory factor in the apparent decline in health status.<sup>42</sup> The real level of public health expenditure in 1996 was 50% of the 1990 level. As expected, there have been significant increases in out-of-pocket expenses for medical care so that the poor have not been able to afford many services. As a result of the regional crisis in 1998, it was estimated that 46% of Moldavians lived in absolute poverty. Per capita consumption in rural areas was only 75% of that in urban areas, and agricultural workers are occupationally the most vulnerable group.<sup>43</sup> Almost 30% of people living in households with children were poor. The elderly made up 17% of the population and accounted for 10.5% of the poor. One of the possible explanations for that is that those entering the labour market have fewer opportunities for well-paying jobs and accumulating assets. The poor among the elderly are those that live alone and depend exclusively on their pensions. The unemployment rate in the Republic of Moldova was estimated at 12% of the labour force although official data indicate much lower rates (particularly the WHO health for all data). This discrepancy has been explained as being due to the majority of the unemployed not registering as such because the costs of doing so outweigh the benefits. In 2001, 5.1% of GDP was spent on health, a drop from the 1995 level of 6.2%. Poor families visit primary health services almost 40% less often than the non-poor. It is also estimated that 15% of poor children were not going to the school in 1997; the problem is worse for girls in rural areas.

Data on access to health care are available from a cross-sectional study conducted by Balabanova et al<sup>44</sup> in the eight former Soviet Republics in 2001 (Armenia, Belarus, Georgia, Kazakhstan, Kyrgyzstan, the Republic of Moldova, Russian Federation and Ukraine), which aimed to assess patterns and determinants of health care utilization and the extent of payment for health care. The findings indicate that approximately 62% of respondents in the Republic of Moldova had visited a medical professional in the year prior to the survey. Of those reporting illness, 15% had not consulted a health professional, and the commonest reason for not seeking care was lack of money

<sup>41</sup> *Former Yugoslav Republic of Macedonia: Focusing on the poor. Vol. 1. Main report.* Washington DC, World Bank, 1999 (Report No. 19411-MK) ([http://www-wds.worldbank.org/servlet/WDSContentServer/WDSPath=/IB/1999/09/10/000094946\\_99072212484244/Rendered/PDF/multi\\_page.pdf](http://www-wds.worldbank.org/servlet/WDSContentServer?WDSPath=/IB/1999/09/10/000094946_99072212484244/Rendered/PDF/multi_page.pdf), accessed 2 June 2006).

<sup>42</sup> *Moldova poverty assessment.* Washington DC, World Bank, 1999 ([http://www-wds.worldbank.org/servlet/WDSContentServer/WDSPath=/IB/2000/03/21/000094946\\_00030105341248/Rendered/PDF/multi\\_page.pdf](http://www-wds.worldbank.org/servlet/WDSContentServer/WDSPath=/IB/2000/03/21/000094946_00030105341248/Rendered/PDF/multi_page.pdf), accessed 2 June 2006).

<sup>43</sup> These data come from the Moldova Household Budget Survey, which was conducted in 1997.

<sup>44</sup> Balabanova D et al (2004). Health service utilization in the former Soviet Union: evidence from eight countries. *Health Services Research*, 39(6 Pt 2):1927–1950.

(reported by 54%), followed by self-treatment (38.8%), buying medicines from the pharmacist (21.9%) and lack of trust in staff qualifications (5.1%). There was an evident urban/rural divide, with 13.4% of ill people in urban areas not seeking care compared to 21.7% of rural respondents. Among those with not enough money even for nutrition, 25.9% had not consulted a health professional even though they were ill.

## Romania

Romania is experiencing a decline in poverty since 2000, which has been largely attributed to economic growth.<sup>45</sup> Despite recent improvements, and following the results of the World Bank household-based survey, it has been estimated that 29% of the population lived in poverty in 2002. The trends in extreme poverty have been stable since 1997, affecting about 10% of the population. The correlates of poverty in Romania include household size, Roma ethnicity, characteristics of the head of the household (household headed by a woman, low schooling, unemployment and self-employment) and rural residence. In terms of age, the highest risk of poverty was found among young people aged 15–24 years. It was estimated that three out of five Roma lived in severe poverty and only one out of five is not poor. Forty per cent of poor young people aged 15–24 years are not in education, compared with 10% of the non-poor in the same age group. Poor people have inadequate access to health services: 11% of poor households revealed that there were no health services in their locality, compared with 5% for the non-poor. The poverty assessment report for Romania is limited in its coverage of education and health issues.

## Kosovo (Serbia and Montenegro)

The LSMS was carried out in Kosovo (Serbia and Montenegro) in 2000, and included 2880 households representative of Albanian and Serbian ethnic groups but not of the others.<sup>46</sup> The report from the survey indicated that 65% of women and 51% of men aged 25–44 years were unemployed, as were 38% of women and 31% of men aged 45–64 years. Thirteen percent of women and 41% of men aged 20–59 years lived primarily from the incomes from their own labour. Fifty-five percent of rural households did not have running water. The survey found that 12% of the population lived in extreme poverty (they had consumption levels below the food poverty line) and 50% lived in poverty. The typical household in extreme poverty is of Albanian ethnicity, rural and has seven members. There is considerable inequality in secondary school enrolment, as shown by the fact that only half of the Albanian girls aged 15–18 years enrolled in school in 2000 compared to 75% of the Albanian boys. The average net enrolment rates for the Serbs are nearly 80%. Kosovo (Serbia and Montenegro) has one of the worst health indicators in Europe, with infant mortality rates of 45 deaths per 1000 live births. Data from 1999 suggest that 15% of pregnant women did not seek care during pregnancy and 20% gave birth at home without professional help. No data are available on the prevalence and incidence of STIs. TB incidence was 67.4/100 000 in 2001. The results from the LSMS suggest that 95% of Albanians pay for both the public and private health services they receive.

<sup>45</sup> *Romania: poverty assessment*. Washington DC, World Bank, 2001 (Report No. 2619-RO) (<http://web.worldbank.org/wbsite/external/countries/ecaext/romaniaextn/0.contentMDK:20166230~pagePK:141137~piPK:141127~theSitePK:275154.00.html>, accessed 1 June 2006).

<sup>46</sup> *Kosovo poverty assessment. Vol 1. Main report*. Poverty Reduction and Economic Management Unit. Washington DC, World Bank, 2001 (Report No. 23390-KOS) ([http://www-wds.worldbank.org/servlet/WDSContentServer/WDSP/IB/2002/02/02/000094946\\_0201230401191/Rendered/PDF/multi0page.pdf](http://www-wds.worldbank.org/servlet/WDSContentServer/WDSP/IB/2002/02/02/000094946_0201230401191/Rendered/PDF/multi0page.pdf), accessed 1 June 2006).



## Results of analysis of LSMS in Kosovo (Serbia and Montenegro)

The patterns of reported health status across gender, ethnicity and poverty levels from the second wave of the 2000 LSMS are shown in Tables A.1.9–A.1.12. Approximately 7% of respondents reported their health as poor. The LSMS data also indicate ethnic-related inequalities in health status, with the Serbian ethnic group reporting much worse health than the Albanians. As many as 22% of Serbian men and 24.7% of Serbian women reported that they had poor health, in comparison to 5% of ethnic Albanians. Some 8.4% of Roma men and 7.9% of Roma women also reported that their health was less than fair. After the age of 60 years, 14.6% of men and 19.8% of women reported their health as poor. Differences in health status between men and women were much less pronounced in Kosovo (Serbia and Montenegro) than, for example, in Albania, although women living in rural areas reported worse health more frequently than men.

Socioeconomic differences in health status are compelling: significant differences exist in reporting of health across poverty categories so that 10% of the extremely poor reported poor health, as did every third women aged over 60 years who lived in extreme poverty. Poverty thus seems to be a more important correlate of health at certain stages of life, such as in older years or after retirement. It also seems that those who had not been able to change their place of residence since the beginning of the conflict reported poorer health than those who did, which probably reflects the population that was less mobile. Poorer health was also more common in those without education, and was identified in 12% of such men and 13% of women. The LSMS also provided some information on health behaviour, indicating that a quarter of respondents aged over 18 years smoked, without any clear differences between the age groups.

Just over half of those who reported poor health had visited a primary health care service in the previous four weeks, and a fifth of these had stayed in hospital. A considerable proportion of those who reported poor health had visited a private doctor in the previous four weeks (12.4% of men and 9.9% of women). The most important barrier to health care access was its cost. One in five respondents who had a health problem for which they did not seek treatment said they could not afford it. A high proportion of men and women reported smoking (26.5% and 24.8%), with a higher uptake in urban residents.

**Table A.1.9.** Health rating, men and women aged over 18 years, Kosovo (Serbia and Montenegro), 2000

	Men (%)	Women (%)
<b>Health rating</b>		
Very good/ good/average	92.9	92.8
Poor/very poor	7.6	8.0
Total	5906	5935
<b>Had health problem during the previous 4 weeks for which did not seek medical treatment</b>		
Total	8.8	8.9
	8821	9096
<b>Reasons for not seeking treatment</b>		
Minor health issues	59.9	57.7
Too expensive	27.6	28.2
Too far	6.7	7.8
Poor services	0.4	0.9
Unsafe to go	1.8	1.4
Other	3.6	4.0
Total	842	879
<b>Visited any outpatient health care in previous 4 weeks if reporting poor health</b>	59.2	55.8
Total	442	473
<b>Visited a private doctor in previous 4 weeks if reporting poor health</b>	12.4	9.9
Total	442	447
<b>Stayed in hospital in previous 12 months if reporting poor health</b>	20.3	20.8
Total	442	447

Source: LSMS Kosovo (Serbia and Montenegro), 2000 data.

**Table A.1.10.** Prevalence of poor/very poor health across sociodemographic and poverty categories, Kosovo (Serbia and Montenegro), 2000

	Men (%)	Women (%)
<b>Education</b>		
No education	12.4 (635)	13.4 (699)
Primary	6.7 (2993)	6.8 (2989)
Secondary	6.0 (1902)	5.9 (1907)
Tertiary	4.9 (376)	3.9 (340)
<b>Lives in poverty</b>		
No	6.0 (3050)	5.1 (2941)
Yes	8.2 (2856)	9.3 (2994)
<b>Lives in extreme poverty</b>		
No	6.7 (5306)	6.5 (5220)
Yes	9.8 (600)	11.8 (715)
<b>Age groups (years)</b>		
18–24	4.9 (996)	5.5 (1002)
25–34	7.1 (875)	5.4 (868)
35–44	8.0 (581)	6.7 (621)
45–59	6.1 (852)	6.0 (887)
>60	14.6 (623)	19.8 (680)
<b>Ethnicity</b>		
Albanian	5.5 (15)	5.3 (4944)
Serbian	21.6 (755)	24.7 (702)
Roma	8.4 (61)	7.9 (85)
Muslim	10.0 (112)	12.7 (125)
Turk	11.0 (55)	8.6 (57)
Other	0 (2283)	10.7 (22)
<b>Residence</b>		
Urban	6.6 (3738)	5.7 (2104)
Rural	7.3 (2150)	7.8 (3808)
<b>Smoking</b>		
Yes	8.3 (1602)	8.2 (1495)
No	6.6 (4304)	6.8 (4440)
<b>Changed place of residence since beginning of the conflict</b>		
No	9.2 (2095)	11.2 (2004)
Once	5.4 (2400)	4.2 (2451)
More than twice	7.0 (1411)	7.5 (1479)

Source: LSMS Kosovo (Serbia and Montenegro), 2000 data.

**Table A.1.11.** Smoking status and exposure to smoking, men and women aged over 18 years, Kosovo (Serbia and Montenegro), 2000

	Men (%)	Women (%)
<b>Current smokers</b>	26.5 5906	24.8 5935
<b>Smoking by age groups</b>		
18–24	25.7 (996)	22.9 (1002)
25–34	31.9 (875)	26.9 (868)
35–44	30.4 (581)	28.3 (621)
45–59	23.8 (852)	23.9 (887)
>60	25.8 (623)	22.7 (680)
<b>Smoking according to the rating of health</b>		
Very good/ good/ fair	26.2 (5464)	24.5 (5462)
Poor/ very poor	31.2 (442)	28.4 (473)
<b>Smoking according to residence</b>		
Urban	28.8 (2150)	29.0 (2104)
Rural	25.4 (3738)	23.1 (3808)

Source: LSMS Kosovo (Serbia and Montenegro), 2000 data.

Table A.1.12 shows the correlates of reporting poor health in men and women from the multivariate regression model that included reporting poor health (the baseline value was defined as very good, good and fair health, versus reporting health as poor or very poor) as the outcome variable, and the sociodemographic variables as exposure variables of interest. Interestingly, in men just to change their place of residence during the conflict had a protective effect on self-reported health. While this held true for women, more variables were also found to be associated with poor health for them, including rural residence, poverty and smoking.

**Table A.1.12.** Correlates of poor health (multivariate regression model), Kosovo (Serbia and Montenegro), 2000

	Men (adjusted OR, 95% CI) <sup>a</sup>	Women (adjusted OR, 95% CI)
<b>Age (years)</b>		
18–24	1.0	1.0
25–34	1.33 (0.86–2.05)	0.92 (0.58–1.46)
35–44	1.39 (0.80–2.40)	0.89 (0.52–1.50)
45–59	1.31 (0.81–2.14)	1.02 (0.66–1.57)
<b>Residence</b>		
Urban	1.0	1.0
<b>Rural</b>	1.12 (0.78–1.62)	<b>1.61 (1.05–2.47)</b>
<b>Education</b>		
University	1.0	1.0
Secondary level	1.08 (0.54–2.17)	1.07 (0.48–2.40)
Primary level or lower	1.08 (0.52–2.25)	0.96 (0.43–2.12)
<b>Changed place of residence since beginning of conflict</b>		
No	1.0	1.0
<b>Yes</b>	<b>0.54 (0.37–0.79)</b>	<b>0.35 (0.24–0.51)</b>
<b>Lives in poverty</b>		
No	1.0	1.0
<b>Yes</b>	1.05 (0.73–1.50)	<b>1.77 (1.26–2.50)</b>
<b>Smokes</b>		
No	1.0	1.0
<b>Yes</b>	0.98 (0.66–1.44)	<b>1.54 (1.07–2.22)</b>

Source: LSMS Kosovo (Serbia and Montenegro), 2000 data.

<sup>a</sup> Adjusted for all variables in the table via logistic regression modelling, separately for men and women. Variables that show significant associations are highlighted in bold.

## ANNEX 2

### NOTES ON COUNTRY-SPECIFIC INFORMATION ON ROMA HEALTH

It has not been possible to find good quality information on the health status of the Roma in most of the south-eastern European countries, with the exception of Bulgaria and Romania where better quality evidence is available. In most instances, this Annex presents the existing data on other wider determinants that influence health, such as employment and education, while acknowledging that the health status of the Roma, particularly in the countries of the former Yugoslavia, is seriously ignored.

#### Albania

The estimates of the number of Roma living in Albania are wide, ranging from 1300 to 120 000 out of the total population of 3.4 million. Being undereducated and unskilled, their position in society changed considerably after the breakdown of communism in terms of lower participation in the mainstream economy after 1990.<sup>47</sup> One result was that the new generations of Roma children were unable to go to schools as their families could not afford it education and very poor families used their children's work as a source of income. According to data from 1997, of 2708 Roma living in Tirana, 80.2% were illiterate.<sup>48</sup>

#### Bosnia and Herzegovina

According to the 1991 census, 8864 Roma were living in Bosnia and Herzegovina. By contrast, data collected at the same time by Roma nongovernmental organizations gave estimates of 60 000–80 000. The situation of the Roma worsened considerably with the outbreak of war in Bosnia and Herzegovina,<sup>49</sup> and Roma people often live in areas affected by it. According to one Roma nongovernmental organization, a large number of Roma women are illiterate (more than 65%) or have only completed an average of 3–4 grades of primary school. A significant number of Roma families have unregulated marital status and their children have not been registered with the local authorities, which hinders their access to health and social services. It is estimated that 90% of Roma have no health insurance and are generally unaware of their rights to have it. Even those who are registered with employment agencies do not benefit much from it. The major source of income for Roma is collecting recyclable material and selling fabrics as street vendors.

#### Bulgaria

According to the 2001 census, there were 365 797 Roma in Bulgaria (4.7% of the total population) which is approximately 50 000 more than the number shown in the data from the 1992 census. This difference has been attributed to higher numbers of Roma reporting their nationality. According to UNDP/ILO data,<sup>50</sup> the Roma have a life expectancy on average 5–6 years lower than that of ethnic Bulgarians. According to a study in 1995, 40% of Roma marry before they reach the age of 16 years. A 2001 survey carried out by the National Statistical Institute exploring the patterns of health care utilization showed that approximately only 17% of Roma took medicines

<sup>47</sup> <http://www.greekhelsinki.gr/pdf/cedime-se-albania-roma.doc>, accessed 17 May 2006.

<sup>48</sup> <http://www.coe.int/>, accessed 1 June 2006.

<sup>49</sup> *Report on Roma access to employment in Bosnia and Herzegovina. Roma Travellers*. Council of Europe. (<http://www.coe.int/>, accessed 1 June 2006).

<sup>50</sup> UNDP (2003). *Avoiding the dependency trap* (2003). Bratislava, United Nations Development Programme.

prescribed by physicians, and 26% of respondents admitted that when a family member became ill they took him or her to a traditional healer. The UNDO/ILO study showed that 52% of Roma lived in separate neighbourhoods; villages do not have running cold water, 74% do not have a toilet, and 89% do not have a hot water supply in their houses. In the southern Bulgarian town of Sliven, which has the highest density of Roma in Bulgaria, 60% of tuberculosis patients in the late 1990s were Roma (Turnev et al., 2000).<sup>51</sup>

More information about the sexual health of the Roma is available in Bulgaria in an ethnographic study carried out on a sample of 42 Roma men and women aged 18–52 years (Kelly et al., 2004).<sup>52</sup> Analysis revealed that men have greater sexual freedom before and during marriage and engage in a wide range of unprotected practices with marital and extramarital partners. Condoms are mainly perceived as a means of contraception. Misconceptions about HIV transmission are widespread and women had little knowledge about sexually transmitted diseases (STI) and HIV. Another study conducted in 2001 by Kabakchieva found high levels of HIV/STI-related risk behaviour among 324 men aged 14–37 years in a Roma community in Sofia. Reported condom use was low and homosexual behaviour was common – 27% of men reported that they had at some time had a homosexual partners, 10% had had same-sex partners in the previous three months, and 58% of intercourse were unprotected. Sixteen percent of men reported selling sex and 32% had paid someone for sex (Kabakchieva et al., 2002).<sup>53</sup> Drug abuse now also appears to be more widespread among young Roma people. In the Fakulteta neighbourhood in Sofia, the Foundation for Promotion of Roma Youth has come across many young Roma drug users, noting that this was not the case some 10 years ago.<sup>54</sup>

## Croatia

It is estimated that approximately 30 000–40 000 Roma people live in Croatia, although in the 2001 census data only 9463 people declared themselves as Roma. The Croatian Government National Programme for Roma People acknowledges that there is a significant degree of marginalization among the Roma, and their living conditions are worse than those of the majority population and other ethnic minorities.<sup>55</sup> From data gathered in 2002 by the Croatian Institute for Family, Motherhood and Youth, it is estimated that only 6% of Roma families speak Croatian and as many as 89% of households are without a permanent source of income.

Lack of health insurance is common and to a large extent due to non-regulated citizenship status. It is estimated that one third of Roma children do not attend primary schools and only an insignificant number go on to university. Low education attainment creates difficulties in employment, so that of 1300 people registered as Roma in 2002 in Medjimurska county, only 41 had a secondary level education. Most of the Roma live in poverty, and it is estimated that 50% live on social welfare. As a high proportion of them are unemployed, they are not entitled to health insurance on the basis of employment. The national programme acknowledges that it is not possible to assess data on the health status of and access to health care by the Roma as health institutions do not collect data on the basis of nationality or ethnicity. In 2005 a survey was due to be carried out by the county institutes of public health, in collaboration with the Ministry of Health, the Croatian Institute for Public Health and Roma communities with the aim of assessing the Roma people's health status and access to health care.

<sup>51</sup> Turnev I et al (2000). *Common health problems among Roma – nature, consequences and possible solutions*. Sofia, Open Society Foundation.

<sup>52</sup> Kelly JA et al (2004). Gender roles and HIV sexual risk vulnerability of Roma (gypsies) men and women in Bulgaria and Hungary: an ethnographic study. *AIDS Care*, 231–246.

<sup>53</sup> Kabakchieva E et al (2002). High levels of sexual HIV/STD risk behaviour among Roma (gypsy) men in Bulgaria: patterns and predictors of risk in a representative community sample. *International Journal of STD and AIDS*, 13(3):184–191.

<sup>54</sup> *Roma health concerns: the view from Bulgaria*. Alexandra Raykova (<http://www.eumap.org/journal/features/2002/sep02/bulgaroma/>, accessed 16 May 2006).

<sup>55</sup> Government of the Republic of Croatia. *The National Program for the Roma*. Zagreb, 2003 (<http://www.vlada.hr/default.asp?gl=200304100000003>, accessed 16 May 2006).

## The former Yugoslav Republic of Macedonia

The 2002 census estimated the population of The former Yugoslav Republic of Macedonia to be 2 022 547, of whom 53 879 (2.7%) were Roma. The United Roma Party maintains that approximately 132 000 Roma live in The former Yugoslav Republic of Macedonia. As in the other countries, a considerable number of them are unable to work as they are not able to prove their legal status.

## Romania

A report based on studies by the Institute for Research of the Quality of Life of the Romanian Academy describes many aspects of Roma life in Romania, although it does not entirely describe the methods that were used to collect the data.<sup>56</sup> Roma family life is characterized by high numbers of women being married young, which leads to their withdrawal from the education system and the labour market and a large number of children. The report noted that the number of Roma attending university is insignificant although increased levels of school attendance have been observed since the 1990s. A third of the respondents in this study had no qualifications but only a small proportion was registered as unemployed. Half of the households declared non-permanent incomes. Data on health status were limited to self-reports noting that 14% of respondents reported serious health problems.

The 1995 LSMS survey results showed that 67% of the Roma population had had a primary education or less, compared to 33% of non-Roma; the figures for secondary education were 30% versus 56%, and for higher education 0.3% versus 10.4% (Ringold, Orenstein & Wilkens, 2003).<sup>57</sup>

Another report, which arose from the project for the Dissemination of Roma Research, provided a review of the available research on Roma in Romania.<sup>58</sup> This report found that justice and health are the areas least represented in the available literature and research. Importantly, 70% of papers were written in Romanian only, and just 0.6% in the Romany language. The Institute for Quality of Life, which coordinated the study, has set up a network of organizations and individuals involved in Roma research to advocate further the importance of studying the wide range of problems faced by the Roma community in Romania.

The report on the local level monitoring of the implementation of the Government of Romania's strategy for the improvement of the condition of Roma, which covered five counties in Romania, found a lack of a coordinated approach to local policy-making and that few broad-based initiatives had been carried out.<sup>59</sup> Legislation relating to property, low educational levels, greater inclusion of the Roma in the health insurance system and high unemployment are some of the issues that require more sustained efforts. The Ministry of Health and the Family has identified the following main barriers to access to health services in Roma: poverty and lack of information on disease prevention, lack of statistical data, lack of physical access to services and deficiencies in collaboration between governmental institutions and nongovernmental organizations. The Ministry has agreed to institutionalize the model of Romany sanitary mediators working in and for Romany communities and as facilitators between Roma people and health professionals. Their role is to identify health and social problems, help in registration patients with general practitioners, prepare vaccination campaigns and disseminate information on contraception and family planning.

<sup>56</sup> <http://www.rroma.ro/resources.htm>, accessed 16 May 2006.

<sup>57</sup> Ringold D, Orenstein MA, Wilkens E (2003). *Roma in an expanding Europe: breaking the poverty cycle*. Washington DC, World Bank.

<sup>58</sup> The Institute for Quality of Life (2001). *Research on the Roma*. Bucharest ([www.rroma.ro](http://www.rroma.ro), accessed 16 May 2006).

<sup>59</sup> RCRC (2004). *Monitoring the local implementation of the government strategy for the improvement of the condition of Roma*. The Resource Center for Roma Communities in Romania, EU Monitoring and Advocacy Program, Open Society Institute.

In 1999 infant mortality was 2.5 times higher among the Roma than in the rest of the Romanian population (72.8/100 000 versus 27.1/100 000) and child mortality was 6.5 times higher (7.2/100 000 versus 1.1/100 000). Data available from 1998 indicated that only 14% of Roma women aged 15–44 years used contraception, as against levels in the general Romanian population four times higher. The UNDP/ILO report showed that the lack of financial resources was given as one reason for not using contraception. It is also estimated that more than 2000 children live on the streets in Romania, most of whom are Roma, and they are often subject to violence and sex abuse. Approximately one third of Roma are thought not to be registered with a family doctor, and the main reasons for that are the lack of identity documents or reluctance of general practitioners to accept them (Zoon, 2001).<sup>60</sup> Under the Romanian health insurance law, the “wife” or “husband” of an insured person has the right to non-contributory health insurance. This creates a barrier for Roma due to the low extent of civil marriages among them. Their access to the health care system is also influenced by their beliefs and cultural norms: they appear to use the health care system mainly for severe problems, since hospitalization is sometimes perceived as a sign of death (Fonesca, 1996).<sup>61</sup>

## Serbia and Montenegro

Official statistics estimate that 108 193 Roma live in Serbia and Montenegro (1.4% of the total population),<sup>62</sup> although this is thought to be an underestimate. According to the 1991 census, only 27% of the Roma population was economically active, in contrast to 46% of the overall population. Only 2.6% of the Roma are pensioners, which might imply that the majority never had the chance of holding a steady job from which they could retire. A survey conducted in Belgrade by OXFAM in 2002 revealed that 39% of Roma did not have an identity card, and as many as 56% of Roma IDPs had no identity card. A higher proportion of Roma women living in Kosovo (Serbia and Montenegro) than of those living in Serbia had no primary school education.

With the support of the New York Open Society Institute, the Yugoslav Association for Culture and Education of Roma carried out a survey in the town of Leskovac to assess the levels of risk behaviour related to HIV and knowledge of HIV infection among the Roma.<sup>63</sup> Although the methods were not clearly described, it was found that among the 837 participants, most respondents started their sexual life at the age of 15 years, which roughly corresponds to the age at which the Roma get married. Only 58% had heard of the term “sexually transmitted infections”. Women mainly perceived a condom as a contraceptive device, and condom use was found to be low. Half of the men surveyed had had contacts with sex workers at least once and only a third had used condoms during such encounters. A high proportion of respondents lacked knowledge about HIV transmission.

<sup>60</sup> Zoon I (2001). *On the margins. Roma and public services in Romania, Bulgaria and Macedonia*. New York, Open Society Institute.

<sup>61</sup> Fonesca I (1996). *Bury me standing: the gypsies and their journey*. New York, Alfred A. Knopf.

<sup>62</sup> *Report on Roma access to employment in Serbia and Montenegro*. Council of Europe. Serbia and Montenegro (<http://www.coe.int>, accessed 1 June 2006).

<sup>63</sup> *Be your own friend. HIV Prevention among Roma population*. Yugoslav Association for Culture and Education of Roma. Personal communication, 2005.

## Kosovo (Serbia and Montenegro)

More evidence on the health status of the ethnic minorities is available from Kosovo (Serbia and Montenegro), illustrating the problems that they face in a post-conflict environment. The Tenth Assessment of the Situation of Ethnic Minorities in Kosovo, conducted jointly by the Organization for Security and Co-operation in Europe and the United Nations High Commissioner for Refugees over seven months in 2002, underscored the need for continuing international protection of the ethnic communities, in particular Kosovo Serbs, Roma, Ashkealia and Egyptians.<sup>64</sup> A low level of awareness among ethnic minorities of their rights to health care services and the list of drugs provided free of charge was noted. The lack of freedom of movement and security impedes access to health care for minorities. The report clearly points out the enduring problems in access to health care for Roma, Ashkealia and Egyptians in Kosovo (Serbia and Montenegro), noting that even when they can access health care services, which are often far from the places where they live, they often do not qualify for assistance due to a lack of identification documents.

Although public health indicators for the inhabitants of Kosovo (Serbia and Montenegro) are currently quite poor, figures for the Roma, Ashkealia and Egyptians (where available) point to their even worse health status. According to community reproductive health surveys conducted by Doctors of the World (DOW), 56% of mothers surveyed in the IDP camp in Plemetina inhabited by these groups gave birth at home and 12% reported losing a child in the first month after birth.<sup>65</sup> For comparison, the overall Kosovar “perinatal mortality rate” (including stillbirths and deaths under seven days) stood at 2.8% in 2001. The Roma, Ashkealia and Egyptians in Kosovo (Serbia and Montenegro) are generally poorer than other minority groups and the majority population. The need to make out-of-pocket payments affects these groups disproportionately and, in some cases, they have to pay higher fees. The failure to address these issues has in part been due to these groups’ absence of an organized political voice and lack of capacity to seek international assistance.

<sup>64</sup> OSCE & UNHCR (2003). *Tenth assessment of the situation of ethnic minorities in Kosovo* (period covering May 2002 to December 2002). OSCE Mission in Kosovo and United Nations High Commissioner for Refugees (<http://www.osce.org/kosovo/overview/>, accessed 18 May 2006).

<sup>65</sup> <http://www.eumap.org/journal/features/2002/sep02/romainkosovo/#footref12>, accessed 18 May 2006.



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## ANNEX 3

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### NOTES ON ECONOMETRIC DATA

#### Microeconomic analysis

The microeconomic analyses are based on the data from the Living Standard Measurement Survey (LSMS) conducted by the World Bank. In this section the design and the content of each dataset are described for each country, the methodological instruments adopted in the microeconomic analysis are discussed, and finally the results obtained are presented.

#### Data sources

##### *Albania*

The Albanian LSMS were developed to monitor the government's 2001–2006 strategic plan for combating poverty. The government planned to carry out the LSMS in 2002 and 2005 and to collect panel surveys on a sub-sample of LSMS households in 2003, 2004 and 2006. The panel survey is being conducted on half the sample available in the LSMS. At the time of writing, the panel surveys are only available for 2002 and 2003.

The basis for the LSMS sampling frame is the enumeration areas. These have been constructed by grouping rural villages and very small towns in the communes. Communes are grouped into larger towns or cities which are, in turn, grouped into districts and finally into prefectures.

The housing unit, defined as the space occupied by one household, was taken as the sampling unit rather than the household, since housing units are more permanent and easier to identify. The sampling frame was divided into four regions (strata): the coastal area, central area, mountain area and Tirana. These four strata were further divided into major cities, other urban and other rural, and the enumeration areas were selected proportionately to the number of housing units in these areas. The final sample design for the 2002 LSMS included a total of 3600 household units.

The 2000 LSMS survey contains rather rich information for the analysis. Apart from individual characteristics such as marital status, age, sex, highest level of education, ethnicity and area of residence, the dataset collected detailed information on health (self-reported), chronic illness and disability, number of days of inactivity due to chronic illness or disability, sudden illness and number of days of inactivity due to this sudden illness. In addition, information on visits to outpatient clinics and private doctors and hospital stays is available.

The dataset also contains plenty of information summarizing labour force participation, wages and hours of work in main and secondary jobs.

##### *Bosnia and Herzegovina*

The LSMS survey for Bosnia-Herzegovina was carried out in autumn 2001 by the country's three statistical organizations. The purpose was to collect data needed for an assessment of the population's living standards and for providing the key indicators needed for developing social and economic policy. Data were to be collected at national and entity (Federation of Bosnia-Herzegovina and Republika Srpska) level.

The sample consisted of 5400 households, 2400 in Republika Srpska and 3000 in the Federation of Bosnia-Herzegovina.

In the health section of the survey, individuals were asked whether they had a chronic disease and, if so, to select which disease from a list of eleven different diseases. They were also asked how many days they had not carried out their usual daily activities during the previous four weeks.

### *Bulgaria*

The 2001 Bulgarian Integrated Household Survey was the third such collection of data since 1995. The first survey was conducted in 1995 on a sample of approximately 2500 households, and the second was conducted in 1997 on the 1995 sample. For the purposes of the 2001 survey, a new cross-section of households was drawn up so as to avoid the expected excessive level of attrition due to the considerable time-lag since the previous survey. The sample design used the same stratified two-stage cluster design adopted in 1995. The main goal of the survey was to provide poverty figures comparable with the previous studies.

The health section of the survey was rather poor compared with those of the other countries considered. As usual, individuals were asked whether they suffered from any disability or chronic disease (particularly during the previous year) and whether they had been unable to carry out their daily activities because of their condition. They were also asked about injuries during the previous four weeks and the number of days they had been unable to carry out their activities because of illness. Information on medical consultations was poor, and no information was available on health status (self-reported).

### *Kosovo (Serbia and Montenegro)*

The Kosovo (Serbia and Montenegro) LSMS 2000 was designed to provide crucial information for the development of policies and programmes for use by the United Nations Interim Administration Mission in Kosovo (Serbia and Montenegro), international donors, nongovernmental organizations and the Kosovar community. It was planned jointly with the Food and Agriculture Organization and with the International Organization for Migration, which provided the urban sampling frame.

The rural sampling frame was based on the Housing Damage Assessment Survey (HDAS) conducted in 1999 by the International Management Group and the United Nations High Commissioner for Refugees. However, since the HDAS had not covered Serbian villages, a quick count of housing units was carried out in those villages. In addition, in the 22 urban areas a quick count and subsequent listing of households was also carried out.

As well as the explicit stratification of the areas of responsibility and the ethnic composition in each rural and urban category, an implicit stratification of geographic ordering method was followed in the villages and urban enumeration areas.

The final sample size was 1200 rural and 1200 urban Albanian households and 240 rural and 240 urban Serb households, giving a total sample size of 2880 households.

As in the Albanian survey, the LSMS in Kosovo (Serbia and Montenegro) contained information on health (self-reported) and on the number of days of inactivity due to poor health. The information was, however, less detailed than in the Albanian survey and many questions were not asked. For example, there were no questions on chronic illness or disease and on sudden illness or injury, although the survey was enriched by several questions on the degree of autonomy of each individual in carrying out different daily activities such as dressing, standing up, going to the toilet, sweeping and carrying heavy loads.

The labour section was standard, containing information on labour force participation, payments for work in main and secondary jobs, hours of work, type of contract, etc.

## Methodological issues

The endogenous character of health in models of labour market participation, labour supply and wages does not allow the use of the ordinary least squares (OLS) method of estimation for evaluating the impact of health. OLS estimates of the structural parameters are actually inconsistent because one of the fundamental hypotheses of OLS methodology is violated: the endogenous variable is correlated with the error term. The same happens in cases where the measure of health is subject to reporting bias and it is correlated with unobservable characteristics summarized by the error term.

Consistent estimations of the impact of health on different economic outcomes are achievable through a two-stage least squares method. An equation for health in the first stage is estimated and the health prediction in the second stage is included, modelling the impact of health on employment, wages, etc. A necessary condition for identification of the coefficients is the inclusion in the first stage of at least one variable that explains health but not the second stage dependent variable.

In most of the estimates a two-stage econometric method is applied predicting health at the first stage by applying the most proper regression model, depending on the measure of health used. The available health measures in the LSMS differ country by country. In most of the datasets there is information on the “number of missed days/weeks of inactivity because of chronic diseases or injuries”. Self-reported health, on the other hand, is recorded only in Albania and Kosovo (Serbia and Montenegro). The two health measures present different implementation problems. “Self-reported” health is a categorical variable assuming a range of five different values; the variable “number of missed days/weeks of inactivity because of illness/chronic disease” is a continuous variable, however it is truncated at the null value. The estimation methodology applies in each case is different and is briefly discussed below.

In some cases, single equation estimates are carried out which include some dummy variables capturing the incidence of chronic diseases in the equation of the economic outcome. This is done in cases where information on health condition (either self-reported health or measures such as the “number of days of absenteeism because of diseases/injuries”) is not available and only binary data on individuals who are or are not affected by chronic diseases can be used.

### Estimates using self-reported health status

In these paragraphs an explanation is given of the methodology applied when the variable “self-reported health” is used in modelling the probability of being employed and the labour supply. Data on self-reported health are only available for Albania and Kosovo (Serbia and Montenegro). In both cases, the health measure ( $H$ ) assumes five different outcomes ( $H_i$  for  $i=0,1,2,3,4$ ); individuals were asked to rate their health condition as “very good” ( $H_0=0$ ), “good” ( $H_1=1$ ), “average” ( $H_2=2$ ), “poor” ( $H_3=3$ ) and “very poor” ( $H_4=4$ ). Following the example of Stern (1989)<sup>66</sup> and Lee (1982),<sup>67</sup> a two-step estimation procedure is used. First “self-reported health” status is modelled by estimating an ordered Probit model, including different objective measures of disability, in order to identify the second-step equation. Different dichotomous variables capturing the effect from different forms of non-infectious chronic diseases are used as instruments. The predicted value of health ( $\hat{H}$ ), obtained in the first step, is included as a regressor in the second step, in the model estimating the probability of being employed/labour supply/wages. In some cases, such as in the model on the probability of being employed, allowance is made for health to have different marginal effects on the probability of being employed depending on health level (Stern, 1989). Therefore, starting from the predicted value of health ( $\hat{H}$ ), four dummy

<sup>66</sup> Stern S (1989). Measuring the effect of disability on labour force participation. *Journal of Human Resources*, 24(3):361–395.

<sup>67</sup> Lee LF (1982). Health and wage: a simultaneous equation model with multiple discrete indicators. *International Economic Review*, 23(1):199–221.

variables are constructed such that  $D_i=1$  if  $H_i < \hat{H} \leq H_{i+1}$ , and all of them are included in the second-step estimates. Following this procedure, it is possible to capture the probable different effects that health can have on individual working outcomes at different levels.

### **Estimates using “number of days/weeks of inactivity because of illness/chronic disease”**

When the variable “number of days/weeks of inactivity because of illness/chronic disease” is used as a proxy of health, it can be considered continuous but censored at point zero. When data are censored, the distribution that applies to the sample data is a mixture of discrete and continuous distributions. The regression model applied to such a dependent variable is called the Tobit model.<sup>68</sup> In using the variable “number of days/weeks of inactivity because of illness/chronic disease” for measuring health, a Tobit model is estimated at the first stage of the model.

### **Estimates of the probability of retiring**

An assessment is made of the effect of chronic illness on the probability that an individual will retire in a given year after the first year of employment. A Cox regression model is estimated for the age of retirement; this is a hazard regression model where the log hazard function of retirement is assumed to be a linear function of a baseline hazard function and some covariates. The estimated coefficients represent a proportional shift of the baseline hazard function due to the covariates. This methodology is usually employed in survival analysis, where the outcome considered is death.

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<sup>68</sup> Greene WH (2000). *Econometric analysis*, 4th ed. London, Prentice-Hall International, Inc.

## Econometric results for the countries

### Albania

Two different datasets are available for Albania: the LSMS for 2002 and the panel survey for 2002 and 2003. Since (as mentioned above) the panel survey was constructed by selecting half the households in the 2002 LSMS, it is not representative of the different regions of the country and should not be used for cross-individual estimates at regional level. Because of these considerations, it was decided to work on data from the LSMS.

**Table A.3.1 (a).** Impact of health on probability of being wage-employed: estimates using self-reported health (indirect method)

	Ordered Probit Dependent variable: self-reported health		Second stage estimates Dependent variable: employment status
	(1)	(2)	(3)
Woman	0.189 (0.081) <sup>a</sup>	-0.369 (0.105) <sup>b</sup>	-0.397 (0.105) <sup>b</sup>
Age	0.036 (0.012) <sup>b</sup>	0.133 (0.016) <sup>b</sup>	0.124 (0.017) <sup>b</sup>
Age square	-0.000 (0.000)	-0.002 (0.000) <sup>b</sup>	-0.002 (0.000) <sup>b</sup>
Primary school	-0.202 (0.234)	0.137 (0.473)	0.129 (0.472)
Vocational school	-0.455 (0.237)	0.560 (0.475)	0.582 (0.474)
Secondary school	-0.501 (0.237) <sup>a</sup>	0.520 (0.476)	0.552 (0.475)
University	-0.776 (0.247) <sup>b</sup>	1.509 (0.478) <sup>b</sup>	1.573 (0.477) <sup>b</sup>
Married	0.083 (0.078)	0.285 (0.095) <sup>b</sup>	0.269 (0.096) <sup>b</sup>
Married woman	-0.045 (0.086)	-0.385 (0.114) <sup>b</sup>	-0.376 (0.114) <sup>b</sup>
Greek	-0.015 (0.194)	0.428 (0.224)	0.435 (0.224)
Macedonian	0.687 (0.084) <sup>b</sup>	-0.307 (0.718)	-0.402 (0.719)
Vllehe	-0.220 (0.340)	-0.863 (0.557)	-0.835 (0.534)
Coastal area	0.064 (0.058)	-0.150 (0.058) <sup>b</sup>	-0.163 (0.058) <sup>b</sup>
Central area	0.247 (0.059) <sup>b</sup>	-0.259 (0.059) <sup>b</sup>	-0.291 (0.060) <sup>b</sup>
Mountain area	0.642 (0.055) <sup>b</sup>	-0.427 (0.064) <sup>b</sup>	-0.502 (0.069) <sup>b</sup>
Diseases of the blood and blood-producing organs	1.657 (0.079) <sup>b</sup>		
Diseases of the respiratory organs	1.749 (0.130) <sup>b</sup>		
Diseases of the digestive organs	1.654 (0.117) <sup>b</sup>		
Tumours	2.187 (0.301) <sup>b</sup>		
Diseases of genito-urinary system	2.079 (0.126) <sup>b</sup>		
Endocrine diseases	1.836 (0.109) <sup>b</sup>		
Psychological disorders	2.485 (0.210) <sup>b</sup>		
Diseases of the bones and connective tissue	1.680 (0.096) <sup>b</sup>		
Diseases of the nervous system and sensory organs	1.955 (0.132) <sup>b</sup>		
Congenital abnormalities	1.118 (0.423) <sup>b</sup>		
Other disabilities	1.442 (0.282) <sup>b</sup>		
Predicted health		-0.131 (0.034) <sup>b</sup>	
Predicted health – poor			0.629 (0.317) <sup>a</sup>
Predicted health – average			0.789 (0.324) <sup>a</sup>
Predicted health – good			0.923 (0.315) <sup>b</sup>
Predicted health – very good			0.896 (0.325) <sup>b</sup>
Constant		-3.005 (0.550) <sup>b</sup>	-3.802 (0.635) <sup>b</sup>
Observations	7729	7729	7729

Robust standard errors in parentheses; <sup>a</sup>significant at 5%, <sup>b</sup>significant at 1%.

Table A.3.1 (b). Impact of health on probability of being wage-employed: marginal effects

Dependent variable: employment status	(1)	(2)
	Employed	Employed
Woman	-0.118 (0.033) <sup>b</sup>	-0.127 (0.033) <sup>b</sup>
Age	0.042 (0.005) <sup>b</sup>	0.040 (0.005) <sup>b</sup>
Age square	-0.001 (0.000) <sup>b</sup>	-0.001 (0.000) <sup>b</sup>
Primary school	0.044 (0.149)	0.041 (0.148)
Vocational school	0.197 (0.179)	0.205 (0.179)
Secondary school	0.181 (0.177)	0.193 (0.177)
University	0.549 (0.146) <sup>b</sup>	0.568 (0.141) <sup>b</sup>
Married	0.085 (0.026) <sup>b</sup>	0.080 (0.027) <sup>b</sup>
Married woman	-0.120 (0.035) <sup>b</sup>	-0.117 (0.035) <sup>b</sup>
Greek	0.153 (0.087)	0.155 (0.087)
Macedonian	-0.087 (0.178)	-0.109 (0.162)
Vllehe	-0.189 (0.069) <sup>b</sup>	-0.185 (0.069) <sup>b</sup>
Coastal area	-0.047 (0.018) <sup>b</sup>	-0.051 (0.017) <sup>b</sup>
Central area	-0.082 (0.018) <sup>b</sup>	-0.092 (0.018) <sup>b</sup>
Mountain area	-0.120 (0.016) <sup>b</sup>	-0.137 (0.016) <sup>b</sup>
Predicted health	-0.042 (0.011) <sup>b</sup>	
Predicted health – poor		0.226 (0.122)
Predicted health – average		0.292 (0.127) <sup>a</sup>
Predicted health – good		0.290 (0.096) <sup>b</sup>
Predicted health – very good		0.304 (0.113) <sup>b</sup>
Observations	7729	7729

Robust standard errors in parentheses; <sup>a</sup>significant at 5%, <sup>b</sup>significant at 1%.

Table A.3.2 (a). Impact of health on probability of being wage-employed:  
Probit estimates including disability dummies in the employment equation

Dependent variable: employment status	(1)	(2)
Woman	-0.419 (0.105) <sup>b</sup>	-0.406 (0.104) <sup>b</sup>
Age	0.130 (0.016) <sup>b</sup>	0.128 (0.016) <sup>b</sup>
Age square	-0.002 (0.000) <sup>b</sup>	-0.002 (0.000) <sup>b</sup>
Primary school	0.183 (0.469)	0.173 (0.472)
Vocational school	0.661 (0.471)	0.652 (0.474)
Secondary school	0.630 (0.472)	0.620 (0.475)
University	1.700 (0.473) <sup>b</sup>	1.687 (0.476) <sup>b</sup>
Married	0.234 (0.096) <sup>a</sup>	0.245 (0.095) <sup>b</sup>
Married woman	-0.344 (0.114) <sup>b</sup>	-0.354 (0.114) <sup>b</sup>
Greek	0.415 (0.224)	0.431 (0.226)
Macedonian	-0.341 (0.676)	-0.340 (0.676)
Vllehe	-0.841 (0.529)	-0.819 (0.554)
Coastal area	0.052 (0.048)	0.054 (0.048)
Central area	-0.075 (0.048)	-0.075 (0.048)
Diseases of the blood and blood-producing organs	-0.068 (0.095)	
Diseases of the respiratory organs	-0.257 (0.170)	
Diseases of the digestive organs	-0.088 (0.146)	
Tumours	0.152 (0.368)	
Diseases of the genito-urinary system	-0.098 (0.204)	
Endocrine diseases	-0.194 (0.201)	
Psychological disorders	-1.584 (0.462) <sup>b</sup>	
Diseases of the bones and connective tissue	-0.266 (0.134) <sup>a</sup>	
Diseases of the nervous system and sensory organs	-0.608 (0.179) <sup>b</sup>	
Congenital abnormalities	-0.075 (0.399)	
Other disabilities	-0.955 (0.415) <sup>a</sup>	
Chronic disease		-0.235 (0.061) <sup>b</sup>
Constant	-3.265 (0.548) <sup>b</sup>	-3.229 (0.549) <sup>b</sup>
Observations	7729	7729

Robust standard errors in parentheses; <sup>a</sup>significant at 5%, <sup>b</sup>significant at 1%.

Table A.3.2 (b). Impact of health on probability of being wage-employed: marginal effects

Dependent variable: employment status	(1)	(2)
Woman	-0.134 (0.033) <sup>b</sup>	-0.130 (0.033) <sup>b</sup>
Age	0.042 (0.005) <sup>b</sup>	0.041 (0.005) <sup>b</sup>
Age square	-0.001 (0.000) <sup>b</sup>	-0.001 (0.000) <sup>b</sup>
Primary school	0.058 (0.147)	0.055 (0.148)
Vocational school	0.235 (0.179)	0.232 (0.180)
Secondary school	0.222 (0.178)	0.219 (0.179)
University	0.604 (0.127) <sup>b</sup>	0.600 (0.129) <sup>b</sup>
Married	0.071 (0.027) <sup>b</sup>	0.074 (0.027) <sup>b</sup>
Married woman	-0.108 (0.035) <sup>b</sup>	-0.111 (0.035) <sup>b</sup>
Greek	0.148 (0.086)	0.155 (0.088)
Macedonian	-0.095 (0.162)	-0.096 (0.163)
Vllehe	-0.186 (0.068) <sup>b</sup>	-0.185 (0.074) <sup>a</sup>
Coastal area	0.017 (0.016)	0.017 (0.016)
Central area	-0.024 (0.015)	-0.024 (0.015)
Diseases of the blood and blood-producing organs	-0.021 (0.029)	
Diseases of the respiratory organs	-0.075 (0.045)	
Diseases of the digestive organs	-0.027 (0.044)	
Tumours	0.051 (0.128)	
Diseases of the genito-urinary system	-0.030 (0.061)	
Endocrine diseases	-0.058 (0.056)	
Psychological disorders	-0.243 (0.017) <sup>b</sup>	
Diseases of the bones and connective tissue	-0.077 (0.035) <sup>a</sup>	
Diseases of the nervous system and sensory organs	-0.153 (0.033) <sup>b</sup>	
Congenital abnormalities	-0.023 (0.121)	
Other disabilities	-0.200 (0.045) <sup>b</sup>	
Chronic diseases		-0.071 (0.017) <sup>b</sup>
Observations	7729	7729

Robust standard errors in parentheses; <sup>a</sup>significant at 5%, <sup>b</sup>significant at 1%.

For dummy variables, the marginal effects are calculated for discrete changes from 0 to 1.



Table A.3.3. Impact of health on annual wages: marginal effects<sup>1</sup>

Dependent variable logarithm of annual wages	
Woman	-0.334 (0.023) <sup>b</sup>
Age	0.026 (0.009) <sup>b</sup>
Age square	-0.000 (0.000) <sup>b</sup>
Primary school	-0.125 (0.322)
Vocational school	-0.005 (0.322)
Secondary school	-0.079 (0.322)
University	0.295 (0.323)
Public sector	-0.130 (0.026) <sup>b</sup>
Private company	0.140 (0.029) <sup>b</sup>
Greek	-0.065 (0.092)
Macedonian	-0.313 (0.455)
Vllehe	-0.661 (0.456)
Coastal area	-0.245 (0.029) <sup>b</sup>
Central area	-0.328 (0.030) <sup>b</sup>
Mountain area	-0.341 (0.034) <sup>b</sup>
Predicted health	-0.060 (0.020) <sup>b</sup>
Constant	12.090 (0.379) <sup>b</sup>
Observations	1998
R-squared	0.30

<sup>1</sup> First stage estimates are reported in Table A.3.1 (a).

Robust standard errors in parentheses; <sup>a</sup>significant at 5%, <sup>b</sup>significant at 1%.

Table A.3.4. Impact of health on hourly and annual wages, measured by number of days missed due to ill health

	(1)	(2)	(3)
	First stage Tobit estimates of missed days	Second stage logarithm of annual wage	Second stage logarithm of hourly wage
Woman	1.210 (0.788)	-0.319 (0.059) <sup>b</sup>	-0.314 (0.155) <sup>a</sup>
Age	-0.061 (0.119)	0.052 (0.019) <sup>b</sup>	-0.040 (0.049)
Age square	0.002 (0.001)	-0.001 (0.000) <sup>b</sup>	0.000 (0.001)
Primary school	0.776 (2.063)	0.146 (0.412)	0.899 (1.077)
Vocational school	-1.542 (2.291)	0.214 (0.413)	0.913 (1.079)
Secondary school	-2.134 (2.436)	0.148 (0.416)	0.535 (1.087)
University	-4.619 (2.695)	0.328 (0.422)	0.696 (1.102)
Greek	-3.321 (3.951)	-0.368 (0.161) <sup>a</sup>	-0.729 (0.421)
Vllehe	-3.722 (7.412)	-0.584 (0.412)	-0.678 (1.077)
Coastal area	-0.320 (1.294)	-0.212 (0.081) <sup>b</sup>	0.149 (0.213)
Central area	1.989 (1.312)	-0.251 (0.085) <sup>b</sup>	0.076 (0.221)
Mountain area	4.059 (1.343) <sup>b</sup>	-0.219 (0.092) <sup>a</sup>	0.174 (0.240)
Diseases of blood and blood-producing organs	-1.725 (1.640)		
Diseases of respiratory organs	4.175 (1.912) <sup>a</sup>		
Diseases of digestive organs	-0.777 (1.965)		
Tumours	10.110 (3.784) <sup>b</sup>		
Diseases of genito-urinary system	2.954 (2.097)		
Endocrine diseases	-2.452 (2.266)		
Psychological disorders	8.552 (2.476) <sup>b</sup>		
Bones and connective tissue diseases	0.703 (1.775)		
Nervous system and sensory organ diseases	1.359 (1.887)		
Invalid	7.738 (1.771) <sup>b</sup>		
Fitted values		-0.017 (0.009)	-0.052 (0.025) <sup>a</sup>
Constant	-5.430 (3.017)	10.865 (0.600) <sup>b</sup>	4.871 (1.567) <sup>b</sup>
Observations	2036	254	254
R-squared		0.26	0.08

Robust standard errors in parentheses; <sup>a</sup>significant at 5%, <sup>b</sup>significant at 1%.

Table A.3.5. Impact of health on the probability of retiring: Cox regressions

	Estimates	Robust z statistics
Age	1.112	(5.85) <sup>b</sup>
Age squared	-0.009	(6.15) <sup>b</sup>
Female	8.152	(5.20) <sup>b</sup>
Age <sup>a</sup> female	-0.105	(-4.51) <sup>b</sup>
Married	0.302	(0.58)
Married <sup>a</sup> woman	-0.698	(-1.31)
Chronic disease	0.359	(4.40) <sup>b</sup>
Primary school	-0.546	(-2.14) <sup>a</sup>
Vocational school	0.332	(1.24)
Secondary school	0.108	(0.41)
University	-0.344	(-1.17)
Household income	0.000	(-1.9)
Number of children in the household	-0.101	(-3.08) <sup>b</sup>
Observations	3757	

<sup>a</sup>significant at 5%, <sup>b</sup>significant at 1%.

## Bosnia and Herzegovina

**Table A.3.6 (a).** Impact of health on wage-employment:  
Probit estimates including disability dummies in the equation of employment

Dependent variable: employment status	(1)	(2)
Entity	-0.154 (0.009) <sup>b</sup>	-0.154 (0.009) <sup>b</sup>
Woman	0.265 (0.016) <sup>b</sup>	0.262 (0.016) <sup>b</sup>
Age	0.146 (0.003) <sup>b</sup>	0.146 (0.003) <sup>b</sup>
Age square	-0.002 (0.000) <sup>b</sup>	-0.002 (0.000) <sup>b</sup>
Married	0.243 (0.014) <sup>b</sup>	0.247 (0.014) <sup>b</sup>
Married female	-0.324 (0.020) <sup>b</sup>	-0.319 (0.020) <sup>b</sup>
Primary school	0.335 (0.027) <sup>b</sup>	0.325 (0.026) <sup>b</sup>
Secondary school	0.604 (0.025) <sup>b</sup>	0.600 (0.025) <sup>b</sup>
College	0.998 (0.031) <sup>b</sup>	0.981 (0.031) <sup>b</sup>
Undergraduate diploma	1.090 (0.030) <sup>b</sup>	1.078 (0.030) <sup>b</sup>
Postgraduate diploma	2.713 (0.352) <sup>b</sup>	2.778 (0.348) <sup>b</sup>
High blood pressure	-0.125 (0.027) <sup>b</sup>	
Arthritis	0.029 (0.024)	
Bronchial asthma	0.039 (0.053)	
Chronic bronchitis	0.605 (0.057) <sup>b</sup>	
Ulcer	0.466 (0.037) <sup>b</sup>	
Psychological disease-psychohphrenia	-0.501 (0.060) <sup>b</sup>	
Multiple sclerosis	-0.607 (0.077) <sup>b</sup>	
Anaemia	0.324 (0.072) <sup>b</sup>	
Diabetes	-0.072 (0.047)	
Malignant tumour	0.093 (0.107)	
Other disease	-0.276 (0.021) <sup>b</sup>	
Chronic disease		-0.082 (0.014) <sup>b</sup>
Constant	-3.518 (0.068) <sup>b</sup>	-3.523 (0.067) <sup>b</sup>
Observations	78723	78723

Robust standard errors in parentheses; <sup>a</sup>significant at 5%, <sup>b</sup>significant at 1%.

Table A.3.6 (b). Impact of health on wage-employment: marginal effects

Dependent variable: employment status	(1)	(2)
Entity	-0.060 (0.004) <sup>b</sup>	-0.060 (0.004) <sup>b</sup>
Woman	0.102 (0.006) <sup>b</sup>	0.101 (0.006) <sup>b</sup>
Age	0.057 (0.001) <sup>b</sup>	0.057 (0.001) <sup>b</sup>
Age square	-0.001 (0.000) <sup>b</sup>	-0.001 (0.000) <sup>b</sup>
Married	0.095 (0.006) <sup>b</sup>	0.097 (0.006) <sup>b</sup>
Married female	-0.128 (0.008) <sup>b</sup>	-0.126 (0.008) <sup>b</sup>
Primary school	0.126 (0.010) <sup>b</sup>	0.123 (0.009) <sup>b</sup>
Secondary school	0.236 (0.010) <sup>b</sup>	0.234 (0.009) <sup>b</sup>
College	0.315 (0.007) <sup>b</sup>	0.312 (0.007) <sup>b</sup>
Undergraduate diploma	0.337 (0.006) <sup>b</sup>	0.335 (0.006) <sup>b</sup>
Postgraduate diploma	0.416 (0.003) <sup>b</sup>	0.417 (0.002) <sup>b</sup>
High blood pressure	-0.049 (0.011) <sup>b</sup>	
Arthritis	0.011 (0.009)	
Bronchial asthma	0.015 (0.020)	
Chronic bronchitis	0.209 (0.016) <sup>b</sup>	
Ulcer	0.168 (0.012) <sup>b</sup>	
Psychological disease- psychophrenia	-0.198 (0.023) <sup>b</sup>	
Multiple sclerosis	-0.238 (0.029) <sup>b</sup>	
Anaemia	0.120 (0.025) <sup>b</sup>	
Diabetes	-0.028 (0.019)	
Malignant tumour	0.036 (0.041)	
Other disease	-0.109 (0.009) <sup>b</sup>	
Chronic disease		-0.032
Observations	78723	78723

Robust standard errors in parentheses; <sup>a</sup>significant at 5%, <sup>b</sup>significant at 1%.

Table A.3.7. Impact of health on hourly and annual wages, measured by number of days missed due to ill health

	(1)	(2)	(3)	(4)
	First stage Tobit estimates of missed days	Second stage logarithm of hours of work	Second stage logarithm of hourly wage	Second stage logarithm of annual wage
Woman	-14.624 (0.571) <sup>b</sup>	-0.120 (0.007) <sup>b</sup>	-0.067 (0.011) <sup>b</sup>	-0.196 (0.011) <sup>b</sup>
Age	1.893 (0.099) <sup>b</sup>	0.018 (0.001) <sup>b</sup>	0.022 (0.002) <sup>b</sup>	0.036 (0.002) <sup>b</sup>
Age square	-0.022 (0.001) <sup>b</sup>	-0.000 (0.000) <sup>b</sup>	-0.000 (0.000) <sup>b</sup>	-0.000 (0.000) <sup>b</sup>
Married	-5.051 (0.382) <sup>b</sup>	0.019 (0.005) <sup>b</sup>	0.021 (0.008) <sup>b</sup>	0.021 (0.008) <sup>a</sup>
Married female	6.757 (0.669) <sup>b</sup>	0.038 (0.008) <sup>b</sup>	0.000 (0.012)	0.036 (0.013) <sup>b</sup>
Primary school	-1.818 (0.640) <sup>b</sup>	0.108 (0.008) <sup>b</sup>	-0.234 (0.013) <sup>b</sup>	-0.138 (0.014) <sup>b</sup>
Secondary school	-3.511 (0.610) <sup>b</sup>	0.146 (0.008) <sup>b</sup>	-0.032 (0.012) <sup>b</sup>	0.081 (0.013) <sup>b</sup>
College	-11.474 (0.829) <sup>b</sup>	-0.092 (0.011) <sup>b</sup>	0.398 (0.017) <sup>b</sup>	0.247 (0.017) <sup>b</sup>
Undergraduate diploma	-23.501 (1.012) <sup>b</sup>	0.126 (0.012) <sup>b</sup>	0.626 (0.018) <sup>b</sup>	0.671 (0.019) <sup>b</sup>
Postgraduate diploma	-13.671 (2.452) <sup>b</sup>	-0.160 (0.031) <sup>b</sup>	1.074 (0.045) <sup>b</sup>	0.852 (0.048) <sup>b</sup>
Experience 2–3 years	-4.336 (0.493) <sup>b</sup>	0.002 (0.006)	0.125 (0.009) <sup>b</sup>	0.106 (0.009) <sup>b</sup>
Experience 4–5 years	-3.076 (0.482) <sup>b</sup>	0.011 (0.006)	0.004 (0.009)	-0.000 (0.010)
Experience 6–10 years	-0.920 (0.485)	0.084 (0.006) <sup>b</sup>	0.024 (0.010) <sup>a</sup>	0.099 (0.010) <sup>b</sup>
Experience 11–20 years	-8.789 (0.511) <sup>b</sup>	0.058 (0.007) <sup>b</sup>	0.060 (0.010) <sup>b</sup>	0.063 (0.011) <sup>b</sup>
Experience over 20 years	-3.764 (0.479) <sup>b</sup>	0.117 (0.006) <sup>b</sup>	-0.049 (0.010) <sup>b</sup>	0.052 (0.010) <sup>b</sup>
Public sector	3.028 (0.331) <sup>b</sup>	-0.005 (0.004)	-0.188 (0.006) <sup>b</sup>	-0.199 (0.007) <sup>b</sup>
Prediction		-0.003 (0.000) <sup>b</sup>	-0.001 (0.000) <sup>a</sup>	-0.006 (0.000) <sup>b</sup>
High blood pressure	9.580 (0.501) <sup>b</sup>			
Arthritis	14.280 (0.439) <sup>b</sup>			
Bronchial asthma	2.839 (1.197) <sup>a</sup>			
Chronic bronchitis	7.987 (1.190) <sup>b</sup>			
Ulcer	9.334 (0.575) <sup>b</sup>			
Psychological disease- psychophrenia	17.561 (1.548) <sup>b</sup>			
Multiple sclerosis	6.004 (1.903) <sup>b</sup>			
Anaemia	8.021 (1.706) <sup>b</sup>			
Diabetes	-2.316 (1.088) <sup>a</sup>			
Malignant tumour	8.715 (2.175) <sup>b</sup>			
Other disease	14.345 (0.437) <sup>b</sup>			
Constant	-49.539 (2.068) <sup>b</sup>	4.650 (0.026) <sup>b</sup>	0.126 (0.040) <sup>b</sup>	7.360 (0.042) <sup>b</sup>
Observations	54772	54647	50989	50990
R-squared		0.06	0.17	0.15

Robust standard errors in parentheses; <sup>a</sup>significant at 5%, <sup>b</sup>significant at 1%.

Table A.3.8. Impact of health on probability of retiring: Cox regressions

	Estimates	Robust z statistics
Age	-0.044	(-7.30) <sup>b</sup>
Age squared	0.000	(7.58) <sup>b</sup>
Female	0.137	(1.58)
Age <sup>a</sup> female	-0.001	(-1.05)
Married	0.000	(0.02)
Chronic disease	0.03	(3.18) <sup>b</sup>
Primary school	0.017	(1.06)
Secondary school	0.27	(20.26) <sup>b</sup>
Junior college	0.487	(29.51) <sup>b</sup>
Undergraduate diploma	-0.103	(-5.40) <sup>b</sup>
Postgraduate diploma	0.073	(1.51)
Entity	0.19	(20.42) <sup>b</sup>
Cost of food per month	0.000	(18.40) <sup>b</sup>
Observations	95 888	

Robust z statistics in parentheses; <sup>a</sup>significant at 5%, <sup>b</sup>significant at 1%.

## Bulgaria

Table A.3.9. Impact of health on wage-employment: Probit estimates and marginal effects including disability dummies in the equation of employability

	Estimates	Marginal effects
Woman	0.035 (0.091)	0.012 (0.032)
Age	0.081 (0.018) <sup>b</sup>	0.028 (0.006) <sup>b</sup>
Age square	-0.001 (0.000) <sup>b</sup>	-0.000 (0.000) <sup>b</sup>
Married	0.316 (0.081) <sup>b</sup>	0.114 (0.030) <sup>b</sup>
Married female	-0.194 (0.108)	-0.069 (0.039)
Middle education	-0.176 (0.146)	-0.063 (0.054)
Secondary education	0.260 (0.153)	0.092 (0.054)
Turk	-0.404 (0.098) <sup>b</sup>	-0.152 (0.038) <sup>b</sup>
Bourgass	-0.012 (0.083)	-0.004 (0.029)
Lovetch	-0.018 (0.083)	-0.006 (0.029)
Montana	-0.337 (0.095) <sup>b</sup>	-0.125 (0.037) <sup>b</sup>
Russe	-0.275 (0.092) <sup>b</sup>	-0.101 (0.035) <sup>b</sup>
Sofia region	0.295 (0.086) <sup>b</sup>	0.097 (0.026) <sup>b</sup>
Haskovo	0.060 (0.088)	0.021 (0.030)
Roma gypsy	-1.034 (0.094) <sup>b</sup>	-0.392 (0.034) <sup>b</sup>
Other ethnic	-0.500 (0.173) <sup>b</sup>	-0.191 (0.069) <sup>b</sup>
Neurological problems	0.017 (0.210)	0.006 (0.073)
Eye problems	-0.065 (0.270)	-0.023 (0.098)
Hearing problems	0.069 (0.450)	0.024 (0.152)
Heart problems	0.063 (0.128)	0.022 (0.044)
Respiratory problems – asthma	-0.612 (0.224) <sup>b</sup>	-0.235 (0.089) <sup>b</sup>
High blood pressure – anaemia	-0.575 (0.472)	-0.221 (0.188)
Stomach problems	-0.157 (0.170)	-0.057 (0.064)
Kidneys – urine retention	-0.340 (0.220)	-0.127 (0.086)
Diabetes	-0.154 (0.220)	-0.056 (0.082)
Mental problems	0.082 (0.730)	0.028 (0.245)
Physical disability	0.152 (0.186)	0.051 (0.060)
Arthritis	-0.464 (0.311)	-0.177 (0.124)
Infections	-0.096 (0.260)	-0.034 (0.095)
Lasting cold	0.216 (0.184)	0.072 (0.057)
Other problems	-0.282 (0.299)	-0.105 (0.116)
Constant	-1.388 (0.355) <sup>b</sup>	
Observations	3368	3368

Robust standard errors in parentheses; <sup>a</sup>significant at 5%, <sup>b</sup>significant at 1%.



Table A.3.10. Impact of health on hourly and annual wages, measured by number of weeks missed in previous year due to poor health

	(1)	(2)	(3)
	First stage Tobit estimates of missed weeks	Second stage monthly hours of work	Second stage logarithm of monthly hours
Woman	0.227 (1.428)	1.637 (9.584)	-0.027 (0.098)
Age	0.197 (0.164)	5.059 (1.457) <sup>b</sup>	0.058 (0.015) <sup>b</sup>
Age square	-0.008 (0.002) <sup>b</sup>	-0.064 (0.017) <sup>b</sup>	-0.001 (0.000) <sup>b</sup>
Married	0.186 (1.806)	3.618 (8.884)	-0.038 (0.091)
Married female	-0.991 (2.015)	-4.478 (10.958)	0.023 (0.112)
Middle education	0.106 (1.954)	9.412 (41.432)	0.044 (0.423)
Secondary education	1.390 (2.177)	4.653 (41.143)	0.053 (0.420)
University education	-1.605 (2.548)	-8.756 (41.132)	-0.142 (0.420)
No contract – public	0.955 (5.015)	12.256 (11.506)	-0.344 (0.117) <sup>b</sup>
No contract – private	5.112 (5.216)	-1.620 (14.903)	-0.210 (0.152)
Contract fixed term	0.153 (2.040)	6.425 (5.854)	0.015 (0.060)
Contract civil	6.013 (4.669)	-14.902 (13.015)	-0.157 (0.133)
Government	3.960 (5.056)	20.810 (15.861)	0.099 (0.162)
State	8.835 (1.504) <sup>b</sup>	-9.461 (6.476)	-0.024 (0.066)
Municipal	1.165 (5.011)	-24.040 (12.211) <sup>a</sup>	-0.185 (0.125)
Joint event	6.798 (4.047)	-1.183 (10.730)	0.064 (0.110)
Turk	-6.215 (2.359) <sup>b</sup>	-49.207 (15.238) <sup>b</sup>	-0.524 (0.156) <sup>b</sup>
Bourgass	1.174 (1.926)	1.479 (9.245)	-0.014 (0.094)
Lovetch	0.668 (1.566)	-3.089 (6.562)	0.001 (0.067)
Montana	-1.613 (2.567)	1.442 (10.867)	0.069 (0.111)
Russe	1.425 (1.891)	13.607 (10.858)	0.150 (0.111)
Sofia region	1.872 (1.596)	5.854 (7.207)	0.096 (0.074)
Haskovo	3.011 (1.703)	2.985 (8.002)	0.050 (0.082)
Roma gypsy	-7.687 (1.716) <sup>b</sup>	9.747 (11.984)	0.052 (0.122)
Other ethnic	-7.918 (5.774)	-5.865 (21.475)	-0.043 (0.219)
Fitted values		-0.658 (0.398)	-0.006 (0.004)
Eye problems	-7.595 (3.458) <sup>a</sup>		
Hearing problems	-0.255 (4.662)		
Respiratory problems – asthma	3.778 (1.825) <sup>a</sup>		
High blood pressure – anaemia	-9.506 (6.866)		
Kidneys – urine retention	2.913 (2.001)		
Stomach problems	-3.563 (2.183)		
Diabetes	-0.391 (2.276)		
Skin rash problems	-4.482 (4.941)		
Physical disability	4.110 (2.008) <sup>a</sup>		
Arthritis	-4.655 (5.189)		
Hospital treatment	17.969 (2.356) <sup>b</sup>		
Treatment at home	6.448 (2.119) <sup>b</sup>		
Constant	-13.888 (2.878) <sup>b</sup>	64.317 (51.463)	4.061 (0.525) <sup>b</sup>
Observations	2252	348	348
R-squared		0.18	0.21

Robust standard errors in parentheses; <sup>a</sup>significant at 5%, <sup>b</sup>significant at 1%.

Table A.3.11. Impact of health on probability of retiring: Cox regressions

	Estimates	Robust z statistics
Age	-0.135	(3.79) <sup>b</sup>
Age squared	0.001	(3.29) <sup>b</sup>
Female	0.328	(0.9)
Age <sup>a</sup> female	0.006	(1.17)
Married	-0.029	(-0.46)
Married <sup>a</sup> female	0.015	(0.18)
Chronic disease	0.142	(3.59) <sup>b</sup>
Middle education	0.158	(2.75) <sup>b</sup>
Secondary education	-0.011	(-0.17)
University education	-0.011	(-0.17)
Expenditure on food	-0.000	(-1.35)
Observations	6126	

<sup>a</sup>significant at 5%, <sup>b</sup>significant at 1%.

**Kosovo (Serbia and Montenegro)**Table A.3.12 (a). Impact of health on wage-employment:  
estimates using self-reported health

	Ordered Probit Dependent variable: self-reported health	Second stage estimates Dependent variable: employment status	
	(1)	(2)	(3)
Woman	0.053 (0.036)	-0.969 (0.047) <sup>b</sup>	-0.979 (0.047) <sup>b</sup>
Married	-0.104 (0.045) <sup>a</sup>	-0.054 (0.062)	-0.043 (0.062)
Age	0.029 (0.007) <sup>b</sup>	0.254 (0.012) <sup>b</sup>	0.242 (0.013) <sup>b</sup>
Age square	0.000 (0.000)	-0.003 (0.000) <sup>b</sup>	-0.003 (0.000) <sup>b</sup>
Primary education	0.206 (0.057) <sup>b</sup>	-0.548 (0.073) <sup>b</sup>	-0.586 (0.072) <sup>b</sup>
Secondary technical education	0.110 (0.063)	0.228 (0.069) <sup>b</sup>	0.204 (0.069) <sup>b</sup>
Vocational education	-0.084 (0.073)	0.423 (0.084) <sup>b</sup>	0.432 (0.083) <sup>b</sup>
University education	-0.135 (0.080)	0.563 (0.076) <sup>b</sup>	0.586 (0.076) <sup>b</sup>
Croat	-0.412 (0.310)	0.691 (0.415)	0.827 (0.414) <sup>a</sup>
Muslim/Slav/Bosnian/Gorani	0.210 (0.102) <sup>a</sup>	-0.408 (0.170) <sup>a</sup>	-0.445 (0.169) <sup>b</sup>
Roma	-0.192 (0.167)	0.057 (0.247)	0.093 (0.248)
Serbian	0.966 (0.041) <sup>b</sup>	0.319 (0.095) <sup>b</sup>	0.181 (0.081) <sup>a</sup>
Turkish	0.035 (0.190)	-0.120 (0.227)	-0.119 (0.228)
No. of visits to public hospital previous 12 months	0.438 (0.048) <sup>b</sup>		
Disability card	0.575 (0.067) <sup>b</sup>		
No. of visits to ambulanta previous month	0.188 (0.016) <sup>b</sup>		
No. of visits to private doctor previous month	0.164 (0.041) <sup>b</sup>		
No. of visits to private nurse previous month	0.029 (0.020)		
No. of other visits previous month	0.307 (0.045) <sup>b</sup>		
No. of cigarettes smoked	0.000 (0.000) <sup>a</sup>		
Predicted health		-0.401 (0.069) <sup>b</sup>	
Predicted health – poor			0.798 (0.262) <sup>b</sup>
Predicted health – average			1.044 (0.244) <sup>b</sup>
Predicted health – good			1.369 (0.251) <sup>b</sup>
Predicted health – very good			1.498 (0.269) <sup>b</sup>
Constant		-4.857 (0.198) <sup>b</sup>	-6.417 (0.362) <sup>b</sup>
Observations	10555	7955	7955

Robust standard errors in parentheses; <sup>a</sup>significant at 5%, <sup>b</sup>significant at 1%.

Table A.3.12 (b). Impact of health on wage-employment: marginal effects

	(1)	(2)
	Employed	Employed
Woman	-0.189 (20.40) <sup>b</sup>	-0.192 (20.66) <sup>b</sup>
Married	-0.010 (0.88)	-0.008 (0.70)
Age	0.047 (22.04) <sup>b</sup>	0.045 (19.19) <sup>b</sup>
Age square	-0.001 (20.24) <sup>b</sup>	-0.000 (18.12) <sup>b</sup>
Primary education	-0.100 (7.55) <sup>b</sup>	-0.107 (8.12) <sup>b</sup>
Secondary technical education	0.046 (3.30) <sup>b</sup>	0.041 (2.98) <sup>b</sup>
Vocational education	0.096 (5.05) <sup>b</sup>	0.098 (5.18) <sup>b</sup>
University education	0.134 (7.39) <sup>b</sup>	0.141 (7.69) <sup>b</sup>
Croat	0.183 (1.66)	0.232 (2.00) <sup>a</sup>
Muslim/Slav/Bosnian/Gorani	-0.058 (2.40) <sup>a</sup>	-0.062 (2.63) <sup>b</sup>
Roma	0.011 (0.23)	0.018 (0.37)
Serbian	0.069 (3.36) <sup>b</sup>	0.037 (2.25) <sup>a</sup>
Turkish	-0.020 (0.53)	-0.020 (0.52)
Predicted health	-0.074 (5.85) <sup>b</sup>	
Predicted health – poor		0.215 (3.05) <sup>b</sup>
Predicted health – average		0.276 (4.28) <sup>b</sup>
Predicted health – good		0.292 (5.46) <sup>b</sup>
Predicted health – very good		0.359 (5.58) <sup>b</sup>
Observations	7955	7955

Robust statistics in parentheses; <sup>a</sup>significant at 5%, <sup>b</sup>significant at 1%.

Table A.3.13. Impact of health on annual wages: marginal effects<sup>1</sup>

Dependent variable logarithm of annual wages	
Predicted health	-0.319 (0.165)
Woman	0.004 (0.069)
Married	-0.065 (0.084)
Age	0.022 (0.018)
Age squared	-0.000 (0.000)
Primary education	-0.262 (0.091) <sup>b</sup>
Secondary technical education	0.024 (0.084)
Vocational education	-0.020 (0.092)
University education	0.166 (0.085)
Public sector	0.475 (0.248)
Private individual	0.406 (0.248)
Nongovernmental or humanitarian organization	1.148 (0.294) <sup>b</sup>
Socially owned enterprise or cooperative	0.319 (0.249)
Village employment programme	0.140 (0.471)
Croat	-2.940 (1.482) <sup>a</sup>
Muslim/Slav/Bosnian/Gorani	-0.141 (0.276)
Roma	-0.054 (0.341)
Serbian	-0.532 (0.203) <sup>b</sup>
Turkish	0.061 (0.307)
Constant	7.194 (0.388) <sup>b</sup>
Observations	1844
R-squared	0.13

<sup>1</sup> First stage estimates are reported in Table A.3.9 (a).

Robust standard errors in parentheses; <sup>a</sup>significant at 5%, <sup>b</sup>significant at 1%.

Table A.3.14. Impact of health on hourly and annual wages, measured by number of days missed due to ill health

	(1)	(2)	(3)
	First stage Tobit estimates of days missed in previous four weeks	Second stage hours per week	Second stage logarithm of hours per week
Married	-0.422 (1.082)	0.049 (1.318)	-0.019 (0.033)
Woman	0.509 (1.321)	-2.020 (1.664)	-0.084 (0.055)
Married female	0.510 (1.526)	-2.184 (1.808)	-0.023 (0.058)
Age	0.058 (0.200)	0.310 (0.268)	0.017 (0.008) <sup>a</sup>
Age squared	0.001 (0.002)	-0.004 (0.003)	-0.000 (0.000) <sup>a</sup>
Vocational education	0.421 (0.997)	-1.318 (1.354)	-0.047 (0.035)
Gymnasium	0.402 (0.996)	1.912 (1.358)	0.068 (0.033) <sup>a</sup>
Secondary technical education	1.581 (0.868)	1.061 (1.160)	0.046 (0.032)
University education	0.504 (0.958)	-2.007 (1.200)	-0.068 (0.032) <sup>a</sup>
Public sector	0.261 (0.756)	-8.229 (1.113) <sup>b</sup>	-0.109 (0.029) <sup>b</sup>
Private company	-2.421 (2.171)	0.496 (2.631)	0.077 (0.052)
Nongovernmental or humanitarian organization	1.080 (1.393)	-3.122 (1.786)	0.029 (0.049)
Socially owned enterprise or cooperative	-1.066 (0.867)	-7.619 (1.209) <sup>b</sup>	-0.093 (0.032) <sup>b</sup>
Village employment programme	0.453 (4.402)	-6.653 (6.321)	-0.097 (0.151)
Albanian	1.133 (2.937)	-4.174 (2.964)	-0.125 (0.062) <sup>a</sup>
Muslim/Slav/Bosniac/Gorani	3.213 (3.583)	0.101 (3.696)	0.009 (0.079)
Roma	5.210 (3.787)	-4.315 (5.675)	-0.132 (0.146)
Serbian	1.122 (3.032)	-3.412 (3.035)	-0.103 (0.068)
No. of visits to ambulanta previous month	1.730 (0.299) <sup>b</sup>		
No. of visits to private doctor previous month	1.326 (0.588) <sup>a</sup>		
No. of visits to private nurse previous month	0.478 (0.458)		
No. of other visits/month	1.426 (0.618) <sup>a</sup>		
No. of visits to a public hospital previous 12 months	4.130 (1.020) <sup>b</sup>		
Disability card	3.683 (1.361) <sup>b</sup>		
Number of cigarettes smoked	0.007 (0.003) <sup>a</sup>		
Predicted days missed in previous 4 weeks		-0.344 (0.146) <sup>a</sup>	-0.009 (0.004) <sup>a</sup>
Constant	-15.005 (4.513) <sup>b</sup>	45.149 (5.826) <sup>b</sup>	3.519 (0.154) <sup>b</sup>
Observations	1872	1872	1871

R-squared 0.10 0.07

Robust standard errors in parentheses; <sup>a</sup>significant at 5%, <sup>b</sup>significant at 1%.

## Macroeconomic analysis GDP per capita estimates given different scenarios on mortality rates

### Albania

	2000	2005	2010	2015	2020	2025
OLS						
OLS – No-change scenario	3350.263	5486.309	8366.643	12065.76	16576.46	21837.63
OLS – Middle-change scenario	3350.263	5529.408	8572.931	12663.97	17937.09	24498.08
OLS – Best scenario	3350.263	5573.993	8789.851	13308.52	19449.23	27564.94
FE						
FE – No-change scenario	3350.263	8054.949	14072.05	20379.57	26101.29	30850.86
FE – Middle-change scenario	3350.263	8201.612	14827.9	22458.18	30287.19	37862.63
FE – Best scenario	3350.263	8354.913	15645.57	24810.94	35280.3	46715.91

Source: authors' calculations on the data.

### Bulgaria

	2000	2005	2010	2015	2020	2025
OLS						
OLS – No-change scenario	5784.586	8463.186	11762.16	15627.26	19933.66	24524.06
OLS – Middle-change scenario	5784.586	8513.011	12008.33	16318.67	21433.43	27308.41
OLS – Best scenario	5784.586	8564.448	12266.31	17059.93	23089.66	30493.84
FE						
FE – No-change scenario	5784.586	10868.9	16431.13	21513.63	25485.37	28187.95
FE – Middle-change scenario	5784.586	11017.05	17185.37	23487.41	29261.85	34203.73
FE – Best scenario	5784.586	11171.15	17995.34	25701.12	33718.77	41712.24

Source: authors' calculations on the data.

### Croatia

	2000	2005	2010	2015	2020	2025
OLS						
OLS – No-change scenario	8523.778	12009.78	16162.1	20876.83	25968.25	31271.11
OLS – Middle-change scenario	8523.778	12080.49	16500.37	21800.54	27921.99	34821.49
OLS – Best scenario	8523.778	12153.49	16854.82	22790.75	30079.53	38883.29
FE						
FE – No-change scenario	8523.778	14418.49	20379.36	25508.58	29255.42	31715.47
FE – Middle-change scenario	8523.778	14615.03	21314.93	27849.21	33590.55	38484.08
FE – Best scenario	8523.778	14819.45	22319.37	30473.72	38707.16	46932.23

Source: authors' calculations on the data.

## Republic of Moldova

	2000	2005	2010	2015	2020	2025
OLS						
OLS – No-change scenario	2082.06	3471.951	5428.711	7986.804	11123.39	14761.11
OLS – Middle-change scenario	2082.06	3492.395	5542.34	8340.188	11960.3	16437
OLS – Best scenario	2082.06	3513.49	5661.38	8718.975	12884.41	18354.24
FE						
FE – No-change scenario	2082.06	5439.258	10367.73	15799.84	20651.95	24344.23
FE – Middle-change scenario	2082.06	5513.401	10843.68	17249.53	23712.08	29539.69
FE – Best scenario	2082.06	5590.494	11354.67	18875.06	27323.71	36024.34

Source: authors' calculations on the data.

## Romania

	2000	2005	2010	2015	2020	2025
OLS						
OLS – No-change scenario	4286.715	6509.387	9347.208	12768.43	16688.36	20967.61
OLS – Middle-change scenario	4286.715	6547.745	9542.836	13333.34	17943.94	23348.08
OLS – Best scenario	4286.715	6587.301	9747.83	13938.96	19330.39	26071.55
FE						
FE – No-change scenario	4286.715	8848.073	14247.2	19406.82	23621.2	26593.18
FE – Middle-change scenario	4286.715	8968.673	14901.21	21187.36	27121.44	32268.6
FE – Best scenario	4286.715	9094.108	15603.48	23184.05	31252.04	39352.31

Source: authors' calculations on the data.

## The former Yugoslav Republic of Macedonia

	2000	2005	2010	2015	2020	2025
OLS						
OLS – No-change scenario	5134.825	7728.128	11065.99	15118.43	19739.88	24789.36
OLS – Middle-change scenario	5134.825	7804.112	11380.25	15949.11	21496.41	28017.09
OLS – Best scenario	5134.825	7882.844	11711.93	16848.82	23461.12	31765.62
FE						
FE – No-change scenario	5134.825	10140.13	16142.87	22027.57	26733.96	30081.33
FE – Middle-change scenario	5134.825	10371.5	17137.05	24502	31351.27	37340.73
FE – Best scenario	5134.825	10614.38	18220.71	27329.72	36918.2	46612.78

Source: authors' calculations on the data.





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