

TRENDS IN CAUSE-SPECIFIC MORTALITY

Katalin Kovács

MAJOR FINDINGS

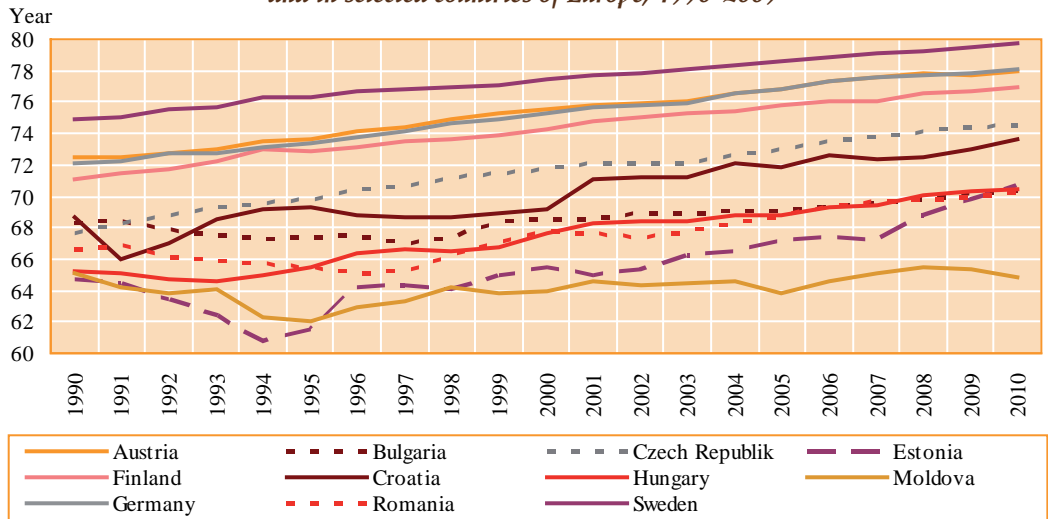
- Overall mortality in Hungary is considerably higher compared not only to the most developed countries of the European Union but also to those EU members that joined the Union simultaneously with or later than Hungary, between 2004 and 2007.
- In the period between 2005 and 2009 mortality of men younger than 65 was 2.5 times higher than in the most developed EU states and 1.2 times higher than in the countries joining the EU simultaneously with Hungary. The mortality rate of young and middle-aged men is, however, slowly changing for the better. The relative disadvantages in mortality of men above 65 were more moderate but still considerable: 1.5 times higher than the respective data in the most developed countries but just a few per cent higher than the average mortality rate of the countries joining the Union together with Hungary.
- Mortality of women younger than 65 was 1.7 times higher than in the most developed EU states and 1.2 times higher than in the countries joining the EU later. Mortality of women above 65 was equal to the average mortality levels observed in less developed EU member states.
- High mortality in Hungary mainly follows from high cardiovascular mortality. Within this the level of mortality due to ischemic heart diseases was alarmingly high.
- Cerebrovascular mortality shows, however, a strongly decreasing trend, e.g., mortality due to cerebrovascular diseases such as stroke or cerebral infarction, was slightly lower in the examined period than in the countries joining the EU in 2004 and 2007. The level of mortality in this respect in Hungary today equals the EU average for 1990.
- In the years between 2005 and 2009, cancer mortality among men was by 39 to 50 per cent higher in Hungary than the EU average. Therefore, the differences were smaller in this respect than in the case of cardiovascular mortality. However, the differences in this field have been growing in the past few years due to the fact that whereas in other countries mortality due especially to lung cancer and colorectal cancers diminished, in Hungary no such decrease took place.
- Cancer mortality among women was by 28 to 37 per cent higher than the EU average and by 12 to 23 per cent higher than the average of the countries acceding the EU in 2004 and 2007. The relative drawback as compared to other countries has been growing in the past few years in this respect, too.

- Mortality due to suicide has greatly decreased in Hungary since 1984 but it has been stagnating since 2005.
- Viewing Hungarian cause-specific mortality in international comparison only infectious diseases and more recently deaths due to traffic accidents were advantageous.
- The impact of economic crises on the state of health and mortality is not quite explicit. Earlier research results regarding other countries confirm that the impact of economic recession can be very different depending on local conditions. It seems that special policies followed in health care and social welfare, especially active employment policies, can largely diminish the impact of an economic crisis on mortality.
- Earlier experience shows that economic recession influences mortality primarily in the vulnerable groups of society. If overall mortality stagnates, the mortality gap between groups in better and worse social position is expected to widen.

MORTALITY IN HUNGARY IN THE PERIOD 1981 TO 2009 AS COMPARED TO THE SITUATION IN OTHER COUNTRIES

Life expectancy in Hungary was steadily increasing after 1994 with just a few shorter periods of stagnation lasting one or two years. At the peak of the mortality crisis (in 1994), life expectancy for men at birth was more than 11 years less than in Sweden where men can expect to live longest in Europe. This difference has greatly diminished since then. In 2009 it was 9.2 years, though this is just a little less than the 9.7 years in 1990. In 2009 the life expectancy of Hungarian men was similar to that of Bulgarian, Estonian, and Romanian men, 3 years less than that of Czech men, and 2 years less than that of Croatian men (Fig. 1). According to the calculations of the Central Statistical Office, male life expectancy in Hungary at birth was 69.79 years in 2008, 70.05 years in 2009, 70.50 years in 2010, and 70.93 years in 2011.

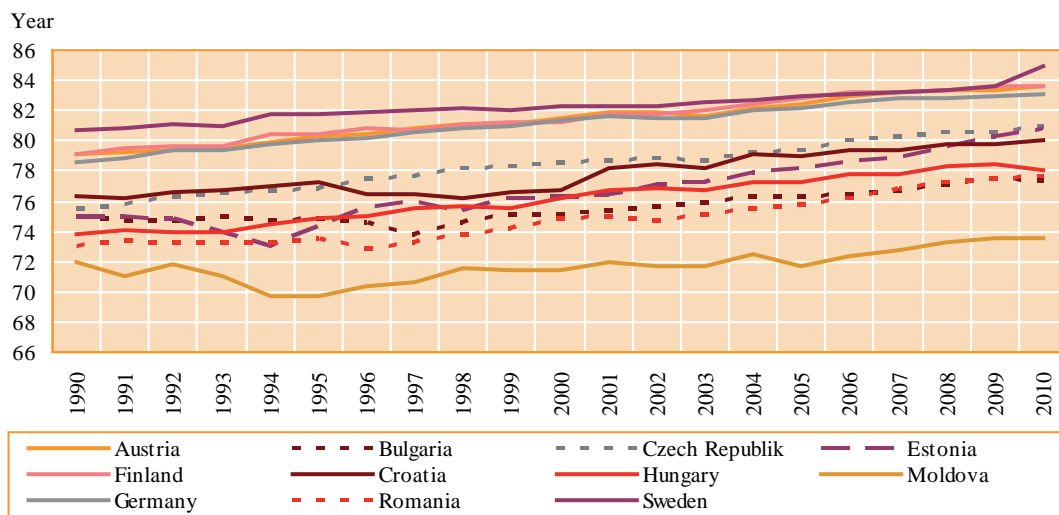
Fig. 1. Changes in male life expectancy at birth in Hungary and in selected countries of Europe, 1990–2009



Female life expectancy at birth similarly grew in the past two decades considerably, from 74 to 78 years. Compared to Swedish women whose life expectancy is the highest in Europe, that of Hungarian women was by 6.8 years less in 1990, by 7.25 in 1994, and by 5.1 in 2009. Female life expectancy is getting closer to the best figures in Europe to a greater extent than male life expectancy. The situation of Hungarian women is more favourable in comparison to other countries

of the Eastern European region. In 2009, their life expectancy at birth was one year higher than female life expectancy in Romania and Bulgaria, though it was over one year less than in Croatia, and two years less than in the Czech Republic and Estonia (Fig. 2). According to the calculations of the Central Statistical Office, life expectancy at birth of Hungarian women was 77.76 years in 2008, 77.89 years in 2009, 78.11 years in 2010, and 78.23 years in 2011.

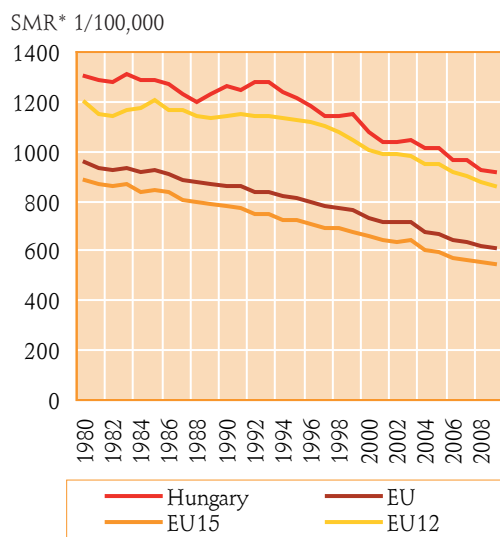
Fig. 2. Changes in female life expectancy at birth in Hungary and in selected countries of Europe, 1990–2009



So life expectancy has been growing in Hungary since 1994, i.e., mortality has been decreasing. At the same time, mortality in Hungary is still by about 50 per cent higher than the EU average and is a bit higher than the average of the countries joining the EU in 2004 and 2007. The phenomenon is not new but characteristic of the past three decades (Fig. 3). Hungary's relative disadvantage as compared to other

countries of the region is the result of high mortality due to easily defined causes of death. This chapter is, therefore, dedicated to analyzing the changes in mortality by the major causes of death. We intend to deal primarily with trends that greatly differ from the corresponding ones in the EU or in the countries joining the EU in 2004 and 2007.

Fig. 3. Total mortality in Hungary and in the EU countries, 1980–2009



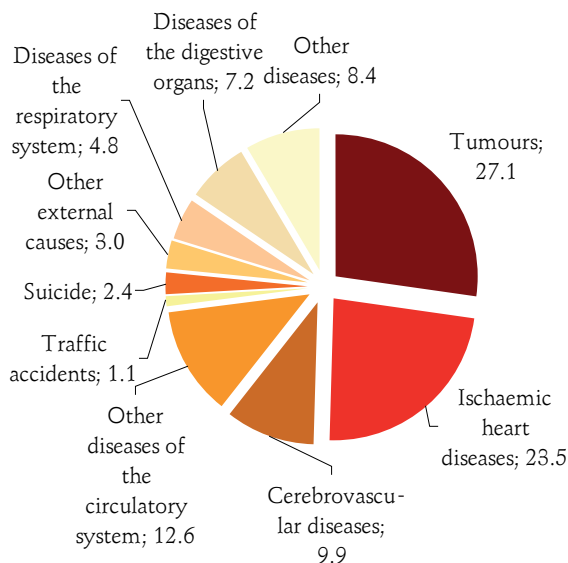
* Standardized mortality rate.

Source: European mortality database (MDB),
<http://data.euro.who.int/hfamdb/>

In Hungary, over a quarter of deaths (27.1 per cent) is caused by tumours. This proportion is slightly higher in those EU countries where life expectancy is higher as these deaths mostly occur at a higher age. Then again, in Hungary mortality due to cardiovascular diseases which are more frequent in younger age-groups is higher than the EU average. This cause-of-death group leads to nearly half (46 per cent) of the total mortality, while the respective EU average is 37 per cent. Among the diseases of the circulatory system it is mortality due to ischaemic heart diseases, with cardiac infarction among them, that represent the largest rate with 23.5 per cent of all deaths in Hungary and with over 50 per cent of cardiovascular mortality. Within cardio-vascular mortality, diseases of the cerebrovascular system, strokes in other words, form another important cause-of-death group. Nearly 10 percent of overall

mortality is caused by stroke and nearly a quarter of that is due to the illnesses of the cardiovascular system. The Hungarian mortality pattern in general is characterized by a higher share of ischaemic heart diseases and cerebrovascular diseases compared to that of other countries in the EU.

Fig. 4. Distribution of mortality by causes of death in Hungary, 2009 (percentage of SMR)



Source: European mortality database (MDB),
<http://data.euro.who.int/hfamdb/>

In Hungary, 4.8 per cent of mortality is due to illnesses of the respiratory system, and 7.2 per cent is due to illnesses of the digestive organs. External causes are responsible for 6.5 per cent of overall mortality, out of which 1.1 per cent is due to traffic accidents and 2.4 per cent to suicide. The former figure is slightly higher than in the majority of the European states but the latter exceeds their rates considerably. Mortality due to infectious diseases is only 3.7 per cent which is much lower than the European average.

Before discussing the cause-specific trends in detail, it is worth dealing with mortality by gender and wider age groups. During the last

three decades mortality among younger men and women has been significantly and steadily higher than the EU average for the respective age groups. This mortality level is much higher than that of the countries of the EU before 2004 (EU15) and slightly higher than that of the countries acceding

the EU at the same time with Hungary or in 2007 (EU12). The difference is slightly more moderate in the case of men above 65 and negligible in the case of women above 65. Figs. 5a to 5d show the different patterns of these differences for the years between 2005 and 2009.

Fig. 5a. Total mortality of men aged 0–64 in Hungary as compared to the EU15 and EU12 states, 2005–2009

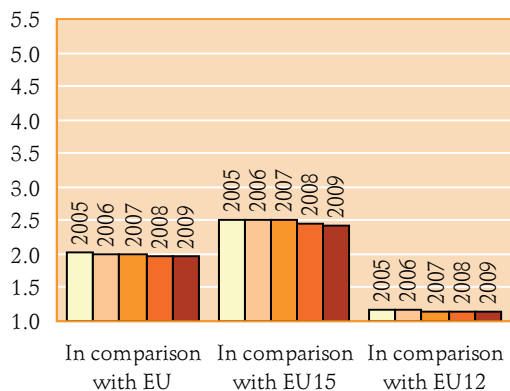


Fig. 5b. Total mortality of women aged 0–64 in Hungary as compared to the EU15 and EU12 states, 2005–2009

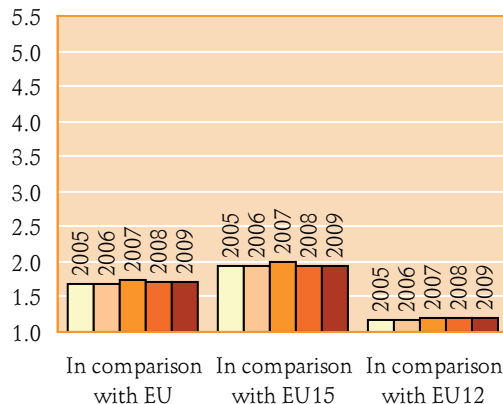


Fig. 5c. Total mortality of men aged 65+ in Hungary as compared to the EU15 and EU12 states, 2005–2009

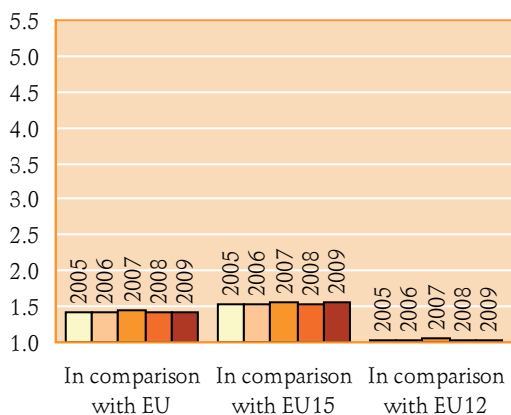
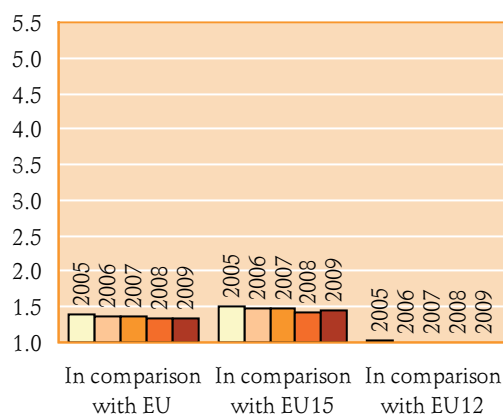


Fig. 5d. Total mortality of women aged 65+ in Hungary as compared to the EU15 and EU12 states, 2005–2009



Source: European mortality database (MDB).

Mortality of Hungarian men aged 0 to 64 is 100 per cent higher than the EU average,

though recently these differences seem to slacken slightly.

As compared to the EU 15 countries, Hungarian male mortality is higher by 150 percent but also this rate seems to slacken, though very slowly. Hungarian male mortality exceeded the average male mortality of the EU 12 countries by 18 per cent in 2005 and by 14 per cent in 2009 (Fig. 5a).

The disadvantages in mortality are similarly considerable in the case of women aged 0–64. Mortality of this group is by 70 per cent higher than the EU average and double the rate of the EU 15 countries. Respectively, mortality in the EU12 countries was lower by 17 per cent in 2005 and by 19 per cent in 2009. Regarding women the gap is larger than in the case of men. So the trends for younger women do not indicate a closing-up, either (Fig. 5b).

Disadvantages in mortality among men aged 65 and over are more moderate but still considerable. It is around 40 per cent higher as compared to the EU average and around 50 per cent as compared to the EU 15 countries. The few per cents of over-mortality as compared to the EU12 countries have been stabilized in the past decades with no indication of a closing-up (Fig. 5c).

In the case of women older than 65, mortality rate is higher by 33 to 35 percent than the EU average and by 45 to 50 percent than the respective rates of the EU15 countries. There is, however, no difference as compared with the corresponding rates of the EU12 states. Surplus mortality as compared to the EU and EU15 average showed a slightly decreasing tendency in the years 2005 to 2009 (Fig. 5d).

To sum up, over and above the well-known problem of high middle-aged male mortality in Hungary, the mortality of middle-aged women are similarly very high and there was no indication of favourable trends as compared to other states in the

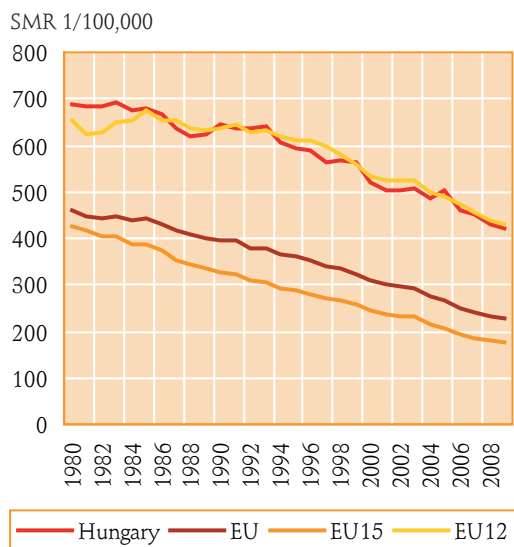
past few years. In the course of the analysis of cause-specific mortality, therefore, we have to consider the age-specific aspects, too.

TRENDS IN CAUSE-SPECIFIC MORTALITY BETWEEN 1980 AND 2009

Cardiovascular mortality in Hungary deserves special attention. Trends of mortality due to these causes for the period between 1980 and 2009 are shown by Figure 6. The respective average rates of the EU are exceeded by the Hungarian ones by 85 to 89 per cent, and those of the EU15 by nearly 140 per cent. The development of cardiovascular mortality is the major factor influencing general mortality trends. The decrease of total mortality in the most developed countries in the past few decades is practically due to the dynamic, incessant, and considerable decrease in cardiovascular mortality. Cardiovascular mortality in the East Central European countries is similarly dynamically decreasing, apart from a mortality crisis around 1992 inflicting most countries of the region. This decrease is, however, still not sufficient to compensate the great disadvantage that had come about by the 1980s and 1990s. In 2009, cardiovascular mortality in the EU12 including Hungary was roughly on the same level as that of the most developed countries (EU15) in 1980. Recently, the relative disadvantage of Hungary seems to slacken slowly.

So the total cardiovascular mortality in Hungary fits into the trends of the other EU12 countries but there are important differences in the relative position of Hungary regarding different cardiovascular causes of death.

Fig. 6. Cardiovascular mortality in Hungary, 1980–2009

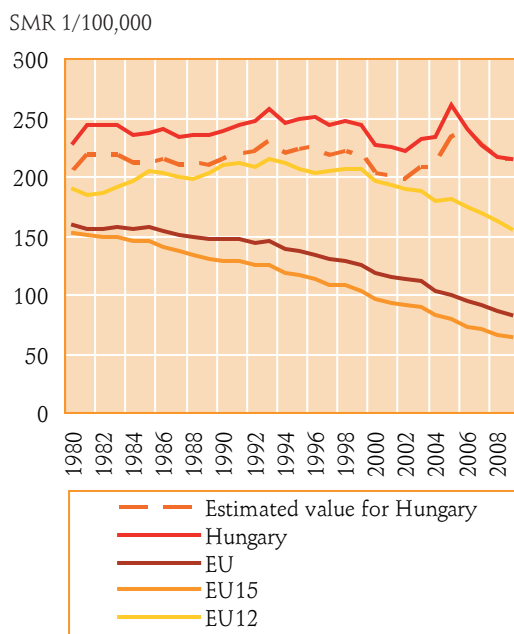


Source: European health for all database (HFA-DB).

Mortality due to ischaemic heart diseases is significantly higher in Hungary than in other EU12 states. In contrast with trends of the EU15 countries, mortality in Hungary due to these diseases did not diminish in the 1980s and 1990s, or even slightly grew in the early 1990s. A considerable downward tendency could be observed only after 1999. However, when interpreting the data in Fig. 7, we have to take into account the changes in coding the causes of death in Hungary (see text in the box). Prior to 2005, registered mortality due to the above mentioned causes was probably underestimated. Correcting them in accordance with the new system of coding, we get an estimated mortality diagram on the basis of which we can safely say that mortality due to ischaemic heart diseases decreased significantly, dynamically, and steadily after 1999. The data after 2005 lend themselves the best for international

comparison. To sum up, the Hungarian mortality due to these diseases is by 150 to 160 per cent higher than the EU average, by 220 to 230 per cent higher than the average of the EU15 countries, and by 30 to 40 per cent higher than the EU12 average. „Excess” mortality is high in all age groups and in both sexes.

Fig. 7. Mortality due to ischaemic heart diseases in Hungary, 1980–2009



Source: European health for all database (HFA-DB), author's calculations.

The generally lower mortality rate of women often conceals the fact the relative mortality of Hungarian women due to ischaemic heart diseases in comparison with other countries is, in fact, higher than that of men. In the case of men aged 0–64 this rate is 160 percent as compared to the EU average, while in the case of women it is 200 per cent, which means

that Hungarian male mortality is 2.5 times higher than the EU average, while female mortality is three times as high (Figs. 8a and 8b). The overall picture is not much better in the case of older generations, either.

The mortality rate of Hungarian men of 65 and over is 2.5 times higher than the EU average, and that of women of the same age is 2.8 times as high (Figs. 8c and 8d).

Fig. 8a. Mortality due to ischaemic heart diseases among men aged 0–64 in Hungary as compared to respective rates of EU, EU15, and EU12 countries, 2005–2009

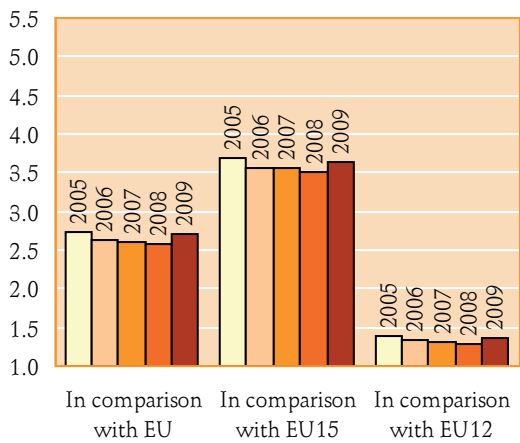


Fig. 8b. Mortality due to ischaemic heart diseases among women aged 0–64 in Hungary as compared to respective rates of EU, EU15, and EU12 countries, 2005–2009

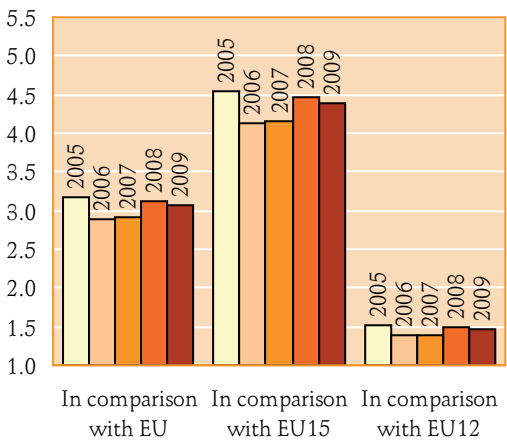


Fig. 8c. Mortality due to ischaemic heart diseases among men 65+ in Hungary as compared to respective rates of EU, EU15, and EU12 countries, 2005–2009

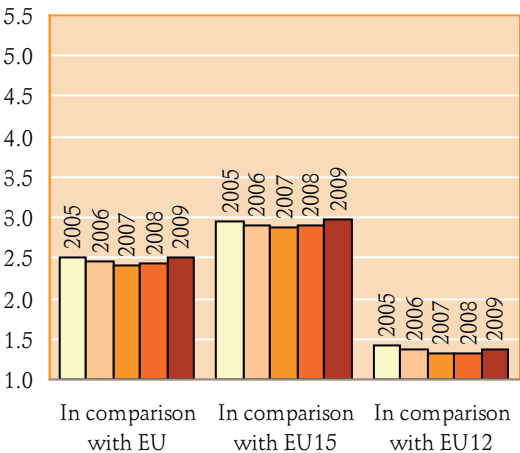
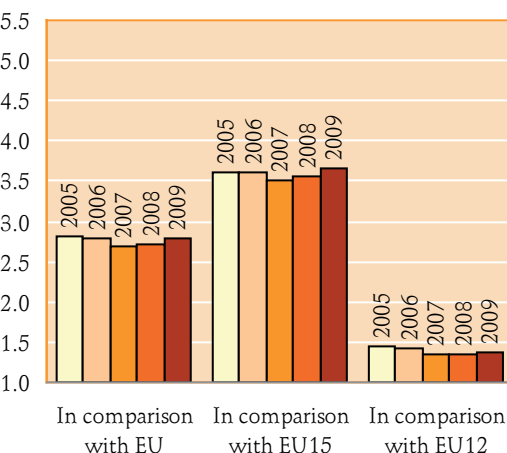


Fig. 8d. Mortality due to ischaemic heart diseases among women 65+ in Hungary as compared to respective rates of EU, EU15, and EU12 countries, 2005–2009



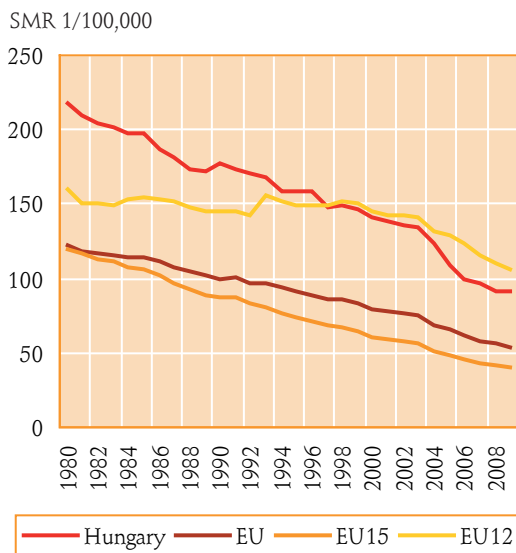
Source: European health for all database (HFA-DB).

Causes of death are coded by the International Classification of Diseases (ISD). In the death certifications several diseases (causes of death) can be registered out of which the one declared as „underlying”, e. g., main cause of death will appear in the national and international statistics. Establishing the „main cause” is, however, not always easy and with the subsequent changes in the coding system and its methodology the selection of the „main” cause among all contributing causes can change, too. In Hungary, the 9th version of the international classification (ICD) was in use from 1979, and the 10th from 1996. In 2005 a so-called automatic coding was introduced, which is used by several other countries. The changes following from this can be seen as technical in nature but brought with them considerable changes as regards the appearance of certain causes of death as „main cause” (KSH 2006). The estimates aiming to diminish the impact of these changes are available for the period 1970 to 2008 (Kovács 2011).

The situation is slightly better in the case of mortality due to cerebrovascular diseases. Although at the turn of the 1980s and 1990s the trend seemed to come to a halt, mortality due to these causes has been significantly and steadily decreasing in Hungary since 1980. Due to the changes of the coding system, the values for the period before 2005 would probably be lower if they had been calculated according to the system used after that date. This discrepancy does, however, not modify the downward character of the trend. Cerebrovascular mortality is decreasing in all EU countries but the change is more dynamic in the EU15 states. In Hungary, the respective level was still very high around 1980, so in

spite of a decrease more dynamic than in the EU in general, Hungarian mortality rates today correspond to those in the EU around 1990.

Fig. 9. Cerebrovascular mortality in Hungary, 1980–2009



Source: European health for all database (HFA-DB).

Mortality of young and middle-aged males is still higher in Hungary by 150 per cent than the EU average and that of women in the same age group is by 180 to 200 per cent higher for the years between 2005 and 2009 (Figs. 10a and 10b). Cerebrovascular mortality among men aged 65+ is by 60 to 70 per cent higher than the EU average in the second half of the 2000s, while that of women in the same age group is higher by 50 per cent (Figs. 10c and 10d).

Fig. 10a. Cerebrovascular mortality in Hungary among men aged 0–64 as compared to the EU, EU15, and EU12 countries, 2005–2009

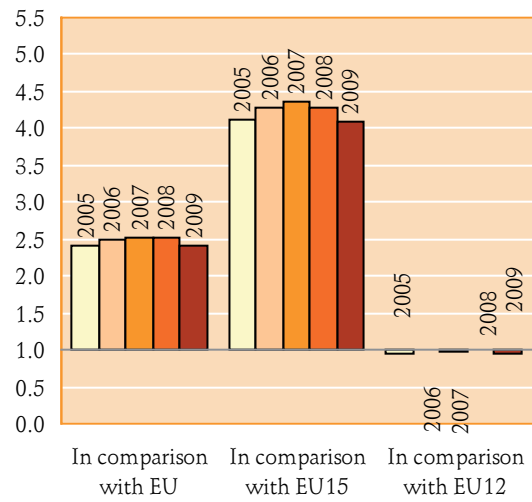


Fig. 10b. Cerebrovascular mortality in Hungary among women aged 0–64 as compared to the EU, EU15, and EU12 countries, 2005–2009

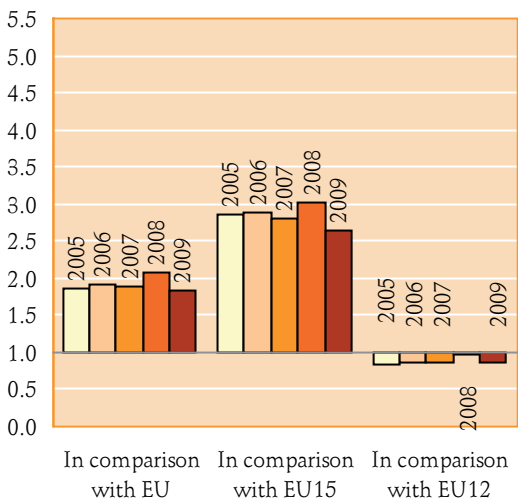


Fig. 10c. Cerebrovascular mortality in Hungary among men 65+ as compared to the EU, EU15, and EU12 countries, 2005–2009

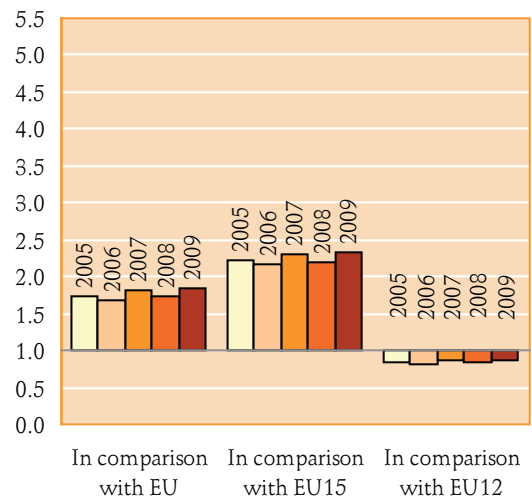
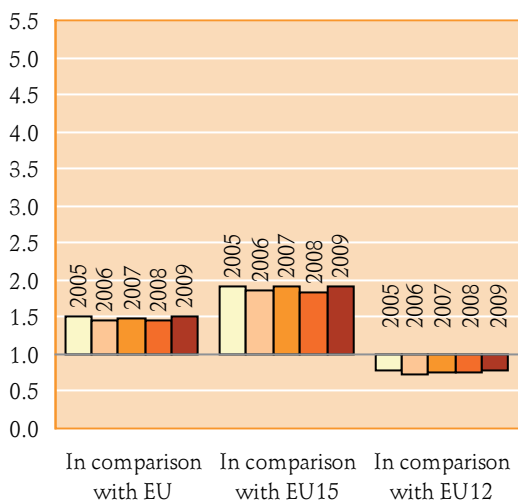


Fig. 10d. Cerebrovascular mortality in Hungary among women 65+ as compared to the EU, EU15, and EU12 countries, 2005–2009



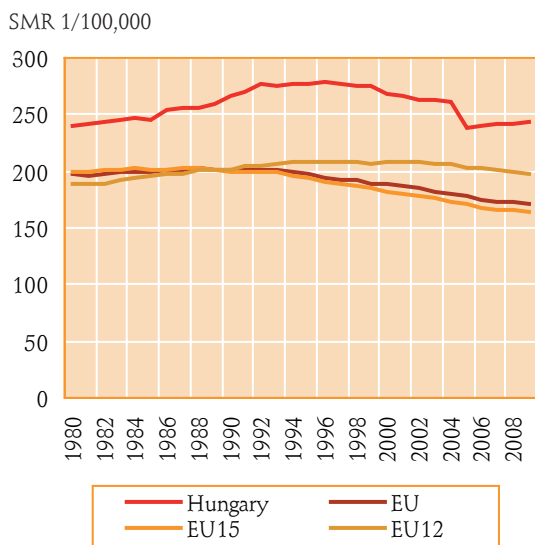
Source: European health for all database (HFA-DB).

When studying trends in mortality due to malignant tumours, it is worth taking the

changes of the coding techniques in 2005 into consideration once again. Cancer mortality in general has decreased slightly in the majority

of the European countries in the past decades, and this tendency became more marked in the period after 1990. In the case of Hungary it can be presumed that cancer mortality was more frequent in the statistics prior to 2005 than it would have been if calculated by the new coding procedure. The estimate we get after the corrections shows a slightly increasing tendency of cancer mortality throughout the whole period beginning with 1980 (Fig. 11).

Fig. 11. Mortality due to malignant tumours in Hungary, 1980–2009



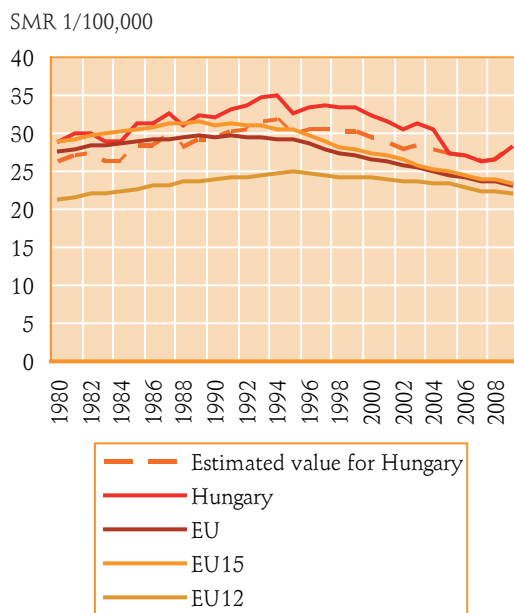
Source: European health for all database (HFA-DB), author's calculations.

In the years 2005 to 2009, male cancer mortality in general was by 39 to 50 per cent higher than the EU average, which is a much more moderate difference than the one in cardiovascular mortality. At the same time, the relative difference from the EU level definitely became greater in the given period. The major cause of the difference can be found in the trends of lung and colorectal cancer mortality (Kovács–

Bálint 2011). In 2005, the mortality surplus for women was 28 per cent that grew to 37 per cent by 2009. The mortality surplus of 17 per cent in 2005 as compared to the EU12 states grew to 23 per cent by 2009. The causes of this difference in detail were the same in the case of women as in the case of men but regarding the former there is a minor disadvantage also with respect to breast cancer.

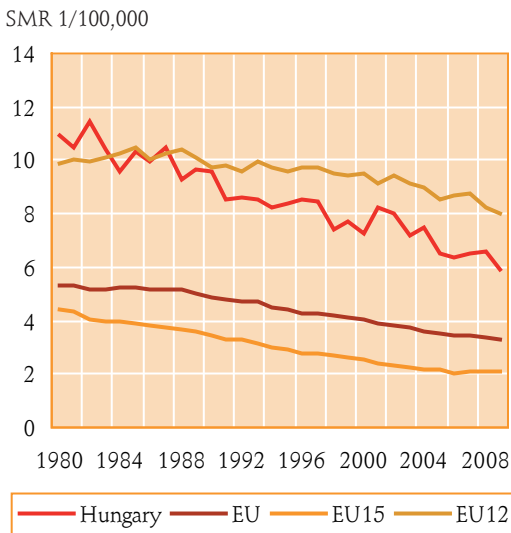
As regards female cancer mortality, the trends showing mortality due to tumours that could be prevented by screening are especially interesting. Figs. 12 and 13 present the relevant data on breast cancer and cervical cancer.

Fig. 12. Mortality due to breast cancer in Hungary, 1980–2009



Source: European health for all database (HFA-DB), author's calculations.

Fig. 13. Mortality due to cervical cancer in Hungary, 1980–2009



Source: European health for all database (HFA-DB.)

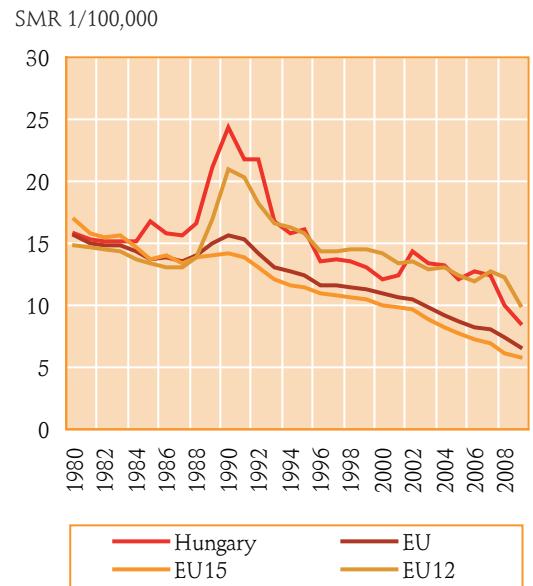
In the case of the former, corrections according to the above mentioned changes of coding lead us to the conclusion that breast cancer mortality in Hungary was around the EU average for a long period but recently it became slightly higher. The downward tendency in breast cancer mortality probably began in the early 1990s, similarly to other countries of the European Union. However, this tendency came to a halt after 2004, and in 2009 it even began to rise to a small extent.

Mortality due to cervical cancer which is, in fact, not a major cause of death, diminished dynamically during the past three decades, falling to half of the earlier level. At the same time, it is today three times as high in Hungary as in the EU15 countries but is slightly below the respective rates of the EU12 countries. The steady decrease, being more dynamic than the European average decline induces

the hope that mortality due to cervical cancer will soon reach the European average.

Mortality due to external causes leading to death, i.e. death caused by other factors than diseases, is slightly higher in Hungary than in the EU in general. Out of this large cause-of-death group we intend to deal in more detail only with mortality due to traffic accidents and suicide.

Fig. 14. Mortality due to traffic accidents in Hungary, 1980–2009

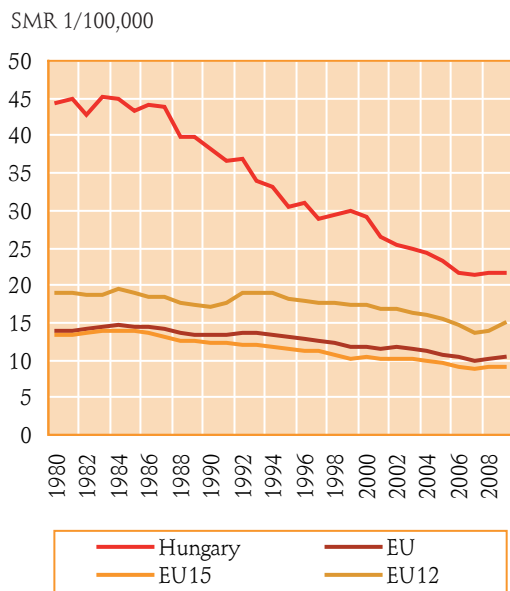


Source: European health for all database (HFA-DB).

The trends in mortality due to traffic accidents were generally descending in the period between 1980 and 2008 but around 1990 they rose dramatically. In the EU15 countries this rise was small but in the EU12 countries, with Hungary among them, it was considerable. However, it started to fall also in the EU12 countries following 1994 to a great degree. This fall was gradual rather

than steady. In 2009, mortality due to traffic accidents in Hungary was just a little bit higher than the European average due to the dynamic drop in the figures in 2007 and 2008. It resulted in Hungary's more favourable situation as compared to the other EU12 countries.

Fig. 15. Mortality due to suicide in Hungary, 1980–2009



Source: European health for all database (HFA-DB).

Suicide claimed three times as many lives in Hungary than traffic accidents. Despite the fact that suicide mortality has been decreasing since 1984, the decrease was much more dynamic before 1996 than following that date. In the late 1990s there was even a slight, transitory increase in suicide. Suicide rates continued to fall till 2006 and from then on they seem to stagnate. Despite the fact that suicide in Hungary has dropped to half of its maximum in 1984, today it is still more than

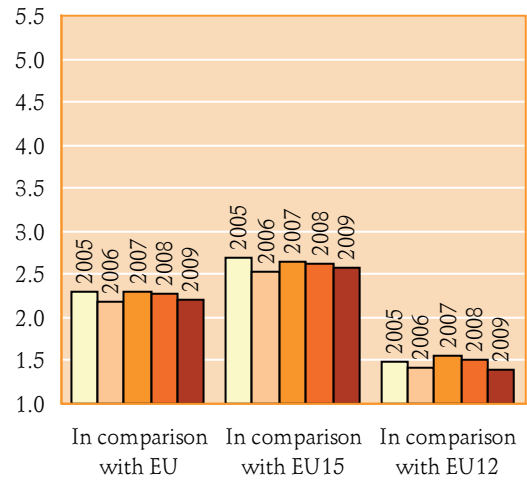
double the European average and exceeds the average of the EU12 countries by 40 to 45 percent.

Based on calculations not presented here, suicide in Hungary decreased further in the past few years both among younger men and women. The stagnation is due to the slight increase of suicide among men above 65.

Mortality among men due to suicide in Hungary is by 150 to 160 per cent higher than in the EU15 countries and by 40 to 55 per cent higher than in the EU12 states. In the age group 65+ the rates as compared to EU15 are similar but higher (by 170-200 per cent), and as compared to EU12 the Hungarian surplus is 70 to 100 per cent. The great extent of mortality due to suicide is thus East European in character and is near the similarly high Russian and Ukrainian levels which are not discussed here. The inner age-distribution of Hungarian male suicide is, however, of the „western” type in the sense that the proportion of the elderly among men committing suicide is relatively high.

The mortality rate of Hungarian women due to suicide is higher by 80 to 100 per cent than the EU15 average and the difference is similar compared to the EU12 states. In the case of older women these rates are even higher, around 130 to 170 per cent. This fact demonstrates again that suicide is much more frequent among the elderly in Hungary than in other countries of Europe.

Fig. 16a. Male mortality due to suicide in Hungary as compared to the EU, EU15, and EU12 states, 2005–2009



16b. Female mortality due to suicide in Hungary as compared to the EU, EU15, and EU12 states, 2005–2009

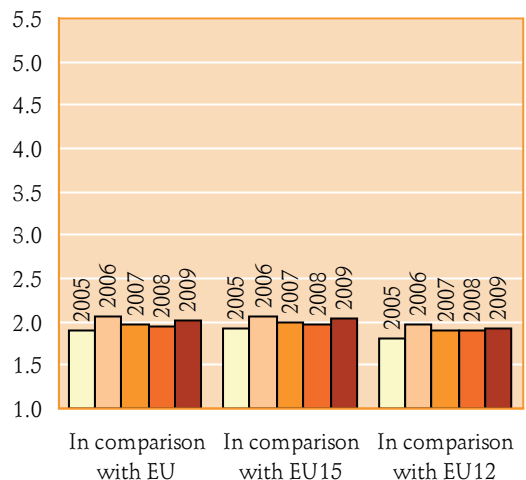


Fig. 16c. Mortality due to suicide in Hungary among men aged 65 and above as compared to the EU, EU15, and EU12 states, 2005–2009

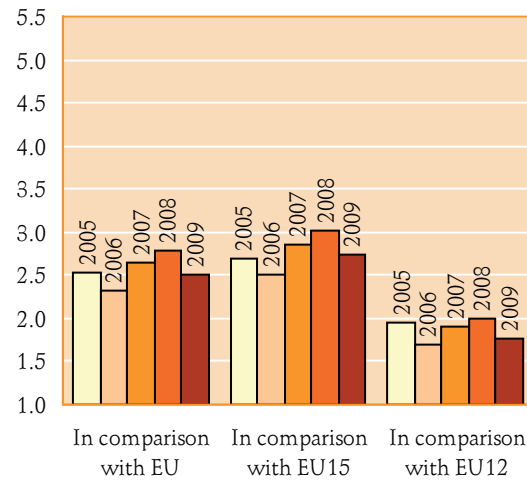
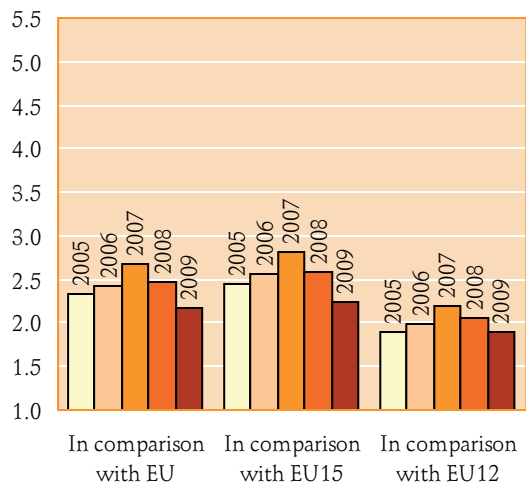


Fig. 16d. Mortality due to suicide in Hungary among women aged 65 and above as compared to the EU, EU15, and EU12 states, 2005–2009



Source: European health for all database (HFA-DB).

PROSPECTS FOR THE NEAR FUTURE: LESSONS ON THE RELATION BETWEEN ECONOMIC CRISIS AND MORTALITY

The impact of the economic crisis reaching Europe in late 2008 on mortality cannot be

assessed as yet due to the lack of available data on international level. Two years ago, the WHO believed that the frequency of mental disorders would grow, the stress following from losing jobs would increase smoking, and the worsening conditions of life would increase the number of suicides

(WHO 2009). It was similarly the World Health Organization that called attention to the prospective impact of the economic crisis on health and mortality in the needy and vulnerable groups of society.

The analysis of the correlation of economic crises and mortality produces, however, a more complex picture. In several wealthy countries trends of mortality were often more favourable at times of recession than at times of prosperity (Ruhm 2008).

There have been many speculations about the nature of this phenomenon as well as many analyses based on serious research. According to an often quoted but less corroborated view, in times of crisis the households with lower income cannot afford buying goods detrimental to health like alcohol, tobacco, and sweets, or the necessary foodstuffs, either. Effort to buy food cheaper can lead to different consequences.

Other studies call attention to the fact that local circumstances and individual political answers can have considerable impact on the outcome of a crisis. For example, the Asian financial crisis had no considerable impact on mortality in Malaysia but led to a significant increase of mortality in Indonesia and Thailand (Chang et al. 2009). The differences might be explained by the fact that Malaysia did not restrict its expenditure on health care despite the crisis (Hopkins 2006).

In the case of countries with a high national income an economic crisis is rarely marked and less frequent, though the cyclic nature of economy is undeniable there, too. As regards the interconnection of unemployment and mortality in the United States, high unemployment rates usually involve lower rates in mortality. In Germany, in the period between 1980 and 2000 both the age-specific and the total mortality rates were lower during times of recession. However, in the case of cause-

specific mortality, this was true only with regard to cardiovascular mortality, some infections of the respiratory system, traffic accidents, and suicide but there was no considerable correlation between recession and cancer mortality, homicides and mortality from other external causes of death (Neumayer 2004). Mortality in Spain similarly decreased during recession with the exception of suicide which was higher especially among men than at times of prosperity (Tapia-Granados 2005).

As a contrast, in Finland mortality due not only to suicide but also to alcohol consumption reacted on the economic crisis of the early 1990s negatively (Valkonen 2000). In the majority of East Central European countries there was similarly a rise in mortality in the first half of the 1990s, though the nature and the dimensions of the crisis were greatly different there (Nolte 2005).

Khang and his team reached similar results from a cause-specific angle when analyzing the South-Korean crisis of the early 1990s. Cause-specific mortality rates decreased considerably during the crisis, primarily stroke and stomach cancer mortality. These diseases are the consequences of being exposed to various long-term risk factors, so their data should not be interpreted as the effects of an economic crisis. There was a decrease also in mortality due to traffic accidents, which phenomenon can to a certain extent be seen as being in contact with the crisis. A considerable increase could be observed in mortality due to suicide, which had an impact on the overall level of mortality.

The most comprehensive analysis relating to Europe studied the relationship between unemployment and cause-specific mortality rates (Stuckler 2009). For the period of observation (1970-2007), the study did not find a systematic relationship with respect to the countries of the EU between cause-

specific mortality and unemployment, except for traffic accidents and suicide. The impact of the crisis on suicide greatly depended on the level of using means of active employment policies. The amount invested in programmes for helping people to find jobs was inversely proportional to the rise of suicide mortality.

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