The Current Level of Health of the Greek Population and an Investigation into the Negative Impact of the Economic Crisis on Health Indicators

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Abstract

The aim of this project is to identify the determinants that affect the level of population health and to describe the current level of population health in Greece, reflecting its evolution over time through health indicators and comparing it with the evolution of the Portuguese population. In particular, reference is made to positive health indicators, such as life expectancy and annual population growth, and negative indicators such as morbidity, mortality and infant mortality rate. Using scientific research in the literature and online statistical databases, it is investigated whether and to what extent the economic crisis has adversely affected health indicators, also determining which indicators these are. Subsequently, statistical data is presented in tables and charts, defining the negative impact of the economic recession in Greece and Portugal. Following this, a comparison is made between the results and those reported in the Granados and Rodriguez study. Finally, reference is made to the evolution of total health expenditure per capita in both countries in correlation with the results of the negative impact of recession on health indicators.

Keywords: Health indicators, Economic crisis-recession, Health level, Health expenditure.

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1   Introduction

The concept of health can be approached from many different angles, and its definition is multidimensional and multipurpose, as all those factors that affect its condition have to be taken into account. According to the World Health Organization, health is a state of complete physical, mental and social well-being of man and not merely the absence of disease or infirmity [1].

The health level of a population depends on a variety of factors and its evolution and changes are recorded and reflected in health indicators. The measurement of these indicators is based on statistical information recorded in data sets, such as tables, charts and maps [2]. The use of health indicators determines the health level of a country and enables plans to be drawn for the development of its health policy. At the same time, it is documented in the literature that the macroeconomic situation of a country affects the health level of the population, being one of the factors that can alter it.

The economic crisis that has swept through the European countries one by one since 2008 was inevitable after the Great Depression in the United States. Financial recessions soon led to economic crises, and in 2009 the Gross Domestic Product of all countries in the Eurozone declined significantly. Between 2007 and 2010, state revenue from taxation declined and expenditure in the affected countries increased, resulting in an increase in government deficits. Some countries have adopted austerity policies, encompassing large-scale health cuts posing major threats and concerns for health, and reconstruction opportunities [3].

2   Material and Method

The present study presents the determinants of health and describes the current level of population health in Greece using statistical data of recent years, documented in charts and tables. Moreover, the evolution over time of the health of the Greek population compared to that of Portugal is also reflected using statistical data, and furthermore it is investigated whether the economic crisis that hit these two countries has negatively affected the health indicators. There follows a critical commentary on the Granados and Rodriguez study.

3   Main Results

3.1 The Determinants of Health – The Current Level of Health of the Greek Population

In addition to the biological factors, population health status depends on various other elements such as the social, cultural and ecological factors. According to Marrot and Morris(1988), both individual and environmental factors have a direct interaction across the lifespan and a dynamic impact on health status

[4].

The anatomical, physiological and metabolic parameters, the genetic predispositions of an individual, the evolution of an individual within society, and the personality and attitude of an individual can be determined as individual factors [1]. It is interesting to note that individual factors are associated with the demographic characteristics and lifestyle of the individual (habits), thus changing their health [5].

Environmental factors and the social environment exert direct and indirect impacts on health and are divided into three categories: economy, culture and political system. Economy includes the material conditions necessary to meet the basic needs of the individual's life (food, shelter, health services) as well as their income-occupation and social status. Culture includes social customs and traditions and the prevailing values and ideas-beliefs that variously affect the health of individuals (Mediterranean diet). The political, legal and administrative authorities have a significant impact on the health of individuals through enactment of legislation that contributes to the configuration and control of the individual's urban and professional environment.

The education level of individuals as well as the environment-linked risks throughout their lifespan can also be identified as determinants of health [1]. The physical environment (water-air pollution, climatic conditions) adversely changes the health status of the individual [6]. According to WHO, 23% of deaths worldwide can be attributed to factors related to the physical environment. With regard to children aged 0 to 14, the death rate attributable to environmental factors is 34% [7].

Finally, the social bonds developed by an individual within society also play an important role. The social bonds of the individual and their health are characterized by a dynamic relationship, as societies change, the social environment often alters, and illnesses are transformed [8].

For the monitoring of the evolution of the health status of a population and understanding of the changes that have occurred in health over time, we use health indicators [1]. Health indicators are sets of data used to describe the level of health of a population compared to that of another population, and to design health promotion programmes to improve the quality of life of a population [2]. Health indicators are divided into two categories: positive and negative. According to international practice, mortality and morbidity indicators are most commonly used to measure the health status of a country [1]. The charts below describe the current level of Greek population health using statistical data with health indicators from recent years.

According to Eurostat statistics, in 2012 the life expectancy of people aged 65 and over in Greece increased [9]. For females, the indicator exceeded 83.4 years and for males it reached a level of over 78 years (Figure 1).
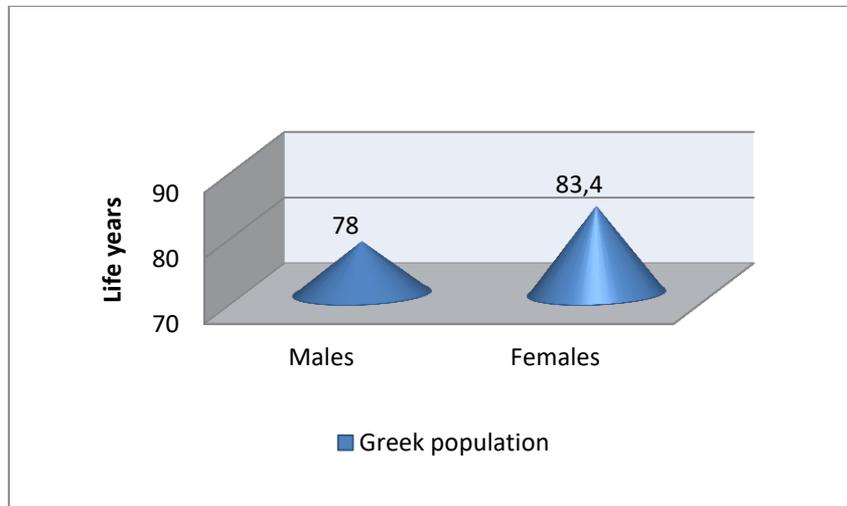
Figure 1: Life expectancy by sex in the Greek population (2012).
Source: http://appsso.eurostat.ec.europa.eu/nui/show.do?dataset=demo_mlexpec&lang=en

Figure 2 depicts the percentage distribution of the Greek population aged 15 years and over, in each age successive group, by health status, with the highest value of 77.2% (those having very good health status) found in the age group 15-24, and the lowest value of 0.3% again found in this age group.
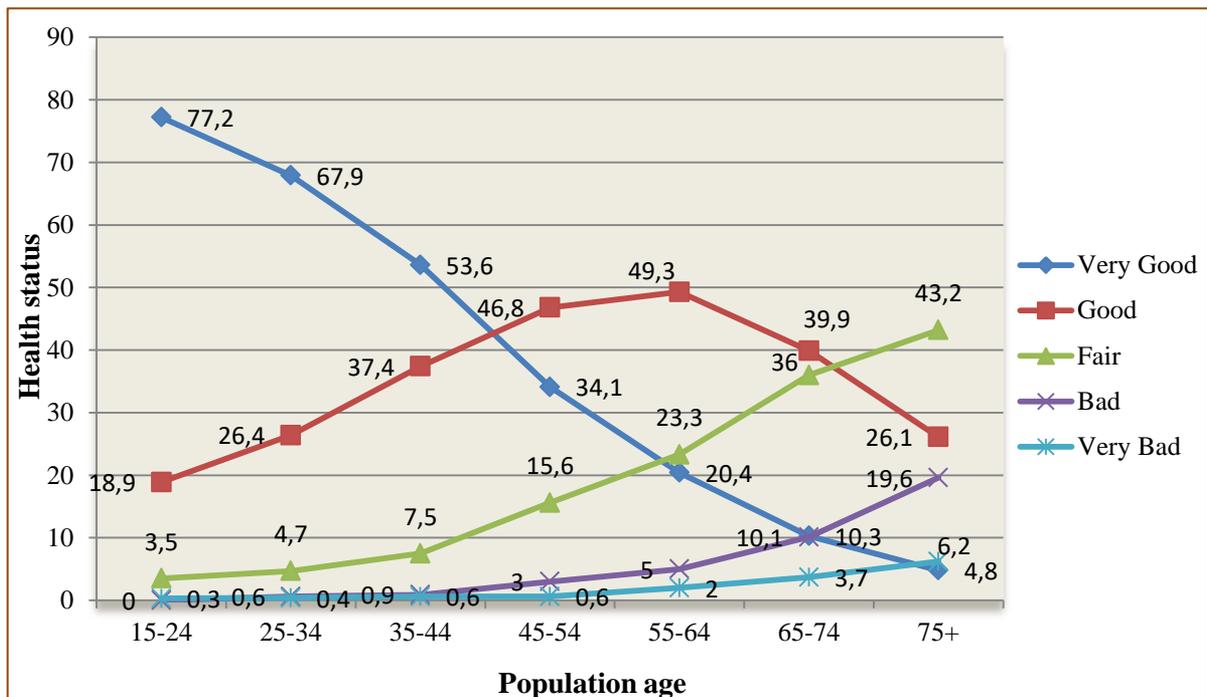

Figure 2: Percentage distribution of the Greek population in each age group, by health status, 2014.
Source:http://www.statistics.gr/el/statistics/-/publication/SPO09/

The health status of the population aged 15 and over is subsequently recorded in terms of each gender separately, and also in total for the year 2014 (Figure 3).
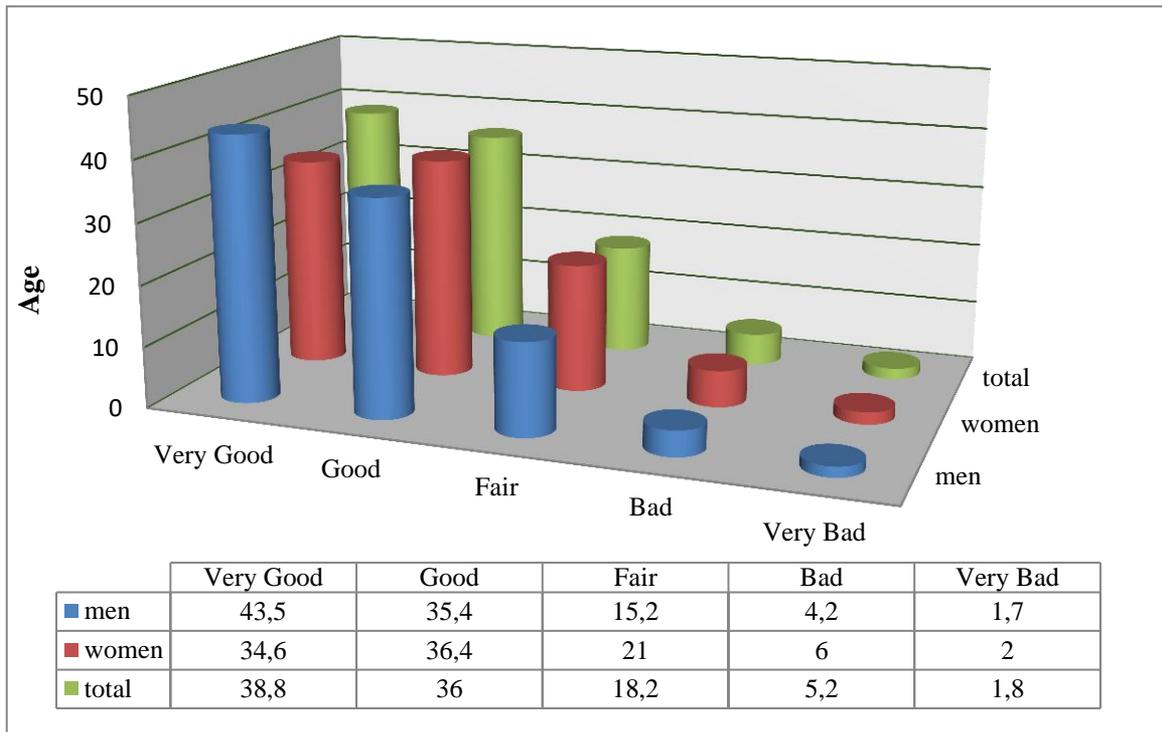

	Very Good	Good	Fair	Bad	Very Bad
men	43,5	35,4	15,2	4,2	1,7
women	34,6	36,4	21	6	2
total	38,8	36	18,2	5,2	1,8

Figure 3: Health status of population aged 15 and over, by gender, 2014.
Source:http://www.statistics.gr/el/statistics/-/publication/SPO09/

In the World Health Organization's [7] 2013 ranking of the leading causes of mortality in Greece, cardiovascular diseases and malignant neoplasms (cancers) ranked highest. Cardiovascular diseases (48% of deaths) are the leading cause of death in the Greek population. Malignant neoplasms are the second main cause of death (26%). Chronic respiratory diseases (7%) rank third, followed by infectious diseases (6%), injuries (4%), other causes (8%) and diabetes (1%). (Figure 4).
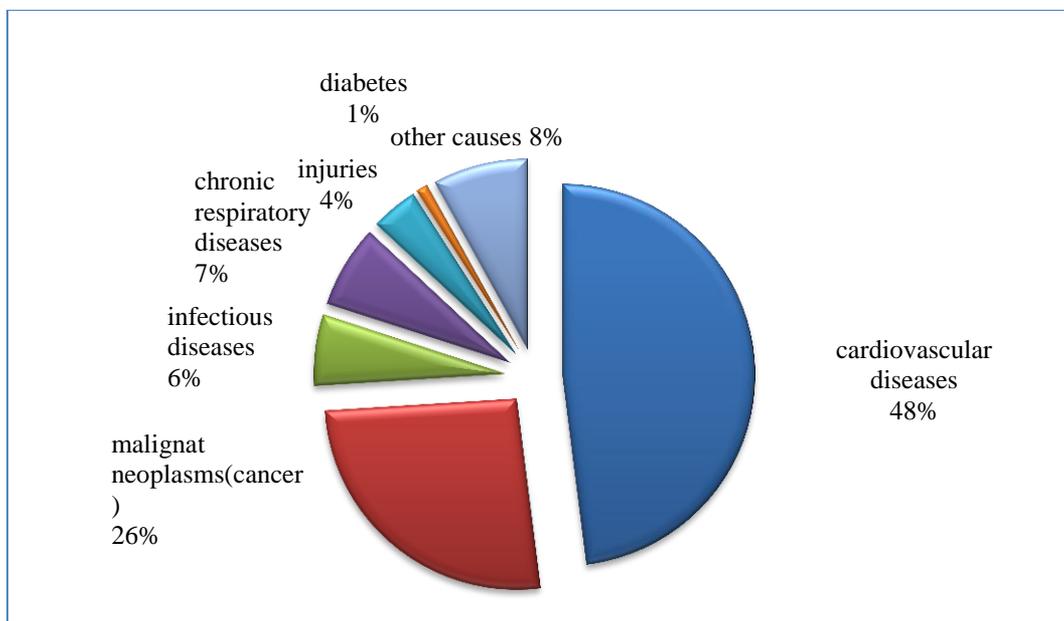
Figure 4. Leading causes of death in the Greek population (2013).
Source: http://www.who.int/countries/grc/en/

Finally, the data pertaining to total deaths in Greece for the year 2015, by age of the deceased, with the total number of deaths at 121,212 persons, are presented (Figure 5).
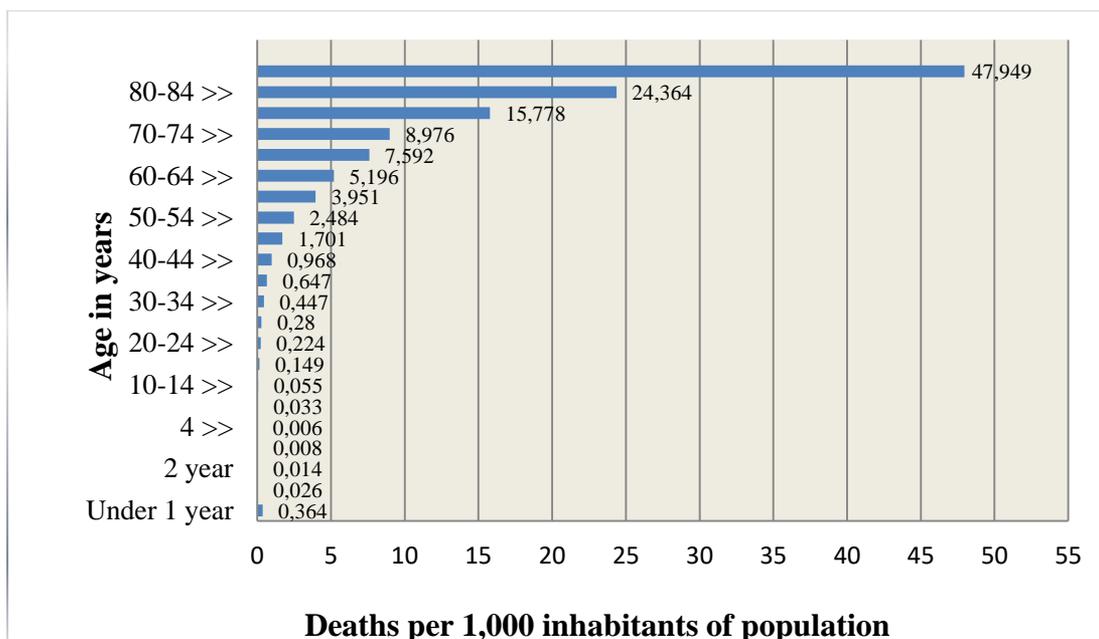

Figure 5: Deaths in Greece in the year 2015
Source: http://www.statistics.gr/el/statistics/-/publication/SPO09/

3.2 Comparison of the Evolution Over Time of the Greek Population Health with that in Portugal

The following graphs depict life expectancy at birth in the total population per year, both in Greece and Portugal. A comparison of the values from year to year reveals there has been a continuous and steady increase in life expectancy in both countries over the years. For Greece, the rate ranges from 79.7 years in 2007 to 80.7 in 2012, and similarly for Portugal from 79.2 in 2007 to 80.5 in 2012 (Figures 6-7).
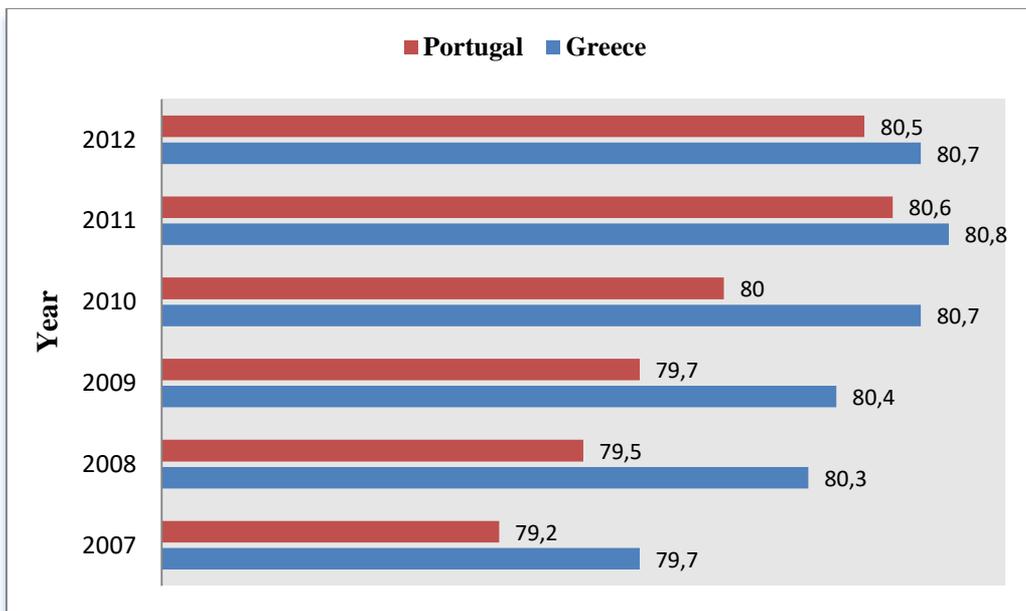

Figure 6. Life expectancy at birth, total population.
Source:
http://www.oecd-ilibrary.org/social-issues-migration-health/life-expectancy-at-birth-total-populati on_20758480-table8

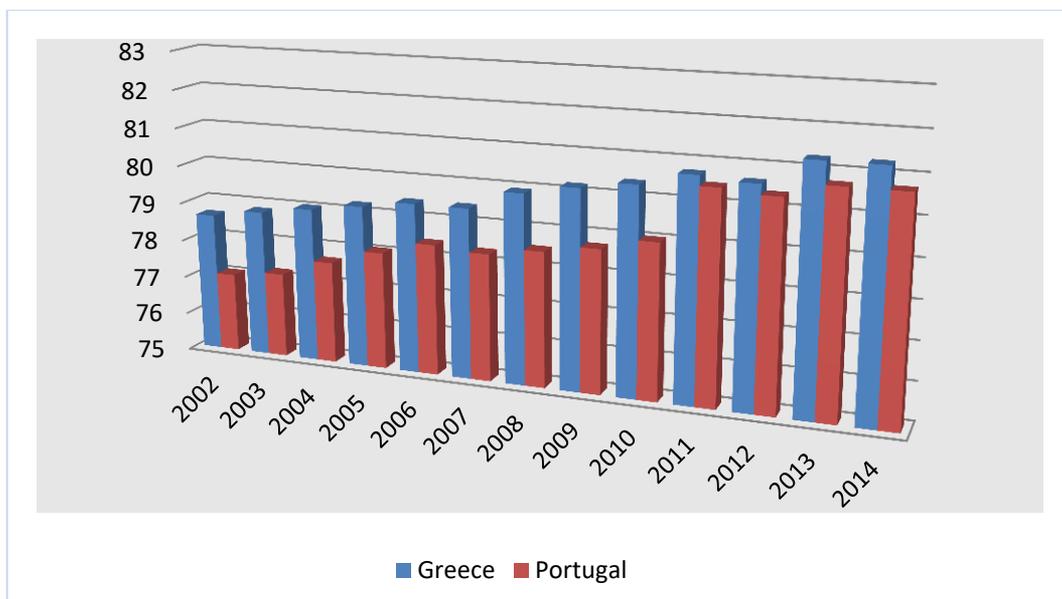Figure 7. Life expectancy at birth, total (years).
Source: https://*data.worldbank.org/indicator/SP.DYN.LE00.IN*

Furthermore, according to recent data on annual growth of the general population in both countries, a much higher rate of decrease is observed than the rate of increase in the years prior to 2011 (Figure 8).
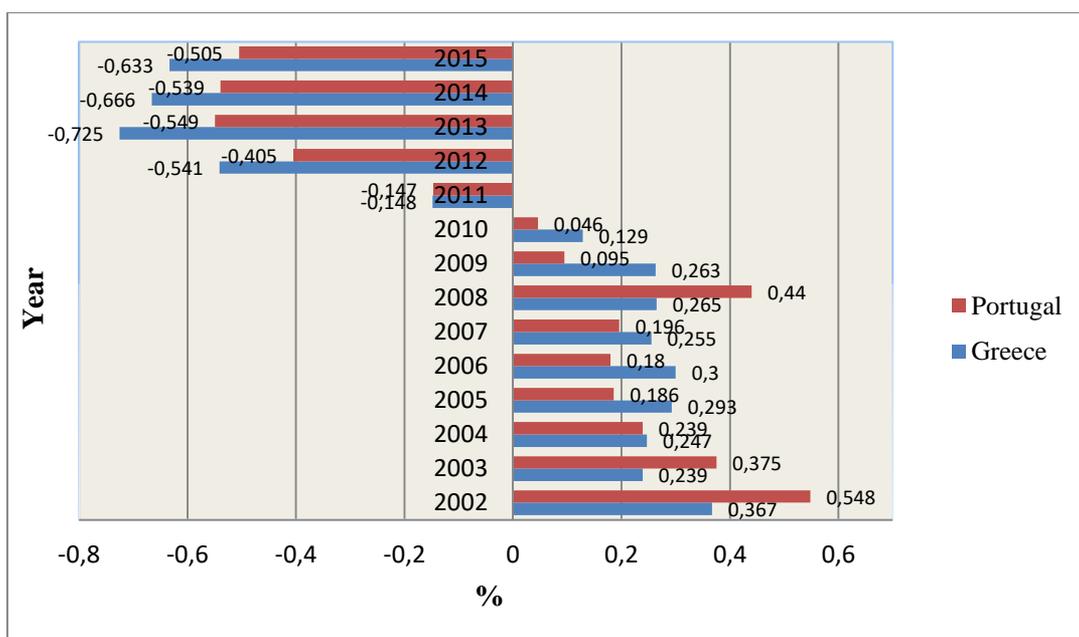

Figure 8. Population growth (annual %).
Source:https://data.worldbank.org/indicator/SP.POP.GROW?end=2015&start=2002

Morbidity rates in both Member States are also noteworthy, with Greece clearly recording a higher morbidity rate of 74.6% in 2005 compared to that of Portugal at 40.7%. Rates range from a decline in the following years to a slight increase in both countries in 2011, with Greece at 74.1% and Portugal at 44.5%, followed by a steady decline (Figure 9).
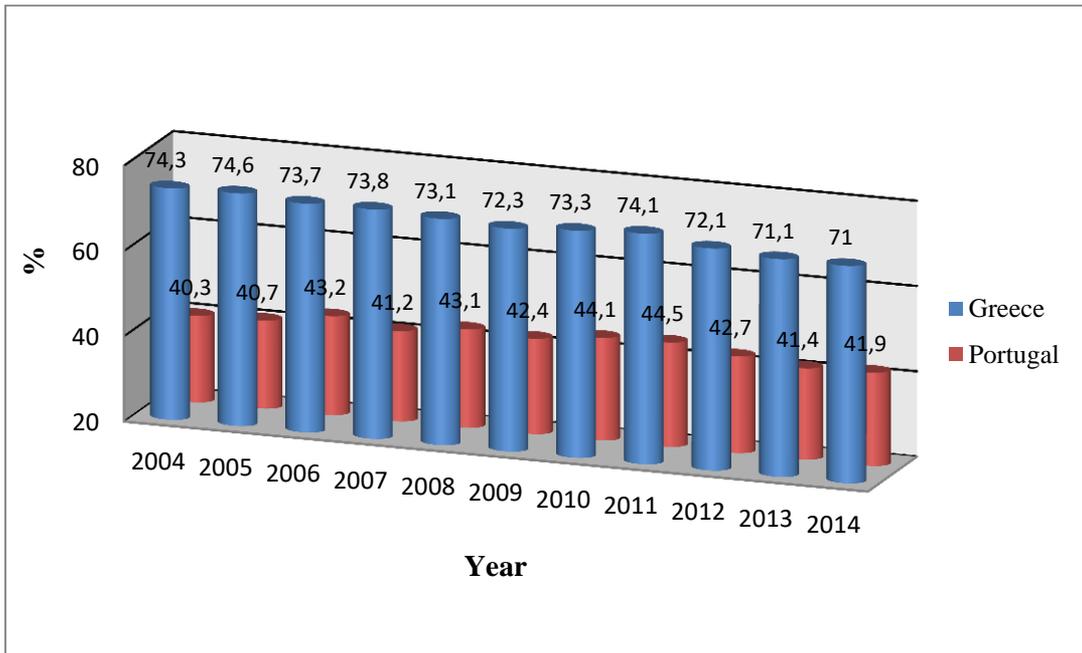

Figure 9. Morbidity rates in both countries.
Source: http://stats.oecd.org/index.aspx?DataSetCode=HEALTH_STAT

According to Eurostat data [9], with regard to all-cause mortality there has been a successive series of increases and decreases over the years from 2001 to 2014, with a marked increase in deaths between 2011 and 2012 in both countries (Figure 10). According to the World Bank's Open Data, [10] the death rate per 1,000 people is also depicted with the same fluctuation in the figures, with an increase from 9.5% to 10.6% for Greece between 2011 and 2012, and a decrease from 10.4% in 2003 to 9.7% in 2011 for Portugal, followed by an increase to 10.2% in 2012 (Figure 11).
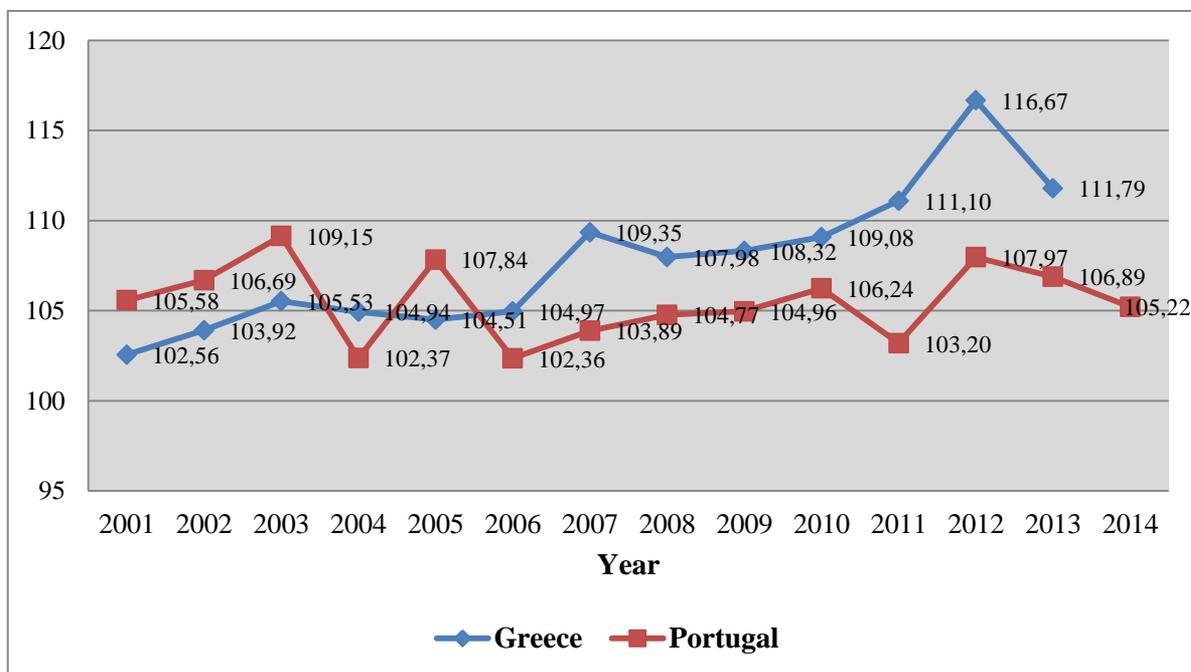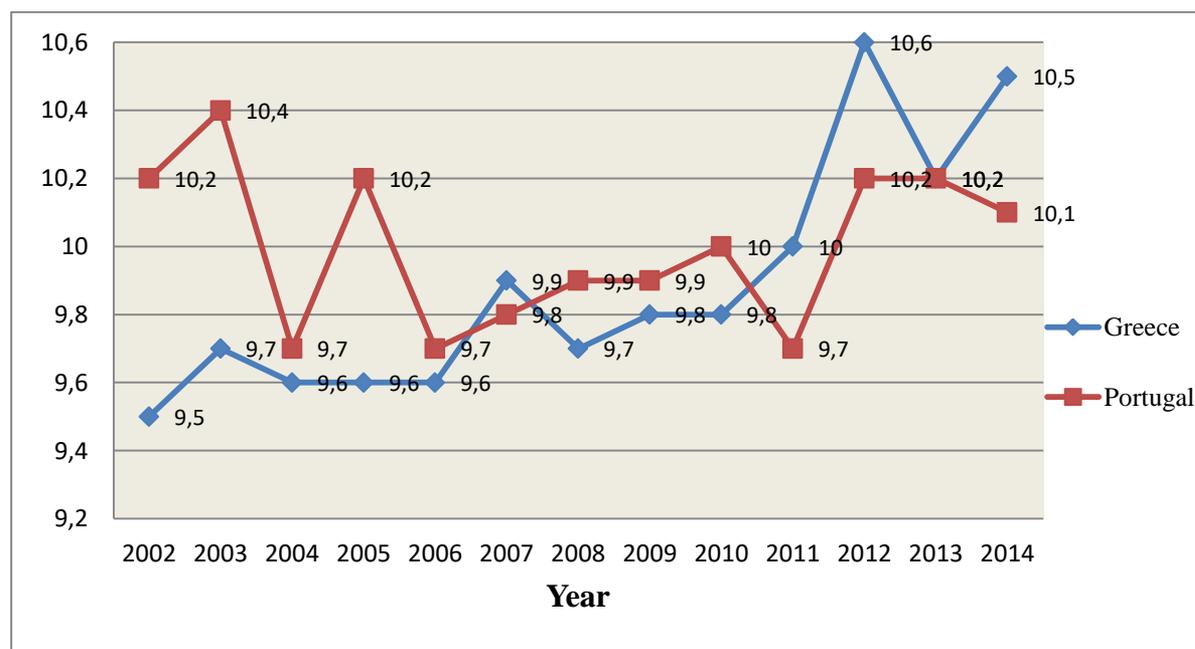
Figure 10. All-Cause Mortality.
Source: http://ec.europa.eu/eurostat/data/database

Figure 11. Death rate, crude (per 1,000 people).
Source:https://data.worldbank.org/indicator/SP.DYN.CDRT.IN

According to the World Bank's Open Data, with regard to infant mortality there is a marked decline over the years for both countries, with Greece recording higher rates than Portugal (Figure 13). Additionally, OECD data [11] show that Greece recorded higher rates than Portugal in 2006, marginally higher rates in 2007, and significantly higher rates in 2010 and 2011. Portugal, on the other hand, recorded higher rates in 2008, 2009 and 2011 (Figure 12).
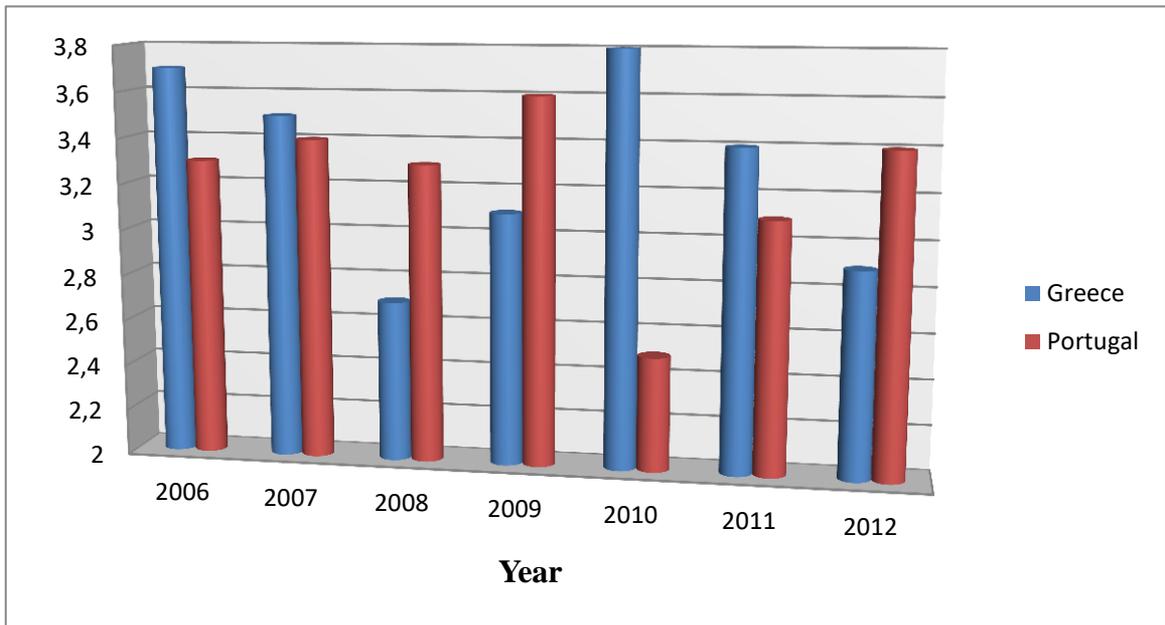

Figure 12. Infant mortality per 1,000 live births.
Source:http://www.oecd-ilibrary.org/social-issues-migration-health/infant-mortality_20758480-table9
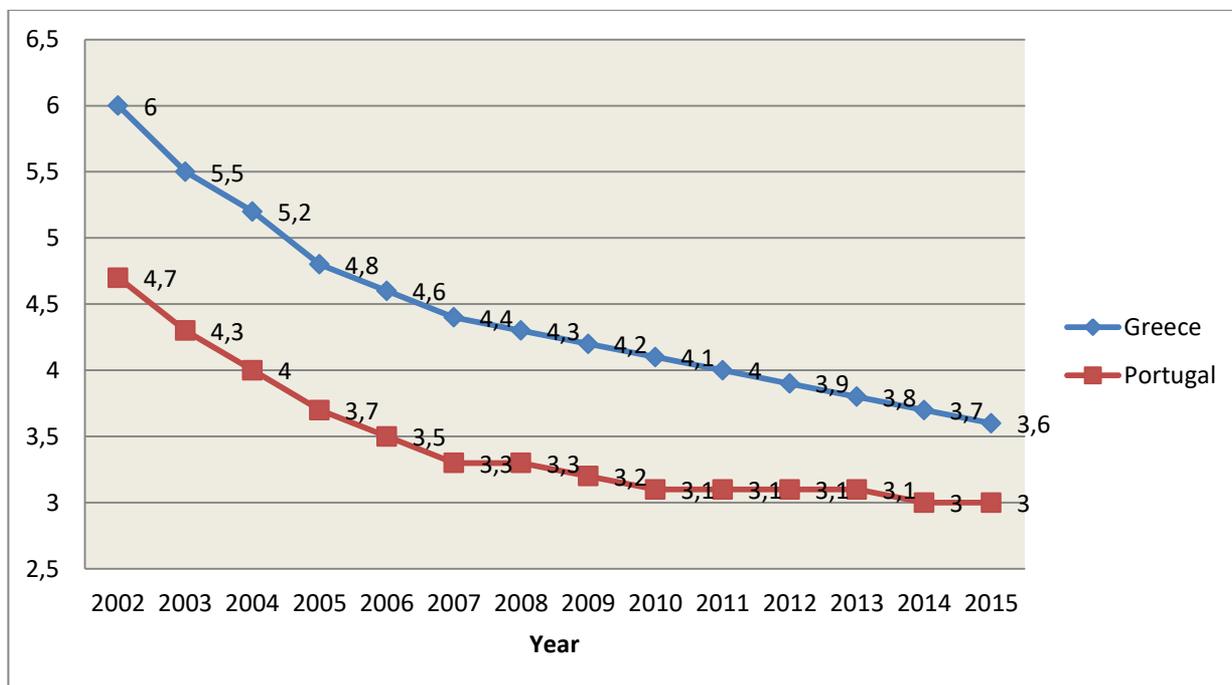
Figure 13. Infant mortality per 1,000 live births.
Source: https://data.worldbank.org/indicator/SP.DYN.IMRT.IN

3.3 Investigation into the Negative Impact of the Economic Crisis on Health Indicators.

Between 2007 and 2010, the unemployment rate increased both significantly and rapidly in European countries, such as Portugal, Slovakia and Bulgaria (3%), Denmark, Greece and Hungary (4%), Iceland (5%), Ireland (9%), Spain and Estonia (12%), Latvia (13%), and Lithuania (14%). Tax revenues decreased and expenditures increased, mainly due to bank rescues, but also partly due to the cost of unemployment. Government deficits in the affected countries increased, with some countries adopting austerity measures and making large cuts in public expenditure. Austerity policies also included large-scale cuts and public structural reforms. However, some countries were better prepared than others as they had adopted fiscal austerity measures prior to the recession. These countries were able to take advantage of counter-cyclical fiscal policies, in terms of maintaining the fiscal reserve and allocating it to health and to expenditure supporting economically-inactive groups in the population [12]. In stark contrast, countries such as Portugal and Greece were placed under the surveillance of the European Commission and the International Monetary Fund to be bailed out after having signed up for economic adjustment programmes. These programmes included fiscal measures and reforms aimed at reducing the government deficits of these countries [13].

Greece's economic crisis deepened since it was bailed out by the

international community in 2010. The country underwent the sixth consecutive year of economic contraction in 2013, with its economy shrinking by 20% between 2008 and 2012 and anaemic or no growth projected for 2014. Unemployment more than tripled, from 17% in 2008 to 24.3% in 2012, and long-term unemployment reached 14.4% [14].

The deep financial crisis that Greece entered in 2008 has raised concerns about severe public health consequences, economic downturns historically being associated with increases in mortality. In 2012, there were 116,670 deaths in Greece, the highest number since 1949. The 2008–2012 rise in the number of deaths is attributed to the increase in the number of deaths in the oldest individuals, with increases of 12.5% and 24.3% in those aged 80–84 and over 85, respectively. This increased mortality in people over 55 possibly constitutes the first evident consequence of austerity on mortality in Greece. This trend could be related to barriers to accessing health care for the chronically ill due to drastic restrictions in health policies and the increased number of those uninsured [15].

Similarly, in Portugal, austerity measures imposed by the IMF have led to major consequences for vulnerable population groups and an increase in mortality, mental diseases and suicides. An increase was also noted in the percentage of the population reporting unmet healthcare needs due to an increase in the number of those seeking healthcare provision and due to the implementation of the co-payment for healthcare services. Consequently, access to healthcare has decreased, resulting in an increase in mortality caused by various diseases. Portugal has recorded one of the highest increases in the percentage of the population being unable to keep their home adequately heated, resulting in high morbidity from illnesses. Only Greece has exceeded this percentage in recent years [12].

During economic crises, the demand for healthcare and the utilization of such services follows a general drop in socioeconomic status. Several studies indicate that unmet health care needs in Greece and Portugal have increased. This is a consequence of increased unemployment and an absence of health insurance [9, 13] (Figure 14).
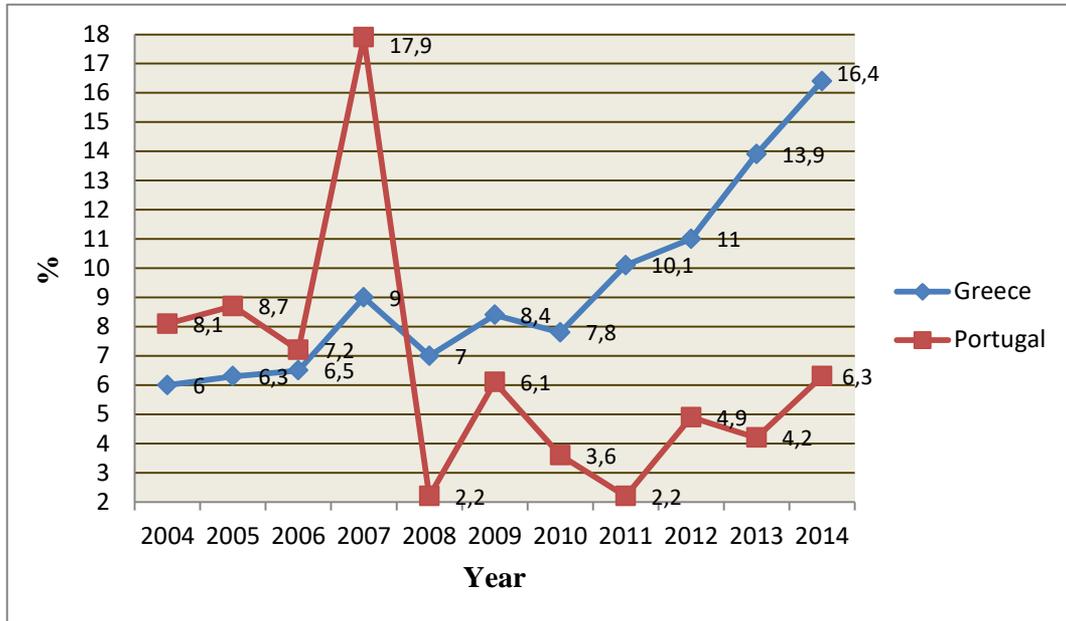
Figure 14. Unmet needs for medical care.
Source:http://ec.europa.eu/eurostat/tgm/table.do?tab=table&init=1&language=en&pcode=tsdph 270&plugin=1

Of significance is the reported increase in the suicide rate recorded in Greece, reaching 36% between 2009 and 2011. Portugal, in contrast, was one of the countries with the lowest suicide rates in Europe and is the only country that did not witness a clear reduction in the suicide rate during 2000-2011 [14]. A correlation with the country's economic recession is evident from the fluctuation of suicide rates and mental illnesses and high unemployment rates, especially in rural areas affected by the country's economic recession, affecting the lives of citizens facing shortages in health and education and material deprivation [16] (Figure 15).
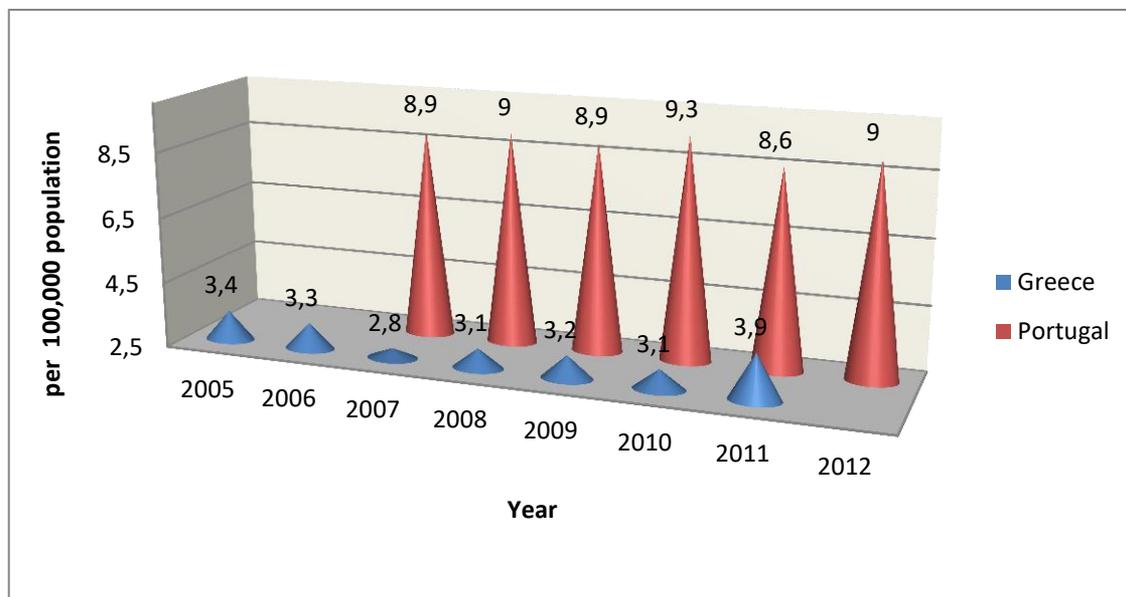
Figure 15. Suicides per 100,000 population.
Source: http://www.oecd-ilibrary.org/social-issues-migration-health/suicides_20758480-table10

Examining the direct impact of recession on Greece, it can be seen that, through a series of austerity measures, the public hospital budget was reduced by 26% between 2009 and 2011. The result of this impact was for several prevention programmes, and also programmes for support and treatment of illicit drug use, to be cut. Along with high rates of unemployment and poverty, there was also an increase in HIV incidence rate [14] (Figure 16).
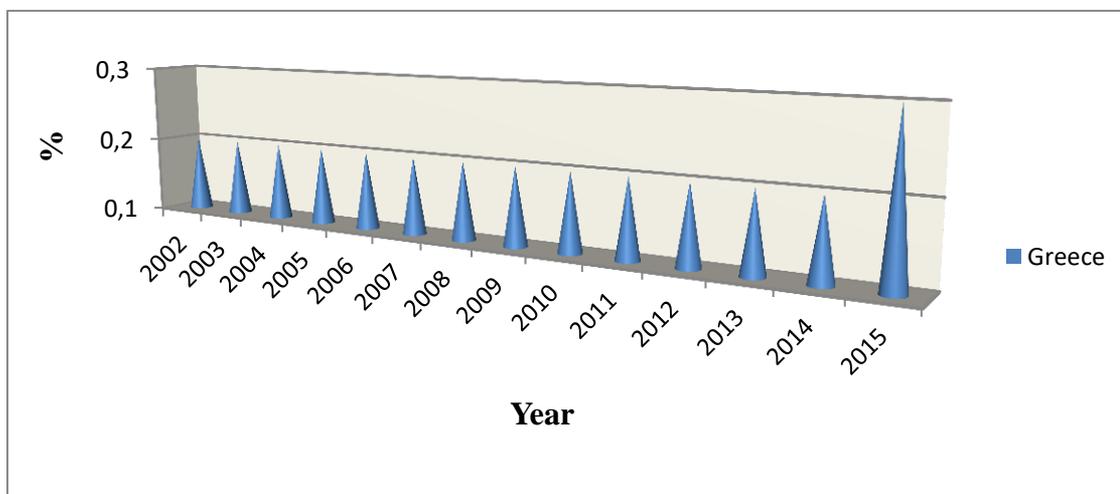

Figure 16. Prevalence of HIV in population.
Source:https://data.worldbank.org/indicator/SH.DYN.AIDS.ZS?locations=GR

It is also important to note the increased percentage in infant mortality between 2008 and 2010 at 43%, due to limited prenatal care and lack of access to healthcare services for pregnant women. Unemployment and cuts in prevention programmes, and at the same time the absence of medical coverage for the uninsured, are related to the above [14] (Figure 17).
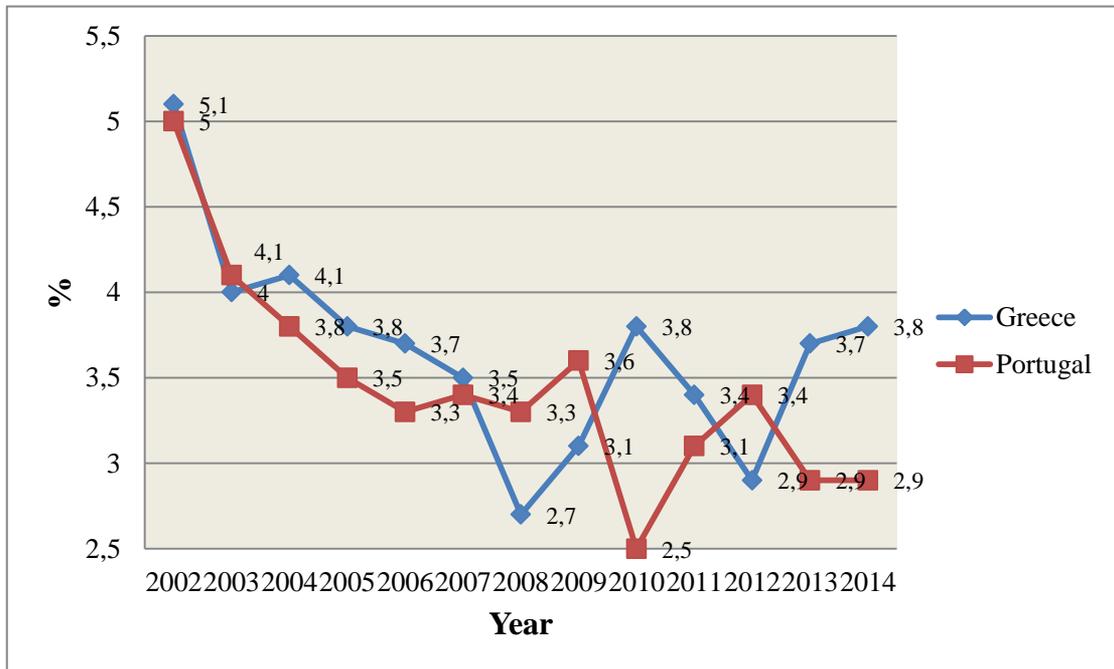

Figure 17. Infant Mortality.
Source: http://stats.oecd.org/Index.aspx?DataSetCode=HEALTH_HCQI

3.4 Comparison of Results with the Granados - Rodriguez Study

In the Granados and Rodriguez study, a comparison is made between Greece and two other countries, i.e. Iceland and Finland, in which, although they entered a phase of recession, no austerity policies were applied. The comparison of the data studied showed that there is improvement in health in Greece and that claims by other authors of the harmful effects of economic crisis on health seem overly exaggerated [17]. This comparison is of course somewhat unequal, as it compares Greece, a country in the South, with countries in the North, featuring different climate changes, different cultures, different organization of health and social infrastructure, and with strong economies based on large fish exports and energy self-sufficiency.

Subsequently, reference is made to a significant drop in mortality at all ages and a slight increase in infant mortality after 2008 [17]. The major decline in mortality reported in the study is attributed to cause-specific mortality, and the possible logical explanation is that in times of economic crisis people reduce

abuse (alcohol, junk food), drive less and use public transport more, and have enough free time for a healthy lifestyle (good sleep-exercise). In contrast, other mortality rates are rising, such as the suicide rate as a consequence of an increase in mental diseases associated with high unemployment [3].

The study also reports a potential rise in the incidence of AIDS due to profound cuts in public health expenditure and a lack of spending on special programmes of prevention and treatment for illicit drug use. This is also associated with the poor conditions in Greek hospitals, particularly the provision of health services, due to reduced health expenditures imposed by austerity measures. A general examination of available indicators of population health and of performance of the health care system reveals changes in specific aspects, but no significant deterioration of population health or the health care system in any one of them. The general pattern is that health indicators improved at similar or faster rates than in previous years [17]. However, in contrast, it is not reported that the likely consequences of economic recession on health begin to appear in 2013 and not from the beginning of austerity, as presented in the study. Much worse effects are expected to emerge in the coming years as the recession continues [18].

3.5 The Evolution of Health Expenditure per Capita in Greece and Portugal

Entering the 9th year of economic crisis in 2016, Greece has witnessed a 29% drop in its gross domestic product (GDP) between 2008 and 2014.With the implementation of reforms and cuts in health expenditure due to austerity measures, it has rapidly and drastically reduced public expenditure by capping it at 6% of GDP, and public spending on health is now less than any of the other pre-2004 European Union members. Portugal has also cut public spending from 69% to 64% [14, 18, 19] (Figures 18-19).
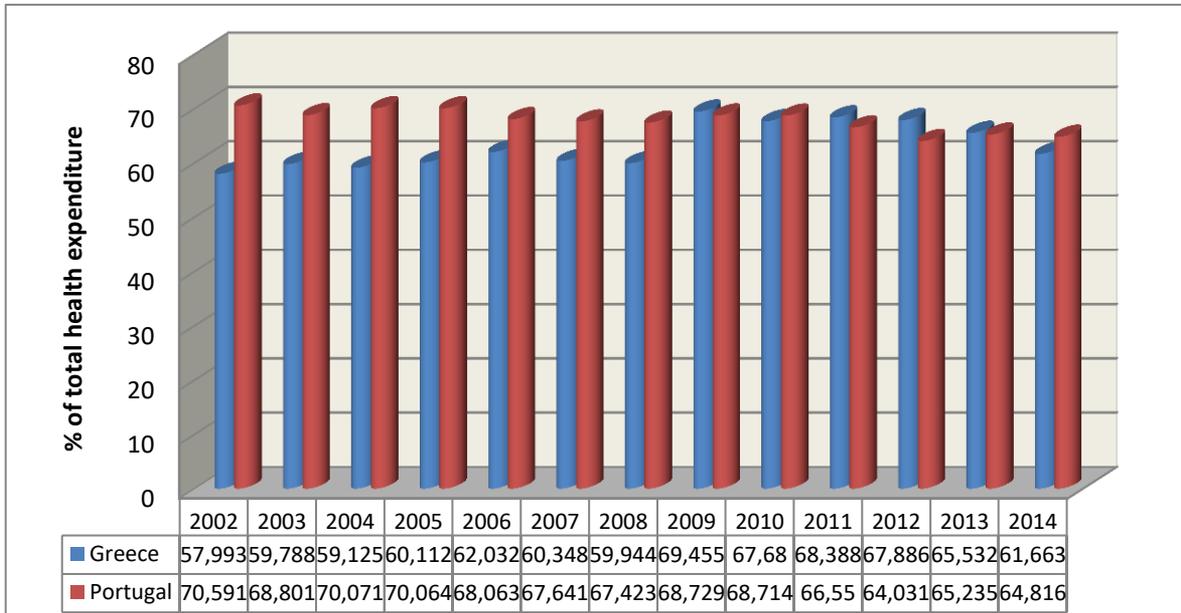
	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
■ Greece	57,993	59,788	59,125	60,112	62,032	60,348	59,944	69,455	67,68	68,388	67,886	65,532	61,663
■ Portugal	70,591	68,801	70,071	70,064	68,063	67,641	67,423	68,729	68,714	66,55	64,031	65,235	64,816

Figure 18. Health expenditure, public (% of total health expenditure).
Source:https://data.worldbank.org/indicator/SH.XPD.PUBL?end=2014&start=2002
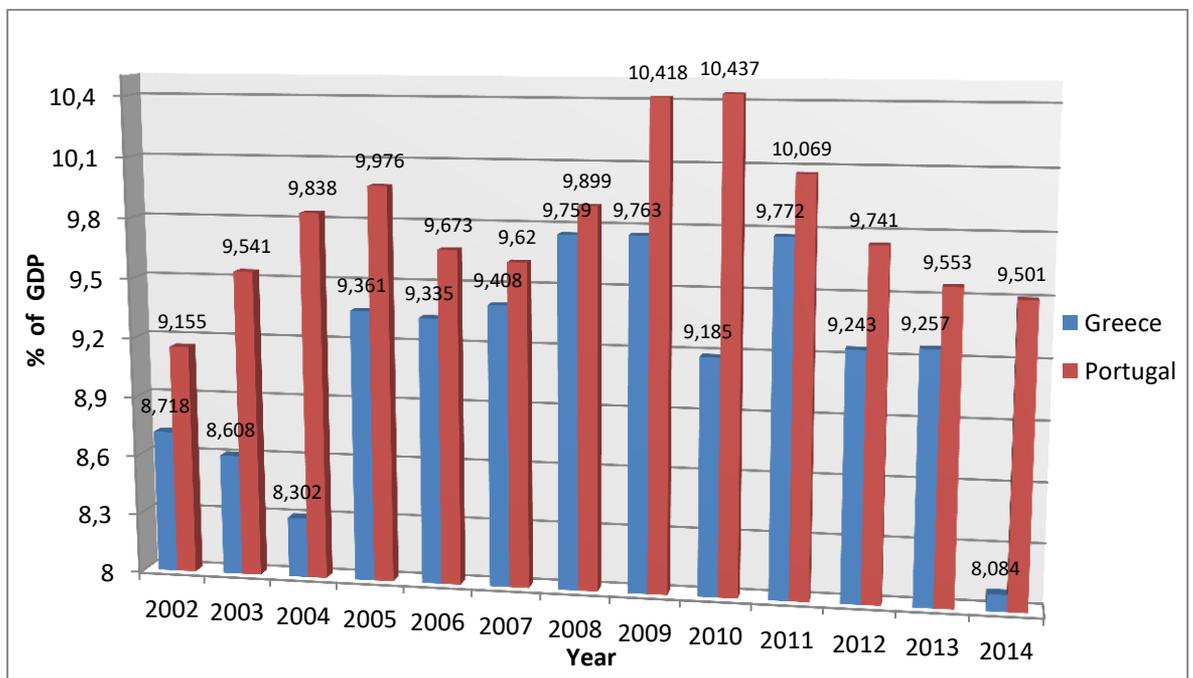
Figure 19. Health expenditure, total (% of GDP).
Source:https://data.worldbank.org/indicator/SH.XPD.TOTL.ZS?end=2014&start=2002

Graphs 20 and 21 present health expenditure per capita in both countries with significant reductions from 2010 onwards. The proportion of health expenditure in Portugal is clearly higher than that in Greece, with the decline in 2014 being significant (Figure 20-21).
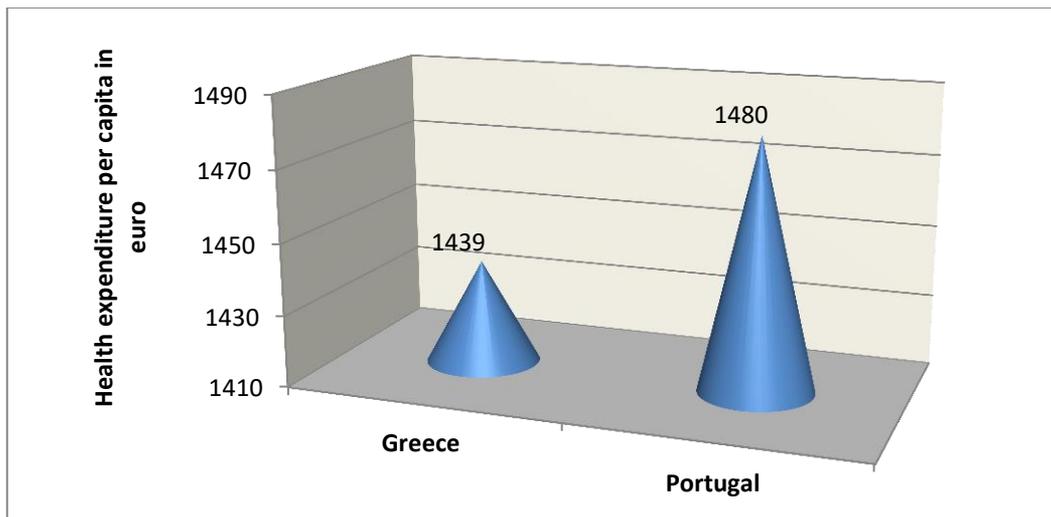

Figure 20. Health expenditure per capita (2013).
Source: http://ec.europa.eu/eurostat/statistics-explained/index.php/Main_Page
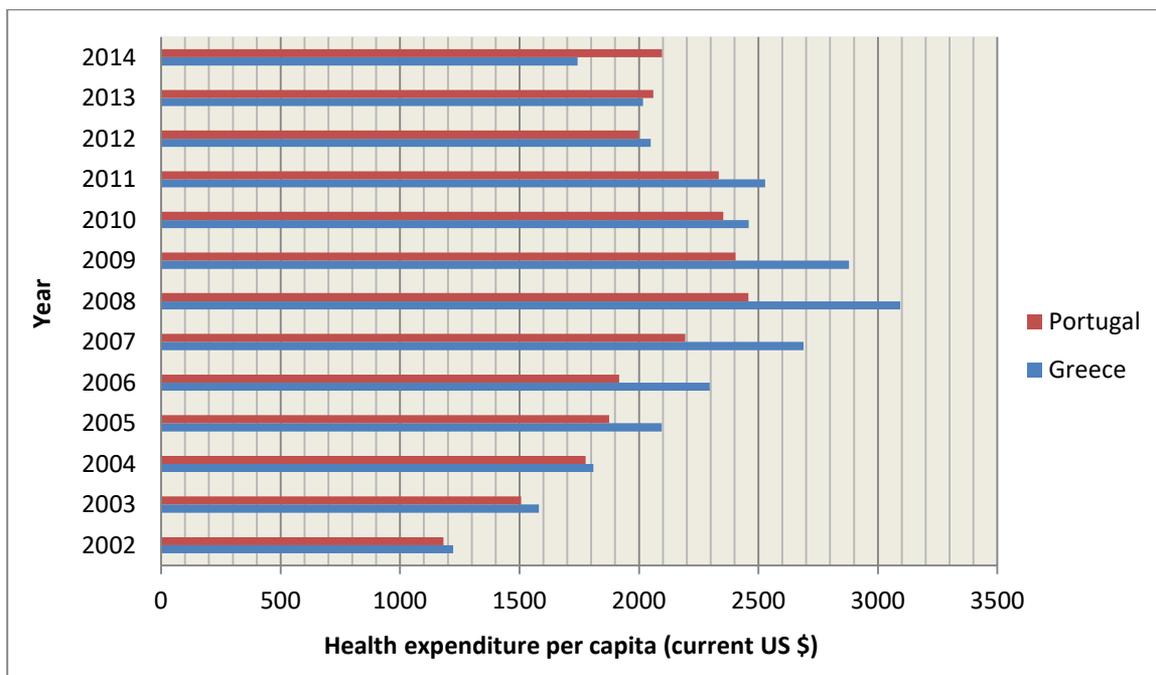
Figure 21. Health expenditure per capita (2013).
Source: https://data.worldbank.org/indicator/SH.XPD.PCAP?end=2014&start=2002

The correlation between the increase in negative health indicators and the cuts in health expenditure within the framework of austerity is shown to be directly linked according to the figures in the graphs.

4   Conclusions

As a result of the above data, the determinants influence the level of population health depending on the extremity of the impact they exert on the individual and their environment. Some impact only on the individual and others on society and the environment as a whole, negatively and positively affecting health status. Life expectancy in Greece has increased, but there has also been an increase in the mortality rate in the age group 80+with the leading cause of death being cardiovascular diseases. Consequently, a comparison of life expectancy at birth reveals Greece to have recorded higher rates than Portugal over the years. In contrast, from 2011 onwards, a decline in the population in both countries is observed. With regard to morbidity rates in the two countries, these fluctuate but tend towards a decline, with Greece clearly recording higher morbidity rates. Subsequently, all-cause mortality in both countries records a successive series of increases and decreases over the years from 2001 to 2014, with a marked increase in deaths between 2011 and 2012. There is a decline in infant mortality rate over the years simultaneously in both countries, with a slight increase in 2011 when Greece records higher rates. The negative impact of austerity measures on health indicators in both countries has led to an increase in suicides, infant mortality, prevalence of AIDS and the proportion of self-reported unmet healthcare needs.

The Granados and Rodriguez study examines the overestimation of the impact of recession on health, unequally comparing countries such as Greece, which is subject to austerity measures, with Iceland and Finland, which have not adopted austerity measures. Finally, the study shows the health expenditure per capita relative to GDP in both countries, and the correlation of the negative impact on health indicators following the cuts imposed by austerity measures.

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