

Productivity Losses due to Premature Mortality from Cancer in Greece.

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The International Society for Health Economics and Outcomes Research, 12th -15th November 2023, Copenhagen, Denmark

NOTE: Updated Results of the Analysis

BACKGROUND

- The incidence and mortality of cancer globally have been increasing over time. Projections of the International Agency for Research on Cancer of the World Health Organization show that from 2020 to 2040 a 47% increase is expected in the incidence of cancer and a 38% in the mortality of cancer.¹
- The cost of cancer in the European Union was €199 billion in 2018.²
- Total Productivity loses from cancer were €70 bn of which €50 were attributed to premature mortality and €20 bn from morbidity in 2018.²
- “In Europe, there have been continuous increases in 5-year survival rates for the most common cancer types in all countries.”³
- Since the Early 1990s(1991-2019), cancer death rates have declined by 32%.” A large proportion of these gains and namely 73% is estimated to be attributed to advances in treatments and medicine.⁴
- As a result, interventions to help cancer patients, their families and society are essential to improve the probability of long-term survival and potentially cure.⁸ Such interventions include combating risk factors which are associated to cancer such as: 1) smoking,⁵ 2)alcohol consumption,⁵ 3)HPV virus infections and more.⁵ Additionally, other important measures include improving primary and secondary preventive mechanisms such as adopting a healthier lifestyle and screening while also optimizing access to treatment for all cancer patients.^{6,7}

OBJECTIVES

This study aims to examine the monetary value of life years lost due to premature mortality from cancer in Greece. The data sources are World Bank and Eurostat datasets. The analysis is run for three time points 2010, 2015 and 2019. The direction of the results is also an important objective of our analysis.

METHODOLOGY

Description of the model structure

Greek age-specific cancer related deaths were used to calculate Years of Life Lost (YLL); defined as the difference between average life expectancy per gender and observed age of death. Years of Productive Life Lost (YPLL) and Present Value of Future Lost Productivity (PVFLP) accounted for productivity losses. PVFLP was calculated based on gender-specific earnings stratified by age-group and labor force participation rates multiplied by YLL. Productivity losses beyond the age of retirement were not taken into account. The analysis was run for three time points: 2010, 2015, and 2019. The trend and direction of the results is an important, insightful objective for this analysis.

RESULTS

Mortality Loses from Cancer

The overall cancer mortality in Greece through the three time points examined was 48,480 deaths in 2010, 54,022 in 2015 and 54,241 in 2019. The data indicate an increase in cancer mortality of 10,3% from 2010 to 2015; while from 2015 to 2019 an increase of 0.4% was observed. As a result, a decrease of 9.9% percentage points was observed from 2015 to 2019 in overall cancer mortality. These outcomes are shown graphically in Figure 1.

Years of Life Lost due to Cancer

The YLL from cancer in Greece were 505,845 in 2010; 591,699 in 2015 and 582,368 in 2019. From 2010 to 2015 a percentage increase of 16.97% was observed in YLL from cancer, whereas from 2015 to 2019 a percentage decrease of 1.58% was observed. Therefore, we observe a change of the direction of the results from 2015 to 2019. These outcomes are shown graphically in Figure 2.

Years of Productive Life Lost due to Cancer

The YPLL from cancer in Greece were 151,589 in 2010; 139,088 in 2015 and 131,344 in 2019. From 2010 to 2015 a percentage decrease of 8.25% was observed in YPLL from cancer in Greece, whereas from 2015 to 2019 a percentage decrease of 5.57% was observed. The results indicate a decreasing trend in YPLL due to cancer from 2010 to 2019. These outcomes are shown graphically in Figure 3.

Present Value of Future Lost Productivity

The PVFLP from cancer in Greece were 1,502,960,012€ in 2010; 1,466,682,271€ in 2015 and 1,383,481,426€ in 2019. A decreasing trend was observed throughout the 3 time points of the analysis. A decrease of 7.95% was observed from 2010 to 2019 for PVFLP in Greece . From 2010 to 2015 a percentage decrease of 2.41% was observed; while from 2015 to 2019 a percentage decrease of 5.67% was observed. These outcomes are shown graphically in Figure 4

Deterministic Sensitivity Analysis

A Deterministic Sensitivity Analysis was run to estimate the parameters with the biggest impact on the results of the PVFLP per death in the model. The results are presented in Figure 5. The parameters with the biggest impact were the retirement age , the average wage and the labour force participation rate.

CONCLUSION

- This analysis shows the productivity losses from cancer in Greece at three times points 2010, 2015 and 2019. To sum up, YLL from cancer in Greece show a decrease from 2015 to 2019, while both YPLL and PVFLP show a clear decreasing trend from 2010 to 2019.
- We conclude that, the decreasing trends over time examined in this study, may be potentially related to advances to: 1) more effective cancer prevention and screening programs,³ 2) advances in diagnostic and surgical techniques,³ 3) a healthier lifestyle of the Greek population, and 4) advances in treatments³ such as novel immunotherapies entering the market in Greece in 2015.
- Thus, continuing these interventions moving forward is expected to further improve cancer mortality, health outcomes for patients and productivity gains for the economy from healthier cancer patients.

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Figure 1:. Mortality loses from Cancer in Greece

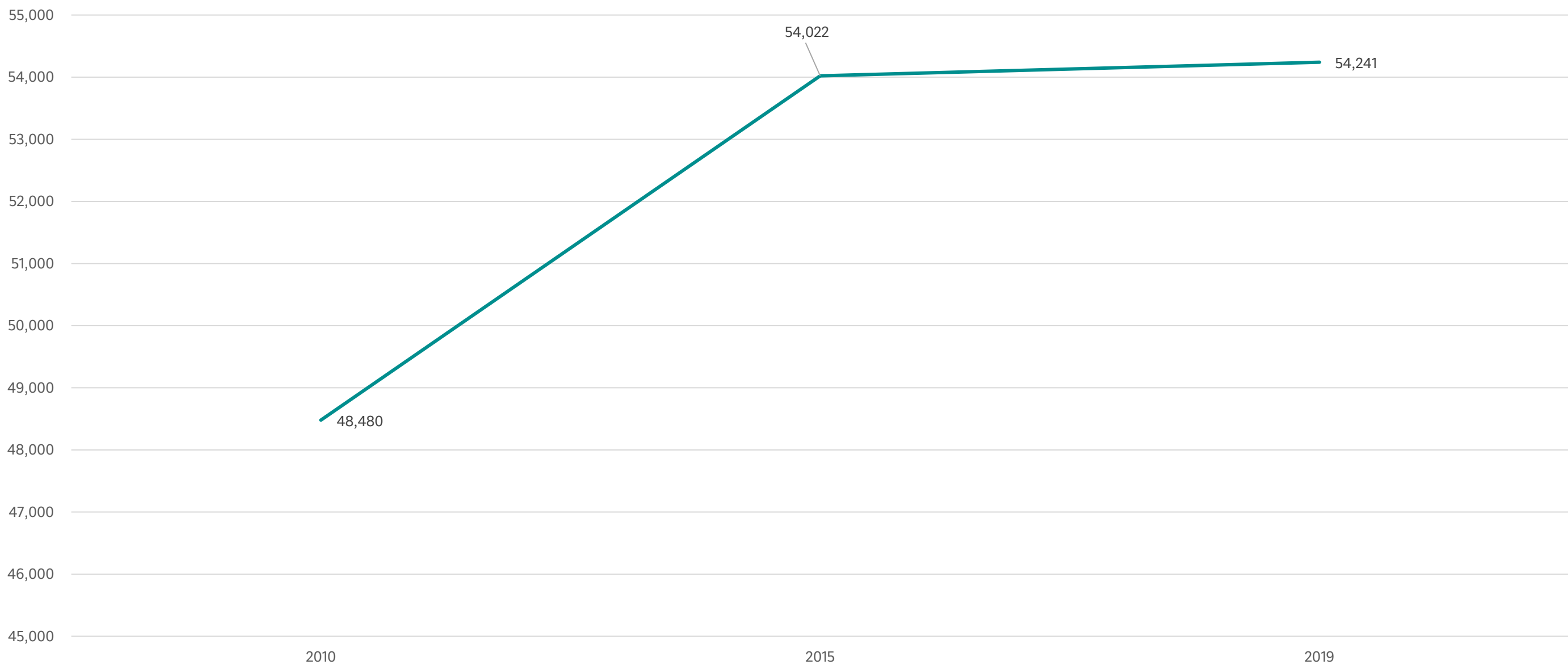


Figure 2:. Years of Life Lost due to Cancer in Greece

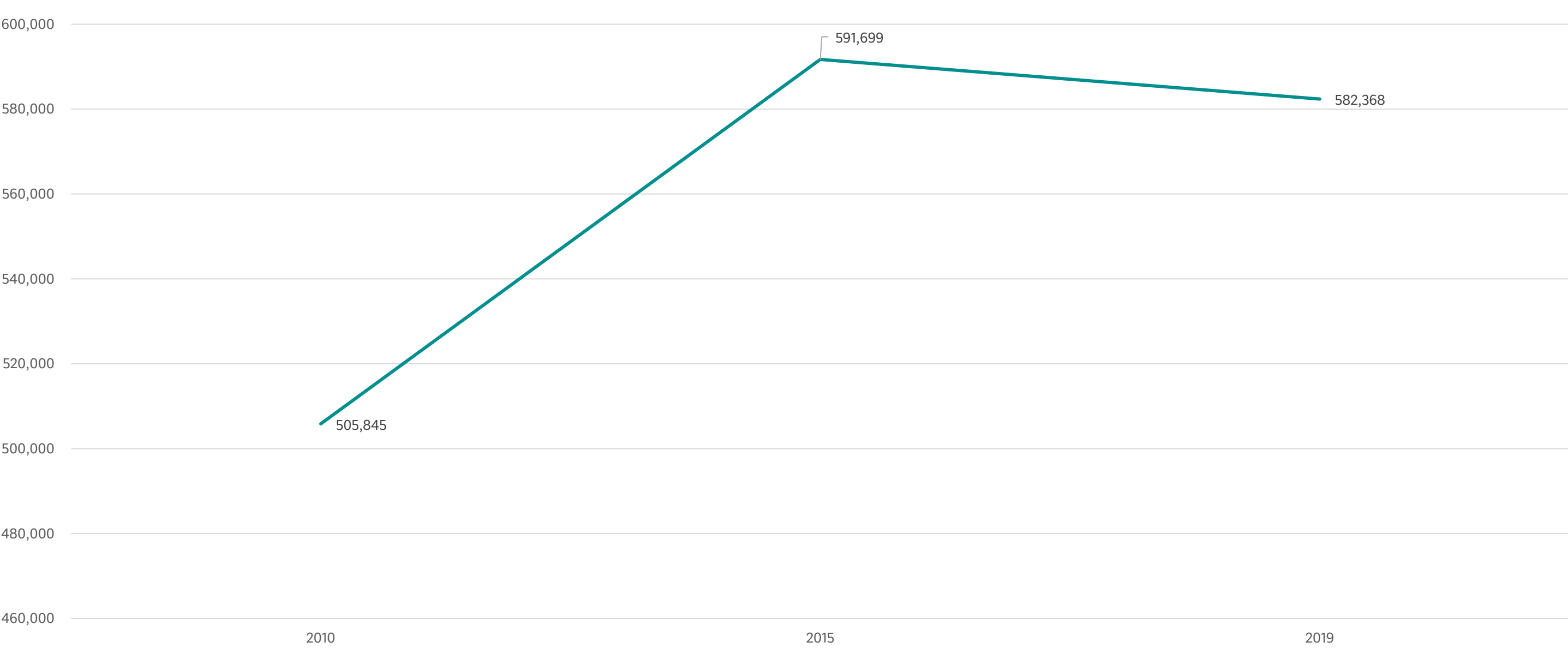


Figure 3:. Years of Productive Life Lost due to Cancer in Greece

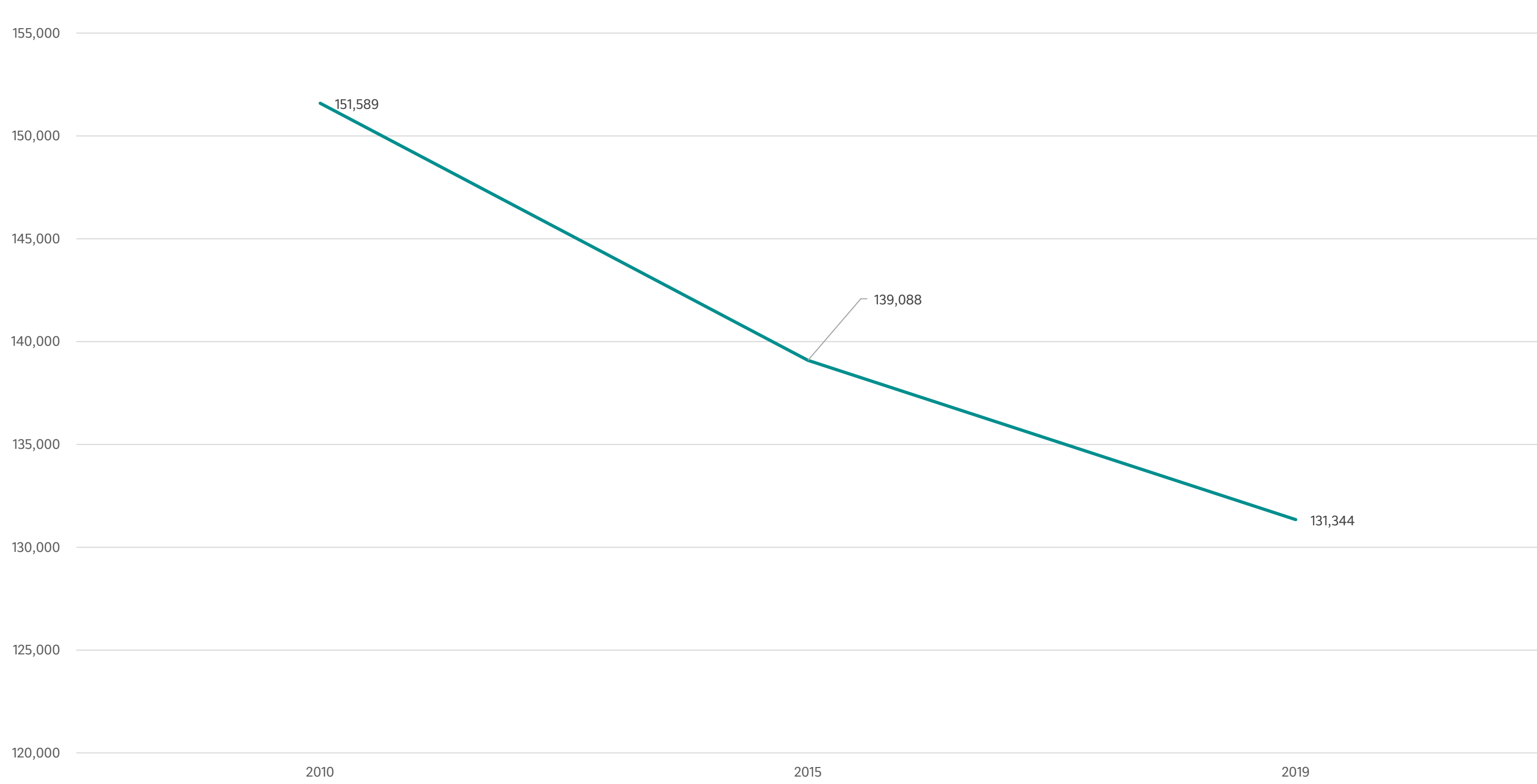


Figure 4:. Present Value of Future Lost Productivity in Greece

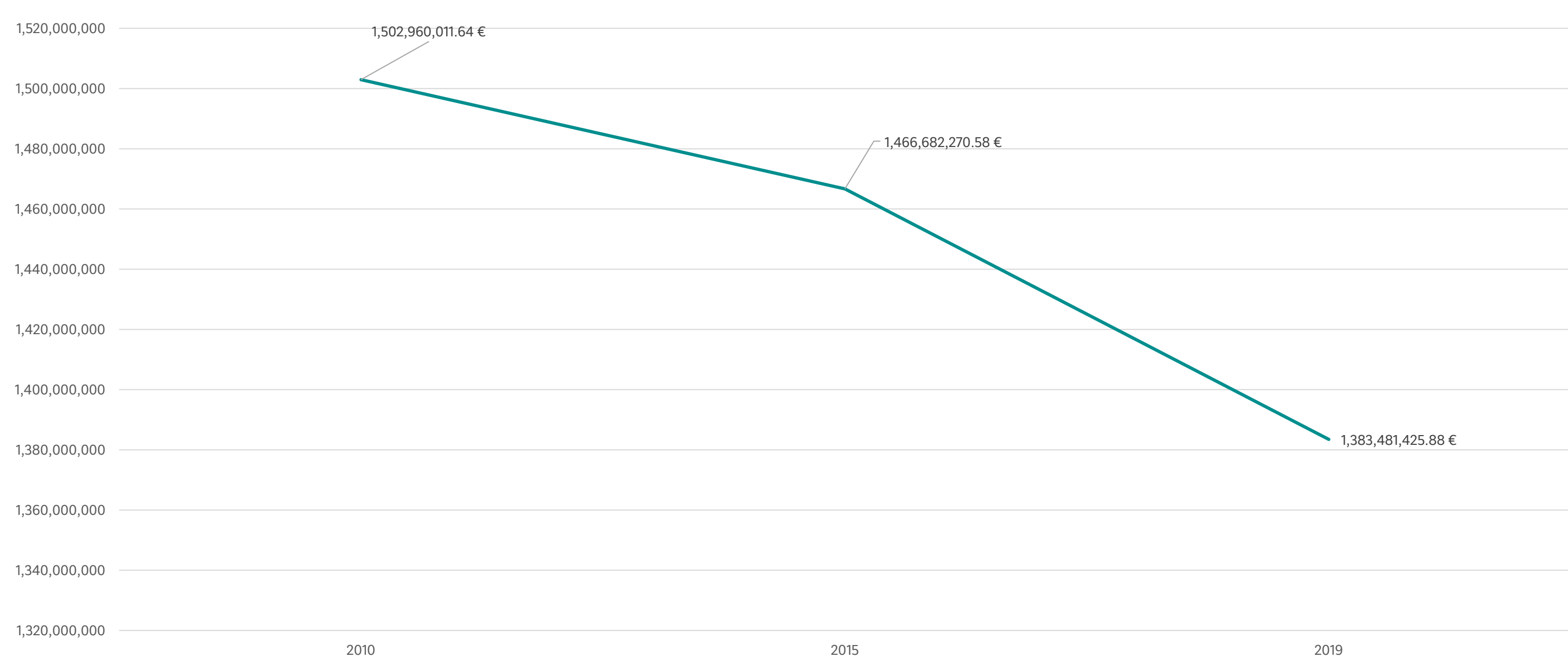


Figure 4:. Deterministic Sensitivity Analysis

