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Is a Greek Economic Miracle in the Making in the 21st Century?

By Gregory T. Papanikos[*]

In the 1950s, many economists were discussing a Greek economic miracle, second only to Japan. The 1950s followed a catastrophic decade (the 1940s) with four years of the Second World War (1940-1944) and another five of civil war (1944-1949). The 2010s were also a catastrophic decade, but this time the initiator was not a foreign army but a foreign economic crisis termed the Great Recession. As was the case in the 1940s, the end of the foreign economic invasion was followed by a civil war on how to better manage the economy. The civil war of the 1940s was between communists and non-communists, and in the 2010s, it was between Europeanists and non-Europeanists. This second civil war ended in 2019 with a victory for Europeanists. The question is whether the end of this civil war will spark another economic miracle in the 2020s similar to that of the 1950s. This issue is addressed in this paper.

Keywords: *Greece, growth, unemployment, inflation, Phillips curve, Okun's Law, eurozone, Great Recession.*

Introduction

The Great Recession started in 2007 in the USA, spread to Europe, and hit Greece very hard, primarily in the beginning of the 2010s. This was a "foreign invasion" with unprecedented economic effects during peacetime. Its economic effects can only be compared with the foreign invasion of the 1940s during the Second World War. I have argued elsewhere that, contrary to what many others claimed at the time by putting the blame on the Greek governments, the real reason the Greek economy was hit so hard was an overvalued Greek real effective euro exchange rate (Papanikos, 2015), which resulted from a restrictive monetary policy imposed on the European Central Bank, primarily by Germany. However, as I have detailed in my book (Papanikos, 2014), the Greek fiscal policy authorities increased public spending by raising public wages, resulting in an increase in public debt. As a result, both monetary and fiscal policies were heading in the wrong direction. The bad monetary policy of the eurozone and the poor fiscal policy of the Greek government explain why the Greek economy was severely impacted when the economic crisis "invaded" Greece.

The purpose of this paper is to look beyond the economic crisis of the 2010s. Drawing an analogy with the 1940s and 1950s, this paper discusses whether the current decade of the 2020s marks the beginning of another Greek economic miracle. The end of the 2010s was also marked by another external shock that

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drastically reduced Greek GDP in 2020, but this time, it was the pandemic that affected all countries. Once again, Greece was hit the hardest, and this cannot be blamed on either the eurozone or the Greek policy authorities. In any case, this was a short-term shock that was immediately balanced by the high economic growth of 2021.[1]

In addition, drawing a similarity with the early 1950s when Greece was affected by the Korean War (1950-1953), another war affected the Greek economy in the early 2020s. The Russian invasion of Ukraine that started in February 2022 has affected the Greek economy by raising energy and other prices, as reflected by the increase in the Greek inflation rate.

This study utilizes data from Eurostat, encompassing actual figures and forecasts up to 2025, to address the question of whether this decade will be marked by a Greek economic miracle in the 21st century. The analysis is descriptive and purely speculative.

The paper is organized into five sections, including this short introduction. The next section provides an overview of the economic growth of GDP and per capita GDP since the 1940s. Some important conclusions emerge that were also analyzed in more detail in my book published in Greek in 2014. The third section discusses the rate of output growth and the unemployment rate, incorporating Okun's law. The fourth section looks at the relationship between the inflation rate and the unemployment rate, including the drawing of a Greek Phillips curve. The fifth section speculates on the Greek economic prospects in the rest of the 2020s and beyond. The last section concludes.

An Overview of Greek Macroeconomic Performance since the 1940s

The first half of the 20th century was a period of wars. Greece participated in many national and global conflicts, including the 1st and 2nd World Wars, two Balkan wars, a war in Asia Minor, and all these wars culminated with the Korean War of 1950-1953. Since the 1950s, Greece, for the first time in its long history, enjoyed a prolonged period of peace. As mentioned by my favored didactic poet Hesiod (8th century BCE), peace allows cities to flourish, and so did the Greek economy since the 1950s. During this period, Greece was able to become a full member of the European Union in 1981 and joined the eurozone since its inception in 2002.[2]

But going back to the 1940s, Greece was hit hard not only because it fought the foreign invaders --the fascists and Nazis-- for four years (October 1940-October 1944) by developing one of the strongest resistance movements in Europe but also by joining forces with the Allied powers to fight in North Africa and the Mediterranean Sea, participating in the critical battle of El Alamein in North Egypt.

[1]I have examined the impact of the pandemic on the Greek economy and on the European Union in Papanikos (2020b, 2020c, 2021, 2022a).

[2]In Papanikos (2022b), I have evaluated the first two decades of Greece's membership in the eurozone.

After its liberation from the Nazi occupation (12 October 1944), Greece immediately entered into a bloody civil war for another five years, from November 1944 to August 1949. No other European country saw its economy destroyed to the extent of the Greek economy. However, by using foreign funds, primarily as part of the Marshall Plan, Greece was able to achieve the highest rate of growth in Europe in the 1950s and 1960s, which was second in the world only to Japan. The following decades were years of peace for the first time in Greek economic history, but not years of internal political stability. However, it seems that this had little effect on the Greek macroeconomic performance.

This section looks at the data of this long period, from the 1940s to the 2020s. This has its own value from an economic history point of view. For example, many journalists and politicians compared the economic "catastrophe" of the 2010s with the economic catastrophe of the 1940s. The latter was characterized by a world war and a civil war. Thus, this is the first issue examined.

Table 1 compares the two periods: 1939-1948. If we compare the growth rates of two decades, the loss in output is very similar. During the 1939-1948 period, the Greek GDP decreased by 23.25%, which is similar to the loss in output of 21.09% during the decade of the Great Recession (2009-2018).

Table 1. *The 1940s and 2010s Compared*

Year	**GDP**	**Growth**	**Year**	**GDP**	**Growth**
1939	22.08	-6.53%	2009	228.6	-4.31%
1940	15.07	-31.75%	2010	216.1	-5.47%
1941	8.06	-46.51%	2011	194.2	-10.13%
1942	7.01	-13.04%	2012	180.4	-7.11%
1943	7.01	0.00%	2013	175.9	-2.49%
1944	7.01	0.00%	2014	176.7	0.45%
1945	7.41	5.68%	2015	176.4	-0.17%
1946	12.00	61.98%	2016	175.5	-0.51%
1947	16.07	33.92%	2017	177.4	1.08%
1948	16.94	5.46%	2018	180.4	1.69%
1939-1948		-23.25%	2009-2018		-21.09%

Notes: Data are in billions of constant 2015 euro. The 1940 value was not available and was estimated using the average value of the 1938 and 1940 figures.
Source: Bank of Greece (1978, Table 29, p. 207 and Table 44, p. 283) and author's calculations up to 1959 and Eurostat (AMECO retrieved 15 November 2023) after 1960.

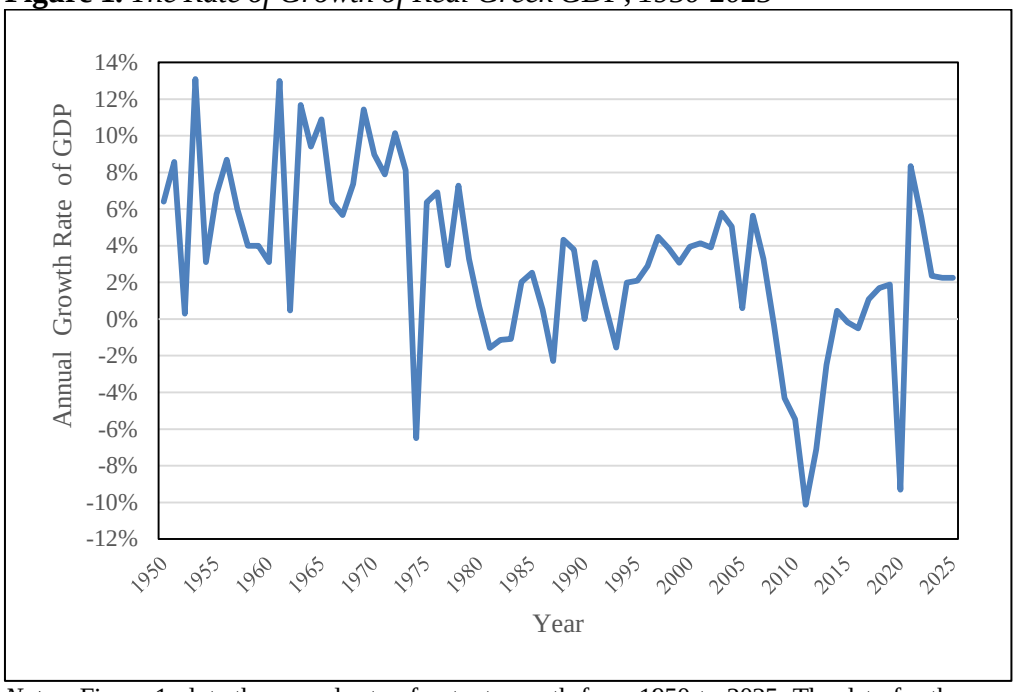
The growth rates do not tell the whole story, but the total GDP does. The drop of GDP from 22 billion to 8 billion in 1941 and 7 billion in 1942 meant that in the winter of 1941-44, Greeks were dying from famine (Hionidou, 2006). The number of people who died from famine is estimated to be about 100,000.

In 1940, the Greek population amounted to 7,344,860, an increase of 1,140,176 relative to the 1928 census. In the 1951 census, the total Greek population amounted to 7,632,801. The increase of 287,941 people was the result of adding the new territory of Dodecanese with 121,480 people.

When comparing the two periods, another important difference emerges. The latter part of the 1940s is characterized by significant growth rates, explained by the fact that the GDP reached its lowest point, even falling below the subsistence level of consumption for its population. By 1948, Greek GDP had doubled relative to 1941 but still lagged behind the GDP of 1939. This occurred despite Greece being in a civil war from 1944 onwards. It is important to note that the civil war was confined mainly to the mountainous areas of North-West Greece and had little to no effect in the main urban centers and most of the Greek countryside.

The 1950s mark the beginning of a new era for the Greek economy and the political process. Never before has Greek society experienced such a prolonged period of peace and progress. The rate of growth of Greek GDP since 1950 is depicted in Figure 1.

Figure 1. *The Rate of Growth of Real Greek GDP, 1950-2025*



Notes: Figure 1 plots the annual rate of output growth from 1950 to 2025. The data for the years 1960-2025 were extracted from Eurostat (AMECO, extraction date: 15 November 2023). The data for the years 1950-1959 were estimated using information from the Bank of Greece (1978).

The Greek economic miracle occurred in the years following the end of the civil war in 1949. There was a long period of economic prosperity from 1950 to 1973. However, as shown in Figure 1, this period is also characterized by very high economic fluctuations. The average growth rate for the period 1950-1973 was 7.31%.

In 1974, the growth rate plunged to -6.5%. The reason was the threat of war with Turkey and the collapse of the Greek dictatorship after ruling Greece for seven years (1967-1974). The period after 1974 consists of years of modest economic growth. From 1975 until the onset of the Great Recession in the Greek economy in 2008, the average growth rate for the 1975-2007 period was 2.65%. The economic fluctuations of the 1950-1973 period are larger than the economic

fluctuations of the 1975-2007 period, as measured by the standard deviations of the two growth rates, which are 0.036 and 0.025, respectively.

The Great Recession started in Greece in 2008. The GDP fell by 0.33% in 2008 and continued its decline throughout the entire decade of the 2010s. During these ten years of the Great Recession (2008-2017), the average growth rate was -2.9%. The average rate for the 1938-1947 period was 1.07%. In 2018 and 2019, positive growth rates of 1.69% and 1.88% were registered, respectively, but the pandemic of 2020 hit the Greek economy very hard, causing the GDP to fall by 9.30%.

Starting in 2021, it seems that the Greek economy is entering a new period of economic progress. I speculate that this might be the beginning of a new economic miracle, which parallels the economic miracle of the period following the end of the Greek civil war in 1949. This is examined in section five below. In the next two sections, I examine Okun's Law and the Phillips Curve as they apply to the Greek data for the 1974-2025 period.

The Greek Output-Unemployment Relationship (Okun's Law)

In 1962, Okun found that a 2% increase in output (actually an increase in aggregate demand) decreases the cyclical unemployment rate by 1%. This empirical relationship has been termed Okun's Law. Its stability and variability have been thoroughly examined across countries, economic cycles and time.

The purpose of this section is not to discuss these issues. A recent article by Porras-Arena & Martín-Roman (2023) discusses the heterogeneity of the Okun's law measurements using a meta-analysis of studies. The purpose of this section is to calculate the Greek parameter of Okun's Law for Greece and compare it with estimations of other countries. A high absolute value of this parameter indicates a strong response of the unemployment rate to output growth.

Okun's Law may be presented with the following simple regression model:

$$\Delta UR_t = \alpha + \beta GDPGR_t + \varepsilon_t$$

where ΔUR_t shows the change in the unemployment rate in period t. $GDPGR_t$ accounts for the rate of growth of GDP.

Indeed, this is a reduced-form equation derived from a production function that establishes the relationship between employment, aggregate demand, and unemployment within the context of a given total labor force, participation rates, and vacancy rates in the labor market.

As mentioned above, Okun's law is an empirical relation, and its coefficients may differ among countries due to variations in the characteristics of the economy, such as self-employment, informal (shadow) employment, sectoral employment structure, moonlighting, illegal employment, government regulations, and laws.[3]

[3]I discussed self-employment, wage rates, and corruption in the Eurozone countries in Papanikos (2023). Additionally, within the Greek context, I investigated the employment effects of small firms

All of these factors influence the response of the unemployment rate to aggregate demand fluctuations. Thus, one may expect significant variations in the estimates of the parameter β in the above equation across countries.

Ball et al. (2017) estimated the parameter β for 20 advanced economies, revealing significant variations. Their findings are presented in Table 2. As anticipated, all estimates of β are negative and statistically significant at the one percent level. However, substantial differences exist among the twenty advanced countries. The estimates range from a high impact of |0.852| for Spain to a low impact of |0.136| for Austria. The average value is |0.396|, with a standard deviation of 0.162.

Table 2. *20 Advanced Economies: Estimates of Okun's Law (1980-2011)*

	β		*Obs*	Adjusted R^2
Australia	-0.536***	(0.0476)	32	0.797
Austria	-0.136***	(0.0438)	32	0.213
Belgium	-0.511***	(0.0817)	32	0.543
Canada	-0.432***	(0.0374)	32	0.805
Denmark	-0.434***	(0.0471)	32	0.724
Finland	-0.504***	(0.0485)	32	0.770
France	-0.367***	(0.0441)	32	0.681
Germany	-0.367***	(0.0629)	32	0.508
Ireland	-0.406***	(0.0395)	32	0.766
Italy	-0.254***	(0.0672)	32	0.292
Japan	-0.152***	(0.0194)	32	0.654
Netherlands	-0.511***	(0.0705)	32	0.617
New Zealand	-0.341***	(0.0493)	32	0.594
Norway	-0.294***	(0.0406)	32	0.617
Portugal	-0.268***	(0.0371)	32	0.615
Spain	-0.852***	(0.0503)	32	0.899
Sweden	-0.524***	(0.0719)	32	0.619
Switzerland	-0.234***	(0.0458)	32	0.439
United Kingdom	-0.343***	(0.0495)	32	0.595
United States	-0.454***	(0.0373)	32	0.821

Source: Ball et al (2017, Table 5). *** shows statistical significance at the one percent level. Standard errors in parentheses.

I estimated the same regression equation using Greek data from 1974 to 2025. The scatter plot of the change in the unemployment rate and output growth is depicted in Figure 2. The relationship is negative, as indicated by the slope of the regression line. The estimated slope coefficient is given in Table 3. I also fitted a second-degree polynomial to the data (not shown in the table), but the squared coefficient of the GDP growth was not statistically significant.

in Papanikos (2004) and explored issues related to agricultural sector employment in Papanikos (2005).

Figure 2. *Scatter Plot of GDP Growth and Change in Unemployment Rate*

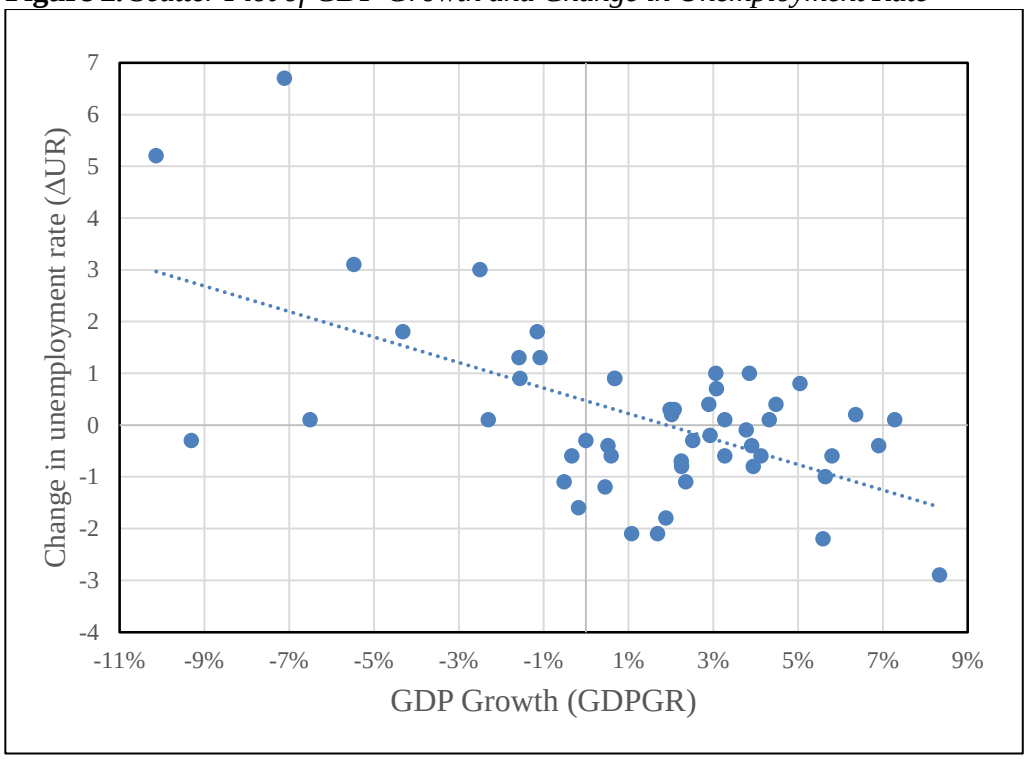


Table 3. *Estimates of Okun's Law Equation, Greece (1974-2025)*

	α	**β**
Coefficient Estimates	0.4697	-0.2465
t Stat	2.3606	-5.1532
P-value	0.0222	0.0000
Lower 95%	0.0700	-0.3426
Upper 95%	0.8694	-0.1504
R Square	0.3469	
Adjusted R Square	0.3338	
Standard Error of the regression	1.3643	
F (probability)	26.55 (0.00001)	
Observations	52	

The value of β is estimated to be equal to -0.2465. When compared with the estimations of β for advanced countries reported in Table 2, it falls at the lower bound, indicating a relatively small effect of output growth on the Greek unemployment rate. An increase in output growth by 2% will decrease the Greek unemployment rate by 0.69%. Only three countries shown in Table 2 have lower absolute values of β: Austria (-0.136), Japan (-0.152), and Switzerland (-0.234). Values very close to Greece's include Italy (-0.254) and Portugal (-0.268).

It goes beyond the scope of this paper to analyze this relatively low response of output growth on the unemployment rate. One explanation might be that the

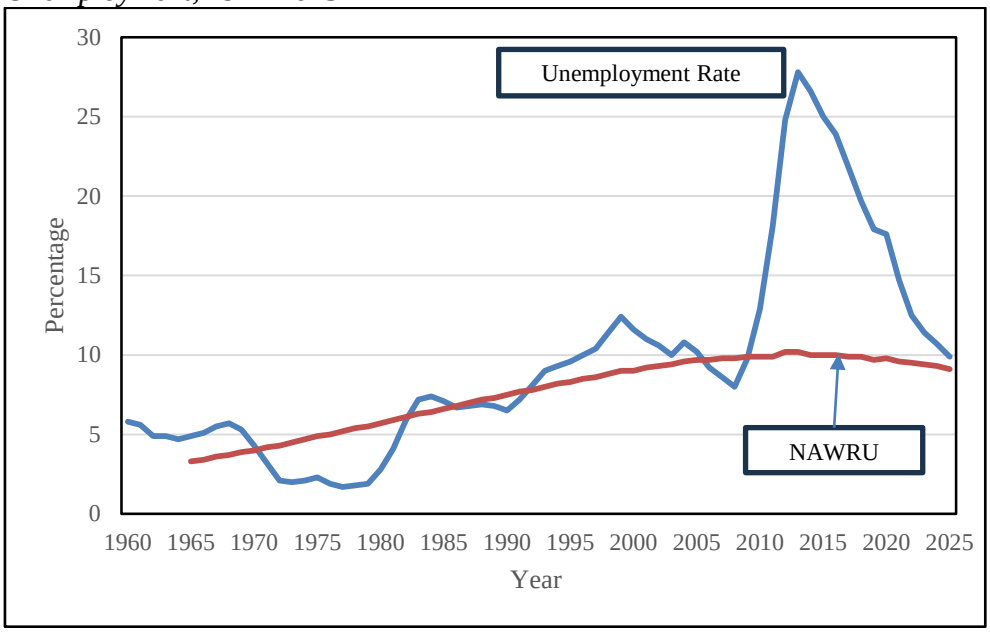
natural rate of unemployment is high in Greece. This issue is examined in the next section of this paper.

Unemployment and Inflation (The Phillip's Curve)

Output growth is the most important indicator of a country's macroeconomic performance. Two other key indicators that reflect the health of the macroeconomy are the unemployment rate and the inflation rate. The relationship between these two is termed the Phillips Curve. This section examines these criteria as well as the shape of the Greek Phillips curve.

Figure 3 plots two Greek unemployment rates: the actual unemployment rate and the Non-Accelerated Wage Rate of Unemployment (NAWRU), both reported by the European Commission. The difference between the two unemployment rates captures what can be termed cyclical unemployment.

Figure 3. *Unemployment Rate and the Non-Accelerated Wage Rate of Unemployment, 1974-2025*

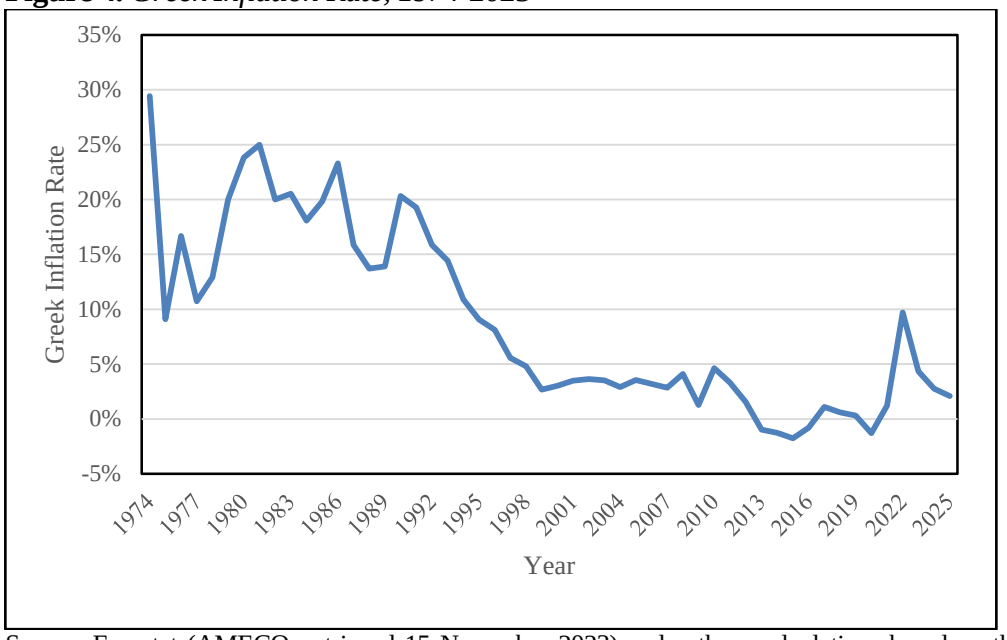


Source: Eurostat (AMECO, retrieved 15 November 2023)

It is evident from the figure, and as expected from the economic literature, that during periods of recession, such as the Great Recession of 2008-2017, the divergence between actual unemployment and the NAWRU is maximized.

Figure 4 plots the Greek inflation rate from 1974 to 2025. The entire long-run period can be divided into two subperiods of high and low inflation rates. From 1974 to early 1998, the inflation rate was high, averaging 16%.

Figure 4. *Greek Inflation Rate, 1974-2025*



Source: Eurostat (AMECO, retrieved 15 November 2023) and authors calculations based on the Consumer Price Index (CPI).

It was around this time that Greece seriously considered the possibility that reducing inflation rates to levels close to other European Union countries, aspiring to join the eurozone, could fulfill the political objective of adopting the euro as the new official national currency. The average Greek inflation rate for the period 1999-2025 was 2.21%.

The relationship between unemployment and the inflation rate is depicted in Figure 5, and the regression results are reported in Table 3. As predicted by the economic literature, the Greek Phillips curve displays a negative, non-linear, and stable relation between the two rates: inflation and unemployment.

As shown in Figure 3, the Greek NAWRU was close to 10% in the last years, a trend also reflected in the Phillips Curve. A zero percent inflation rate can be achieved with a very high official unemployment rate of 20%. During the Great Recession, the Greek unemployment rate skyrocketed, reaching levels over 20% from 2012 to 2018. During these years of hyper-unemployment (2012-2021), the Greek inflation rate averaged -0.13%.

Figure 5. *The Greek Phillips Curve, 1974-2025*

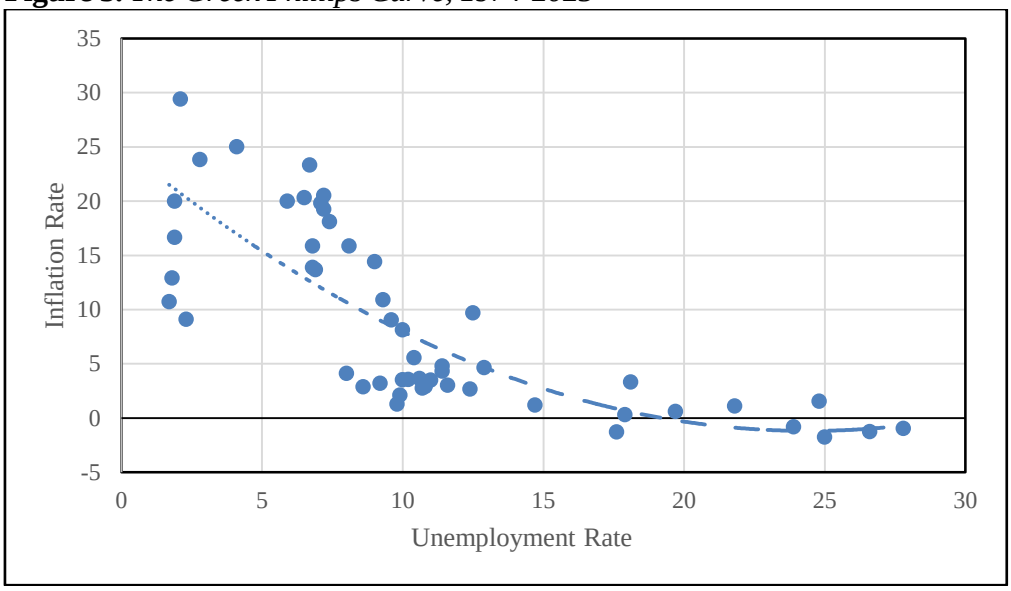


Table 3. *Estimation of the Greek Phillips Curve, 1974-2025*

Variables	Coefficients	t Stat	P-value
Intercept	0.2504	10.23	9.4E-14
UR	-0.0215	-5.25	3.3E-06
UR^2	0.0004	3.12	3.1E-03
	R Square	0.6119	
	Adjusted R Square	0.5961	
	F	38.63	
	Significance F	0.0000	
	Observations	52	

In conclusion, the Greek macroeconomic performance aligns with the postulates of economic literature, both theoretical and empirical. The two relationships that explain Greek macroeconomic fluctuations are Okun's Law and the Phillips Curve. Both curves indicate that the challenges facing the Greek economy are not solely cyclical but also structural.

The observation that an increase in aggregate demand does not result in a substantial reduction in the unemployment rate and the stylized fact that lower inflation rates (e.g., less than 2%) are associated with very high unemployment rates (e.g., more than 10%, and in some years more than 20%) may be explained by the structural weaknesses of the Greek economy.

These weaknesses are discussed in the next section within the context of the question posed in this paper: Is an economic miracle possible, as it was during the period of 1950-1973?

The Future Prospects of the Greek Economic Growth

The previous estimations and analyses of Okun's and Phillips curves reveal that the Greek economy suffers from structural problems, which require further research to identify the exact sources of these deficiencies. In the 1950s and 1960s, Greek economic growth was second only to Japan's. However, in the 1920s, Greek economic growth lagged behind that of many countries in the Eurozone. Table 4 shows the growth rates of the 20 Eurozone countries as an average for the period 2021-2025.

Table 4. *Growth Rates in the Euro Countries (average of 2021-2025)*

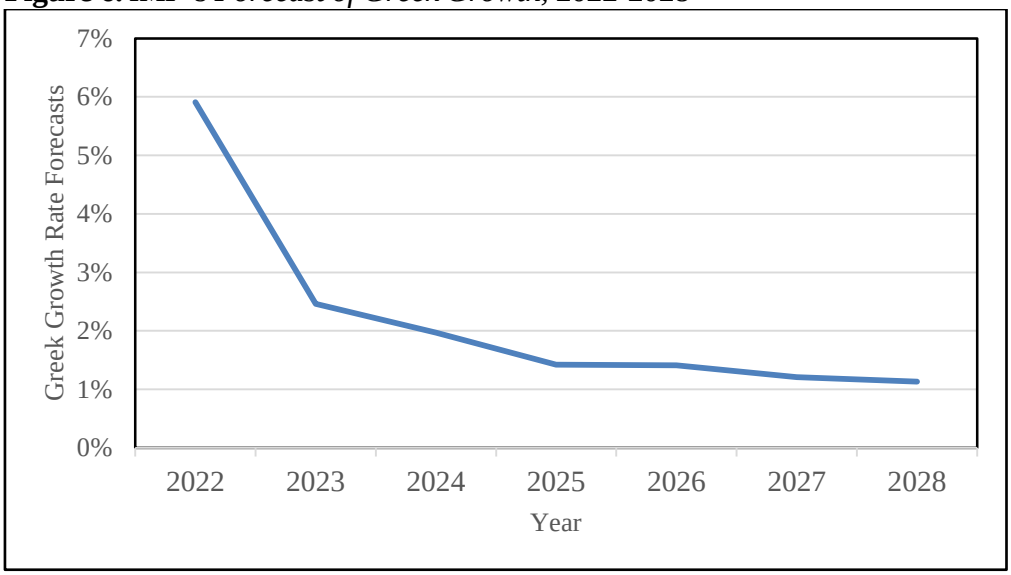
Rank	Countries	Growth rate	Rank	Countries	Growth rate
1	Malta	6.32%	11	Lithuania	2.85%
2	Ireland	6.02%	12	Belgium	2.83%
3	Croatia	5.61%	13	Netherlands	2.79%
4	Cyprus	4.56%	14	France	2.50%
5	Greece	4.16%	15	Slovakia	2.30%
6	Spain	3.65%	16	Luxembourg	2.29%
7	Portugal	3.58%	17	Austria	2.17%
8	Slovenia	3.34%	18	Estonia	1.74%
9	Latvia	3.04%	19	Finland	1.44%
10	Italy	2.96%	20	Germany	1.35%

The data have been ordered from the largest to the lowest growth rate. Greece ranks fifth with the highest growth rate in the Eurozone at 4.16%. However, this is hardly comparable to the rates of the early 1950s, which were at 6.37%.

Therefore, the Greek growth rate lags behind both the rates of other Eurozone countries and its own achievements in the first half of the 1950s. Thus, we conclude that the 2020s will not witness another Greek economic miracle.

This conclusion is reinforced by the International Monetary Fund (IMF) forecasts. Figure 6 illustrates the IMF forecast for the 2023-2028 period. If these IMF forecasts materialize, the Greek economy is expected to grow, on average, by 1.6% for the 2023-2028 period. This falls far from being considered an economic miracle, especially when considering the periods of much higher economic growth rates the Greek economy experienced since the 1940s.

Figure 6. *IMF's Forecast of Greek Growth,* 2022-2028



Conclusions

Is a Greek economic miracle in the making in the 21st century? This paper has shown that this is most probably not going to occur in the 2020s, as it did in the 1950s.

However, the 21st century has a long way to go, and another Greek economic miracle may happen. Economic policies could play a crucial role in facilitating such miracles.

This is another question that was not addressed in this paper and is left for future research. This, of course, will include a detailed analysis of the economic policies followed in the 1950s that created the conditions for the Greek economic miracle.

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