



Republic of Cyprus



δημοσιονομικό συμβούλιο
fiscal council

Assessing the potential impact of a strike on GDP growth rate: Cement Industry Workers' strike in Cyprus

Abstract

This study aims to evaluate the potential impact of the ongoing cement industry workers' strike in Cyprus on GDP growth.

Strikes can have significant economic repercussions, especially in industries crucial to the economy. The strike, which began on November 7th, 2024, has already caused substantial delays in the construction sector. By analyzing data from the cement workforce and other relevant economic indicators, this study seeks to estimate the strike's direct impact on country's GDP growth, for the fourth quarter of 2024. We find that the impact on GDP due to the construction strike ranges from 0.15% to 0.30%, depending on the scenario. The findings may be able to provide insights into the broader economic consequences of labor disputes in critical industries.

1. Introduction

The economic landscape of a nation is shaped by its various industrial sectors, each playing a crucial role in contributing to the overall Gross Domestic Product (GDP). Among these, the construction sector stands out as a cornerstone, driving not only the physical infrastructure of a country but also playing a pivotal role in economic growth and stability. In this context, evaluating the potential impact of disruptions within this sector is crucial for understanding broader economic ramifications. This study focuses on the ongoing strike by cement industry workers in Cyprus, aiming to assess its potential impact on GDP growth and the construction sector.

The strike, which commenced on November 7, 2024, has sparked considerable concern among economists and policymakers. Cement industry workers are an essential component of the construction industry, responsible for producing materials that form the backbone of nearly all construction projects in Cyprus. When these workers halt their activities, the ripple effects can be profound, leading to delays and increased costs across various construction projects. This not only affects the timelines and budgets of individual projects but also has far-reaching consequences for the national economy.

Strikes within critical industries such as construction can significantly differentiate economic forecasts, making it imperative to evaluate their impact with precision. The construction industry is particularly sensitive to labor disruptions due to its dependence on timely and

consistent supply chains. A halt in cement production can lead to a cascade of delays, directly affecting construction industry: housing, infrastructure projects, commercial buildings. These delays not only stall current economic activity but can also deter future investments, as the perceived reliability and efficiency of the industry come into question.

Moreover, the cement industry strike's impact is not confined to the construction sector alone. The interdependence of industries means that disruptions in construction can affect related sectors, such as transportation, real estate, and even retail (durable goods). For instance, delayed construction projects can lead to postponed property sales, affecting real estate markets and, consequently, the financial sector. Transportation networks reliant on timely construction and maintenance can also experience setbacks, further amplifying the economic ripple effects.

This study aims to quantify these impacts by analyzing data from the cement industry workforce and other relevant economic indicators. By focusing on current value measures, this analysis will provide a clearer picture of the current economic effects. The findings will not only illuminate the immediate economic impact of the strike but also offer insights into the potential long-term consequences for the construction sector and the broader economy.

In conclusion, understanding the economic repercussions of the cement industry workers' strike in Cyprus is vital for policymakers and industry stakeholders. This "exercise" is intended to help in devising strategies to mitigate the negative impacts and help enable the construction sector, and by extension the national economy, to recover swiftly and robustly from such disruptions.

2. Data and Methodology

2.1 Data Collection

To evaluate the impact of the cement industry workers' strike on GDP growth in Cyprus, we have collected data from official Cyprus Statistical Service (Cystat)¹. various reliable sources. The primary datasets include:

Current Prices EUR millions: This dataset captures the real value of goods and services produced, ensuring that the analysis reflects actual economic activity.

Working Day and non-Seasonally Adjusted Data: This data accounts for variations in the number of working days and seasonal fluctuations, providing a more accurate picture of quarterly economic activities.

Historical Economic Indicators: Data on GDP, construction sector Gross Value from 1995Q1 to 2024Q3 and GDP at current prices in millions of euros for the same period.

2.2 Methodology

Cleaning and Transformation: The data is cleaned to remove any inconsistencies, errors, or missing values.

Quantifying Impact: The forecasted data is analyzed to quantify the impact of the strike on GDP growth and construction sector. The analysis includes calculating the deviation from expected

¹ The data were obtained from Cyprus Statistical Service on 2nd December 2024 (cut-off date)

economic activities due to the strike. The results are interpreted to understand the broader economic implications of the strike. This involves assessing the potential short-term and long-term effects on the construction sector and overall GDP growth.

2.3 ARIMA Modeling

For forecasting GVA for Construction Sector and GDP for the last quarter of 2024 the following steps are undertaken:

Model Identification: The appropriate ARIMA² model is identified based on historical data, considering seasonal and non-seasonal components.

Model Fitting: The identified ARIMA model is fitted to the time series data using Stata³ statistical software package. The model parameters are optimized to ensure the best fit based on the Akaike information criterion⁴.

Forecasting: We use the ARIMA (1,1,0) (1,1,0)₁₂ for estimating the 4th quarter of 2024 for Gross Value Added for Construction Sector based on having the minimum (AIC = 765) and the same model for estimating the 4th quarter of Gross Domestic Product 2024 having a minimum (AIC = 1,101).

3. Results

The analysis of the forecasts for GVA-Construction Sector and GDP for 2024 in Cyprus reveals a positive and encouraging economic outlook. The construction sector shows significant growth throughout the years, highlighting its critical role in driving economic development and its substantial contribution to GDP. The overall GDP forecasts reflect a stable and expanding economy, despite the slight projected decrease in Q4. These findings underscore the importance of the construction sector and the broader economic stability of Cyprus in 2024.

Figure 1A illustrates the historical and forecasted Gross Value Added (GVA) for the construction sector from 2013 to 2026 (quarterly-basis). It shows a consistent upward trend in GVA, with significant growth expected in the coming years, highlighted by the forecast and confidence intervals. Also, Figure 1B depicts the historical and forecasted GDP for Cyprus, highlighting consistent economic growth. The positive trend reflects the country's economic resilience and promising future outlook.

² ARIMA (AutoRegressive Integrated Moving Average): A time series forecasting model that combines autoregression (dependence on previous observations), differencing (to achieve stationarity), and moving average (dependence on error terms).

³ Stata is a statistical software package developed by StataCorp and is widely used for data management and statistical analysis.

⁴ Akaike Information Criterion (AIC): A measure of the relative quality of statistical models for a given set of data. It is used in model selection.

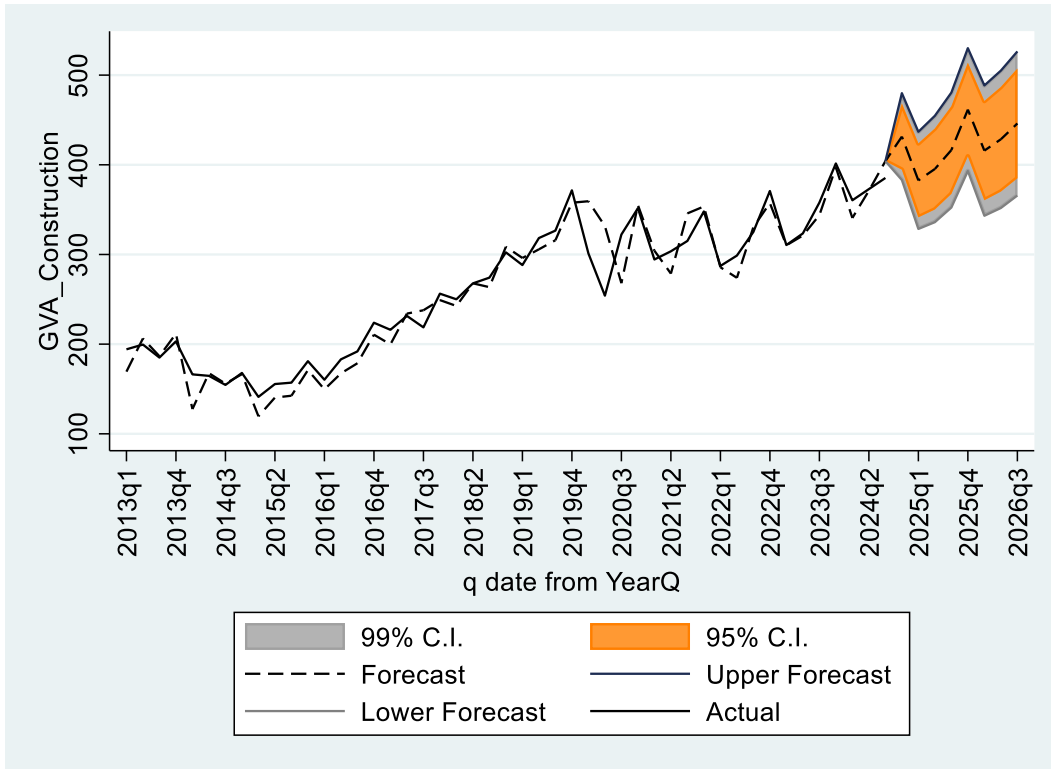


Figure 1A. Gross Value added for Construction sector at current prices for the period 2013q1 until 2024q3. Period from 2024q4 to 2026q3 are forecasts.

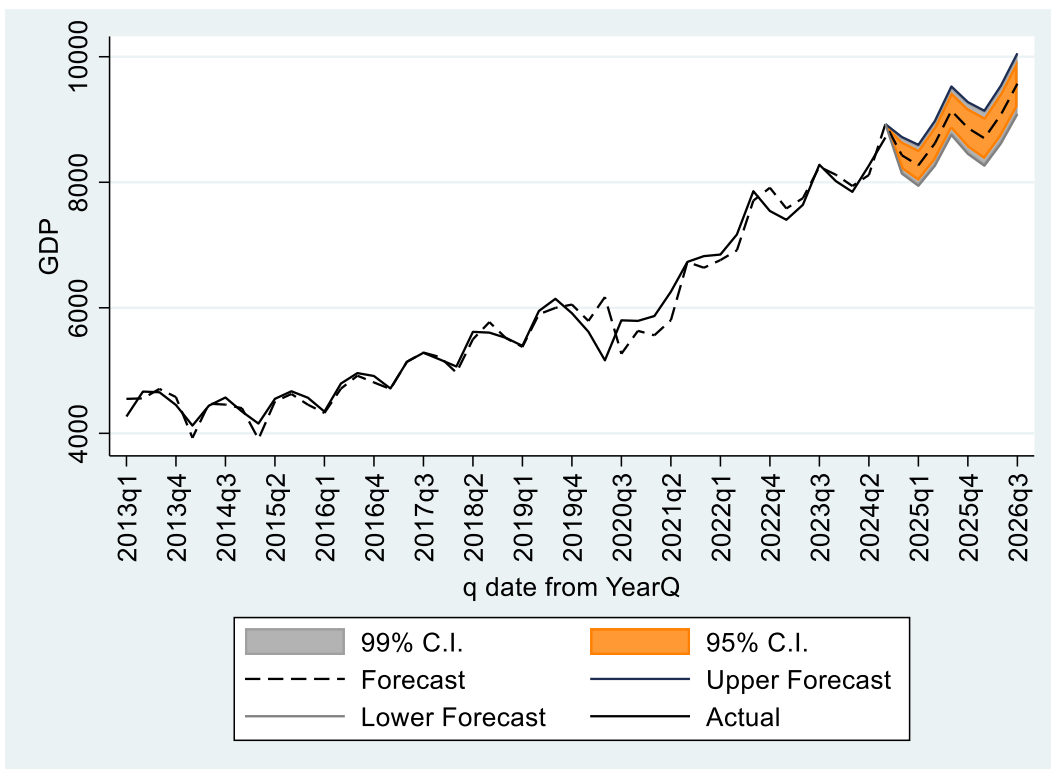


Figure 1B. Gross Domestic Product at current prices for the period 2013q1 until 2024q3. Period from 2024q4 to 2026q3 are forecasts.

3.1 GVA - Construction

The Gross Value Added (GVA) for the construction sector in Cyprus demonstrates a notable upward trend over the first three quarters of 2024. Specifically, the GVA increases from 360 million EUR in the first quarter (Q1) to 373 million EUR in the second quarter (Q2), and further to 385 million EUR in the third quarter (Q3). This steady rise highlights the sector's strong performance, suggesting increased economic activity and investment within the industry.

Looking forward, the forecast for the fourth quarter (Q4) of 2024 predicts a substantial rise to 431 million EUR, with a 95% confidence interval ranging between 395 million EUR and 468 million EUR. This forecasted increase underscores the ongoing strength and potential growth in the construction sector during 2024.

On an annual basis, the total GVA for construction in 2024 is projected to reach 1,550 million EUR, supported by a lower bound estimate of 1,513 million EUR and an upper bound estimate of 1,587 million EUR. This consistent growth throughout the year highlights the construction sector's significant contribution to Cyprus's economy, reflecting both the sector's resilience and its importance to the overall economic health.

GVA-Construction EURm				
Period	Type of Data	Amount € millions	Low Estimation	High Estimation
2024Q1	Actual	360		
2024Q2	Actual	373		
2024Q3	Actual	385		
2024Q4	Forecast	431	395	468
Total		1,550	1,513	1,587

Table 1A. This table shows the quarterly and total Gross Value Added (GVA) in the construction sector for Cyprus in 2024. The first three quarters (Q1, Q2, and Q3) are actual figures, while the fourth quarter (Q4) is a forecast. The total GVA for 2024 is projected within a range of 1,513 million EUR to 1,587 million EUR.

3.2 GDP (Gross Domestic Product)

The Gross Domestic Product (GDP) of Cyprus also exhibits a positive trend throughout the first three quarters of 2024. The GDP increases from 7,847 million EUR in Q1 to 8,266 million EUR in Q2, and further to 8,714 million EUR in Q3. This continual growth indicates a strong and expanding economy, with increased production and consumption across various sectors.

For Q4 of 2024, the forecasted GDP is 8,429 million EUR, representing a slight decrease compared to the previous quarter. However, this figure remains within a 95% confidence interval of 8,207 million EUR to 8,651 million EUR, suggesting that while there is expected variability, the overall economic outlook remains positive.

The total GDP for 2024 is estimated at 33,256 million EUR, with a lower bound of 33,034 million EUR and an upper bound of 33,478 million EUR. This annual total indicates robust economic performance and stability, reflecting the combined contributions of various sectors, including construction.

Gross Domestic Product (GDP) EURm				
Period	Type of Data	Amount € millions	Low Estimation	High Estimation
2024Q1	Actual	7,847		
2024Q2	Actual	8,266		
2024Q3	Actual	8,714		
2024Q4	Forecast	8,429	8,207	8,651
Total		33,256	33,034	33,478

Table 1B. This table shows the quarterly and total Gross Domestic Product (GDP) for Cyprus in 2024. The first three quarters (Q1, Q2, and Q3) are actual figures, while the fourth quarter (Q4) is a forecast. The total GDP for 2024 is projected within a range of 33,034 million EUR to 33,478 million EUR.

3.3 Scenario Analysis

As per the Table 2 outlines the monthly distribution of days, including strike days, for the months of November, and December 2024, along with the impact scenarios on the construction sector and overall GDP. October had no strike days, while November and experienced 24 and for December 31 strike days are expected. The analysis considers three scenarios to assess the impact of the strike on the construction sector and GDP: a Best Case scenario with a 20% impact, a Medium Case scenario with a 30% impact, and a Worst Case scenario with a 40% impact. The corresponding economic impacts on GDP are estimated at 0.15% (51 million EUR), 0.23% (76 million EUR), and 0.30% (101 million EUR) respectively. These scenarios are based on the assumption that the strike, which began on November 7th, 2024, will continue until the end of the year. The monthly distribution figures are derived from the production of cement in tones. (Source Cyprus Statistical Service).

Months	Monthly Distribution	Working Days	Days in Strike
October	0.35	31	0
November	0.33	30	24
December	0.32	31	31

Scenario	Construction Impact	EUR millions	Impact on GDP
Best Case	20%	51	0.15%
Medium Case	30%	76	0.23%
Worst Case	40%	101	0.30%

Table 2. This table details the monthly distribution of days in strike for October, November, and December 2024, along with the impact scenarios on the construction sector and GDP. It includes three scenarios: Best Case (20% impact), Medium Case (30% impact), and Worst Case (40% impact).

4. Conclusions

The findings suggest that the GDP impact for 2024, due to the Cement Industry Workers' Strike ranges from 0.15% (51 million EUR) in the best-case scenario, to 0.23% (76 million EUR) in the medium-case scenario, and up to 0.30% (101 million EUR) in the worst-case scenario. These results provide valuable insights into the broader economic effects of labor disputes in critical industries.

FCF, Nicosia 4/12/2024

Responsible Officer: George Loizides