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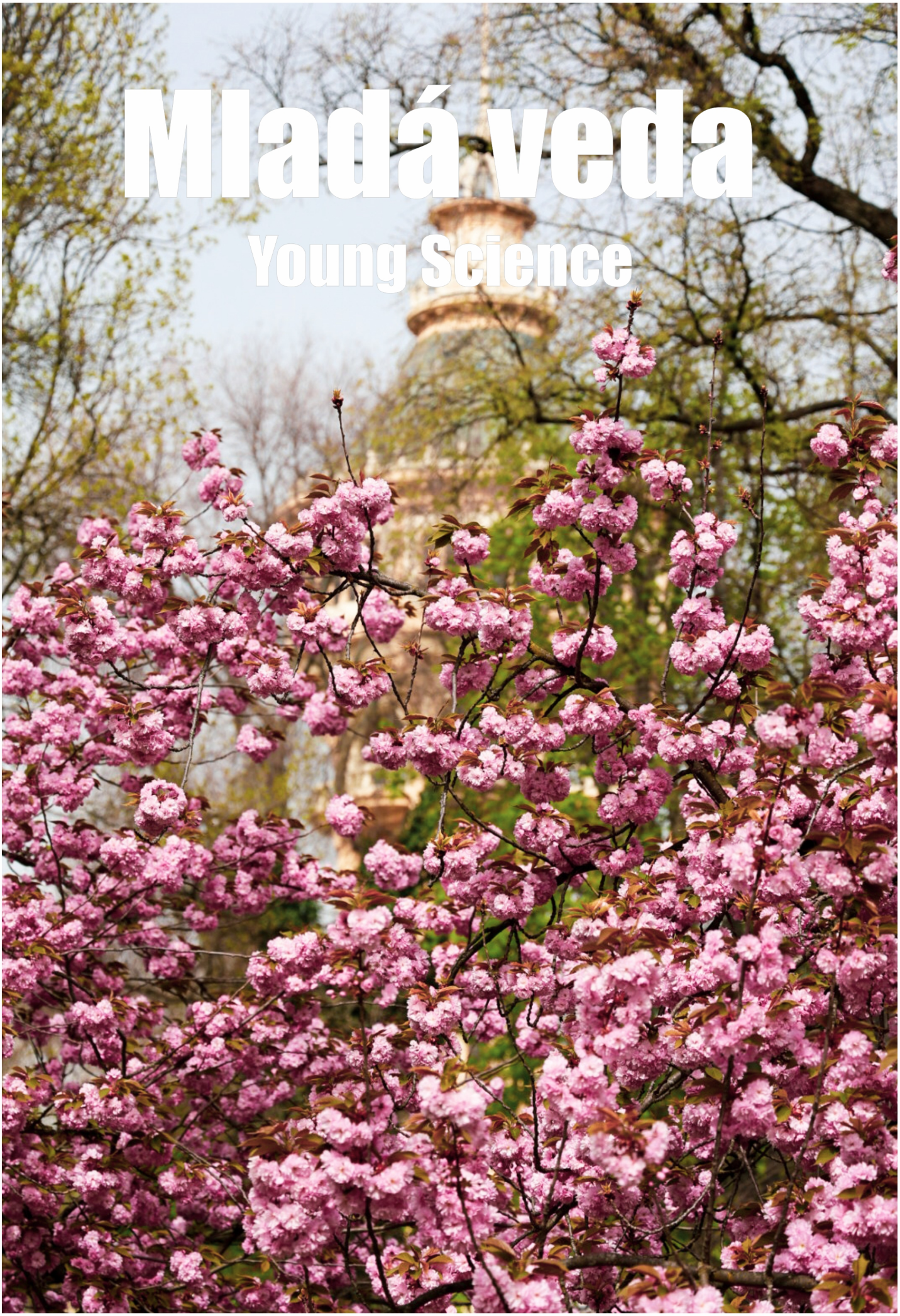

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ASSESSING THE IMPACT OF STRINGENCY INDEX ON ECONOMIC RECOVERY – A COMPARATIVE ANALYSIS OF EUROZONE AND UNITED STATES MACROECONOMIC FACTORS

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Abstract

The COVID-19 pandemic triggered significant economic disruptions globally due to governmental stringency measures. These measures, quantified by the Stringency Index, varied in intensity across regions, impacting economic indicators such as unemployment rates and stock market performance. This study aims to assess the relationship between the Stringency Index and economic recovery in the Eurozone and the United States. Specifically, it examines how variations in stringency levels influenced key economic indicators such as GDP growth, unemployment rates, and stock market performance in these regions. The study employs a comparative econometric analysis using regression models to explore the interplay between governmental policies and economic outcomes. Data on inflation, employment, GDP development, and stock market development were sourced from Trading Economics and the Stringency Index from Our World in Data. The analysis focused on the period from January 2020 to December 2022. The results indicate that higher stringency levels were associated with increased unemployment in the Eurozone and reduced stock market performance in the United States. Specifically: Stock Market: The Stringency Index had a statistically significant negative effect on stock market values in the US but not in Europe. Unemployment: Higher Stringency Index levels correlated with increased unemployment rates in the Eurozone. The impact on the US unemployment rate was less pronounced and not statistically significant.

These findings highlight the need for regionally tailored policies to mitigate the economic effects of pandemic-related restrictions effectively. The study underscores the

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importance of balancing stringent health measures with economic support policies to foster resilience and recovery.
Keywords: quantitative easing (QE), pandemic emergency purchase programme (PEPP), economic impact, monetary policy, COVID-19 pandemic

Introduction

The COVID-19 pandemic, emerging in late 2019, prompted an unparalleled global health emergency that drastically upended economic structures worldwide. To curb the spread of the virus, governments implemented a range of containment measures - captured quantitatively by the Oxford COVID-19 Government Response Tracker's Stringency Index. This index measures the rigor of policy responses, including lockdowns, business closures, and travel bans. The intensity and nature of these measures varied widely, reflecting distinct political, economic, and social landscapes across countries.

This research aims to dissect the economic impacts of the COVID-19 containment measures, specifically analyzing how the Stringency Index influenced key economic indicators such as GDP growth, unemployment, and stock market development in the Eurozone and the United States.

Employing a comparative econometric analysis, this study utilizes regression models. This approach allows for a detailed examination of the interplay between governmental policies and economic outcomes, offering a nuanced understanding of the pandemic's macroeconomic effects.

This paper contributes to the economic literature by highlighting the variable impacts of stringent health policies during a global crisis. Through a detailed comparative analysis, it offers valuable insights.

Background and Context

COVID-19 Pandemic – a short overview

The outbreak of the COVID-19 pandemic started in December 2019 in Wuhan, which is a city China, leading to global spread and a WHO-declared pandemic in March 2020. The pandemic saw various peaks in death rates until early 2022, followed by improvements due to vaccine development and administration. The WHO declared the end of the pandemic emergency in May 2023 (United Nations 2023, WHO 2020, Ciotti et al 2020).

Since the pandemic led to lockdowns and social distancing measures, travel restrictions, supply chain disruptions, layoffs and job losses (especially in entertainment and tourism industry) and a decrease in consumer confidence it can be said that the pandemic disrupted economic activity on a global scale (Copenhagen Economics 2020). According to the Worldbank (2022) the pandemic initiated the most substantial worldwide economic downturn in over a hundred years.

It can be said that the pandemic led to worldwide economic disruption, triggering the most significant global economic downturn in over a century.

Economic Landscape before the outbreak of the pandemic

In the following section, a short overview over the economic landscape in the United States and the Eurozone will be given.

According to the ECB report in 2019 economic growth in the Eurozone slowed to 1.2% from 1.9% the previous year, influenced by global trade uncertainties. Favorable financing conditions and employment gains supported expansion, but manufacturing and investment were impacted. Unemployment declined to 7.6%, with robust wage growth. Inflation decreased to 1.2%, mainly due to lower energy and food prices. The ECB implemented monetary accommodation measures, including targeted refinancing operations and asset purchases, aiming to stabilize growth and increase inflation.

The federal reserve's annual report of 2019 states that in 2019, the US economy marked its 11th year of growth with its highest-ever real GDP. Growth since the end of the Great Recession in 2009 was modest, averaging 2.3%, slightly above the long-term rate. Business investment grew minimally at 0.3%, contrasting consumer spending, which increased by 2.9% annually. Government spending rose by 3.1%. Inflation, measured by the CPI, decreased to 2.0%, while unemployment dropped to 3.5% in the fourth quarter of 2019, lower than forecasted. Predicted inflation for 2019 was adjusted to 1.9% from 2.3%.

It can be said that in 2019 which was the year before the pandemic outbreak, the Eurozone faced slower growth and lower inflation due to global trade uncertainties, while the United States saw its 11th year of economic expansion, driven by strong consumer spending and government investments. Both regions took steps to stabilize their economies.

Economic Landscape after the outbreak of the pandemic

The pandemic hit the global economy hard from the first quarter of 2020 on. According to the ECB report of 2020, the COVID-19 pandemic sparked the most substantial worldwide economic decline since the era of the Great Depression. As a result, the Eurozone's GDP contracted by 6.6%, while inflation plummeted to 0.3%, accompanied by historically low lending rates at 1.46%.

These declines were attributed to various factors, including a sharp reduction in consumption due to widespread lockdown measures and increased risk aversion. Additionally, activity, particularly in the services sector, significantly weakened due to reduced demand and activity restrictions. Throughout the year, HICP inflation experienced a decline, remaining in negative territory from August onwards.

The consumer confidence indicator in the Eurozone dropped from an average of -6.6 points in December 2020 to a low point of -24,8 in April 2020 which suggests a significant decline in consumer confidence within the Eurozone. The Consumer Economic Sentiment Indicator gauges consumers' optimism regarding the economy. This indicator assesses consumer confidence on a scale ranging from -100 to 100, with -100 representing extreme pessimism, 0 indicating neutrality, and 100 reflecting high confidence levels (Trading Economics 2023).

A report by the United Nations (2021) states that in 2020, the US economy experienced its most severe contraction since World War II, with a decline of 3.5%. This

downturn resulted in the loss of 9.4 million jobs throughout the year, leading to an unemployment rate of 6.7% by the end of December.

According to the FED's report of 2020, the onset of COVID-19 resulted in a historic decrease in economic activity because of to both mandated restrictions and voluntary changes in behavior by households and businesses. GDP plummeted by a cumulative 10 percent during the first half of 2020, while the unemployment rate reached "the highest point after World War II with 14.8 percent in April.

Subsequent relaxation of restrictions and adaptations to pandemic conditions led to rapid recovery in many sectors, reducing unemployment. However, GDP stands at an estimated 2.5 percent below pre-pandemic levels and inflation remains below pre-COVID levels and the Federal Open Market Committee's longer-run objective of 2 percent, with an elevated unemployment rate of 6.3 percent.

The Index of Consumer Sentiment rapidly fell from 99,30 in December 2019 to 71,80 in May 2020 (Y Charts 2023) suggesting a significant deterioration in consumer confidence and optimism about the economy and personal finances during that timeframe. Such a steep decline may reflect heightened uncertainty, economic concerns, or negative perceptions among consumers.

In summary, the COVID-19 pandemic inflicted significant economic damage globally, leading to substantial contractions in both the Eurozone and the United States. The ensuing challenges, including steep declines in GDP, rising unemployment rates, and subdued inflation, underscore the profound and lasting impact of the pandemic on the global economy.

Economic recovery & post-covid situation

According to the European Parliament (2023), the Eurozone experienced a robust economic recovery post-COVID-19 but now faces the challenge of combating high inflation caused by energy and food price hikes. This inflation surge prompted unprecedented interest rate increases by central banks, which have somewhat reduced inflation but also tightened financing conditions and slowed growth. Despite this, labor markets remain strong, leading to wage pressure.

According to Eurostat (2023) the economic growth declined by 5.4% in 2020, followed by a growth of 5.4% in 2021 and 3.5% in 2022.

Regarding the economic recovery in the US, Richter (2023) states that despite a sharp decline in GDP when the pandemic hit in 2020, the economy returned to its pre-pandemic growth path, with real GDP expanding by 2.1% in 2022, followed by a 5.9% increase in 2021. Also the employment rate had reached pre-pandemic levels in August 2022, indicating a robust labor market.

In summary, economic recovery is the revitalization of economies after periods of recession, with efforts focused on overcoming challenges such as inflation and ensuring sustainable growth, as the experiences of both the Eurozone and the United States post-COVID-19 show.

Stringency Index

According to Roser (2021), the Stringency Index, calculated by the Oxford Coronavirus Government Response Tracker (OxCGRT) project, quantifies the strictness of government responses to the pandemic, with a higher score indicating a stricter response (e.g., 100 represents the strictest response). This index encompasses nine metrics, including closures, restrictions, stay-at-home policies and public health measures. If policies vary regionally, the index reflects the strictest sub-region's response level. Additionally, to account for differences based on vaccination status, three categories are considered: vaccinated individuals, unvaccinated individuals, and a national average weighted by vaccination rates. Roser points out that it's important to emphasize that this index solely measures the stringency of government policies and does not evaluate their suitability or efficacy.
It should also be mentioned that the Stringency Index of course changed over time depending on the decided measurements by the governments.

In the United States, the highest stringency index was in My 2020 with around 76.00 points while in the Eurozone the highest value was measured in Croatia in March 2020 with a value of around 96.00 points.

In the graph below shows the stringency index within all Eurozone countries and the US between January 2020 and December 2022. The degree of the index differs from country to country but that the pandemic waves are reflected in the stringency index of many countries.

Economic Recovery

Warner (n.d.) explains that “economic recovery” marks the resurgence of an economy following a period of recession, signifying its return to growth. Economies undergo cyclical movements, transitioning from contraction and recession to a phase of recovery before embarking on a new cycle. He states that the recovery phase begins as the recession reaches its lowest point, paving the way for renewed expansion and reaching a new peak.

According to the world bank (n.d.) to following indicators are amongst others used to measure economic activity: GDP growth, employment rate. Comincioli (1996) states that there is a cause-and-effect link between the stock market and the economy and that the stock market can be a leading indicator for the economy. He also points out that there is a small-time delay between stock market fluctuations and changes in the real economy. Estevez (2024) explains that the stock market, often rises before an economic upswing due to expectations for the future, which drive up share prices.

When it comes to employment as an indicator for economic recovery, it must be considered that employment tends to lag other indicators. Even when the economy starts getting better, unemployment can stay high since employers usually wait until they are sure that they need more workers before hiring (ibid).

In the following section, it will be explained how the indicators GDP, employment rate and stock markets behave in times of economic recovery.
During an economic recovery, GDP tends to exhibit growth - several factors contribute to GDP growth during a recovery: Increased consumer spending, business investment, government spending, increased exports (Estevez 2024).

In times of economic recovery, the employment rate typically shows signs of improvement after a period of decline (ibid). Several key factors influence the development of the employment rate: Increased demand for labor, business investment and expansion, government stimulus.

When it comes to stock market development in times of economic recovery the stock market typically experiences growth (ibid). Several factors contribute to the development of the stock market: Improved investor sentiment, Corporate profitability, regained market liquidity, better global economic conditions due to spillover effects.

In conclusion, an economic recovery is the economic resurgence of an economy after a recession and represents the transition from contraction to growth. As economies go through cyclical movements, indicators such as GDP growth, employment rate and stock market performance play a crucial role in measuring and understanding the dynamics of recovery.

Objectives of the Study

The main aim of the study is to examine the relationship between stringency index and economic recovery in the Eurozone and the United States. The aim can be broken down in the following objectives:

1. To assess the impact of varying levels of stringency on key macroeconomic indicators, such as GDP growth, unemployment rates, and inflation, in both regions.
2. To identify similarities and differences in the economic recovery processes between the Eurozone and the United States in response to stringency measures.
3. To investigate the effectiveness of different policy responses and economic strategies implemented by the Eurozone and the United States in mitigating the negative effects of stringency on economic recovery.
4. To provide insights and recommendations for policymakers and stakeholders in both regions to optimize economic recovery efforts in the context of stringency measures.
5. Significance of Comparative Analysis: Justification for examining the differences and similarities in the economic recovery trajectories between the Eurozone and the United States, highlighting the importance of cross-country comparisons for understanding policy effectiveness and identifying best practices.

Literature review: Previous Studies on Stringency Index and Macroeconomic Factors Comparative Analysis of Eurozone and United States Economic Recovery

Deb et al (2020) state that the economic impact of COVID-19 containment measures has been significant across various indicators globally. These measures have on the one hand effectively reduced infections but have also led to substantial economic losses. The researchers point out that countries with less fiscal stimulus and limited monetary policy easing experienced greater short-term economic declines and as some countries reopen their economies and ease restrictions, there's a noticeable increase in economic activity, but it's not as substantial as the downturn caused by stricter containment measures.

Bjara et al (2023) research shows a negative correlation between policy stringency and economic growth, indicating that stricter measures lead to greater economic contractions. Similarly, in their research there's a negative effect of COVID-19 infections and deaths on

GDP growth, likely due to stringent policies and reduced economic participation. Their study suggests that a well-designed combination of stringency and economic support can mitigate negative effects, but the trade-off between protecting lives and the economy is not inevitable.

Li and Kapri (2021) who explored how government policies and economic conditions impact the spread and mortality of COVID-19 state that economic structures, such as service sector employment and international trade, are correlated positively with case growth and death rates, while factors like domestic savings and access to sanitation are negatively associated. They highlight that stringency and economic support policies can help mitigate spread. On the other side, the researchers explain that the balance between economic development and social concerns is crucial for sustainable development, with strong institutions playing a key role.

Battistini and Grigor Stoevsky (2021) who observed the impact of Covid-19 measurements state that activities requiring social interaction were most affected across euro area countries, but that differences in economic structures, containment measures, policy responses, and institutional features led to heterogeneous economic losses. For example, Germany and the Netherlands experienced smaller losses due to their sectoral composition, while Spain and Italy faced larger drops in activity. This shows, that even in the same currency area the effects of the measurements differ.

Ma et al (2023) who investigated how government actions against COVID-19 affect a country's economy worldwide by studying 105 countries from March 11, 2020, to June 31, 2021. Found out that stricter measures, although initially disruptive to the market, can help the economy in the long run.

Demirgüc et al (2020) found out that the speed and timing of reopening, along with trust in government institutions, significantly impact economic recovery. They explain that gradual and staged reopening processes tend to lead to stronger economic recovery compared to abrupt measures. Countries that reopen before the peak of COVID-19 deaths often experience economic decline, while delaying reopening can facilitate faster recovery.

Li and Kapri (2021) found out that stringency and economic support policies helped to alleviate spread and death rates. They state that despite economic prosperity, countries relying heavily on service sectors are more vulnerable in the short run, but can benefit more from stringent policies.

In conclusion, research by various scholars highlights the complex interplay between policy stringency and economic recovery in response to the COVID-19 pandemic. While stringent containment measures initially caused significant economic disruptions, they also effectively reduced infections. However, stricter measures generally led to greater economic contractions, highlighting the delicate balance between protecting public health and sustaining economic activity. Effective combinations of stringency and economic support policies can mitigate negative effects, but the trade-off between lives and the economy remains a challenge. Furthermore, variations in economic structures, containment measures, and policy responses contribute to heterogeneous economic losses across countries. Ultimately, gradual and transparent reopening processes, coupled with trust in government institutions, are crucial for facilitating stronger economic recovery in the aftermath of the pandemic.

Research gap

The conducted literature review shows that there is a gap in understanding the long-term effects of stringency measures on economic recovery. Many studies focus on short-term impacts or initial responses to stringency measures, but there is limited research on how these measures affect economic growth and resilience over extended periods. Investigating the dynamics of economic recovery beyond the immediate aftermath of stringent policies could provide valuable insights for policymakers and businesses planning for future crises, ultimately contributing to more effective crisis management, economic resilience, and sustainable growth.

Research Hypothesis

The research hypothesis aims to investigate the relationship between stringency index measures and economic recovery in the Eurozone and the United States, as well as to analyze potential variations in the impact of these measures on key macroeconomic factors and the effectiveness of policy responses in both regions. The following hypothesis were set up:

Hypothesis (H1): There is a significant influence of the Stringency Index on stock market performance in Europe and the United States. However, this influence varies between the two regions, suggesting that there are regional differences in policy responses and their impact on stock markets.

Null hypothesis (H0): There is no significant impact of the Stringency Index on stock market in Europe and the United States, indicating that there are no differences between regions in the impact of the Stringency Index on stock markets.

Hypothesis (H2): There is a significant impact of the stringency index on the unemployment rate in Europe and the United States. However, this influence varies between the two regions, suggesting that regional differences exist in policy responses and their impact on stock markets.

Null Hypothesis (H0): There is no significant impact of the stringency index on the unemployment rate in Europe and the United States. Any observed differences in unemployment rates cannot be attributed to variations in the stringency index, indicating that regional policy responses do not affect unemployment rates differently.

Methodology

Data collection

The data on Inflation, Employment, GDP-Development and Stock market-development utilized in this study was obtained from "Trading Economics," an extensive platform that provides information for 196 countries, offering historical data and forecasts for over 20 million economic indicators. This platform ensures data reliability by sourcing economic indicator data from official sources, eliminating reliance on third-party providers. Regular checks for inconsistencies are performed to maintain data accuracy (Trading Economics n. d).
The stringency index was retrieved from “our world in data” which is a nonprofit, open source organization that provides data such as the stringency index.

Data analysis

This chapter reports on the methodology used in the present work. First, the design and implementation of the study are presented. The analysis for the hypothesis test is then explained. The statistical evaluation program R version 4.1.2 is used for data analysis. The significance level for the hypothesis test is set at $\alpha = .05$.

It was decided to focus on the development of three economic indicators between 2020 and 2023 to analyze the potential influence of the stringency index on economic recovery: GDP development, employment rates and stock market development. It was decided to conduct a regression analysis.

Stringency Index

A regional average of the Stringency Index was calculated for the European data to analyze the general trend in Europe.

The average values for Europe and the individual values for the USA were combined in a joint data set. This enabled a direct comparison of political reactions on a daily basis between the two regions. The dataset has daily values of the Stringency Index of Europe and the United States over the three-year period, i.e. 3 * 365 * 2 = 2192 days.

The combined summary data set of the stringency index was carefully prepared and analyzed to enable well-founded comparisons of policy measures in response to the pandemic between Europe and the USA. The date set now displays the data on a monthly basis to clearly identify trends and changes.

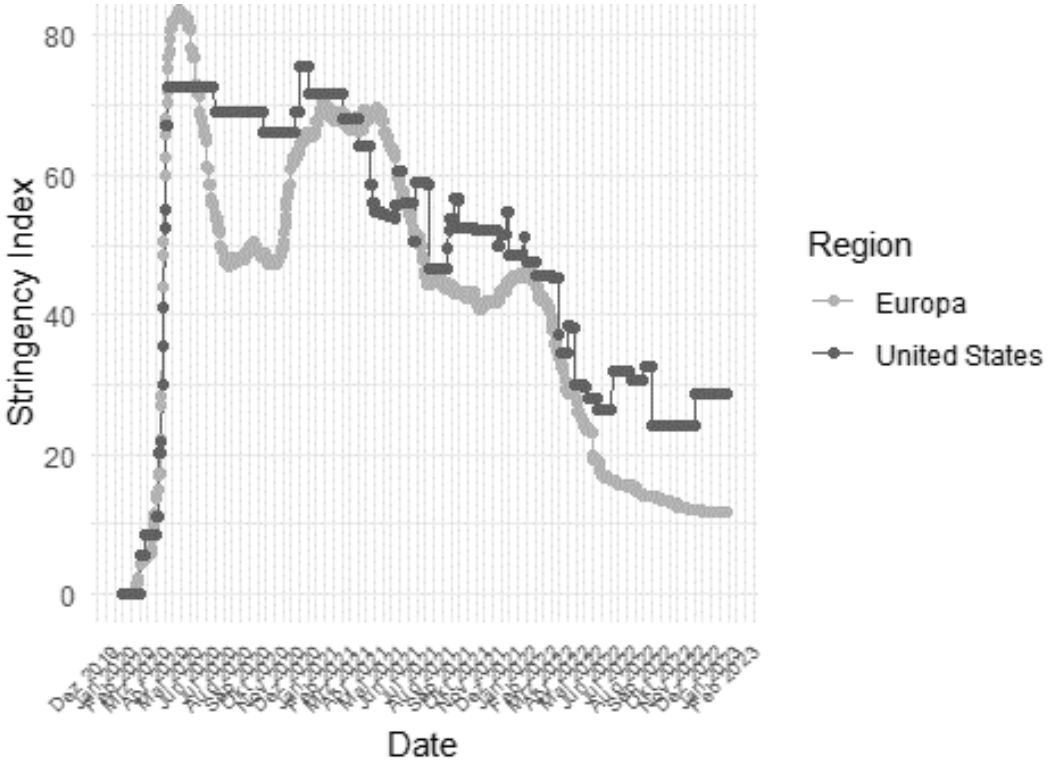

Figure 1 - Comparison between the stringency index in Europe and the United States
Source: OWID (2024), own representation

GDP

In the next stage a similar process was used to prepare another dataset to analyze the average GDP between the Eurozone and the United States. GDP averages were then calculated and data for Europe and the United States were combined into a common dataset to allow a direct comparison of economic performance. The aim was to highlight differences in GDP between the two regions the named three-year period. The comparison is visualised in the table below:

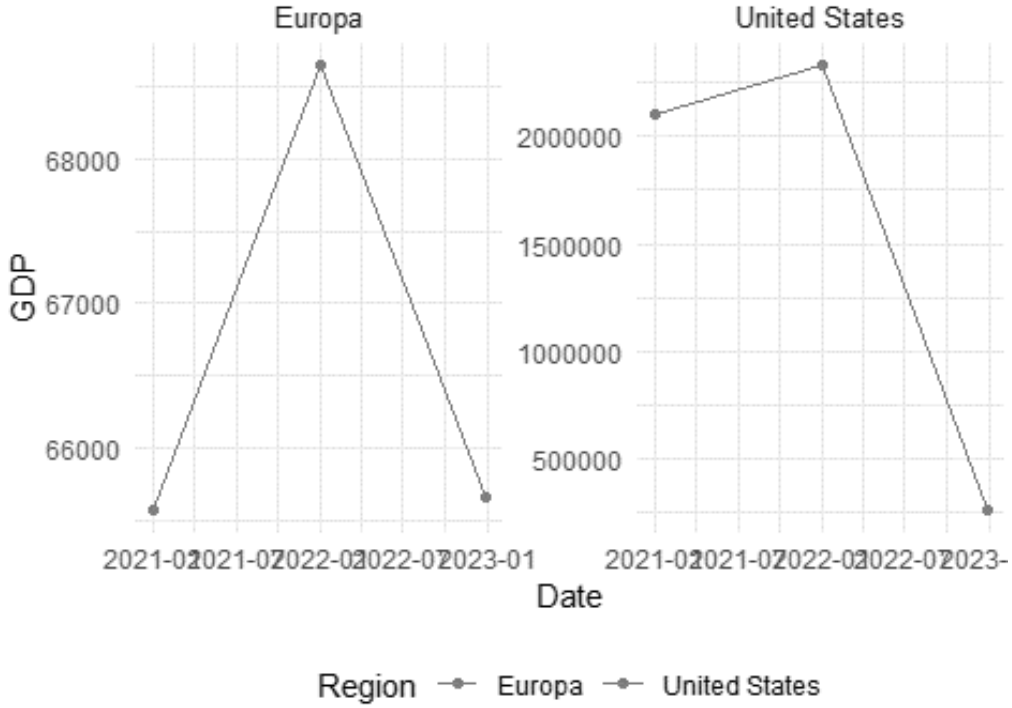

Figure 2 - GDP Development Eurozone and United States
Source: Trading Economics

The connection between GDP and Stringency Index

GDP data is only issued and collated as annual reports. Due to the fact that in this work the influence on the monthly change of the Stringency Index is to be tested, there is no statistical need to test the significance of the correlation. The graph in the figure "GDP Comparation Between Europe and United State" shows an increase for the year 2021. However, this may be because the economic figures and movements from previous years were still being used. It is only at the end of 2022 that an enormous drop is registered, which is because of the Covid-19 pandemic.

Unemployment

In the further course of data preparation, the data set for unemployment was used to analyse the unemployment rates. The average unemployment rates for Eurozone countries and the US, aggregated by date were calculated. In the end, the regional averages were compiled into a unified dataset and the resulting aggregated data was visualised in charts that can show the comparability of average unemployment rates between Europe and the United States in three years.

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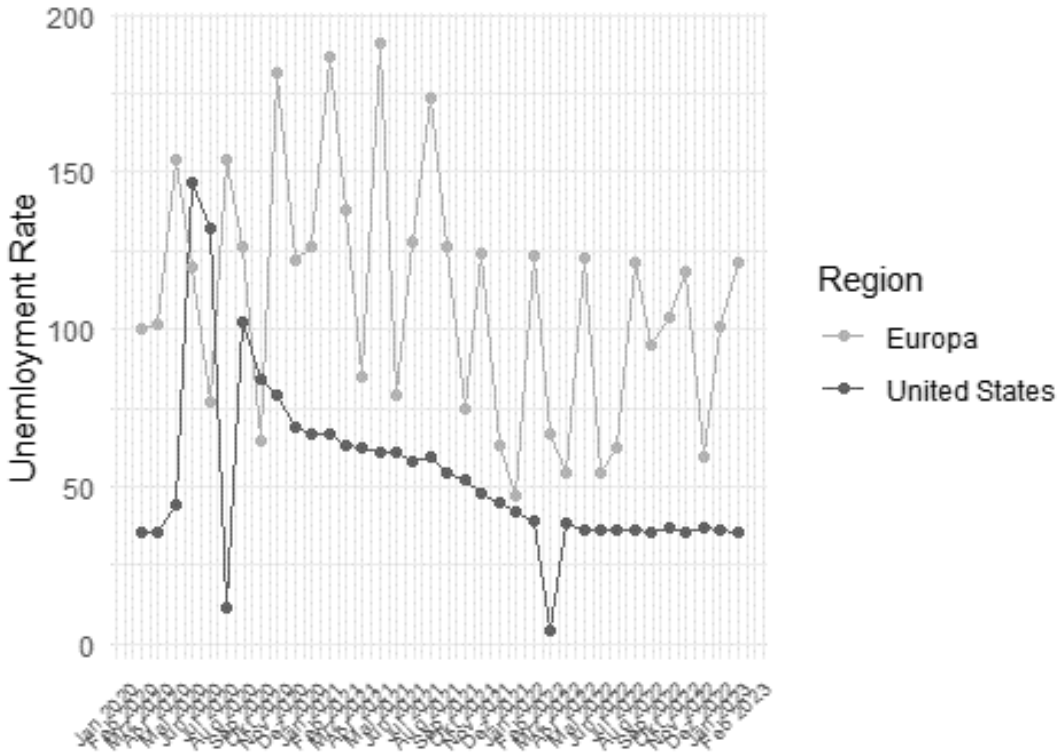

Figure 3 - Unemployment rate in the Eurozone and the United States
Source: Trading Economics

To analyze the stock market development, the S&P 1500 Index was used for the United States, for Europe, the Eurostock50 index was used. Only the adjusted price in the period from January 2020 to December 2022 was selected from the data sets.

Results

Influence of the stringency index on the stock market

Hypothesis (H1): There is a significant influence of the stringency index on stock values in Europe and the United States. However, this influence varies between the two regions, suggesting that regional differences exist in policy responses and their impact on stock markets

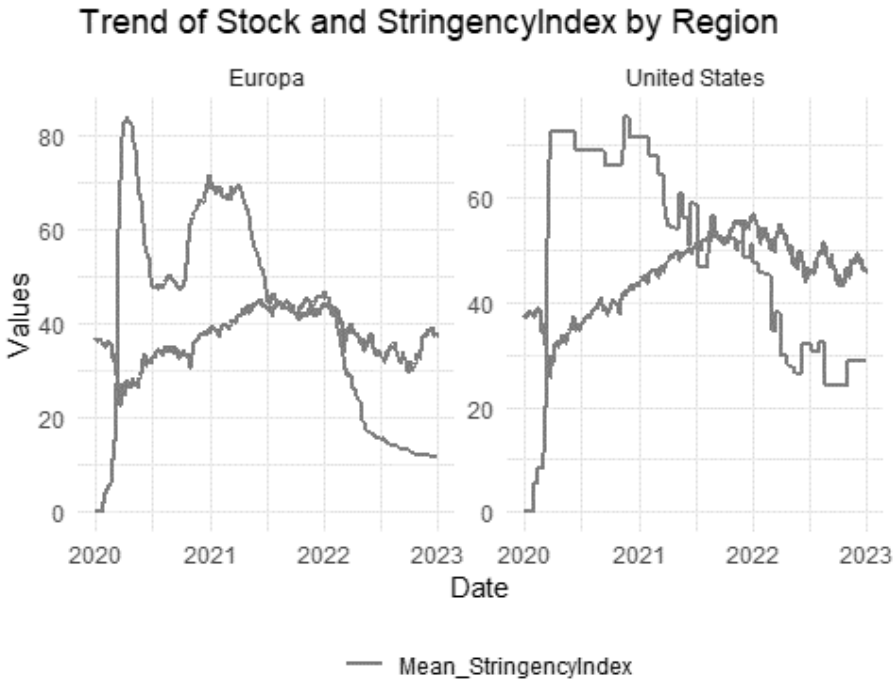

Figure 4 - Trend of Stock and Stringency Index by region
Source: Trading Economics

From the result of the regression analysis, some important conclusions can be drawn about the influence of the Stringency Index on the stock markets, in particular how this influence differs between Eurozone and the United States.

The coefficient for Stringency Index in the Eurozone is 0.010581, indicating that for every unit increase in the Stringency Index, Stock increases on average by 0.010581 units when all other variables are held constant. However, this effect is not statistically significant ($p = 0.286$), indicating that the Stringency Index alone does not have a significant effect on stock values in Eurozone.

The coefficient for the US is 12.84, which means that stock values in the USA are on average around 12.85 units higher than in Europe when the Stringency Index is 0. This effect is statistically highly significant ($p < 2e\text{-}16$).

The interaction effect between the Stringency Index and the stock market in the USA is -0.094530. This negative coefficient means that the effect of the Stringency Index is lower in the USA than in Europe. This effect is also statistically highly significant ($p = 2.2e\text{-}10$).

The analysis shows that the reaction of the stock markets to changes in the Stringency Index is significantly different in the USA than in Europe. While the Stringency Index alone does not appear to have a significant influence on share values in Europe, in the US there is an effect. In the US, an increase in the Stringency Index reduces share values more than in Europe, which indicates different market reactions to government regulations or restrictions in the two regions.

Hypothesis (H2): There is a significant impact of the stringency index on the unemployment rate in Europe and the United States. However, this influence varies between the two regions,

suggesting that regional differences exist in policy responses and their impact on stock markets.

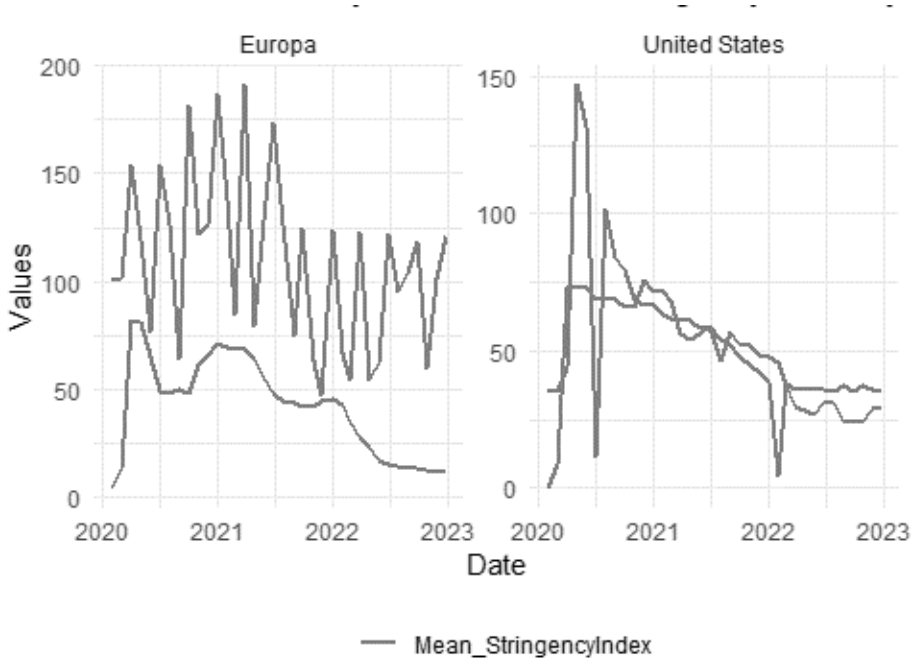

Figure 5: Trend of unemployment rate and stringency index
Source: Trading Economics

The estimated intercept of about 82.9 means that if the Stringency Index were zero, the average unemployment rate in Europe is estimated to be about 82.9. This coefficient is statistically significant with a p-value of almost zero ($p < 0.0001$), indicating that the value is very reliable.

For every one-unit increase in the Stringency Index, the average unemployment rate in Europe increases by approximately 0.636 percentage points. This coefficient is statistically significant ($p = 0.007764$), which indicates that a higher Stringency Index in Europe is indeed associated with a higher unemployment rate.

The coefficient for the United States (compared to Europe) shows that, with a Stringency Index of zero, the unemployment rate in the United States is 69.889 percentage points lower than in Europe. This effect is statistically significant ($p = 0.000145$), indicating strong regional differences in baseline unemployment rates.

The interaction between the Stringency Index and the region "United States" is not statistically significant ($p = 0.573026$), indicating that the additional influence of the Stringency Index on the unemployment rate in the USA is not significantly different from the influence in Europe. Although the coefficient is positive, which would indicate that the effect of the Stringency Index on the unemployment rate is stronger in the USA than in Europe, this effect cannot be reliably demonstrated.

The analysis partially supports the hypothesis that there is a significant influence of the Stringency Index on the unemployment rate, especially in Europe. The hypothesis that the influence varies between regions is not fully supported, as the interaction between the

Stringency Index and the USA region is not significant. This suggests that additional factors or variables are needed to explain the differences between regions more precisely.

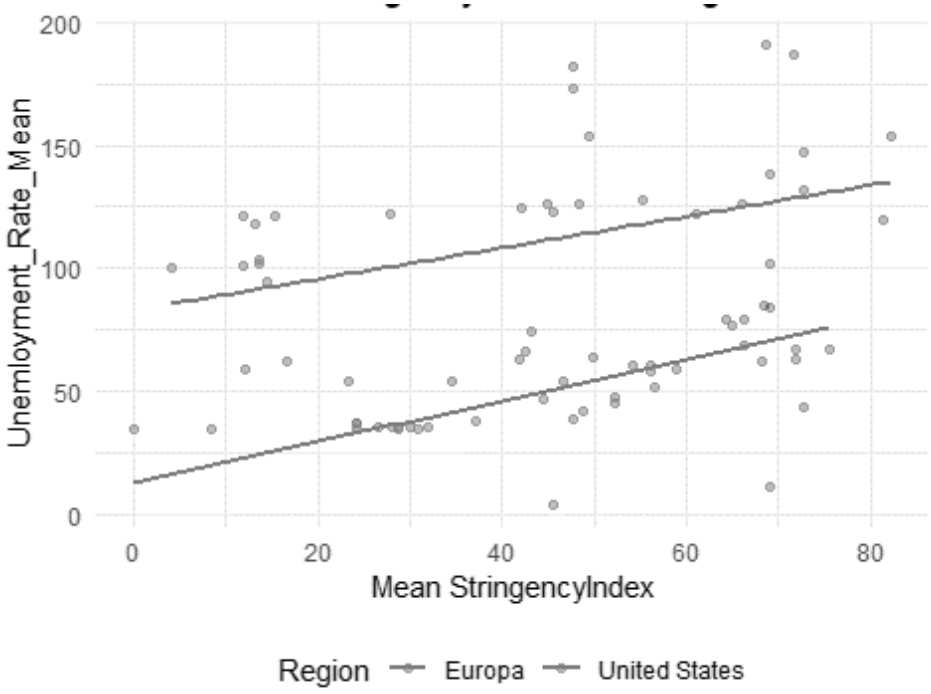

Illustration 6: Interaction of Stringency Index
Source: Trading Economics

Discussion & Conclusion

Summary of Findings

Firstly, the analysis confirmed that higher stringency levels are associated with distinct economic outcomes in the Eurozone and the United States. In the Eurozone, increased stringency significantly correlated with higher unemployment rates. This finding suggests that stringent lockdowns and business closures, while necessary for public health, had pronounced negative impacts on the labor market. In contrast, in the United States, increased stringency was linked to declines in stock market performance, reflecting investor sentiment and market volatility in response to government restrictions.

Limitations of the Study

Despite its insights, this study faces several limitations that must be acknowledged. Firstly, the reliance on secondary data sources and the inherent delays in data reporting may affect the accuracy and timeliness of the economic indicators used. Secondly, the Stringency Index, while comprehensive, does not account for all nuances of policy implementation and public compliance, which can significantly influence economic outcomes.

Additionally, the study's scope was limited to only two economic entities - the Eurozone and the United States. This focus omits the potential variability and lessons from other global economies with different policy approaches and economic structures. Furthermore, the econometric models used, though robust, assume linear relationships and

may not fully capture the complex dynamics between policy measures and economic indicators.

Recommendations for Future Research

Given these limitations, future research should consider several avenues to expand upon the findings of this study. Expanding the analysis to include more diverse economies with varying levels of development and political structures could provide broader insights into the global applicability of the results. Also, incorporating alternative economic measures such as sectoral performance, consumer confidence, and microeconomic data could enrich the understanding of the impacts.

Conclusion

In conclusion, this study provides significant contributions to the economic literature by mapping the impacts of COVID-19 containment measures through the lens of the Stringency Index. While highlighting important regional differences in economic responses, the findings underscore the necessity for nuanced, contextually adapted policy measures to effectively navigate and mitigate the economic ramifications of global health crises. The insights gained not only aid policymakers but also enrich the academic discourse, setting a foundation for future research to build upon.

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