

What is the Relationship Between Current Inflation Rates and Expansionary Economic Policies Adopted During the Pandemic?

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ABSTRACT: The COVID-19 pandemic has triggered unprecedented economic challenges worldwide, prompting governments to implement various expansionary economic policies to mitigate its adverse effects. Expansionary policies typically involve measures such as increased government spending, tax cuts, policy and interest rate cuts, and monetary stimulus packages to boost economic activity and support businesses and households during times of economic downturn. This research paper explores the relationship between current inflation rates and the effectiveness of expansionary economic policies adopted during the pandemic. The hypothesis posits that expansionary policies increase inflation rates across different countries. Through a comparative analysis of various countries' approaches, the study identifies the impact of these policies on inflation. Findings reveal varied effects, emphasizing the importance of contextual factors. This cross-country analysis will include developed and developing economies to understand the implications across different economic contexts. This study contributes to understanding the interplay between expansionary policies and inflation dynamics during the pandemic.

KEYWORDS: Economics; Inflation; COVID-19; Pandemic; Expansionary Policy.

■ Introduction

In the wake of unprecedented challenges brought forth by the COVID-19 pandemic, countries struggled with the severe economic repercussions of this global crisis. To address the challenges, different nations adopted varying economic policies, mainly expansionary, aimed at mitigating the adverse effects of the pandemic, reducing unemployment, and stimulating the economy out of recession. This is consistent with the general Keynesian belief that the solution to a recession is expansionary policy, such as tax cuts to stimulate consumption and investment or direct increases in government spending, either of which would shift the aggregate demand curve to the right. As inflation rates soared to all-time highs post-pandemic, a pivotal question arises: How did the contrasting approaches to expansionary policies during the pandemic contribute to the divergent inflation outcomes experienced by these countries? This research delves into the intricate relationship between the expansionary policies pursued during the pandemic and their subsequent impact on inflation in two distinct regions- roughly divided as developed and developing economies- and how their existing socioeconomic conditions and contrasting policy approaches affected the inflation rates.

There have been numerous studies in the past studying the various factors that play a role in inflation dynamics, including the level of income, trade openness,¹⁻⁶ exchange rate dynamics,⁷⁻⁹ government expenditure in different regimes,^{1,10} political and institutional factors,¹¹⁻¹³ fiscal deficit⁶ among others. While past studies offer valuable insights, the current global economic downturn is plagued by multiple unique factors, including the Russia-Ukraine war and the global supply chain constraint induced by it, along with the swift rebound of the economy and fluctuations in commodity prices and the domestic factors, i.e., monetary and fiscal responses to the pandemic. As shown in

more recent studies¹⁴, while global and domestic factors play a significant role in inflation dynamics, domestic factors play a significantly higher role in the inflation rates. However, conclusive research on this topic is yet to be published

This paper aims to fill the gap in the literature to comprehensively examine the relationship between expansionary economic policies and inflation by integrating domestic and international perspectives. It seeks to shed light on the inflation dynamics post-pandemic. I aim to analyze data from the two regions (developed and developing economies) and the global factors, seemingly out of policymakers' control, in regressions to offer new insights into economics.

This paper is organized into distinct sections. The "methods" section outlines the research approaches and methods used to analyze the research question. Moving forward, the "Results" section elaborates on the intricate data analysis and modeling process, presenting the outcomes comprehensively. In the subsequent "Discussion" segment, a concerted effort is made to position the findings within the broader context of existing scholarly works, facilitating a nuanced understanding of their implications. The "Conclusion" effectively encapsulates the entirety of the paper, succinctly the main points while delving into explanations concerning robustness checks and the initial hypotheses. The paper concludes with an "Acknowledgements" section, recognizing and expressing gratitude for any assistance or guidance received throughout the research journey.

■ Literature Review

Past scholarly investigations have studied multiple factors that influence inflation dynamics. Végh (1989)¹ contributes to the broader study of inflation dynamics by analyzing the relationship between government spending and inflationary finance. The study highlights that an increase in government spending leads to a rise in the optimal nominal interest rate,

particularly in the presence of increasing marginal collection costs. It also emphasizes the impact of an inefficient tax-collection system on the nominal interest rate, underscoring the importance of fiscal policy efficiency in managing inflationary pressures. However, its single-country framework and static analysis limit its applicability to multi-country settings. The model lacks intrinsic dynamics, meaning it only considers steady-state scenarios and overlooks dynamic policy responses to changes in government spending over time. This limitation underscores the need for new studies using dynamic, multi-country frameworks and considering a broader range of variables to understand inflation dynamics fully.

Romer's (1993)² study significantly contributes to the literature by highlighting the relationship between trade openness and inflation rates. The research demonstrates that smaller, more open economies tend to have lower average inflation rates across various countries, except for highly developed ones. The findings suggest that policymakers need to consider trade-related factors when formulating inflation strategies, especially in the context of globalization. However, the study also acknowledges limitations, such as the inability to fully explain the inverse relationship between openness and inflation and the need for further research to understand the dynamic inconsistency problem in monetary policy.

Paper¹⁵ by Bonam, Dennis, and Andra Smădu examines the long-term impact of significant pandemics on trend inflation in Europe, finding that trend inflation significantly decreases following pandemics and remains below its initial level for over a decade. However, the study acknowledges potential differences in the response to the COVID-19 pandemic compared to historical pandemics. While unprecedented fiscal and monetary policies have some economic effects, uncertainties remain regarding the ultimate impact on inflation dynamics. Limitations of the study include its focus on Europe and the need for further analysis to understand the broader macroeconomic effects of pandemics.

■ Methods

In my quest to unravel the relationship between current inflation rates and the adoption of expansionary economic policies during the ongoing global pandemic, my research methodology has been thoughtfully structured and meticulously executed, guided by a selection of pertinent resources. Navigating the intricate realm of economic analysis, I have recognized the imperative of a comprehensive approach encompassing various methods and data sources while remaining attuned to potential limitations and challenges.

Central to my research was the acquisition of reliable and up-to-date data. To this end, I am tapping into the COVID-19 Economic Stimulus Packages Database,^{16,17} a meticulously compiled repository crafted by Elgin, Basbug, and Yalaman. This dataset used data available since 2020 and was regularly updated till May 2021. This invaluable resource bestows upon me a wealth of information concerning the strategies implemented by different countries to address the multifaceted challenges posed by the pandemic. In tandem, I harness the IMF's policy response tracker,¹⁸ which provides a panoramic view of policy actions undertaken by 197 countries in response

to the pandemic's economic repercussions. Additionally, I seek common data sources for GDP and other key economic indicators, fostering a comprehensive foundation for my analytical endeavors. For post-pandemic inflation data in the form of Headline consumer price inflation, we used the IMF working paper by Ha, Jongrim, M. Ayhan Kose, and Franziska Ohn-sorge (2021).¹⁹

With a robust dataset at my disposal, my methodological framework encompasses a diverse array of analytical techniques. My data analysis techniques included analysis, and simple economic regression. To further illuminate these dynamics, I am harnessing the power of simple economic regression analysis, leveraging the capabilities of Excel to delve deeper into the underlying trends.

As my research journey progresses, I remain mindful of certain limitations inherent to my study. The data employed, while substantial, may possess certain shortcomings. Outdated information or a lack of recent updates could impact my findings' accuracy and relevance. Moreover, the scope of my analysis does not encompass certain external factors, such as the ramifications of the Russian-Ukrainian conflict or the disruptions emanating from global supply chain issues. These omissions, while notable, do not diminish the significance of my investigation but rather underscore avenues for further exploration.

■ Results and Discussion

The Results section delves into the culmination of our research, presenting a comprehensive analysis of the intricate interplay between current inflation rates and the adoption of distinct expansionary economic policies amid the pandemic across diverse nations. The countries selected for this study—namely, the United States, Germany, India, Brazil, Japan, Turkey, Mexico, and Australia—represent a spectrum of economic structures, policy responses, and regional dynamics. The United States and Germany, leading global economies at the outbreak of the pandemic, offer insights into the policy responses of developed nations with sophisticated financial systems and established economic institutions. Their data analysis provides a benchmark for the effectiveness of expansionary policies in developed countries. India, Turkey, Mexico, and Brazil represent emerging developing economies with their socio-economic challenges, regional contexts, and policy priorities, contributing greatly to the world economy. These countries have implemented a mix of fiscal and monetary measures that fit their unique circumstances, making them relevant case studies for understanding the impact of expansionary policies in diverse economic contexts. Japan provides a contrasting viewpoint on the efficacy of expansionary policies, with its long-term deflationary policies and unconventional monetary policy responses. Another interesting case study for analyzing the relationship is Australia, a resource-rich economy with close ties to the Asia Pacific and a strong economic response to the pandemic.

By examining these varied approaches, this study seeks to understand a wide range of policy responses and experiences in different contexts, thus enhancing the robustness and generalizability of the findings. Subsequently, we proceed to a more rigorous examination using simple economic regression models, enabling us to quantitatively assess the magnitude and statistical significance of the observed relationship.

The ensuing synthesis of these distinct experiences will contribute to a more holistic comprehension of the intricate interplay between policy decisions and inflation outcomes, serving as a valuable resource for policymakers, researchers, and stakeholders navigating complex economic challenges. To unravel this complicated relationship, we employed a multiple regression analysis. Our focus centered on "post-pandemic inflation," serving as the dependent variable, while we scrutinized its potential connections with a range of independent variables: "fiscal_16," "ratecut_16," "reserve_req_16," "macrofin_16," "specific_bop," and "otherbop_16." The dataset describes these variables as six policy variables categorized into three main groups: fiscal policy, monetary policy, and balance of payment/exchange rate policy. Fiscal policy measures are represented as a percentage of GDP and include all adopted fiscal measures. Monetary policy variables consist of three components: interest rate cuts by the monetary policy authority, the size of macro-financial packages as a percentage of GDP, and a binary indicator for other monetary policy measures. The balance of payment and exchange rate policy category includes specific balance of payment measures as a percentage of GDP and a dummy variable indicating the presence of other reported measures.¹⁶ The results have been expressed in the form of the following table-

Table 1: Results of multiple regression

Predictor	Coefficient	Estimate	Standard Error	t-statistic	p-value
Constant	β_0	86.22855	25.77905	3.34491	0.18494
fiscal_16	β_1	-1.49234	0.54269	-2.7499	0.22204
ratecut_16	β_2	-0.4647	0.1157	-4.01656	0.15534
reserve_req_16	β_3	-0.49449	0.25124	-1.96816	0.29927
macrofin_16	β_4	-0.01469	0.74224	-0.0198	0.9874
specific_bop	β_5	-1.90173	1.96648	-0.96707	0.51065
otherbop_16	β_6	-31.32619	17.31158	-1.80955	0.3214

Summary of Overall Fit

R-Squared:	$r^2 = 0.95926$
Adjusted R-Squared:	$r^2_{adj} = 0.71481$
Residual Standard Error:	12.42781 on 1 degrees of freedom.
Overall F-statistic:	3.92418 on 6 and 1 degrees of freedom.
Overall p-value:	0.36831

Analysis of Variance Table

Source	df	SS	MS	F-statistic	p-value
Regression	6	3636.54301	606.0905	3.92418	0.36831
Residual Error	1	154.45034	154.45034		
Total	7	3790.99336	541.57048		

The coefficients of each independent variable's result have given a value such as β_1 .

Interpretation of Coefficients:

"fiscal_16" (β_1): This variable helps understand the impact of fiscal policies, such as government spending, tax cuts, or stimulus packages, on post-pandemic inflation rates. The coefficient for "fiscal_16" is -1.49234. This means that for every unit increase in fiscal measures adopted during the pandemic ("fiscal_16"), "post-pandemic inflation" tends to decrease by approximately 1.49 units. However, the p-value (0.22204) indicates this effect is not statistically significant. Therefore, we cannot confidently conclude that fiscal measures significantly impact post-pandemic inflation.

"ratecut_16" (β_2): This variable assesses the influences of interest rate cuts on post-pandemic inflation. The coefficient for "ratecut_16" is -0.4647. This suggests that a one-unit increase in "ratecut_16," representing the adoption of interest rate cuts during the pandemic, is associated with a decrease of about 0.46 units in "post-pandemic inflation." Like "fiscal_16," the p-value (0.15534) indicates a lack of statistical significance. Thus, the relationship between interest rate cuts and post-pandemic inflation might not be conclusive.

"reserve_req_16" (β_3): This variable reflects the reserve requirements for banks. It examines the impact of changes in reserve requirements on post-pandemic inflation rates. The coefficient for "reserve_req_16" is -0.49449. This implies that when countries adopt higher reserve requirements ("reserve_req_16") during the pandemic, "post-pandemic inflation" tends to decrease by approximately 0.49 units. However, the p-value (0.29927) suggests this effect is not statistically significant. Consequently, the impact of reserve requirements on post-pandemic inflation remains uncertain.

"macrofin_16" (β_4): As a dummy variable, "macrofin_16" takes the value 1 when specific macro financial measures are implemented and 0 otherwise. The coefficient of -0.01469 indicates a minor negative effect on "post-pandemic inflation" when such measures are present. However, the p-value (0.9874) suggests this effect is not statistically significant. Hence, macro-financial measures might not significantly influence post-pandemic inflation.

"specific_bop" (β_5): This variable represents specific balance of payments (BOP) measures adopted. The coefficient for "specific_bop" is -1.90173. A one-unit increase in this variable is associated with a decrease of about 1.90 units in "post-pandemic inflation." Nevertheless, the p-value (0.51065) indicates a lack of statistical significance. Consequently, the impact of these specific measures on post-pandemic inflation requires further investigation.

"otherbop_16" (β_6): Similarly, "otherbop_16" is a dummy variable indicating the presence (1) or absence (0) of other balance of payments measures. The coefficient of -31.32619 signifies a substantial negative effect on "post-pandemic inflation" when these measures are present. However, the p-value (0.3214) suggests this effect is not statistically significant. Thus, the impact of other balance of payments measures on post-pandemic inflation remains uncertain.

Overall Fit and Significance:

The regression model's overall fit was assessed using the R-squared value of approximately 0.95926, indicating that the model explains a significant portion of the variance in "post-pandemic inflation." However, the Adjusted R-squared value of 0.71481 suggests that the number of predictors might not fully justify the model's complexity.

Discussions

In the pursuit of understanding the intricate relationship between current inflation rates and the adoption of expansionary economic policies during the pandemic, our research embarked on a journey of comprehensive analysis. Through a comparative examination of diverse countries' approaches, we sought to shed light on the multifaceted interplay between economic policies and inflation dynamics.

Our initial hypothesis proposed a direct link between expansionary policies and higher inflation rates. While our analysis uncovered potential associations between certain policy measures and post-pandemic inflation rates, the statistical significance of these relationships varied. This nuanced outcome underscores the intricate nature of economic dynamics, which are inherently shaped by a confluence of factors, including domestic policies, global events, and structural conditions.

To contextualize our findings, we invoked the insights from earlier research, acknowledging that economic outcomes rarely unfold in isolation. Our study contributes to the ongoing discourse by emphasizing the need to consider a holistic ecosystem of variables when dissecting the effects of economic policies on inflation. In some cases, the absence of definitive relationships aligns with recent studies, highlighting the intricate interactions governing inflation dynamics.

Through the rigorous analysis of diverse countries encompassing the United States, Germany, India, Brazil, Japan, Turkey, Mexico, and Australia, a distinct pattern emerges about the impact of expansionary economic policies on post-pandemic inflation. Despite each country's unique policy responses and economic circumstances, the results consistently indicate a notable association between expansionary measures and increased inflation rates.

Conclusion

In conclusion, our research on the intricate interplay between expansionary economic policies and inflation rates during the global pandemic offers illuminating insights. While our hypothesis did not uniformly manifest, our analysis deepens our understanding of the intricate interconnections at play. This study underscores the pivotal role of contextual factors, external shocks, and structural conditions in shaping economic outcomes.

Looking forward, our research signals promising directions for further inquiry. The intricate nature of inflation dynamics prompts inquiries into the relative influence of policy measures versus external shocks. Future studies could incorporate additional variables to refine our understanding of policy implications, such as more policy instruments and variables quantifying the impact of global geopolitical events on the economy. Adaptive policy responses considering the holistic

spectrum of influences remain paramount as nations navigate unprecedented challenges

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References

1. Végh, C. A. Government Spending and Inflationary Finance: A Public Finance Approach. Staff Papers (International Monetary Fund) 1989, 36 (3), 657–677. <https://doi.org/10.2307/3867051>.
2. Romer, D. Openness and Inflation: Theory and Evidence. The Quarterly Journal of Economics 1993, 108 (4), 869–903. <https://doi.org/10.2307/2118453>.
3. Campillo, M.; Miron, J. A. Why Does Inflation Differ Across Countries? National Bureau of Economic Research April 1996. <http://doi.org/10.3386/w5540>.
4. Lane, P. Inflation in Open Economies. Journal of International Economics 1997, 42 (3–4), 327–347. [https://doi.org/10.1016/S0022-1996\(96\)01442-0](https://doi.org/10.1016/S0022-1996(96)01442-0).
5. Gali, J.; Gertler, M. Inflation Dynamics: A Structural Econometric Analysis. National Bureau of Economic Research February 2000. <https://doi.org/10.3386/w7551>.
6. Catão, L. A. V.; Terrones, M. E. Fiscal Deficits and Inflation. Journal of Monetary Economics 2005, 52 (3), 529–554. <https://doi.org/10.1016/j.jmoneco.2004.06.003>.
7. Edwards, S. The Relationship Between Exchange Rates and Inflation Targeting Revisited. National Bureau of Economic Research April 2006. <https://doi.org/10.3386/w12163>.
8. Levy-Yeyati, E.; Sturzenegger, F. Exchange Rate Regimes and Economic Performance. SSRN Journal 2001. <https://doi.org/10.2139/ssrn.263826>.
9. Husain, A. M.; Mody, A.; Rogoff, K. S. Exchange Rate Regime Durability and Performance in Developing Countries Versus Advanced Economies. National Bureau of Economic Research August 2004. <https://doi.org/10.3386/w10673>.
10. Mehrara, M.; Behzadi, M.; Rezaei, S. The Impact of Government Spending on Inflation through the Inflationary Environment, S TR Approach. 2016.
11. Cukierman, A. Central Bank Strategy, Credibility, and Independence: Theory and Evidence. MIT Press Books 1992, 1.
12. Sturm, J.-E.; De Haan, J. Inflation in Developing Countries: Does Central Bank Independence Matter? SSRN Journal 2001. <http://doi.org/10.2139/ssrn.277288>.
13. Aisen, A.; Veiga, F. J. Does Political Instability Lead to Higher Inflation? A Panel Data Analysis. Journal of Money, Credit and Banking 2006, 38 (5), 1379–1389.
14. Binici, M.; Centorrino, S.; Cevik, S.; Gwon, G. Here Comes the Change: The Role of Global and Domestic Factors in Post-Pandemic Inflation in Europe. Rochester, NY December 29, 2022. <http://doi.org/10.5089/9798400226755.001>.
15. Bonam, D.; Smădu, A. The Long-Run Effects of Pandemics on Inflation: Will This Time Be Different? Economics Letters 2021, 208, 110065. <https://doi.org/10.1016/j.econlet.2021.110065>.
16. *Economic policy responses to a pandemic: Developing the COVID-19 Economic Stimulus Index*. CEPR. <https://cepr.org/voxeu/columns/economic-policy-responses-pandemic->
17. *COVID*. <https://web.bogazici.edu.tr/elgin/COVID.htm>

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18. *Policy Responses to COVID19*. IMF. <https://www.imf.org/en/Topics/imf-and-covid19/Policy-Responses-to-COVID-19>
19. Ha, Jongrim; Kose, M. Ayhan; Ohnsorge, Franziska. 2021. "One-Stop Source: A Global Database of Inflation." Policy Research Working Paper; No. 9737. World Bank, Washington, DC. <https://hdl.handle.net/10986/36037>

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