International Journal of Education, Business and Economics Research (IJEBER)



ISSN: 2583-3006

Vol. 4, Issue.5, September-October 2024, pp 211-226

To cite this article: Masaaki Yoshimori and Heather Houston (2024). Unraveling the True Drivers of Rising College Tuition and Policy Pathways. International Journal of Education, Business and Economics Research (IJEBER) 4 (5): 211-226

UNRAVELING THE TRUE DRIVERS OF RISING COLLEGE TUITION AND POLICY PATHWAYS

Masaaki Yoshimori¹ and Heather Houston²

¹McCourt School of Public Policy, Georgetown University, 125 E St NW, Washington, DC 20001, USA my612@georgetown.edu

²Department of Curriculum, Instruction and Special Education, University of Southern Mississippi Hl.houston@usm.edu

(iii): https://orcid.org/0000-0002-1839-5448

https://doi.org/10.59822/IJEBER.2024.4513

ABSTRACT

Over the past three decades, college tuition fees in the US have increased significantly, outpacing inflation and imposing substantial financial burdens on students and their families. This study explores the dynamic relationships between college tuition, wage growth (WG), and inflation through a comprehensive analysis using a Vector Auto regression (VAR) model and an event-study approach. Using data from 1986 to 2023, it examines how these macroeconomic factors impact private, in-state, and out-of-state college tuition costs. Our analysis reveals that inflation plays a critical role in driving tuition increases, particularly for private and in-state colleges, while WG has a more complex influence on in-state tuition. The findings indicate that inflation cause, in the sense of Granger, private and in-state tuition hikes, underscoring the necessity of inflation control to manage rising education costs effectively. It highlights the urgent need for targeted policy interventions, such as a payment interest rate for inflation-adjusted student loans, which can relieve those disproportionately affected by high inflation. Such measures aim to alleviate financial strain and promote long-term economic stability by accounting for the erosion of purchasing power due to inflation. The study concludes by emphasizing the importance of developing strategic policies to mitigate the financial challenges. By understanding the interplay between tuition costs, WG, and inflation, this study offers insights into practical policy measures to support students' financial wellbeing and economic prospects. The findings contribute to the ongoing discourse on highereducation affordability and the economic pressures facing today's students. This research underscores the critical need for proactive measures to address the financial impact of rising tuition and to support equitable access to higher education.

KEYWORDS: - Education Finance, Higher Education Costs, Inflation, Government Expenditures and Education, Wages.

JEL Codes: E24, E31, G18, I22, H52

"Education is not the filling of a pail, but the lighting of a fire." - William Butler Yeats

© The Authors 2024 Published Online: September 2024 Published by International Journal of Education, Business and Economics Research (IJEBER) (https://ijeber.com/) This article is published under the Creative Commons Attribution (CC BY 4.0) license. Anyone may reproduce, distribute, translate and create derivative works of this article (for both commercial and non-commercial purposes), subject to full attribution to the original publication and authors. The full terms of this license may be seen at: http://creativecommons.org/licences/by/4.0/legalcode

1.INTRODUCTION

From 1986 to 2023, college tuition in the United States increased at an annualized rate of 5.9% (public 4-year) and 3.9% (private 4-year), outpacing nominal wage growth (3.0%). This trend has imposed a substantial financial burden on students and their families, exacerbating concerns about the affordability and accessibility of higher education. Understanding the underlying factors driving these tuition increases is critical for developing effective policy interventions aimed at alleviating the financial strain on households and ensuring equitable access to education.

This study employs a vector auto regression (VAR) model and an event-study approach to explore the dynamic interactions between college tuition, inflation, and WG from 1986 to 2023. Using these methodologies, the aim is to capture both the immediate and lagged effects of macroeconomic variables on tuition costs. The VAR model allows us to examine the linear interdependencies among multiple time series variables, while the event-study assesses the response of tuition fees to specific economic shocks, such as changes in inflation and WG

Our findings reveal that inflation is a critical driver of tuition increases, particularly for private and in-state public colleges. Granger causality is a way to check if one thing can help predict another over time. If "X Granger-causes Y," it means that past values of X can help predict future values of Y better than just using past values of Y alone. This suggests a pattern in the data, but it doesn't necessarily mean that X directly causes Y. The analysis indicates that inflation Granger-causes tuition hikes, underscoring the importance of controlling inflation to manage rising education costs effectively. WG, on the other hand, has a more nuanced impact on tuition, particularly for in-state institutions, highlighting the complex interplay between these economic factors (Granger, 1969). Granger causality is a method used to check if one thing can help predict another over time. These insights are crucial for policymakers aiming to develop strategies that mitigate the financial challenges faced by students and their families.

In light of these findings, this study emphasizes the urgent need for targeted policy interventions, such as inflation-adjusted student loans that is higher-than-expected and income-driven repayment plans, to provide relief to those disproportionately affected by high inflation. Such measures can help alleviate the financial burden on students, promote long-term economic stability, and ensure

that higher education remains accessible and affordable for all. By understanding the dynamic relationships between tuition costs, inflation, and WG, this research contributes insights into effective policy measures to support students' financial well-being and economic prospects.

2. LITERATURE REVIEW

Archibald & Feldman (2006) and College Board (2020) showed that college tuition increased more than inflation over the past three decades. For example, the College Board found that tuition and fees at public four-year colleges increased by 269% between 1986 and 2020; the Consumer Price Index (CPI) increased by 123% between 1986 and 2020. Also, the National Bureau of Economic Research (2024) found that college tuition inflation averaged over 7% per year between 1980 and 2004, compared to an overall CPI of 4%.

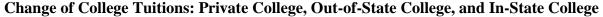
The causes of increasing college tuition beyond CPI are complex and multifaceted. However, several factors are thought to contribute, including decreased government funding for higher education, increased demand for higher education, and rising costs for faculty and staff salaries and benefits (Archibald & Feldman, 2006). Other contributing factors may include the increasing cost of faculty research, expanded administrative roles, and investments in technology and campus amenities. Whatever the factor, this trend resulted in a significant decline in the affordability of higher education, particularly for low-income students (Goldrick-Rab, 2006). As policymakers and educators seek to address this issue, it is essential to understand the historical relationship between college tuition and inflation.

Overall, the literature suggests that the rising cost of higher education is a pressing issue that requires practical solutions to make higher education more affordable and accessible for all. By examining the historical trends and underlying causes of this relationship, researchers and practitioners can work towards developing policies and strategies to mitigate the effects of college tuition inflation.

3. DATA

According to Abel and Deitz (2014), the economic benefits of a college degree can be conceptualized as the incremental wages earned by individuals possessing a college degree relative to those without one. This notion underscores the significance of higher education in enhancing earning potential and the importance of examining the dynamics of college tuition, WG, and inflation.

This empirical analysis draws upon a comprehensive dataset comprising yearly time series of private- college tuition, in-state college tuition, out-of-state- college tuition, growth wage, and inflation, spanning from 1986 to 2023. These data come from the National Center for Education Statistics, US News, Federal Reserve Bank of Atlanta, and the US Bureau of Labor Statistics. Examining the interplay among these variables aims to elucidate the complex relationships driving the economic benefits of a college degree (see Fig. 1).



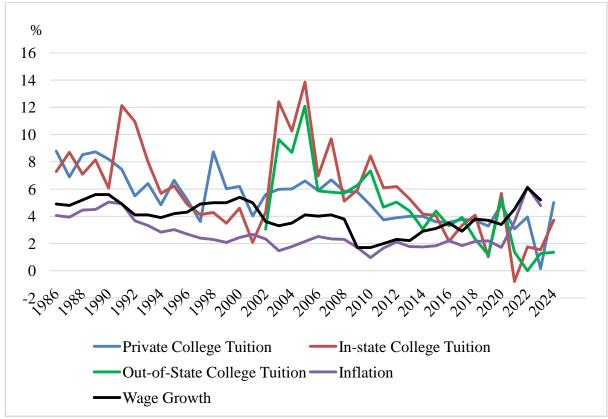


Figure 1. Source: compiled by author.

4. METHODOLOGY AND RESULT

The methodology consists of two approaches: vector autoregressive model (VAR) and an event-study to analyze the dynamic interactions among inflation, WG, and tuition growth at each type of college (private, in-state-, out-state-college tuition.) The VAR model examines the dynamic interactions and interdependencies among the variables, while the event-study approach assesses the response of college tuitions to specific economic events or shocks, such as changes in inflation or WG. By combining these two approaches, the analysis can capture both the immediate and lagged effects of macroeconomic variables on college tuitions.

4.1. Methodology: VAR model

A VAR model is used to examine the dynamic interactions between private tuition, in-state tuition, out-of-state tuition, WG, and inflation. This model is a common and robust approach for analyzing multivariate time series data, capturing linear interdependencies among multiple time series variables (Sims, 1980).

The model investigates the dynamic relationships between college tuition (CT), wage growth (WG), and inflation (INF). Specifically, a VAR (3) model which incorporates three lag periods is used. The model is defined by the following system of equations:

$$I_{t} = \delta_{0} + \delta_{1}I_{t-1} + \delta_{2}I_{t-2} + \dots + \delta_{p}I_{t-p} + \epsilon_{t}$$
(1)

where I_t is a vector of endogenous variables, δ_0 is a constant term. δ_i are matrices of coefficients to be estimated, and ϵ_t is a vector of error terms.

For this analysis, the vector of endogenous variables I_t is:

$$I_t = \begin{pmatrix} CT_t \\ GT_t \\ INF_t \end{pmatrix} \tag{2}$$

where Z_t is a vector of the three variables: GT_t = each college tuitions, GT_t = WG, INF_t = inflation.

This VAR model examines the relationships between college tuition, WG, and inflation, and allows for feedback effects between the variables. By estimating the coefficients, it examines the dynamics of the relationships between these variables.

4.2. Result: VAR Model

The unit root tests, encompassing the Augmented Dickey-Fuller (ADF) and Phillips-Perron (PP) tests, reveal that most variables -- private college tuition, in-state tuition, out-of-state college tuition, WG, and inflation -- are non-stationary in their levels, but become stationary after differencing. The only exception is in-state tuition, which is stationary at levels according to both tests (p < 0.05). These results necessitate differencing for most variables before further analysis, ensuring the stationary prerequisite for accurate VAR modeling.

The VAR model, fitted with optimal lags determined by selection criteria, demonstrates significant dynamics among the differenced variables (first differences). Stability diagnostics confirm that the model is stable, with all eigenvalues inside the unit circle and residuals showing no significant autocorrelation. The *R*-squared values for the equations indicate moderate explanatory power, particularly for private college tuition and inflation.

Granger causality tests identify significant causative relationships: inflation Granger causes private tuition (p = 0.015), while WG does not show a significant causal effect (p = 0.100). Neither WG nor inflation Granger causes out-of-state tuition, suggesting distinct dynamics for in-state- and out-of-state college tuition. Impulse response functions (IRFs) and forecast error variance decomposition (FEVD) further elucidate these relationships, showing that shocks to inflation and WG initially influence college tuition variables, but these effects stabilize over time (see Table 1).

Key Results

Variable	ADF Test (p-value)	PP Test (p-value)	Stationarity	Granger Causality	Implication
Private Tuition	0.154	0.2668	No	Yes (Inflation)	Control inflation to manage tuition costs
In-State Tuition	0.0428	0.0416	Yes	Yes (Inflation, Wage growth)	Adjust tuition based on economic trends
Out-of-State Tuition	0.2268	0.1984	No	No	Limited direct policy adjustments needed
Wage Growth	0.3977	0.3437	No	No	Monitor as an economic indicator
Inflation	0.4657	0.4473	No	Yes (Tuition)	Implement measures to control inflation

Table 1 Source: compiled by author.

The IRF plots show the response of each variable to a one standard deviation shock in another variable, illuminating the dynamic interactions among inflation, WG, and college tuition. The responses of tuition to various types of shocks are highlighted below.

Inflation shocks. The IRF shows that a positive shock to inflation initially causes an increase in private college tuition. This effect tends to stabilize over time, indicating that the impact of inflation on private tuition is direct but temporary. This is likely because institutions raise tuition to counteract the higher operational costs resulting from inflation. Similarly, an inflation shock also leads to a rise in in-state tuition, with the effect stabilizing over time. This response highlights the sensitivity of in-state tuition to broader macroeconomic conditions.

Wage-growth shocks. A positive shock to wage growth results in an increase in private tuition. This rise can be attributed to higher wages enhancing the ability of households to afford higher tuition, as well as raising operational costs for institutions. The IRF also indicates that in-state tuition rises in response to a wage-growth shock, mirroring the patterns observed with private tuition increases. College tuition shocks. Shocks to private or in-state college tuition generally show less pronounced impacts on inflation and WG, suggesting that while tuition fees respond to economic conditions, they do not significantly drive broader economic changes (See Fig. 2, Fig. 3, and Fig. 4).

Response of Private Tuition to Inflation Shock and Wage Growth Shock

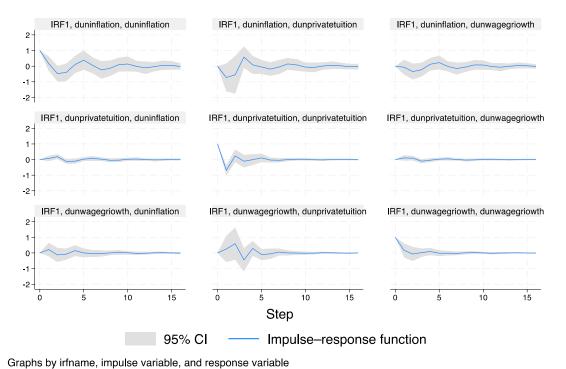
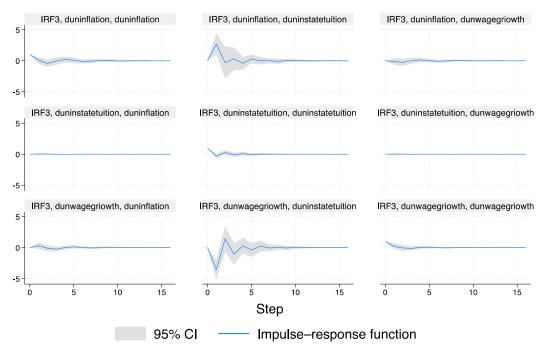


Figure 2. Source: compiled by author from STATA.

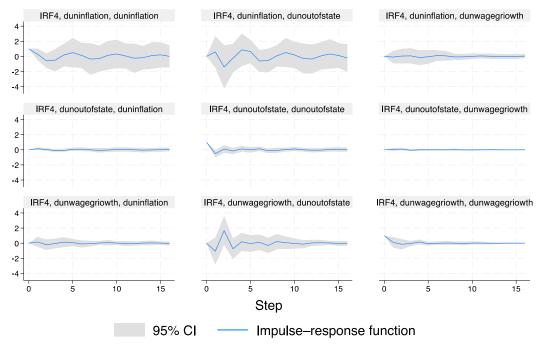
Response of In-State College Tuition to Inflation Shock and Wage Growth Shock



Graphs by irfname, impulse variable, and response variable

Figure 3. Source: compiled by author from STATA.

Response of Out-State College Tuition to Inflation Shock and Wage Growth Shock



Graphs by irfname, impulse variable, and response variable

Figure 4. Source: compiled by author from STATA.

Analyzing the relationships among private tuition, WG, and inflation reveals several implications for educational policy and economic management. One of the most significant findings is the Granger causality from inflation to private and in-state tuition. It indicates that changes in inflation rates can predict future changes in these tuition fees, highlighting the importance of controlling inflation to manage the cost of education. Policymakers could take into account implementing inflation-targeting measures and stabilizing policies to mitigate the impact of inflation on tuition costs. It could involve monetary policies to maintain low and stable inflation rates, which would help keep tuition increases in check and make higher education more affordable for students and their families.

Additionally, the significant Granger causality from WG and inflation to in-state tuition suggests that economic conditions directly influence tuition-setting decisions by educational institutions. As wages rise, there may be an increased ability to pay higher tuition, leading institutions to raise fees. However, this could also reflect higher operational costs for institutions, such as increased salaries for faculty and staff. Therefore, while it is essential to monitor WG as an economic indicator, it is equally important for educational institutions to balance tuition increases with the broader economic context to avoid making education prohibitively expensive.. Therefore, government and regulatory intervention is essential. Policies such as setting tuition caps, increasing public funding, and expanding scholarship programs are important for ensuring access to education. If educational institutions raise tuition fees in response to rising wages without considering the broader economic context, there is a risk that education will become unaffordable, especially for low- and middleincome groups. Even if individual educational institutions do not prioritize affordability, the education system as a whole has a responsibility. The main goals of universities are financial sustainability, academic excellence, and institutional growth. Tuition often increases in pursuit of enhancing educational quality and resources. Although competition exists in the education market, it is not as simple as price competition in the general market. Policymakers could consider implementing mechanisms like tuition caps or expanding financial-aid programs during periods of significant WG to ensure that tuition remains affordable. It is crucial for the system as a whole to ensure access to education. This is essential for maintaining the social and economic benefits that a well-educated society brings. Thus, it is necessary to find a balance within the entire education system to continue providing education at an affordable price.

For the out-of-state tuition, the absence of Granger causality from WG and inflation suggests a more intricate relationship less directly influenced by these economic indicators. This complexity implies that other factors, such as institutional policies, state funding levels, and competition among institutions, may drive out-of-state tuition. This finding highlights the need for further research and understanding of these other influencing factors.

4.3. Methodology – Event-study

Each college's tuition is expected to rise annually with increasing inflation. The idea of the event-study was published firstly by Dolley (1933). MacKinlay and Craig (1997) analyze the stock price impact of announcements (e.g., a merger such as Modelez's buyout offer of Hershey in 2018).

This paper, the purpose of the event study is to measure the abnormal response of each these college tuitions for each type of college. The model assumes a stable linear relation between increased tuition and increased inflation. The abnormal rate of tuition increase is the actual ex post rate of increase in college tuition over the event window minus the normal rate of increase over the event window. The normal rate of increase is defined as the expected rate rate without conditioning on the event (here, unexpected inflation) taking place.

There is a standard market model (Yoshimori (2019b) (2021) (2024)) where the anticipated increasing each college tuitions given by the increasing inflation. Brown and Warner (1985) show that simple risk-adjustment approaches 1) perform well in conducting short-run event-window studies and 2) are an effective way to detect abnormal performance.

The model for the price of anticipated each college tuitions can be expressed as
$$R_{it} = \alpha_i + \beta_i R_{mt} + \varepsilon_{it}$$
(3)

where R_{it} , R_{mt} represent the period t price change for anticipated each college tuitions and each college tuitions, respectively, and ε_{it} is the residual term with $E(\varepsilon_{it}) = 0$ and $E(\varepsilon_{it}) = \sigma_{\varepsilon}^2$. The coefficients and are estimated by running an ordinary least-square regression over the estimation window.

My choice of estimation windows captures periods with events such as policy changes by inflation. As its name suggests, the baseline model uses a larger window to estimate a model of each college tuitions in the absence of the event. In this paper, the size of the event window varies. According to the market model (Eq. (3)), the 36 observations spanning 2 years for the private college tuition and the in-state tuition results from the difference between each college tuitions observed during the event period and the baseline model of each college s by the inflation:

$$\widehat{AR_{i,t}} = R_{i,t} - E(\varepsilon_{i,t})(4)$$

where $\widehat{AR_{i,t}}$ and $E(\varepsilon_{i,t})$ represent the abnormal and expected rate of tuition increase, respectively, over a period t for the i.

The average abnormal rate of tuition increase (AAR) is obtained by subtracting the expected rate of tuition increase from the realized rate of tuition increase:

$$AAR_t = \frac{1}{N} \sum_{i=1}^{N} \left| \widehat{AR_{i,t}} \right| \tag{5}$$

This assumes that the event is exogenous with respect to the change in rate of tuition increase. An important characteristic of a successful event-study is the ability to precisely identify the data of the event.

The testing procedure this study employs is a t-test:

$$t - test = \frac{1}{N} \sum_{t=1}^{N} \left| \widehat{AR_{i,t}} \right| / |AR_SD|(6)$$

Where number of days refers to the number of days in the event window, and AR_SD is the abnormal rate of tuition increase standard deviation. The null hypothesis for this analysis is not

influenced by random rate of tuition increase for each college tuitions. That is H_0 : $\varepsilon_{i,t} = 0$ or $\sum_{t=t_1}^{t_2} \varepsilon_{i,t} = 0$. According to Kwok and Brooks (1990), using a parametric test is robust enough to detect the presence or absence of abnormal performance.

4.4. Result – Event-study

The 36 observations from December 1986 to December 2023 for private-college tuition and in-state tuition yield statistically significant results. Also, the 22 observations from December 2002 to December 2023 for out-of-state college tuition yield statistically significant results.

The model fit by these data -- 36 observations spanning 1 year for the private college tuition and the in-state tuition and 36 observations spanning 2 years for the out-of-state tuition -- does not pass the AR t-test with significance of 95%. Table 2 shows the average abnormal rate of tuition increase (AAR), and the t-test of AAR. Assuming that the regression residuals are normally distributed, the event window is significant at 95% (see Table 2).

Table 2. Result: Event-study

Variable	Number of Days	AAR	T-test %
Private Tuition	36	-3.7397E-16	1.1092E-12
In-State Tuition	36	0	2.47653E-08
Out-of-State Tuition	21	1.88738E-15	

Source: compiled by author.

The event-study shows that abnormal movement in tuition at each of type was attributable to inflation. During the estimation period, the standardized abnormal rate of tuition increase is the ratio between the abnormal rate of tuition increase and the standard deviation of the abnormal rate of tuition increase s. Standardized abnormal rate of tuition increase less than -1.96 or more than 1.96 are due to randomness with a probability of less than 5%. Fig. 2 shows instances where the abnormal rate of tuition increase times the z-score was less than -1.96 or exceeded 1.96 in 2023 for the private college tuition and in 2005 and 2021 for the in-state college tuition and out-state college tuition (See Figure 5).

Private college tuition increased due to various factors, including rising operating costs, declining government funding, and increased demand (Archibald, 2020). Tuition at private non-profit colleges increased by 4.5% in 2023, exceeding the rate of inflation (College Board, 2023), while colleges invested in new technology, facilities, and amenities to attract students, leading to higher tuition costs (Looney, 2022). In contrast, public college tuition remained stable, which experts often attribute to increased state funding that offsets rising operational costs, allowing colleges to maintain affordability (College Board, 2023; Hillman, 2022).

Public college tuition increased significantly in both 2005 and 2021 due to a combination of reduced state funding and rising operational costs (NCES, 2006; Heller, 2006; Chronicle of Higher Education, 2021; NASBO, 2021). In 2005, many states faced budget deficits resulting from the

economic downturn of the early 2000s, leading to cuts in higher education funding and forcing public universities to raise tuition to make up for lost revenue (Heller, 2006). Similarly, in 2021, the COVID-19 pandemic strained state budgets and increased the costs associated with remote learning technologies, campus health measures, and other pandemic-related expenses (Chronicle of Higher Education, 2021; NASBO, 2021). These financial pressures, combined with a need to support institutional sustainability and educational quality, resulted in higher tuition fees for public colleges during these years (NCES, 2006).

AR Significant

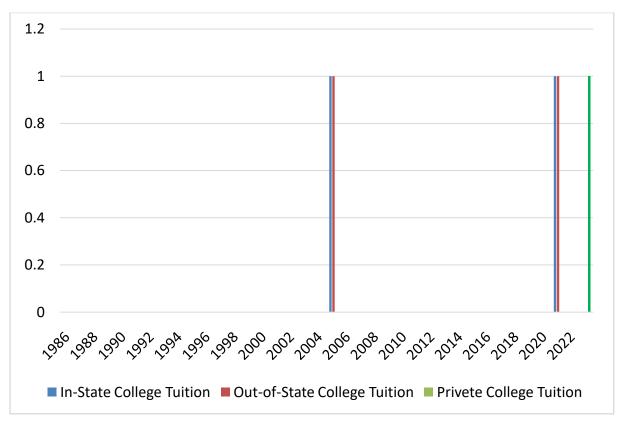


Figure 5. Source: compiled by author.

5. DISCUSSION

In the 2020–21 academic year, approximately 38% of first-time, full-time, degree- or certificate-seeking undergraduate students were awarded loan aid. This represents a 12 % decline from the 50% observed in the 2010–11 academic year. During the same period, the average annual student loan amount for these students decreased by 8 percent, dropping from \$8,400 to \$7,700 when adjusted to constant 2021–22 dollars (National Center for Education Statistics (2023)). As reported by the College Board (2023a) highlights that institutional grant aid has grown significantly, from \$57.7 billion in 2012-13 to \$76.9 billion in 2022-23. The amount borrowed by students has also increased over time. According to College Board (2023b), the average student loan debt for bachelor's degree recipients in the 2021-22 academic year was \$29,400, yet still representing a substantial financial burden for graduates. Furthermore, the total student loan borrowing by undergraduate and graduate students in the 2022-23 academic year reached \$98.2 billion, encompassing both federal and nonfederal loans.

Many students and their parents from low- and moderate-income families rely on student loans from a public lender, the Department of Education, and private lenders such as Discover, Citi Bank, and Union Bank. Indeed, the debt was now the second-largest household debt after mortgages; also, student-loan debt is massive than households' credit card debt. As of June 2023, 43.6 million Americans held federal student loan debt, with an average balance of \$38,000 per borrower, and 54% of college undergraduates finish college with student loan debt (Federal Reserve, 2023). According to Forbes (2023), the average college student borrows \$29,100 in loans.

Inflation has significant implications for student loan interest rates. Federal Reserve (Fed) often increase interest rates as inflation rises to cool the economy. This action makes borrowing, including student loans, more expensive, as interest rates for these loans are influenced by the broader economic environment. For instance, the interest rate on federal student loans for undergraduates increased from 2.75% in July 2020 to 5.50% in July 2023, reflecting the general rise in interest rates to combat inflation during the COVID-19 economic recovery (Dynarski, 2024). This connection highlights how macroeconomic policies directly impact the financial burdens of students and borrowers.

The Biden administration's student-loan forgiveness plan, which would cancel up to \$20,000 in debt for eligible borrowers, sparked concerns about its potential impact on inflation. The plan's estimated cost of \$500 billion over ten years could increase disposable income and consumption, driving up demand and prices. This could make it harder to control inflation, potentially leading to higher interest rates and broader economic consequences. When \$20,000 in debt is forgiven, borrowers may spend more freely, potentially boosting economic activity but also exacerbating inflationary pressures.

According to Looney (2022), student loan forgiveness programs, particularly those adjusted for inflation, can provide targeted relief to students who have been disproportionately affected by inflation. Inflation-adjusted forgiveness programs can help alleviate financial strain by accounting for the erosion of purchasing power due to inflation, providing relief to students who financed their education during periods of high inflation. These programs can also provide targeted relief to students who need it most, acknowledging the economic conditions beyond their control.

Inflation-adjusted forgiveness programs can promote long-term economic stability and reduce the risk of default, which can have far-reaching consequences for individuals, institutions, and the broader economy. By recognizing that students who financed their education during periods of high inflation were affected by economic conditions beyond their control, these programs can provide relief and promote economic mobility. Rather than the student-loan forgiveness, it focuses on the relationship between inflation and student-loan interest rates, which is particularly relevant for students with variable-rate loans. Borrowers with fixed-rate loans are insulated from these changes, but the initial rates they secure are higher when inflation is high. Moreover, the yield on 10-year Treasury notes, which partly determines the fixed interest rates on newly disbursed federal student loans, tends to rise with inflation, further increasing borrowing costs (Lubik & George, 2022). Consequently, inflation can make education financing more expensive, affecting decisions about higher education and financial planning for students and families.

However, there is a silver lining. While inflation raises the cost of borrowing, it can also lead to wage inflation, which may benefit borrowers. If wages increase alongside prices, borrowers can repay their loans with money that has less purchasing power than when they initially borrowed, effectively reducing the actual cost of their debt. This phenomenon is advantageous for those with fixed-rate loans, as their repayments remain constant while their income potentially increases (Meyer, 2023).

This highlights the need for targeted policy interventions, such as a payment interest rate for inflation-adjusted student loans, which can relieve those disproportionately affected by high inflation. The tuition increased beyond anticipated tuition with private school in 2023 and public school in 2025 and 2021 based on inflation. By addressing the financial strain for repayment caused by inflation, policymakers can help ensure that higher education remains accessible and affordable for all students.

6. CONCLUSION

The significant increase in college tuition over the past few decades, driven by various economic factors, has created substantial financial challenges for students and families. Our analysis using a VAR model and event-study highlights the critical roles of inflation and WG in shaping tuition costs. The findings underscore the importance of controlling inflation and implementing targeted policies to make higher education more affordable.

As prices rise and inflation erodes purchasing power, the financial burden of higher education can become overwhelming, making it increasingly difficult for borrowers to keep up with payments. Targeted policy interventions, such as inflation-adjusted financial aid packages, including student loans and grants, and income-driven repayment plans can provide critical relief. These measures ensure that higher education remains accessible and sustainable for all, regardless of prevailing economic conditions. Inflation-adjusted financial aid can align with the rising cost of living, while income-driven repayment plans that adjust based on borrowers' post-graduation income levels offer a mechanism for reducing the long-term financial burden on graduates. By making repayment more manageable and reducing the likelihood of default, these policies help prevent a cycle of debt and financial insecurity that could have far-reaching consequences for individuals, families, and the broader economy. Addressing the financial strain caused by inflation is imperative to safeguarding the future of higher education and ensuring it remains a viable path for all

The long-term consequences of inaction could be severe, not only for the individuals and families directly affected but also for the broader economy. High levels of student debt can limit consumer spending, reduce homeownership rates, and constrain economic mobility, thereby creating a drag on economic growth. Furthermore, the social implications of unaffordable higher education—such as reduced access to education for lower-income individuals and increased inequality—underscore the urgency of policy interventions.

While the challenges posed by rising tuition and inflation are complex, they are not insurmountable. Through coordinated action and thoughtful policy design, it is possible to create a more equitable

and sustainable higher education system that serves the needs of all students, regardless of their economic background.

ACKNOWLEDGEMENT

Dr. Stephen Wolff and Heather Houston, University of Southern Mississippi provided his beneficial comments.

REFERENCES

- [1] Abel, J. R. Abel & Deitz,R. (2014). Do the Benefits of College Still Outweigh the Costs? *The New York Fed.* Current Issues in Economics and Finance,
- 20(3). https://www.newyorkfed.org/medialibrary/media/research/current_issues/ci20-3.pdf
- [2] Archibald, R. B., & Feldman, D. H. (2006). State higher education spending and the growth of tuition. Journal of Higher Education, 77(4), 561-585.https://ideas.repec.org/p/wpa/wuwphe/0412003.html
- [3] Chronicle of Higher Education. (2021). Pandemic Drives Tuition Increases at Public Colleges. https://www.chronicle.com/article/state-support-for-colleges-continues-to-rise-as-federal-aid-and-tuition-revenue-fall-report-shows
- [4] College Board. (2020). Trends in College Pricing and Student Aid 2020.https://research.collegeboard.org/media/pdf/trends-college-pricing-student-aid-2020.pdf
- [5] College Board. (2022). Trends in College Pricing and Student Aid 2022.https://research.collegeboard.org/media/pdf/trends-in-college-pricing-student-aid-2022.pdf
- [6] College Board. (2023a). *Trends in Student Aid* 2023: *Highlights*. https://research.collegeboard.org/trends/student-aid/highlights
- [7] College Board. (2023b). *Trends in Student Aid 2023*. Retrieved from https://research.collegeboard.org/trends/student-aid/highlights
- [8] College Board Research. (2023). Trends in College Pricing: Highlights. Retrieved from

https://research.collegeboard.org/trends/college-pricing/highlights

- [9] Desrochers, D. M., & Kirshstein, R. J. (2014). Labor Intensive or Labor Expensive? Changing Staffing and Compensation Patterns in Higher Education. Delta Cost Project. https://cdhe.colorado.gov/sites/highered/files/2020-03/deltacostair_staffing_brief.pdf
- [10] Dolley, J.G., 1933, Characteristics and Procedure of Common Stock Split-Ups. *Harvard Business Review*, Vol.11, pp.316-326.
- [11] Dynarski, S. M. (2014). What does cutting rates on student loans do? Brookings Institution.https://www.brookings.edu/wp-content/uploads/2016/06/economist_perspective_student_loans_dynarski.pdf

- [12] Federal Reserve (2023). Consumer Credit G.19. https://www.federalreserve.gov/releases/g19/current/
- [13] Forbes (2023). Student Loan Debt Statistics. https://www.forbes.com/sites/pattieehsaei/2023/07/17/why-incurring-debt-for-a-bachelors-degree-is-worth-it/?sh=702dd8526c05
- [14] Goldrick-Rab, S. (2006). Paying the price: College Costs, Financial Aid, and the Betrayal of the American Dream. University of Chicago Press.
- [15] Granger, C. W. J. (1969). Investigating Causal Relations by Econometric Models and Cross-Spectral Methods. Econometrica, 37(3), 424-438https://www.jstor.org/stable/1912791
- [16] Heller, D. E. (2006). State Support of Higher Education: Past, Present, and Future. Educational Policy, 20(1), 5-18. https://link.springer.com/article/10.1007/s11233-006-0001-5
- [17] Hillman, N. (2022). The Effect of Inflation on Student Loan Debt. Journal of Higher Education Finance, 40(2), 143-158.https://ir.library.louisville.edu/jsfa/vol45/iss3/5/
- [18] Institute of International Education. (2020). Open Doors Report on International Educational Exchange.https://www.iie.org/publications/open-doors-2020/
- [19] Loony, A. (2022). Putting student loan forgiveness in perspective: How costly is it and who benefits? Brookings Institution Blog. https://www.brookings.edu/articles/putting-student-loan-forgiveness-in-perspective-how-costly-is-it-and-who-benefits/
- [20] Lubik, T. A., & George, A. (2022). Relief for student loan borrowers may be on the way, but how might forgiving billions of dollars in student loans impact inflation? Federal Reserve Bank of Richmond.https://www.richmondfed.org/research/national_economy/macro_minute/2022/mm_10_11_22
- [21] MacKinlay, Craig A. (1997). Event Studies in Economics and Finance, *Journal of Economic Literature*, Vol. 35, No. 1, pp. 13-39. https://www.jstor.org/stable/2729691
- [22] Meyer, K. (2023). Short-term policies around loan repayment. Brookings Institution.https://www.brookings.edu/articles/the-long-path-forward-for-student-loan-forgiveness/
- [23] National Association of State Budget Officers (NASBO). (2021). Fiscal Survey of States: Spring 2021. https://www.nasbo.org/reports-data/fiscal-survey-of-states
- [24] National Center for Education Statistics. (2023). *Trends in student loan borrowing*, 2022–23. Retrieved from https://nces.ed.gov/surveys/hsls09/publications.asp
- [25] National Bureau of Economic Research. (2024). The Relationship Between College Tuition and Inflation. https://www.nber.org/digest/changing-market-explains-higher-college-costs-0
- $[26] \ National \ Center for \ Education \ Statistics. \ (2006). \ Digest \ of \ Education \ Statistics: \ 2005. \ https://nces.ed.gov/pubs2006/2006030_1.pdf$

- [27] Sims, C. A. (1980). Macroeconomics and reality. Econometrica, 48(1), 1-48. https://www.jstor.org/stable/1912017
- [28] Yoshimori, M. (2019b). Shadow Exchange Rates Changing the Winds with Headwinds and Tailwinds. SocioEconomic Challenges, 3(2), 78-88. http://armgpublishing.sumdu.edu.ua/wp-content/uploads/2016/12/files/sec/volume-3-issue-2/7.pdf
- [29] Yoshimori, M. (2022). Looking a Gift Horse in the Mouth: A Reassessment of the Impact of the Hershey Trust. SocioEconomic Challenges, 6(1), 87-99 https://armgpublishing.com/journals/sec/volume-6-issue-1/article-6/
- [30] Yoshimori, M. (2024). The Impact of the Monetary Policy of the US Federal Reserve on the Ratio of the US Dollar To the Japanese Yen in the Foreign Exchange Market during 2015-2023. Socioeconomics Challenges, 8(1). https://armgpublishing.com/wp-content/uploads/2024/04/SEC_1_2024_2.pdf