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Claremont Graduate University

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Opportunity Cost of Student Loan Debt Forgiveness:
Testing the Impact of Four Policy Options on United States' Economy

By
Emelia Akhlaghi

Claremont Graduate University
2023

Approval of the Dissertation Committee

This dissertation has been duly read, reviewed, and critiqued by the committee listed below, which hereby approves the manuscript of Emelia Akhlaghi as fulfilling the scope and quality requirements for meriting the degree of Doctor of Philosophy in Economics and Education.

Thomas J. Kniesner, PhD, Chair
Senior Research Fellow and Faculty
Division of Politics and Economics
Claremont Graduate University

Gwen Garrison, PhD, Co-Chair
Clinical Professor of Education
School of Educational Studies
Claremont Graduate University

Mark Abdollahian, PhD, Member
Full Clinical Professor
Division of Politics and Economics
Claremont Graduate University

Abstract

Nearly 45 million Americans are trapped in a student loan debt. In total they owe more than \$1.75 trillion. Research shows that such a high amount of debt harms the U.S. economy in several ways, preventing anything from small business development to new house purchases, and even weddings and procreation. It is an issue that stakeholders have tried to address by offering different relief measures ranging from re-financing to debt cancellation. Debt cancellation has remained high on the agenda of the Democrat political leadership. This is the reason that student loan debt cancellation was on the agenda of each democrat primary candidate during 2020 presidential primaries. An important justification while propagating student loan debt cancellation has been that it will boost the U.S. economy apart from other likely benefits.

Despite the policy of student loan debt cancellation being announced by the Biden Administration, the three branches of the government are not on the same page regarding its implementation. While the Congress passed a bill in early June 2023 attempting to block its implementation, the Supreme Court on June 30, 2023, ruled against the implementation of the loan debt cancellation policy of the Biden administration (Department of Education et al. v. Brown et al., 2023; Biden v. Nebraska, 2023).

Even though the debt cancellation policy has been facing a tug of war between the three branches of our government, yet the policy remains to be proposed as one of the most important solutions to the student loan debt problem because it will be improving U.S. economy.

There is, however, limited research on measurement of impact of loan cancellation policy on the U.S. economy. One such effort was undertaken by Fullwiler et.al (2018). They created a simulation to measure the impact of complete loan forgiveness on the U.S. economy. However,

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there is no research which tests the validity of these impacts, as to whether such impacts are attributable to the implementation of student loan debt cancellation policy.

This research extends the work of Fullwiler et al. (2018) by undertaking a sensitivity analysis of different policy options under consideration/being propagated, by measuring their respective impact on the key macro-economic variables of the U.S. economy. This study then further extends to testing these impacts on the key macro-economic variables for their statistical significance to show whether the implementation of policy is indeed responsible for the impact. The study tests for statistical significance to rule out possibility of impact by other confounding variables or biases impacting such a change in the economic output. The purpose of this study was to test different policy options to provide plausible policy options for loan cancellation in case the Congress wants to act upon the loan cancellation policy in future, by showcasing the macroeconomic impacts of the respective policy options on the U.S. economy by 2030 and testing their statistical significance using Difference – in – Differences method.

The study found that different policy options of cancellation of the loan will yield differential aspects on GDP, Unemployment, and Inflation rate. The study found that none of policy options had statistically significant impact on unemployment numbers and rate of inflation. Three out of the four policy options tested in this study were found to have statistically significant impact on the Real GDP, whereas policy option 2, that is, the Biden administration's loan forgiveness policy did not show a statistically significant impact.

This study found that the argument of student loan cancellation policy U.S. economy may not hold good in terms of aggregated macroeconomic variables of Unemployment and Inflation and may only be effective for the aggregated macroeconomic variable of Real GDP only for three out of the four policy options that were tested.

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One of the most important finding relevant to the current debates of loan forgiveness in the political environment of U.S. is that the student loan forgiveness policy of Biden administration may have no impact on the U.S. economy in terms of all the three aggregated macroeconomic variables being analyzed in this study.

Keywords: *Student Loan Debt, Student Loan Cancellation, Simulation, U.S. Economy*

Dedication

This research is dedicated to my father Saed Akhlaghi, who is no longer in this world but will forever remain within me, and to my mother, Ashraf Dadras, who supported and took care of me ever since I have known this world.

Acknowledgment

I would like to thank my advisor in the Economics Department, and the Chair of my committee, Dr. Tom Kniesner, for his time and support during my coursework and in preparation of my proposal. I would also like to thank my advisor in the School of Educational Studies and the Co-Chair of my committee, Dr. Gwen Garrison, for her time and support during my coursework and in preparation of my proposal. I would also like to thank Dr. Mark Abdollahian for his help in refining the structure and methodology of my proposal. I would like to thank the consultants at the Centre for Writing and Rhetoric at the Claremont Graduate University and Dr. Marcus Weakley for helping me fine tune the narration, structure, and flow during the submission of my dissertation proposal.

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Chapter 1: Opportunity Cost of Student Loan Debt Forgiveness

The Problem: Student Debt Crisis

The matter of student loan debt is an important issue in the country's economic and political circles. So much so that it has found its way into the top priority lists of the US's head of the state and top legislative body. Even during the presidential primaries, the issue of student debt was one of the important points of debate and discussion. Several contenders had their own vision of handling this issue. Finally on August 24th, 2022, President Biden announced his much awaited plan to provide student loan relief of up to \$20,000 (The White House, August 24, 2022; Minsky, August 2022). The plan is however yet to be implemented in totality due to the legal challenges that it has been facing. The plan when implemented will in fact mean a loan cancellation of \$20,000 for Pell grant recipients and \$10,000 for non-Pell grant recipients, who have income below \$125,000 for individuals and \$250,000 for married couples (The White House, August 24, 2022). Earlier, on January 8th, 2021, President Joe Biden had announced that he will request Congress to legislate for cancellation of \$10,000 in student debt for all borrowers and prolong the payment halt on student loans (Nova, 2021). However, no steps were undertaken by the Congress until President Biden finally decided to do it under executive powers and announced his plans of August 24, 2022. There was a lot of media coverage about President Biden's active efforts to look into the issue of student loan debt. On April 1st, 2021, it was reported in the media that the Biden Administration is seriously contemplating enacting universal student loan cancellation of up to \$50,000 (Minsky, April 2021). The debate on whether President Biden would announce a loan cancellation of \$10,000 or \$50,000 was

ultimately laid to rest with the announcement of President Biden, on August 24, 2022. However, the policy came under judicial scrutiny when the policy was challenged in the court. The Supreme Court ruled against the implementation of Biden administration's student loan forgiveness plan (Department of Education et al. v. Brown et al., 2023; Biden v. Nebraska, 2023) even though President Biden had previously vetoed (The White House, June 7, 2023) a bill passed by the Congress (H.J.Res.45 — 118th Congress (2023-2024), June 01, 2023) to block his administration's student loan forgiveness program. President Biden thereafter is contemplating 'new path' for implementation of his loan cancellation policy, which is more legally sound, but will take more time (The White House, June 30, 2023a). A detailed discussion on the challenges will be discussed in a subsequent section.

Background

For ages, the American dream has been predicated on acquiring a good education, gaining a degree from a reputable university, and then embarking on a life of opportunity and money. The student population was influenced by messages of the flourishing economy that influenced their decisions to choose higher education as their academic and professional pathways, ultimately leading many ignorant and fiscally illiterate people to secure unplanned student loans to achieve economic mobility (Amselem, July 2, 2017). This along with rising education costs has led to a situation where the student loan debt has turned into a crisis, which has only become worse due to lack of loan regulations. Over time tuition rates have been continuously increasing and so have enrollments. According to the US Department of Education (2019) the costs for undergraduate boarding, lodging, tuition, and fees at public institutions rose by more than 30%, and at private nonprofit institutions rose 23%, in the period 2008-2018.

Even still, those gains are insufficient to explain how the United States established a new high for student loan debt in 2020. For the first time, nearly 45 million people in America are trapped in a student loan debt, owing more than \$1.75 trillion altogether (Goodkind, December 4, 2020). According to a recent study issued by the Federal Reserve System, the student loan debt rose about 130 percent in the ten years after the recession in 2009 (Board of Governors of the Federal Reserve System, 2021).

Student loan debt is now putting a greater strain on household budgets as never before, with ramifications for the whole economy. According to research conducted by Rand Corporation, such a high amount of debt is detrimental to the US economy in several ways, preventing anything from small business development to new house purchases, and even weddings and procreation (Bozick, and Estacion, 2016). Due to unemployment, poor income, and conflicting financial obligations, many creditors struggle to make payments. Even present borrowers face extra restraints as an outcome of the increasing dependence on debt to fund their post-secondary education. Families owing debt as part of their student loan portfolio find it difficult to invest in a house or a property and, as a result, have poorer net value than equivalent non-student-debt households. Moreover, student loan debts have also been listed as among the major causative agents of mental illnesses among the youth beneficiaries or fresh graduates and that indebted students have their social lives compromised, especially among those who hail from poor backgrounds (Walsemann, Gee, and Gentile, 2015).

Significance

Pursuing post-secondary education in the U.S. has now turned out to be among the country's most expensive ventures. The ever-increasing tuition costs can be one of the primary

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reasons which can be attributed to this. The ever-increasing tuition costs have made higher education inaccessible to many of the aspiring students in U.S. This has impacted the minority population more. According to a report by the National Association for the Advancement of Colored People the “Black borrowers hold the most student loan debt despite also being consistently underserved by postsecondary institutions” (Davis et. al. 2020, p-5). Furthermore, families with weaker financial backgrounds have also remained at the receiving end for quite a long time (Hanson, January 16, 2023). In an attempt to address this leviathan of a problem impacting our society, and the higher education industry, the government and private sector have taken up roles and responsibility by offering aid and support to students. An important form of this support is the education loans. These loans are made available to students to meet the expenses related to higher education including tuition, fees, room, and boarding costs. They are then expected to repay the loans upon completion of their studies. There is a moratorium on the repayment if the education continues. However, once this moratorium period ends, the repayment starts irrespective of whether the students land a job or not. The moratorium also ends if the student drops out.

As tuition costs have been ever increasing, the amount of funding by the government remains insufficient to cover all the expenses related to higher education. Eventually, students are forced to seek other options. This includes monetary support from other sources like private lending players to cater to the deficit as well as other requirements such as costs related to books, accommodation, transportation, and food to name a few. Therefore, by the time their education is complete students end up under huge debt, which they must repay as per the terms and conditions of their agreements. There has been a lot of research into the issue of student loan debt (Velez, Cominole, and Bentz, 2019; Walsemann, Gee, and Gentile, 2015; Samuels, 2013;

Muscio, Quaglione, and Vallanti, 2013; Martin, and Gillen, 2009; Davis et. al., 2020; Fullwiler et. al., 2018). These have been targeted at finding the causes and suggesting mitigation models. Some have been able to highlight the forces working towards the rising tuition costs and have illuminated the reasons behind them (Velez, Cominole, and Bentz, 2019; Walsemann, Gee, and Gentile, 2015). Some have consequently provided top-down solutions that can help mitigate the situation at hand (Samuels, 2013; Muscio, Quaglione, and Vallanti, 2013; Martin, and Gillen, 2009). Far few studies have focused on the magnitude of impact this may have on the overall outcome of the economy including the one undertaken by Fullwiler et. al., (2018). From such a perspective, that is, by quantifying the impact of the student loan debt on the overall outcome of the economy, the student loan debt issue can be classified as a crisis looming on the US economy, which needs to be addressed at a large scale.

Purpose

According to past research, the high amount of student loan debt harms the U.S. economy in a number of ways, preventing everything from small business development to new house purchases, and even starting a family (Bozick, and Estacion, 2016). It's an issue that policy makers have tried to address by offering refinancing or partial debt forgiveness. From the perspective of understanding from the impact of the student loan debt on the U.S. economy, Fullwiler et al. (2018) conducted research by simulating the student debt cancellation as a one-time measure and examined the implications to measure the impact on the key macroeconomic indicators of the U.S. economy. In their research Fullwiler et al. considered a complete student debt cancellation; however, there remain several policy options that can be considered for the

purpose of simulating and measuring the impact of each of these policies on the U.S. economy (2018).

During the 2020 presidential primaries, there were three major policy options being debated between the probable candidates. Senator Elizabeth Warren suggested a progressive debt cancellation policy. She proposed debt cancellation of \$50,000 to households, with a total income of less than \$100,000; for households with total income between \$100,000 to 150,000 debt cancellation of \$35,000; and for households with total income between 150,000 to \$200,000 a debt cancellation of \$17,000. Furthermore, Senator Chuck Schumer proposed a policy of student loan debt cancellation of \$50,000 for all student borrowers. And Senator Bernie Sanders proposed a total student loan cancellation for all borrowers of student loan. President Biden showed an inclination towards only considering cancellation of loan of \$10,000 for all student borrowers. However, he announced his decision to implement the \$20,000 loan cancellation through an executive order on August 24, 2022, although the final implementation is yet to be made (Minsky, August 2022). The policy will result in a debt cancellation of \$20,000 for Pell grant recipients and \$10,000 for non-Pell grant recipients with incomes less than \$125,000 for individuals and \$250,000 for married couples (The White House, August 24, 2022).

The Fullwiler et al. (2018) research provided a framework to the government for a policy decision on one time loan forgiveness. However, given the decision of the Biden administration towards partial loan forgiveness of \$20,000 and \$10,000 for Pell grant recipients and non-recipients, this research extended the research by Fullwiler et. al. (2018) by conducting analysis on Biden administration's policy decision by having a pro-rata ratio for Pell grant recipients and non-recipients based on their household income. This research further extended into conducting a

sensitivity analysis on impact of different policy options propositioned by Senator Warren, Senator Schumer on US economy.

Furthermore, since the Fullwiler's et al. (2018) research was conducted in 2017. Their projections did not include the impact by the COVID-19 pandemic. Their research predicted the U.S. economy's projections without the shocks of the pandemic. Therefore, as a final extension, this research re-simulated the complete loan forgiveness policy as proposed by Senator Sanders by including real world data from 2017 to 2022, which is now available post the impact COVID-19 pandemic. The data was fed into the Fair-Parke program from the National Income and Product Accounts (NIPA). The data set for the variables being used in the Fair-Parke program was from the dataset released on January 26, 2023.

The objective of this research was to facilitate choice for policy makers by testing the impact of 4 different policy choices on the U.S. economy, which have been discussed in detail in methodology chapter. Before delving on to discussion the research question of this study, it is important to discuss the challenges and controversy around the student loan cancellation plan of President Biden as of June 30th, 2023.

Challenges to Biden's Student Loan Forgiveness Plan

President Joe Biden had announced a plan to cancel up to \$20,000 of student debt for borrowers making less than \$125,000 per year, using his executive authority under the 2003 HEROES Act (The White House, August 24, 2022; Minsky, August 2022). The HEROES Act was passed by Congress in the aftermath of the September 11, 2001 terrorist attacks on the U.S., and it gave the secretary of education the power to modify any provision of applicable student aid program laws in order to provide relief to affected students and institutions (Brown, August

23, 2022). President Biden argued that his loan forgiveness plan would provide a lifeline to millions of Americans struggling with student debt, stimulate the economy, reduce racial and gender disparities, and increase access to higher education (The White House, August 24, 2022).

However, the plan faced fierce opposition from Republicans and some Democrats, who challenged its legality, fairness, and fiscal impact. They argued that Biden did not have the constitutional authority to cancel student debt without congressional approval, and that he was misinterpreting the HEROES Act, which was intended for temporary and limited adjustments, not for sweeping and permanent changes (Judd, June 7, 2023). They also claimed that Biden's plan would benefit mostly high-income earners and graduates of elite institutions, while leaving out many low-income and minority borrowers who did not attend college or who attended for-profit or community colleges (Lobosco, June 1, 2023). Moreover, they warned that Biden's plan would cost taxpayers hundreds of billions of dollars, add to the national debt, create moral hazard, and discourage personal responsibility (Lobosco, June 1, 2023).

The House and the Senate passed a bill to repeal Biden's plan (H.J.Res.45 — 118th Congress (2023-2024), June 01, 2023), but Biden vetoed it, saying that it would deny critical relief to millions of Americans who were suffering from the burden of student debt ((The White House, June 7, 2023; Judd, June 7, 2023). He also defended his legal authority to cancel student debt under the Heroes Act, citing previous examples of presidents using executive orders to provide relief to borrowers ((The White House, June 30, 2023a; Judd, June 7, 2023).

The plan was also challenged in court by six states, led by Nebraska, who claimed that it would harm their own student loan programs and infringe on their sovereignty ((Biden v. Nebraska, 2023). They argued that Biden's plan would reduce their revenue from interest payments and fees, impair their ability to aid their own students, and interfere with their

contractual obligations and policy choices (Lobosco, June 1, 2023). They also contended that Biden's plan violated the separation of powers, federalism, and equal protection principles ((Biden v. Nebraska, 2023; Lobosco, June 1, 2023).

The Supreme Court agreed to hear the case and issued a ruling today that struck down Biden's plan in a 6-3 decision, finding that the Heroes Act did not authorize such a radical change to the student loan laws (Vogt et.al., June 30, 2023). The majority opinion, delivered by Chief Justice John Roberts, said that the HEROES Act allowed for modest adjustments and additions to existing regulations, not for transforming them into a novel and fundamentally different loan forgiveness program (Vogt et.al., June 30, 2023). Roberts said that Biden's plan expanded forgiveness to nearly every borrower in the country, regardless of their financial need or hardship caused by the September 11 attacks or the pandemic. He also said that the plan cut into the revenue of one of the plaintiffs, Missouri Higher Education Loan Authority, which was a direct injury to Missouri itself (Vogt et.al., June 30, 2023).

The dissenting opinion, written by Justice Elena Kagan, accused the court of overreach, saying that it exceeded its proper role in the nation's governance. Kagan argued that the states did not have standing to sue, because they had no personal stake in Biden's plan. She said that they were ideological plaintiffs who disliked Biden's policy but were no worse off because of it. She also defended Biden's authority to cancel student debt under the Heroes Act, saying that he acted within his discretion to provide relief to borrowers in light of changing circumstances and national emergencies (Vogt et.al., June 30, 2023).

President Joe Biden gave a strong statement immediately after the Supreme Court Ruling expressing his disappointment at the ruling and promised that his efforts to help middle class families will not be hindered to by this ruling (The White House June 30, 2023a). Later in the

day further remarks were issued by The White House later issued the remarks of President Biden in a press brief announcing his new plans in alignment with the Supreme Court ruling. President Biden promised to come out with a more legally sound loan forgiveness plan, which will be grounded in the Higher Education Act (The White House, June 30, 2023b). The immediate responses of the executive shows how important the student loan debt cancellation policy is in the political ecosystem of the U.S.

Having discussed the background and importance of the issue of student loan debt cancellation it is not the turn of focusing on the specific research questions being targeted by this study.

Research Question

The primary question that this study intends to address is –

What relationship exists between student debt cancellation and key US economic indicators – GDP, Inflation, and Unemployment?

Specific research questions (as replicated from Fullwiler’s et al. (2018) research):

- Does any relationship exist between student debt cancellation and real GDP? If yes, then what is nature/magnitude of such a relationship?
- Does any relationship exist between student debt cancellation and Unemployment? If yes, then what is nature/magnitude of such a relationship?
- Does any relationship exist between student debt cancellation and inflation? If yes, then what is nature/magnitude of such a relationship?

Definition of Key Terms

Diff-in-Diff methodology: It is short for Difference-in-Difference methodology in statistical analysis, where in the difference in the measurement of key variables over a period of time is estimated to account for a new policy intervention in respect of the previous policy or no policy (Abadie, 2003).

Identity Equations: Identity equations are those mathematical expressions which will remain true for any values that may be plugged into them (BBC, n.d.).

Sensitivity Analysis: Sensitivity Analysis is a methodology to evaluate how alternative policy interventions affect the outcome of the variables under study/consideration (Saltelli, 2002).

Simulation: A simulation is a computational or otherwise replication of a process or a method of the real-world (Banks et al., 2001).

Stochastic Equation: Stochastic equations are mathematical expressions which captures within itself the randomness or uncertainty of the real world. (Yanushevsky, and Yanushevsky, 2018).

Chapter 2: Literature Review

To have a deeper understanding of the debt crisis in the United States, it is necessary to have a review of literature on the systems of higher education in the country and its high tuition costs.

U.S. Education System

Historical Background of Higher Education

The American higher education system is regarded as one of the most advanced and robust across the globe, consisting of a radically pluralistic system of learning institutions, which is comprised of public institutions, private institutions which are both nonprofit, and for-profit. The private for-profit and non-profit institutions, along with the public sector institutions, are driven by a singular desire to offer university education credentials to the millions of education seekers from both within the country and abroad. One of the reasons behind this is the decentralized nature of the country's education system, giving all universities and colleges autonomy to engage in matters that they feel benefit the students at their sole discretion. The colleges and universities are locally governed in the states and are liable to taxes to their local State administrators and not the federal government. However, while there are regulations from the federal government regarding the running of the universities, the government does not dig deep to the extent of affecting the decision making of individual universities and colleges. The independence of post-secondary education in the U.S. is credited to the utmost commitment to liberty and the belief that academic life and all its matters should exist freely without direct control from the government (Loss, and Hinz, 2013).

Some famous universities in the United States were founded during the colonial era as colleges to offer specified training for people who would work in the British Empire and was “fostered by the conditions characteristic of the laissez-faire, individualistic society of the time” (Brubacher, and Rudy, 2017, p.59). These include Harvard College, which was founded in 1636, and belonged to a class collectively known as the colonial colleges. These colleges grew gradually, and after U.S. independence, they were funded to incorporate training for other courses such as engineering and economics courses.

The Morrill Acts. Most of the early development of public universities came from the federal Morrill Act of 1862, leading to establishment of land-grant universities in the 1860s and 70s (Bastedo, Altbach, and Gumport, 2016). Instead of following the classical liberal arts program, the Morrill Act encouraged the creation of new institutions targeting agriculture, engineering, mechanics, and mining as important fields of study during the westward expansion. Within a few years, thirty-seven institutions were designated as land-grant colleges (Bastedo, Altbach, and Gumport, 2016). It set the most important precondition for utilitarian education when it stipulated the establishment of institutions for teaching scientific and agricultural subjects along with the classical subjects (Bastedo, Altbach, and Gumport, 2016). The second Morrill Act (1890) gave these institutions direct annual infusions of federal funds, a crucial advantage at a time when universities were entering their most dynamic era of growth. The result of this federal expansion was the establishment of some of the U.S.’s great universities, including the University of California, the University of Wisconsin, Pennsylvania State University, Texas A and M University, and parts of Cornell University. In the post-World War -II, the federal government became the predominant source of funding for research and development through

the National Science foundation and other federal research initiatives (Bastedo, Altbach, and Gumpert, 2016).

The 20th century witnessed a tremendous growth in establishing of colleges and institutions of higher learning. Soon several small colleges opened and later transformed into bigger institutions of higher learning (Goldin, and Katz, 1999). The federal government encouraged more and more students to join university education and increase graduates' numbers in a desperate move to curb the rising difference in academic levels between the United States and its rivals (McKeown-Moak, and Mullin, 2014). Among them was the Soviet Union, a Cold War foe to the United States, which had made tremendous achievements in science education (McKeown-Moak, and Mullin, 2014).

The GI Bill. The end of Second World War marked another milestone in the higher education environment in the United States. In 1944 the GI bill was introduced, and it changed the landscape of higher education. With an earnest desire to not only rebuild the economy but to also create a robust scientific research base, the U.S. government invested heavily in the post-secondary education sector. Veterans swamped the post-secondary education market catapulting the number of students enrolled by more than three times. College Scholarship Service (CSS) founded in 1954, developed the first approach for determining student applicants' financial necessity. The National Defense Education Act in 1958 established the Perkins loan program for students enrolling at both public and private colleges, along with the federal student assistance program for low-income students. Furthermore, a number of institutions were established to assist in making education more accessible throughout this time period. With all of these changes, higher education became more affordable to a significantly larger number of individuals

(Cleeton, 2012). In this period, student loans and aids were established to boost enrollment, especially for science students who would help the U.S. remain at par with other countries regarding scientific and technological advancements (Cleeton, 2012). Regrettably, it was an era when higher education met an unfortunate turn of events for losing its total independence, thus inviting other modern challenges such as grappling with cash inadequacies. As such, the sector relied on the funding and subsidies, along with support from private donors, to ensure that they fulfilled their central mission of teaching, researching, and offering students other scholastic services (Loss, and Hinz, 2013).

From the Morrill Act to the GI Bill, to the Higher Education Act and its many reauthorizations, the role of the federal government in extending opportunities for higher education to a wider segment of society has remained critical (Bastedo, Altbach, and Gumport; 2016).

Statutory Regulations Governing Post-Secondary Education in the U.S.

Although the post-secondary education sector in the United States is decentralized in nature, there still exists an overall statutory and regulatory structure. This structure ensures compliance not only of the U.S. federal regulations but also its obligations as a part of international community.

One of the comprehensive documents detailing the statutory regulations governing U.S. higher education is the Compliance Matrix. The HECA compliance matrix provides the list of fundamental federal laws and regulations that govern universities and colleges (Compliance Martix, n.d.). Among the notable rules is that which calls for nondiscrimination based on race in admitting students to higher learning institutions. Such laws may, however, be indirectly

infringed when tuition fees are hiked. This is because the people of “color” and racial minorities are the ones at the highest risk of not being able to raise the required fees.

Financial Aid

Higher Education Authorization Act

The Higher Education Act of 1965 setup the federal government of the United States as the primary source of financial aid. Title IV of the Act setup the Educational Opportunity Grant program, which provided monies to institutions directly (Aschenbrener, 2016). In succeeding years, the legislation was updated and changed several times, most notably in 1972 and 1980, changing the methods of education financing and the goals for serving various groups and institutions. From the time of the 1965 act, federal financial aid for students was to be offered on the basis of financial need rather than academic performance. A student in need of financing would be qualified after enrolling at a school of his or her choosing (Keppel, 2011). In principle, both the college and the student would have a free choice. This is the basic premise on which the financial aid in the U.S. rests.

Principles and Mechanisms

Loans for higher education in the United States are divided into two major categories. The federal government offers federal student loans, and private student loans are offered by private entities such as banks, schools, credit bodies, and state agencies, among others. Federal Student Loans consist of two major loan types, which are run by the Department of Education on behalf of the government. The two products are the Federal Family Educational Loan Program (FFELP), which is a guaranteed program, and the Federal Direct Loan Program (FDLP), which

is also known as the Direct program (Lucas, and Moore, 1975). The duo grouped the Federal student loans in the U.S. into two major categories when looking into the comprehensive market estimates. On the guaranteed program, the government insures loans originating from private creditors against losses from default and makes supplemental payments to creditors. While on the direct program, the government lends qualifying students directly without the need for a guarantee. The two categories offer similar loan types to the students which are, Parent Loans to Undergraduate Students, Stafford loans, and Consolidation loans (Lucas, and Moore, 1975). The Stafford and consolidation loans consist of the largest number of beneficiaries, while the parent loans attract very few of them. However, the terms and conditions for offering the loans are set by the Higher Education Act, meaning that the types of loans have similar chances of being offered, regardless of the group that students get engaged in.

Stafford Loans. The Stafford loan is the most popular type of student loan offerings. More than 85% of students availed of this loan as part of the tertiary institutions in the United States. The loan is available to the students enrolled in the public institutions of higher learning in a 10 to 30-year term. Students enrolled in for-profit universities are not eligible to access this loan as it is a way by the government to help its institutions thrive while benefiting the students and benefiting from it too through the interests. The Stafford loans have been carrying an interest rate of 6.8% per annum, but the plan is subject to flexibility upon completion of school or in the case of dropout. However, there is a difference between the guaranteed Stafford loan and the direct. Guaranteed loan beneficiaries are expected to pay a 2% origination fee, which may be paid by the lender at the latter's sole discretion. They further pay a 1% origination fee to cater to

the guaranty agencies. On the other hand, direct beneficiaries are required to pay a 3% upfront fee, which may be reduced to 1.5% when one pays for the first-time payment on time.

The Stafford loan is further divided into Direct subsidized and Direct unsubsidized. Direct subsidized are undergraduate loans aimed at benefiting students who show need for financial support based on their Free Application for Federal Student Aid (FAFSA) (Hillman, 2015). The interest for this product is catered for by the federal government to pay it until when the beneficiaries finish school. Upon completion of studies or dropping out of school, the students enjoy a grace period of six months, after which the loans mature, and the interest begins accumulating. All students can access direct unsubsidized loans without a mandatory condition of having to demonstrate the need for financial aid (Hillman, 2015). The loan interest for this product starts accumulating immediately after a student has benefited. The government is not responsible for paying interest on this loan.

Consolidation Loans. Lucas, and Moore (1975) define consolidation loans as a single loan taken by graduate students to repay the Stafford loans so that they are left with one loan to pay (Lucas, and Moore, 1975). Consolidation loans help come up with one repayment plan for the beneficiaries with a fixed interest rate and protect students from the payment of multiple loans that might be cheaper but hard to manage. For example, if a student took four loans valued at \$5,000 each plus a private loan worth \$15,000 such a student can apply for a consolidated worth \$35,000 or a slightly higher amount to repay all the loans. The students would then remain with the \$35,000 as the only loan.

According to Guyton (2006), to be eligible for consolidation loans, a student must not be enrolled in a part-time institution at the application time. The student should also be making loan

repayments for the loans they wish to secure the consolidation for, or else they should be within the loan's grace period. One of the advantages of consolidation is that it streamlines the repayment process, alongside switching loan rates from variable rate to fixed rate. The loans also have an increased repayment period, which means that students at lower risks of defaulting since the amount they are required to pay at the end of every month decreases. The consolidation also has its own shortcomings, including paying more interest in total and putting graduates in loans for a longer period (Guyton, 2006)). Consolidation will also lead the beneficiaries to lose the benefits such as the government's grace periods and other protections when the federal ones are mixed with private loans.

Alongside the federal loans, there exist private loans which are controlled by the private banks. Private lenders are available to supplement federal loans or other available finances. They engage in student loaning as a business and charge relatively higher interest rates, according to the Consumer Financial Protection Bureau (2012). This is because the interest rates and loan repayment terms are set and revised by the financial institutions that offer the loans. Wegmann, Cunningham, and Merisotis (2003) argue that the money lenders use the high-interest loans as security since most of the beneficiaries are students, and they do not have a credit history that can be relied on.

The Crisis

Social Costs of Student Debt

Owning federal student loans also has a harmful impact on employment and additional schooling. According to Velez, Cominole, and Bentz, (2019), this is because students get stressed when they are unable to secure a job that pays them enough to service their loan and remain with

a balance that can support their life effectively. Many higher education graduates end up falling on low-paying jobs in a desperate move to protect themselves from fines, among other implications that may result when they default in the payment. Additional schooling among students is also affected in that the beneficiaries cannot access additional loans to facilitate them to enroll in graduate schools. Thus, the government needs to be concerned with the debt crisis situation to salvage graduates from such difficult choices (Velez, Cominole, and Bentz, 2019).

Student loan debts have also been listed as among the major causative agent of mental illnesses among the youth beneficiaries or fresh graduates. Also, apart from servicing itself, research has found that even the students who enrolled in colleges may get stressed by just thinking about the loans and how they are going to repay them after school (Cooke et al., 2004). Conversely, very few studies have denied any direct linking of debt to mental health issues such as stress, depression, and other hereditary mental disorders; (Cooke et al., 2004) also add that student' attitudes and perceptions towards their debts result in mental health issues. For instance, students who viewed their higher education loan debt as excessive were more likely to grow anxiety as compared to their fellows who viewed it as manageable. Due to the growing numbers of students who become mentally affected by the loans they owe the federal government, there is a need for concern from the chief lender to help them live their normal lives (Walsemann, Gee, and Gentile, 2015). They found that the government can help the young adults by minimizing the interest or otherwise eliminating them. This is because the loans keep on increasing, which stresses the students the most. The government can also help the students by establishing a friendlier repayment plan that does not pressure the beneficiaries to give the priority of the loan at the expense of other life desires. The research by Walsemann, Gee, and Gentile, (2015) has also indicated that indebted students have their social lives compromised, especially among those

who hail from poor backgrounds. Social life is said to be compromised when students no longer find it interesting to engage their fellow students, but focus mostly on thinking about issues and, in this case, the repayment of loan debts.

The long-term financial stability of students and their families is affected by student loan debts (Gicheva, and Thompson, 2015). The study relates the situation to a borrowing above what can be defined as a manageable debt level, especially for education. The cause for this is a consequence of a combination of many aspects. One of them is an overestimation in the returns of education and underestimation of the probability of one not being able to finish school (Gicheva, and Thompson, 2015). Students usually have too much anticipation that they will secure well-paying jobs, not having information on other unfortunate factors that may come into play. Dropping out of school, for instance, will deny students the degree which they thought would help them in paying the school fees, hence interfering with their entire life equation. The addition of other loans to bridge the deficit that may be present in case tuition fees are increased in the course of study implies other issues that may be unforeseen. The loans affect the initial plan on how the students expected to repay their loans, making them short of ideas on how they can manage the two. Also, during the application of loans, students are said to have inadequate and anecdotal information on the debts they get themselves into (Gicheva, and Thompson, 2015). At times, students request too much money that is far beyond what they spend for the four years. They end up using the extra amounts in a manner that can help them in the repayment.

According to Crespi (2018), the government should forgive loans for those who have demonstrated minimal chances of completing the loans' repayment. Forgiveness of loans would help people access other loans and engage in development activities. Nevertheless, it would be

impossible to forgive every person owing the federal government; forgiving a particular percentage can greatly benefit the student community (Crespi, 2018).

The Burden of Student Loans on various Stakeholders

There has been robust literature on the various people and stakeholders who have been affected by the student loan debts either directly or indirectly. Direct impacts of the loans have been discussed earlier, whereas the indirect ones include the suffering of the children born to the parents indebted by student loan. Indebted adults have a high likelihood of having financially unstable families (Elliott, and Lewis, 2015). This is because people servicing loans have lower chances of having some money remaining for savings hence difficulties in taking care of the family needs. Adults who had borrowed to pay their school fees had their proportion for savings and investments at 39%, while the percentage of their fellows who did not borrow stood at 47% (Elliott, and Lewis, 2015). The difference between their financial capabilities was, however, the same since they demonstrated a similar probability of investments, but the borrowers could not invest due to their pressure to repay the loans. A burden to these students translates to a burden on the United States' economy (Luong, 2010). Having adults who should be working hard in investments and establishing their families busy repaying schooling loans is injurious to the economy (Luong, 2010).

Evidence from Analysis of Data on Student Loan Debt

As discussed in previous sections the student loan debt is a critical issue that affects millions of college students in the United States. The rising cost of tuition, combined with the lack of affordable options for funding higher education, has led to a significant increase in

student loan debt in recent years. In fact, according to the Federal Reserve, outstanding student loan debt in the U.S. has surpassed \$1.75 trillion as of 2021 (Federal Reserve, 2021).

The impact of student loan debt on college students is significant. Many students struggle to repay their loans after graduation, which can impact their financial stability and ability to make major life decisions, such as buying a home or starting a family. Moreover, the burden of student loan debt often discourages students from pursuing higher education, leading to a decrease in the number of educated individuals in the workforce.

The fact is corroborated by the information provided by the National Center for Education Statistics (2022), which provides comprehensive data and analysis on various aspects of education in the United States. According to their data, the cost of college tuition and fees has been rising in recent years, leading to an increase in the amount of student loan debt among graduates (National Center for Education Statistics, 2022).

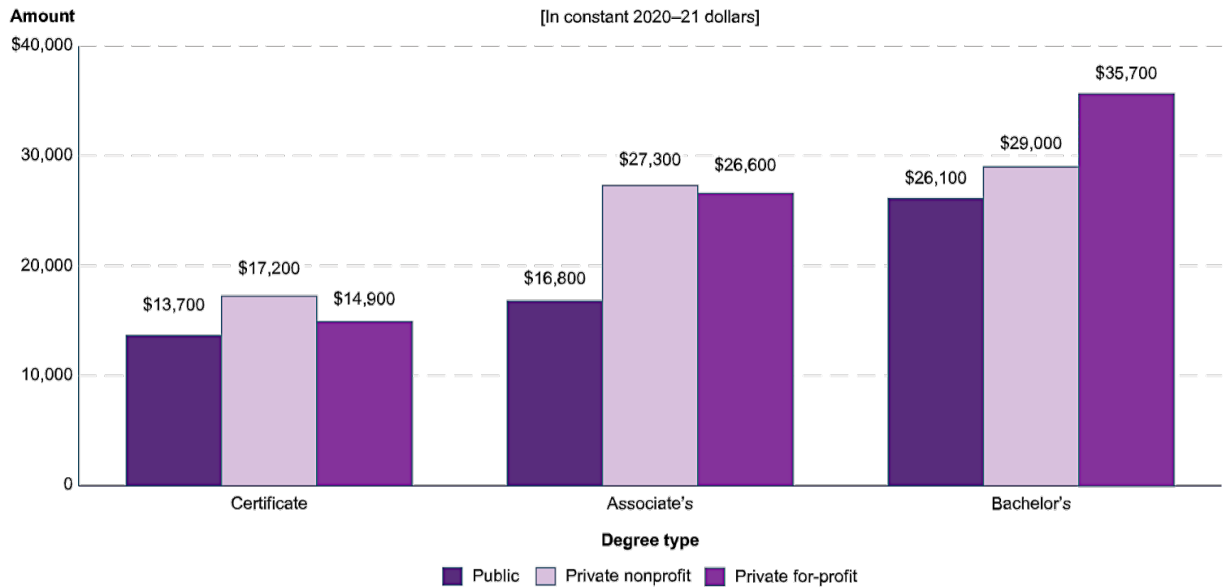
In the academic year of 2018-2019, 66% of bachelor's degree recipients graduated with student loan debt, with an average debt of \$29,900 (U.S. Department of Education, NCES, 2020). This high level of debt can have a significant impact on the financial stability and well-being of recent graduates. The fact that it can affect their ability to make major life decisions, such as buying a home or starting a family, and can also impact their overall quality of life has been emphasized by the NCES as well (National Center for Education Statistics, 2022).

Per the NCES website the average amount of student loan debt among individuals who have completed undergraduate degree/certificate programs and have taken at least one federal loan for their education. According to the data from 2017-18, those who completed certificate programs had the lowest average cumulative loan amount at \$14,700, followed by associate

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degree completers with an average of \$20,400, and bachelor’s degree completers with an average of \$27,800 (U.S. Department of Education, NCES, 2020)

For associate degree completers, those who attended public institutions had a lower average cumulative federal loan amount at \$16,800 compared to those who attended private nonprofit institutions \$27,300, and private for-profit institutions \$26,600 (U.S. Department of Education, NCES, 2020). For bachelor’s degree completers, those who attended public institutions had the lowest average cumulative federal loan amount at \$26,100, followed by those who attended private nonprofit institutions \$29,000, and private for-profit institutions \$35,700 (U.S. Department of Education, NCES, 2020). The following figure shows the distribution of the loan.



NOTE: Data in this table represent the 50 states and the District of Columbia. Degree-granting institutions grant associate’s or higher degrees and participate in Title IV federal financial aid programs. Includes only loans made directly to students; does not include Parent PLUS Loans or other loans made directly to parents. Constant dollars are based on the Consumer Price Index, prepared by the Bureau of Labor Statistics, U.S. Department of Labor, adjusted to an academic-year basis. Averages exclude students with no student loans. The National Postsecondary Student Aid Study, Administrative Collection (NPSAS:18-AC) is based solely on administrative sources and, unlike prior NPSAS studies, does not include student survey data. Caution should be used when comparing NPSAS:18-AC to prior NPSAS studies.

Figure 1

Average cumulative federal loan amount for undergraduate degree/certificate completers who ever received federal loans, by degree type and control of institution: Academic year 2017–18

(Source: National Center for Education Statistics, 2022)

EducationData.org is another source that provides a comprehensive overview of student loan debt statistics in the United States. The website places the total student loan debt in the U.S. at \$1.757 trillion (Hanson, 2023). The website highlights that even though the speed at which the debt is being accumulated in the country has slowed, yet it is overwhelmingly huge.

EducationData.org website states that

- The outstanding federal loan balance is \$1.635 trillion and accounts for 93.1% of all student loan debt.
- 43.8 million borrowers have federal student loan debt.
- The average federal student loan debt balance is \$37,338 while the total average balance (including private loan debt) may be as high as \$40,114.
- Less than 2% of private student loans enter default as of 2021's fourth financial quarter (2021 Q4).
- The average public university student borrows \$31,410 to attain a bachelor's degree (Hanson, 2023).

The following figure shows that there was a sharp rise in the student loan debt during and post-recession of 2008-09 (Hanson, 2023).

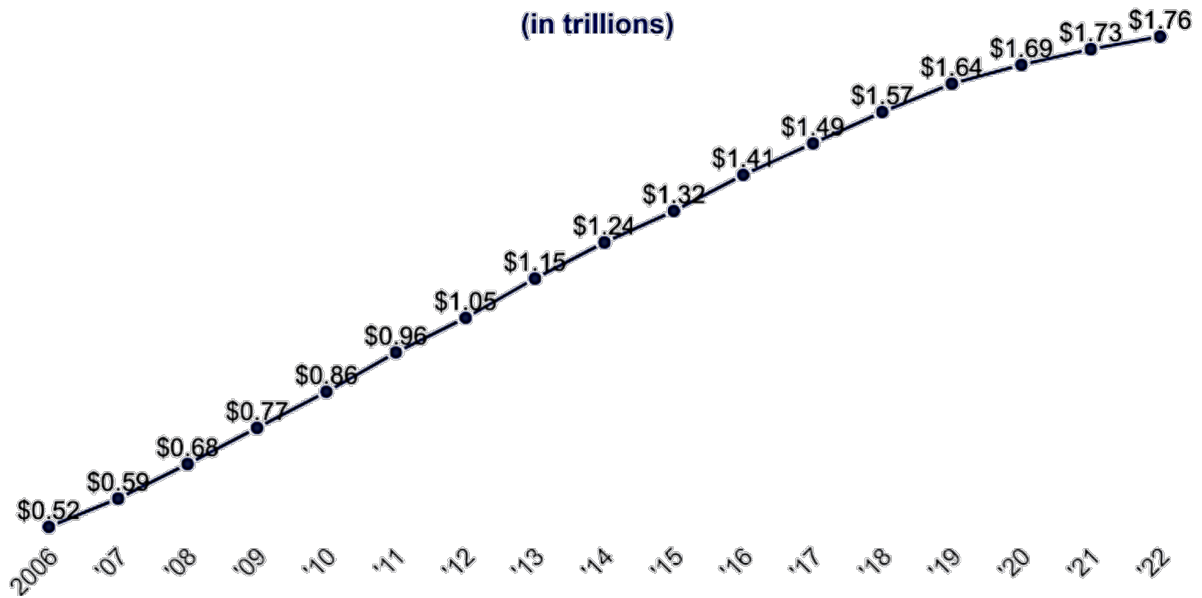


Figure 2
The total student loan debt in U.S. over the last 15 years
 (Source: Hanson, 2023)

The information provided on the website states that the student loan debt total has experienced a consistent decline in its annual growth rate over the past decade (Hanson, 2023).

The website further details that the third financial quarter of 2022 saw the lowest YoY increase of 1.27% in the 21st century (Hanson, 2023). In the period between 2022 Q4 and 2023 Q1, the national debt balance grew by only 0.06%, which was significantly lower than the average quarterly change since the first financial quarter of 2007 (Hanson, 2023). The federal share of the total student loan debt balance increased by 19.58% from 2017 Q4 to 2022 Q4, while the percentage of federal student loan debt in 2024 Q1 was 93.1%. Additionally, federal student loan debt decreased by 0.27% in 2022 Q1, which was the most substantial quarterly decline in at least ten years (Hanson, 2023). In 2023 Q1, the average federal debt also decreased by \$237, and 6.9% of the student loan debt belonged to private borrowers (Hanson, 2023).

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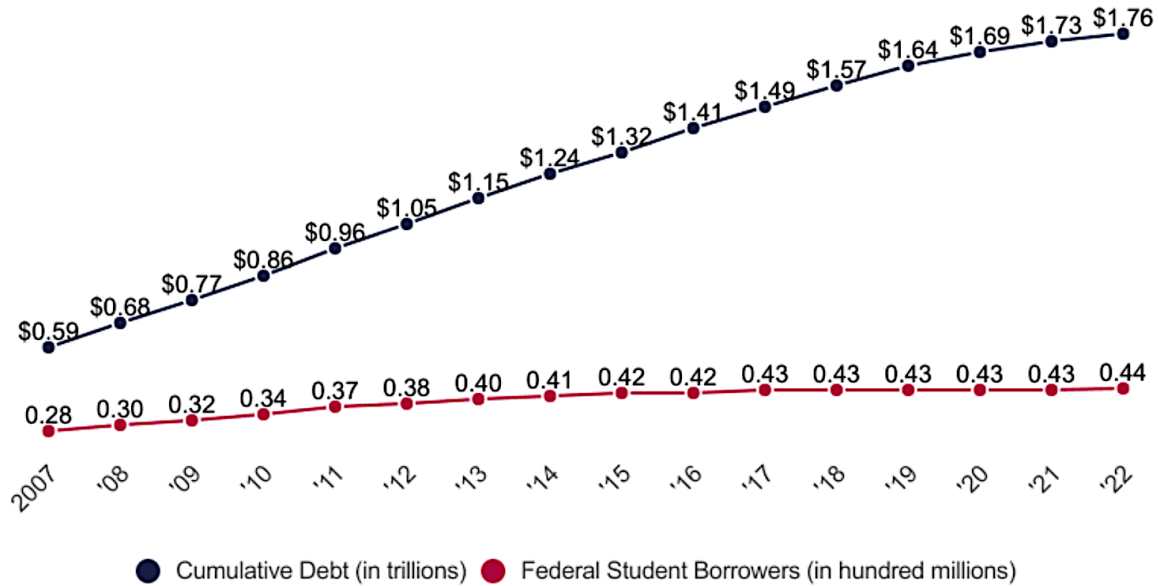


Figure 3
Student loan debt compared to borrowers
 (Source: Hanson, 2023)

Figure 3 above is a comparative chart depicting the growth in the total student loan debt compared to the growth in the number of borrowers. The growth of cumulative student loan debt has been increasing at a far higher rate than the number of borrowers. As per website (Hanson, 2023), around 20% of American adults have reported having outstanding undergraduate student debt, and 7% have reported having outstanding postgraduate student loans. Conversely, 22% of adults have stated that they have paid off their student loan debt.

Over a five-year period, the average annual growth rate of student loan debt was 3.42%, which is 39% higher than the rising tuition costs (Hanson, 2023). On average, students attending public universities borrow \$32,880 for undergraduate degree. The Private non-profit, and for-profit university students borrow \$35,983 and \$42,551 respectively (Hanson, 2023). A total of approximately 31.8% of bachelors draw federal loans for the education (Hanson, 2023).

Furthermore, the website reports that 96% of borrowers owe for their own education, while 88% of borrowers owe for a child or grandchild's education (Hanson, 2023). 26% of

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borrowers who borrowed for their own education have a student loan debt balance of less than \$10,000 (Hanson, 2023).

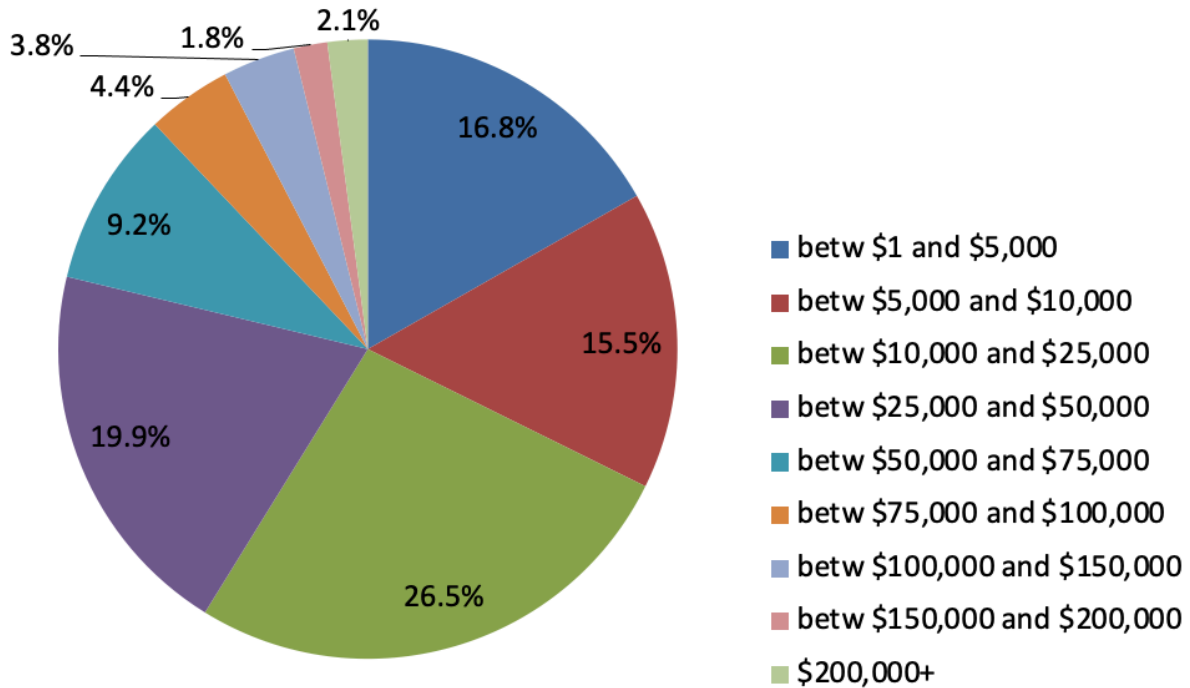


Figure 4
Distribution of Student Loan Borrowers by 2021
(Source: Mangrum, Scally, and Wang, 2022)

Figure 4 above shows the distribution of student loan borrowers divided into different segments quantifying to student debt balance as of 2021 fourth quarter. Nearly, 60% of the total student borrowers owe less than \$25,000 of student loan debt. The next 20% owe between \$25,000 to \$50,000. The top 2% of borrowers owe more than \$200k of student debt. The ratios of distribution of these number have more or less remained same in the last three years. Figure 5 below shows a comparative chart of distribution of student loan borrowers over the period 2019-2021. It is interesting to see that the share of the distribution can be seen following the same trajectory over the period, as this period can be described as the period most impacted by the Covid -19 pandemic.

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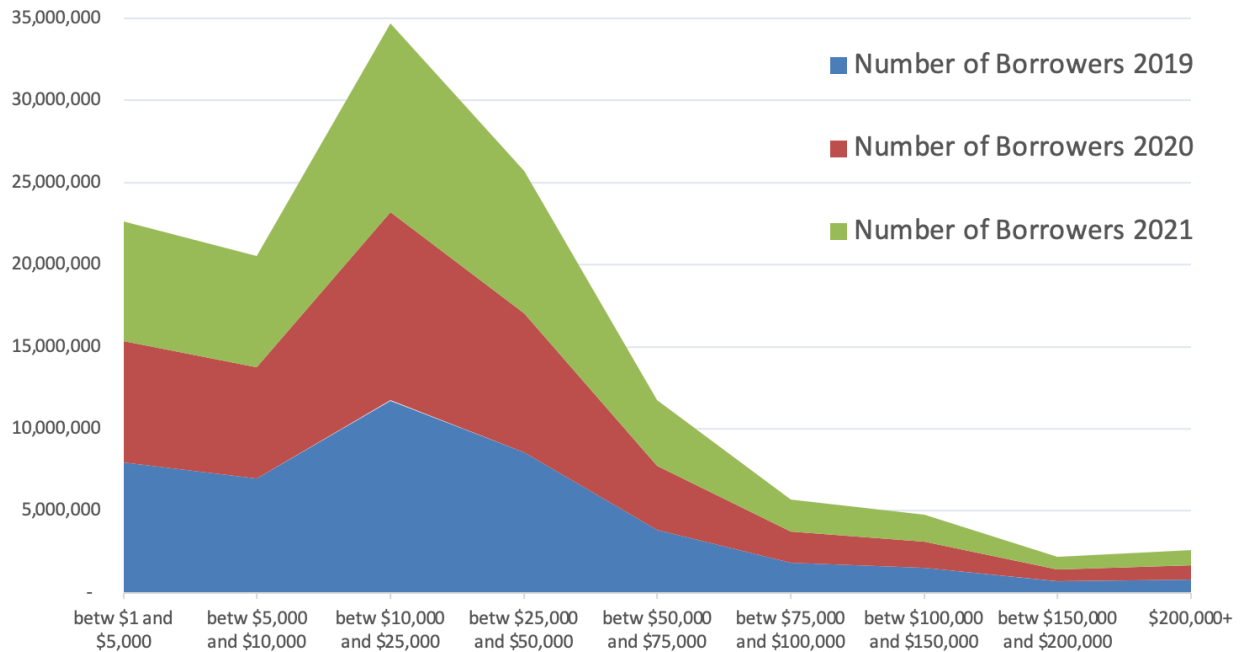


Figure 5
Distribution of Student Loan Borrowers from 2019 to 2021
(Source: Mangrum, Scally, and Wang, 2022)

In their report “Three Key Facts from the Center for Microeconomic Data’s 2022 Student Loan Update” the authors show that more than 50% of the borrowers have not declined over the period 2019-2021. The following figure is a flow chart depicting flow of the number of student borrowers from 2019 into four categories for the year 2021. The three categories for the year 2019 are:

- group of student borrowers which reported their current balance as decreasing,
- group of student borrowers which reported their current balance as increasing or same,
and
- group of student borrowers which were reported as delinquent or defaulted.

Similarly, for the flow into the year 2021 the four categories of student borrowers are:

- group of student borrowers which reported owing no student loan,
- group of student borrowers which reported their current balance as decreasing,
- group of student borrowers which reported their current balance as increasing or same,
and
- group of student borrowers which were reported as delinquent or defaulted.

The report shows that in 2019 (Figure 6), approximately 37% of the students reported as having current student loan balance, which were decreasing (Mangrum, Scally, and Wang, 2022). 48% students reported as owing student loan balance, which is increasing, and 15% students reported delinquency or student loan default (Mangrum, Scally, and Wang, 2022). All these three categories contribute to the flow of student groups in 2021. Out of the total students who had reported student loan or being a defaulter 12.3% reported no student loan in 2021 (Mangrum, Scally, and Wang, 2022). The students who reported as having a current student loan balance, which had decreased, stood at 25.5% in 2021, showing a decline of nearly 11.4% from 2019 (Mangrum, Scally, and Wang, 2022). However, the students reporting as having current student loan, which was increasing increased from 48% in 2019 to 55.2% in 2021, an increase of 7.2% (Mangrum, Scally, and Wang, 2022). Finally, the students reporting delinquent or defaulting on student loan decreased from 15% in 2019 to 7% in 2021 (Mangrum, Scally, and Wang, 2022).

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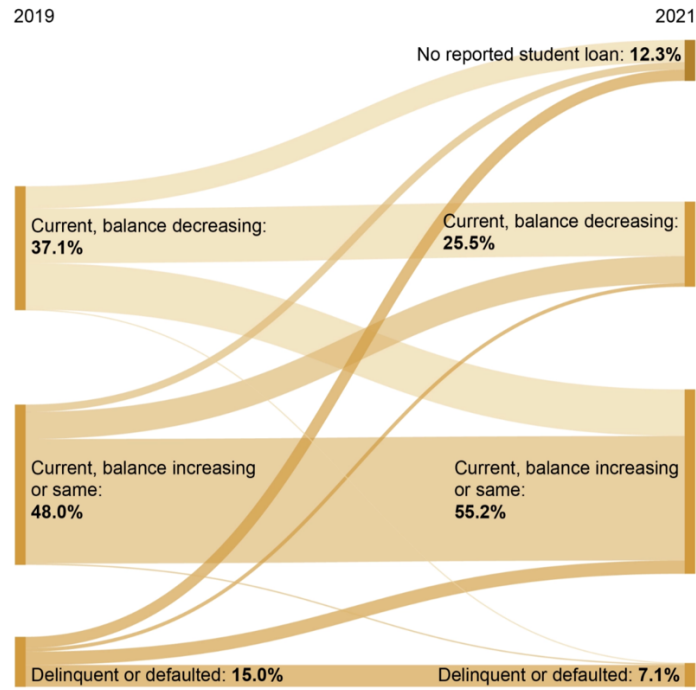


Figure 6
Student Loan Balance Flow Comparison 2019-2021
 (Source: Mangrum, Scally, and Wang, 2022)

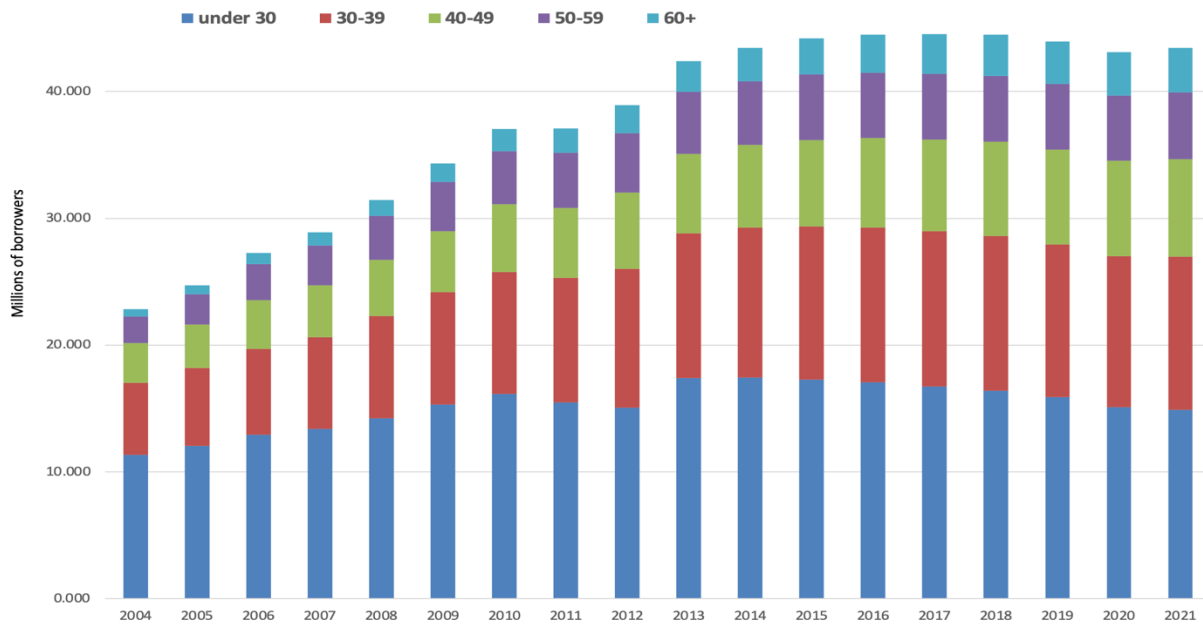


Figure 7
Number of Student Loan Borrowers by Age Group
 (Source: Mangrum, Scally, and Wang, 2022)

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The number student loan borrowers have been steadily increasing across all the age groups as can be seen by Figure 7 above. The number of student loan borrowers is maximum under the age of 30 and the second largest group of students falls within the age bracket of 30-39 years.

As the number of student loan borrowers has been showing a constant rate of growth across all age groups, similar is the pattern in the total student loan balances across all age group. It can be seen in the Figure 8 below that there is a consistent growth in the balance owed by each age group over the year depicted. Even the rate of change seems to be increasing constantly, the magnitude or the biggest chunk of the loan balances can be seen to be owed by the students between the age group 30-39 (Mangrum, Scally, and Wang, 2022).

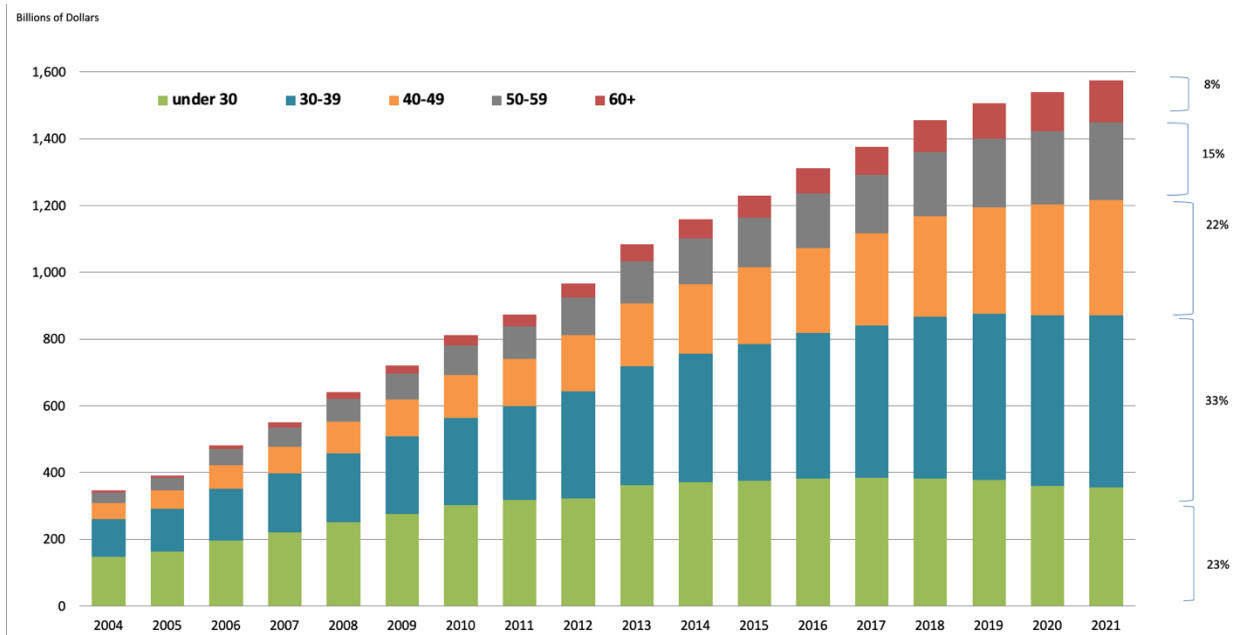


Figure 8
Total Student Loan Balances by Age Group
(Source: Mangrum, Scally, and Wang, 2022)

In the figure depicting the flow of students owing a loan from 2019 to 2021 depicted a short-term view of the scenario. The following figure (Figure 9) shows the number of student

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loan borrowers by their payment status. The segment of students having a current student loan balance same or higher than the previous reporting year has been increasing over the years, with the maximum bump in the numbers being seen 2021 (as discussed in regard to Figure 6) (Mangrum, Scally, and Wang, 2022). The. Number of delinquent accounts which was increasing till the year 2012 remained constant till the year 2019 and then saw a sharp decline in the years 2020 and 2021 (Mangrum, Scally, and Wang, 2022). Finally, there is also a sharp decline in the number of student reporting decline in the loan amount in the year 2021(Mangrum, Scally, and Wang, 2022).

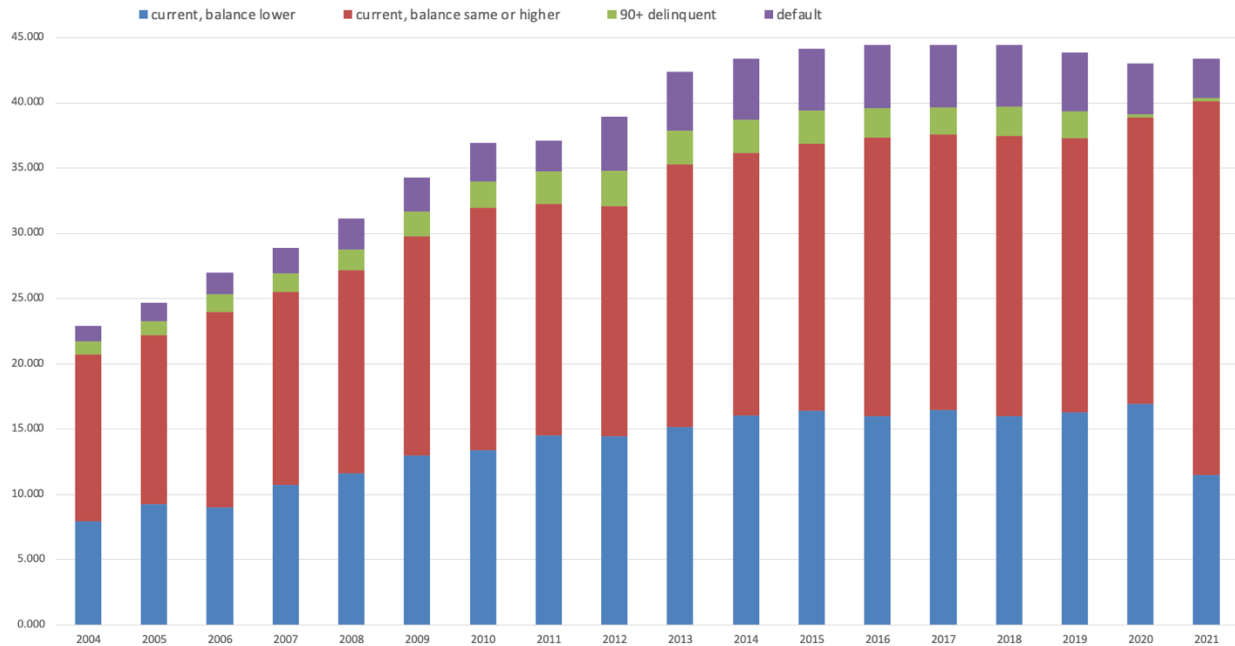


Figure 9
Number of Student Loan Borrowers by Payment Status
(Source: Mangrum, Scally, and Wang, 2022)

The previous figure depicted the number of student borrowers by payment status, the next figure, Figure 10, shows the total balance owed by student loan borrowers based on their payment status. The number of student loan borrowers has been showing a constant growth for

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the group of students who have reported decreasing student loan amount over the previous year. However, for the group reporting student loan balance as higher than previous year have been increasing at a very fast pace. This is the real cause of concern as the segment showing default is also increasing even though the delinquency is nearing a very low figure in the year 2021 (Mangrum, Scally, and Wang, 2022).

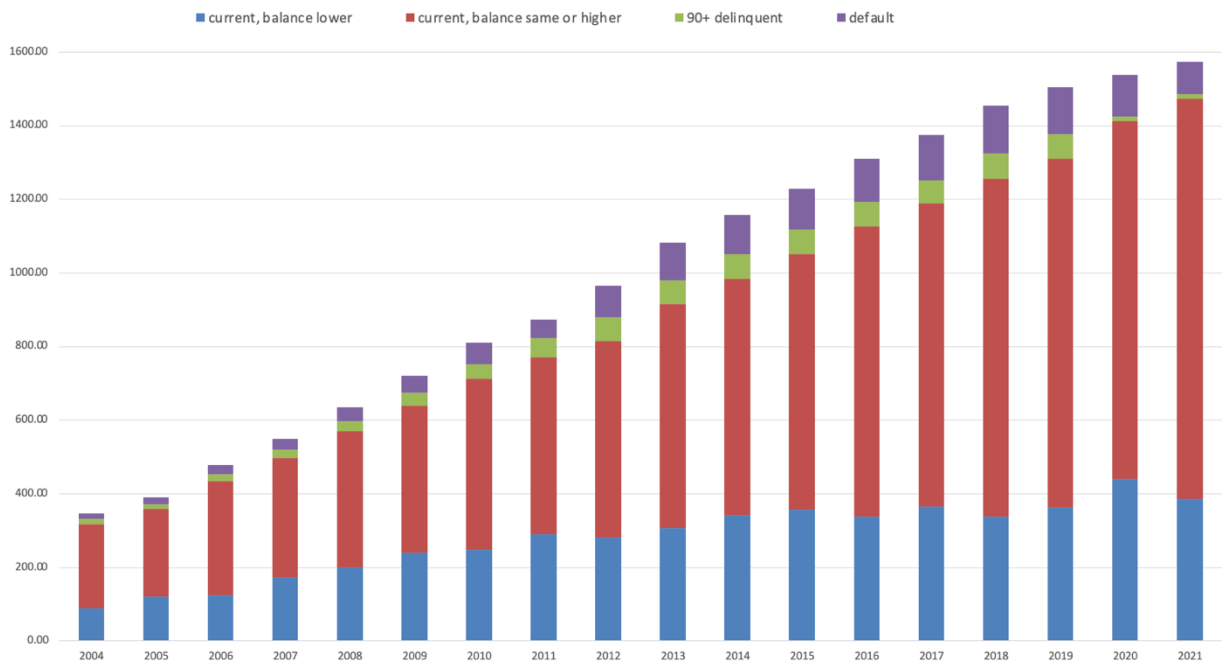


Figure 10
Total Balance of Student Loan Borrowers by Payment Status
(Source: Mangrum, Scally, and Wang, 2022)

Figure 11 depicts the number of student loan borrowers grouped by their credit score. The chart shows over the last 10 years that the numbers of the student borrowers in the lowest category, that is, <620 has been steadily decreasing, whereas the top two categories of 720-760, and 760+ has been constantly increasing. The two middle categories are more or less keeping stagnant. This shows that the credit score of the student loan borrowers is improving. Similarly in Figure 12 the chart depicts

the total loan balances owed by student loan borrowers belonging to the credit score group. As with Figure 11, the Figure 12 also shows a steady decline in the total balances in the two grouping with the lowest credit score rating, whereas the total balances in the three top groupings having better credit score shows a steady increase (Mangrum, Scally, and Wang, 2022).

The aforementioned is substantiated by the authors in their report “Three Key Facts from the Center for Microeconomic Data’s 2022 Student Loan Update” (Mangrum, Scally, and Wang, 2022). The authors show that nearly 80% student loan borrowers had a higher credit score. The flow chart in Figure 11a below shows that the number of student loan borrowers with credit score <620 declined from 36.4% to 28.5%, the number of students with credit score between 620-719 decreased slightly from 36.3% to 35.6%, however, the number of students with credit score higher than 720 increased from 27.3 to 35.9% from 2019 to 2021 (Mangrum, Scally, and Wang, 2022). For the purpose of the following flow chart, and to make it simple, the authors used only three groups/categories of credit score ratings: “subprime borrowers (with credit scores below 620), borrowers with credit scores from 620-719, and super-prime borrowers (with scores over 720)” (Mangrum, Scally, and Wang, 2022).

The authors provided a detailed explanation of the flow chart which is reproduced below for better comprehension (Mangrum, Scally, and Wang, 2022):

During the pandemic, there were significant flows to higher credit score groups. For example, by the end of 2021, 29.7 percent of formerly subprime borrowers moved to the 620-719 group (with a median risk score increase of 82 points), and 29.4 percent in the middle risk score group moved to the highest group (with a median risk score increase of 54 points). In total, 79.1 percent (30 million) borrowers saw increases to their credit scores during the pandemic, and 21.9 percent (8 million) increased their scores enough

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to migrate to a higher credit score group as defined here. This shifting of the credit score distribution is greater than for a similar period before the pandemic. Between 2017 and 2019, 71.9 percent (27 million) increased their credit scores, and 16.1 percent (6 million) increased their scores enough to migrate to a higher group. For some, the improvement in risk score stemmed from overall better financial footing; for example, credit card utilization, which influences the score, declined for student loan borrowers from 64.6 percent in 2019 to 58.5 percent in 2021. Student loan borrowers who were delinquent prior to the pandemic saw the largest increases in risk scores when their balances were marked current at the start of the pandemic. The median change among these borrowers was a greater than 100-point increase (Mangrum, Scally, and Wang, 2022).

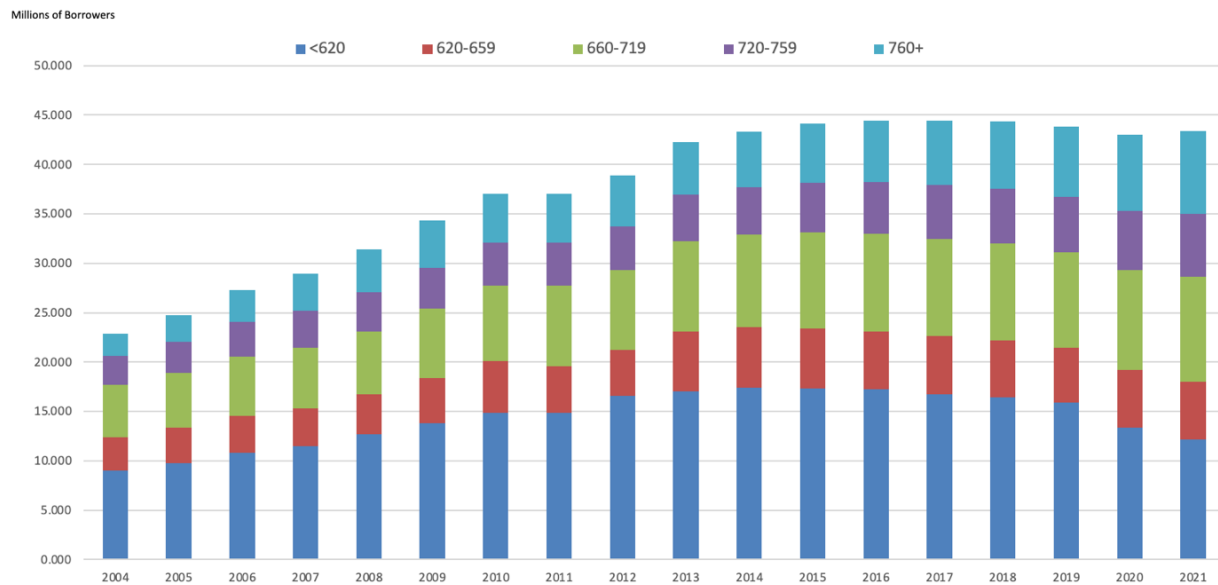


Figure 11
Number of Student Loan Borrowers by Credit Score Group
 (Source: Mangrum, Scally, and Wang, 2022)

OPPORTUNITY COST OF STUDENT LOAN DEBT FORGIVENESS

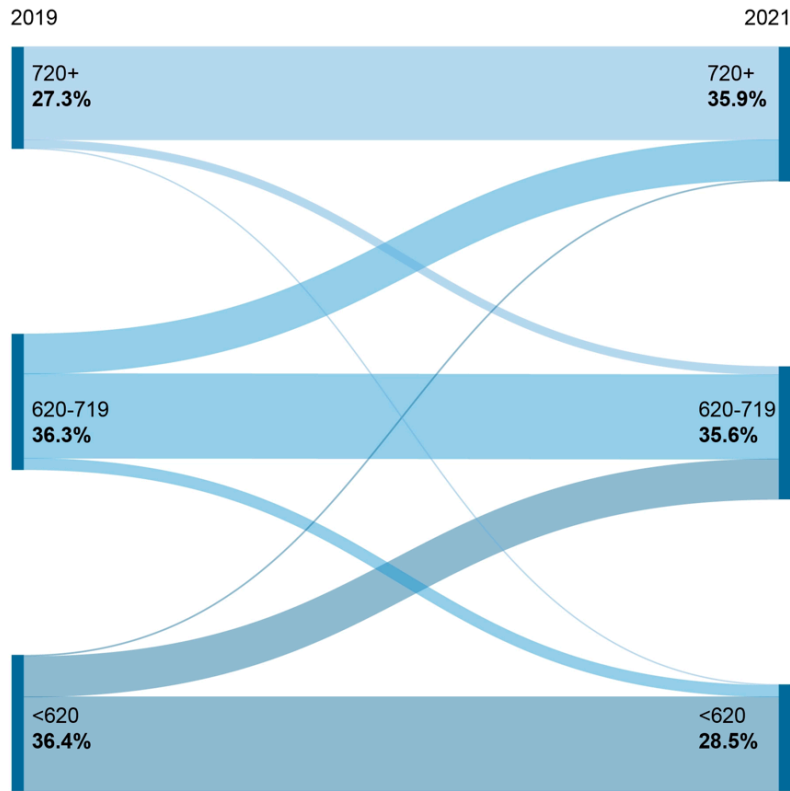


Figure 11a
Student Loan Borrowers Credit Score Flow Comparison 2019-2021
 (Source: Mangrum, Scally, and Wang, 2022).

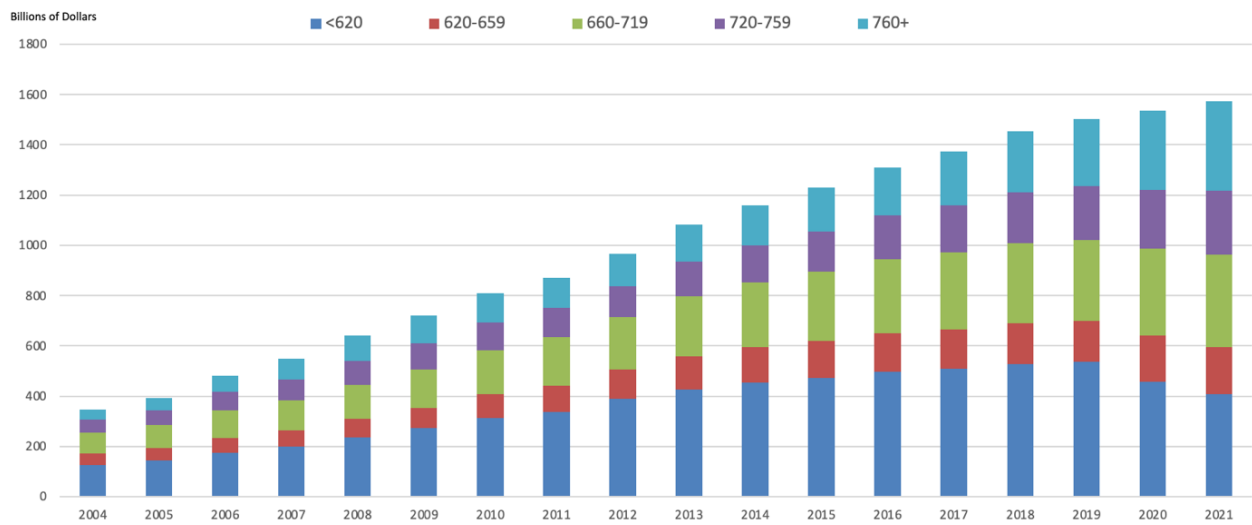


Figure 12
Total Student Loan Balances by Credit Score Group
 (Source: Mangrum, Scally, and Wang, 2022)

OPPORTUNITY COST OF STUDENT LOAN DEBT FORGIVENESS

Subsequent charts, that is from Figures 13 to 21 depict the loan balance owed by student loan borrowers across the states and District of Columbia. The charts show a comparison between the average student loan balance owed by the fourth quarter of the years 2019, 2020, and 2021 across all the states in the United States (Figures 13, 14, and 15). Similarly, they also show a comparison between the median student loan balance owed by the fourth quarter of the years 2019, 2020, and 2021 across all the states in the United States (Figures 16, 17, and 18). Finally, the charts also show the borrower delinquency rate across states by the fourth quarter of the years 2019, 2020, and 2021 (Figures 19, 20, and 21).

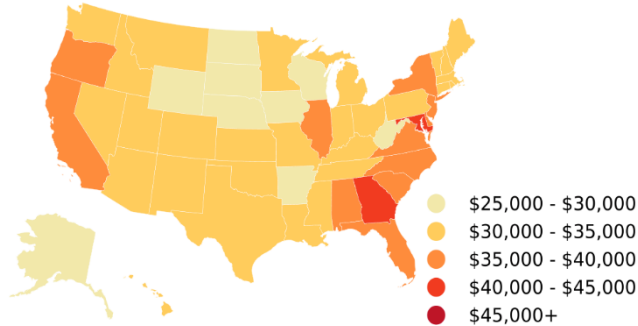


Figure 13: Average Student Loan Balance 2019
(Source: Mangrum, Scally, and Wang, 2022)

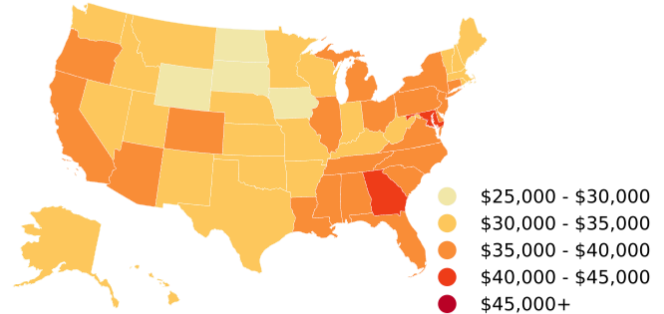


Figure 14: Average Student Loan Balance 2020
(Source: Mangrum, Scally, and Wang, 2022)

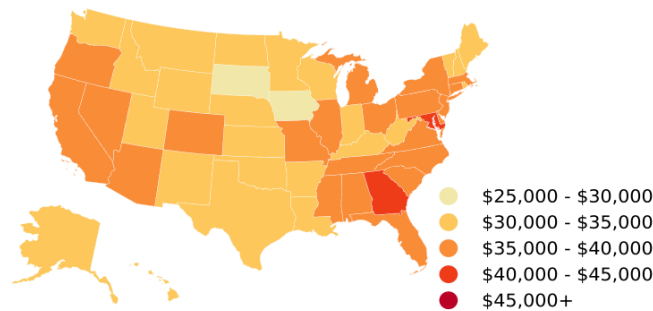


Figure 15: Average Student Loan Balance 2021
(Source: Mangrum, Scally, and Wang, 2022)

The charts show a comparison between the average student loan balance owed by the fourth quarter of the years 2019, 2020, and 2021 across all the states in the United States

(Figures 13, 14, and 15). The heat map of the average balances shows a lot of variations across the states. The average balance shows an increase over the period from 2019 to 2022.

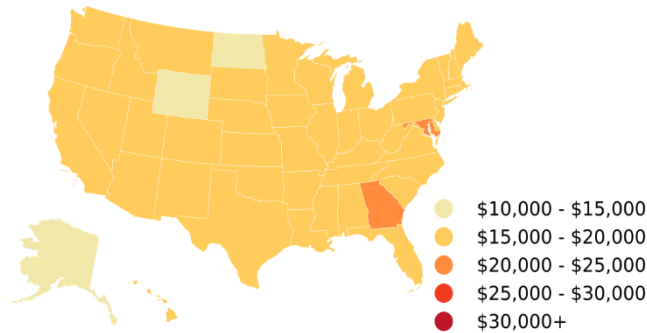


Figure 16: *Median Student Loan Balance 2019*
(Source: Mangrum, Scally, and Wang, 2022)

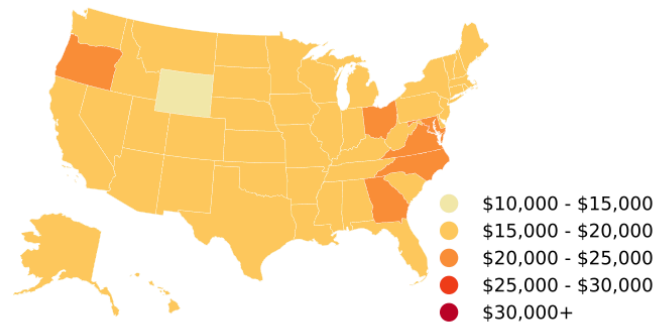


Figure 17: *Median Student Loan Balance 2020*
(Source: Mangrum, Scally, and Wang, 2022)

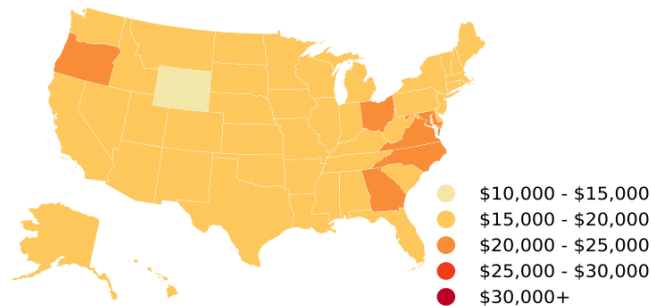


Figure 18: *Median Student Loan Balance 2021*
(Source: Mangrum, Scally, and Wang, 2022)

Similarly, they also show a comparison between the median student loan balance owed by the fourth quarter of the years 2019, 2020, and 2021 across all the states in the United States (Figures 16, 17, and 18). The authors report that (Mangrum, Scally, and Wang, 2022):

Median balances vary widely across states with Wyoming having the smallest median balance (\$14,634) and Georgia having the largest (\$21,965), although Puerto Rico has the lowest median balance of \$12,645 and Washington, D.C. outpaces all states with a median balance of \$26,530. Of the ten states (not including D.C.) with the largest median

balance, seven belong to the Southern Census region (Georgia, Maryland, Virginia, North Carolina, South Carolina, Alabama, and Tennessee) (Mangrum, Scally, and Wang, 2022).

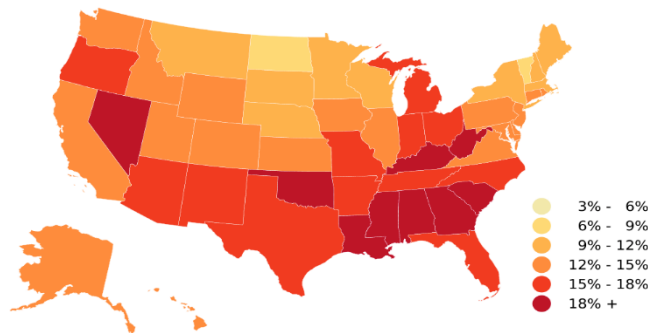


Figure 19: *Borrower Delinquency Rate 2019*
(Source: Mangrum, Scally, and Wang, 2022)

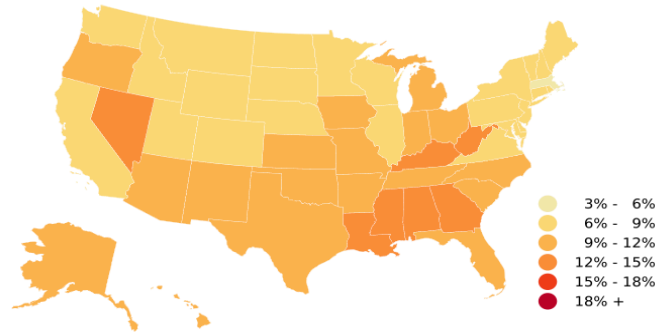


Figure 20: *Borrower Delinquency Rate 2020*
(Source: Mangrum, Scally, and Wang, 2022)

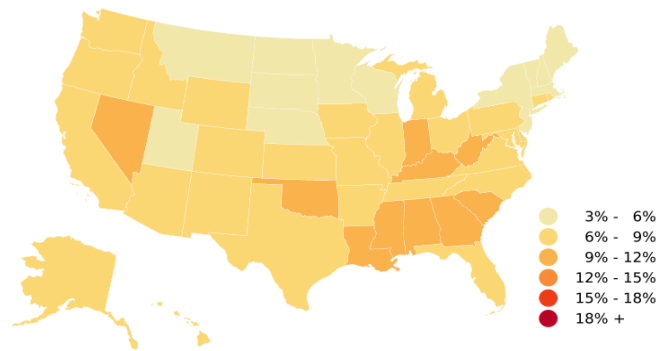


Figure 21: *Borrower Delinquency Rate 2021*
(Source: Mangrum, Scally, and Wang, 2022)

Finally, the charts also show the borrower delinquency rate across states by the fourth quarter of the years 2019, 2020, and 2021 (Figures 19, 20, and 21). The delinquency rate has shown improvement over the period between 2019 - 2021.

Mangrum, Scally, and Wang, (2022) in their report inform that:

The borrower delinquency rates were the highest in Mississippi (21.6 percent of student loan borrowers), Puerto Rico (20.1 percent), and Louisiana (20.0 percent) and lowest in Vermont (8.4 percent) and North Dakota (8.9 percent). As with median balances, the

South also had the highest borrower delinquency rates, claiming ten of the top twelve states (Mangrum, Scally, and Wang, 2022).

Magnitude of the Crisis

Compared to other forms of consumer debt, such as credit card debt and auto loans, student loan debt is relatively large (Federal Reserve, 2021). The Gross Domestic Product of the United States was approximately \$21.4 trillion in 2021, and in terms of the U.S. GDP, the student loan debt of \$1.75 trillion represents a significant portion. The student debt is now approximately more than 8% of the GDP (Federal Reserve, 2021). This highlights the importance of addressing the issue of student loan debt in the U.S.

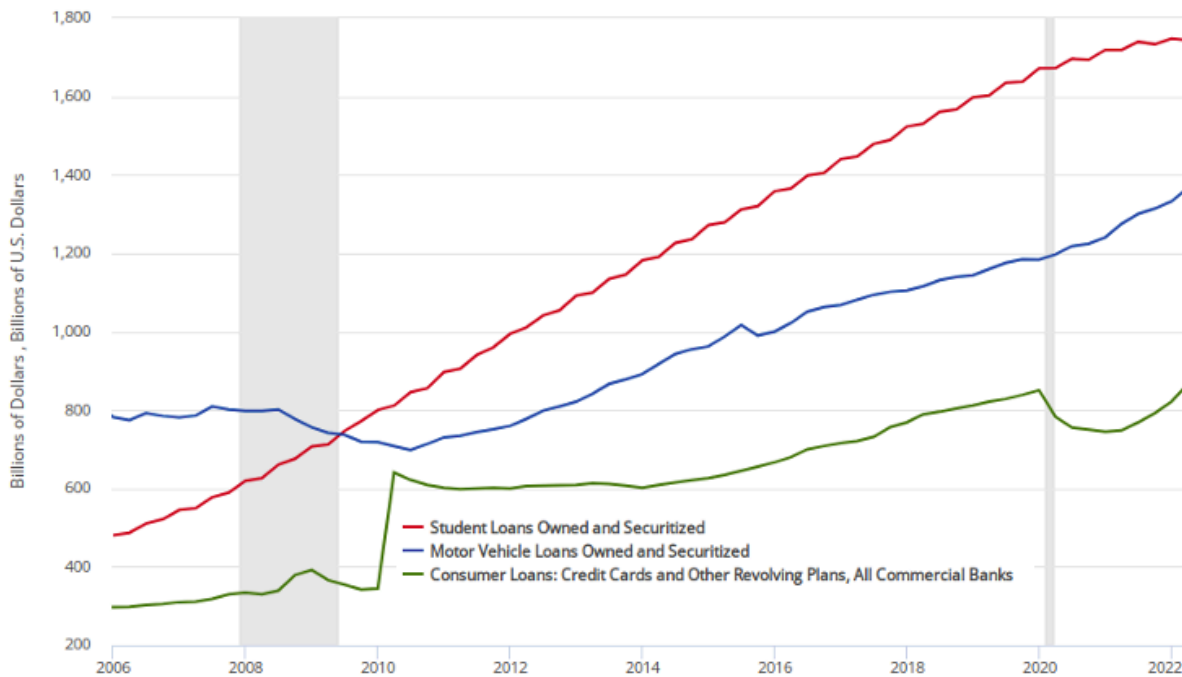


Figure 22
Student Loan Comparison to Motor Vehicle Loan and Credit Card Loan

Notes: The chart was generated using the online tool available at FRED Economic Data (see source reference). The data has been sourced from the Board of Governors of the Federal Reserve System (U.S.). (Source: FRED Graph, 2022)

Figure 22 above shows how the student loan, which overtook the motor vehicle loans post 2008-09 recession, has kept a steady rate of increase compared to the motor vehicle loan and credit cards and other revolving loans.

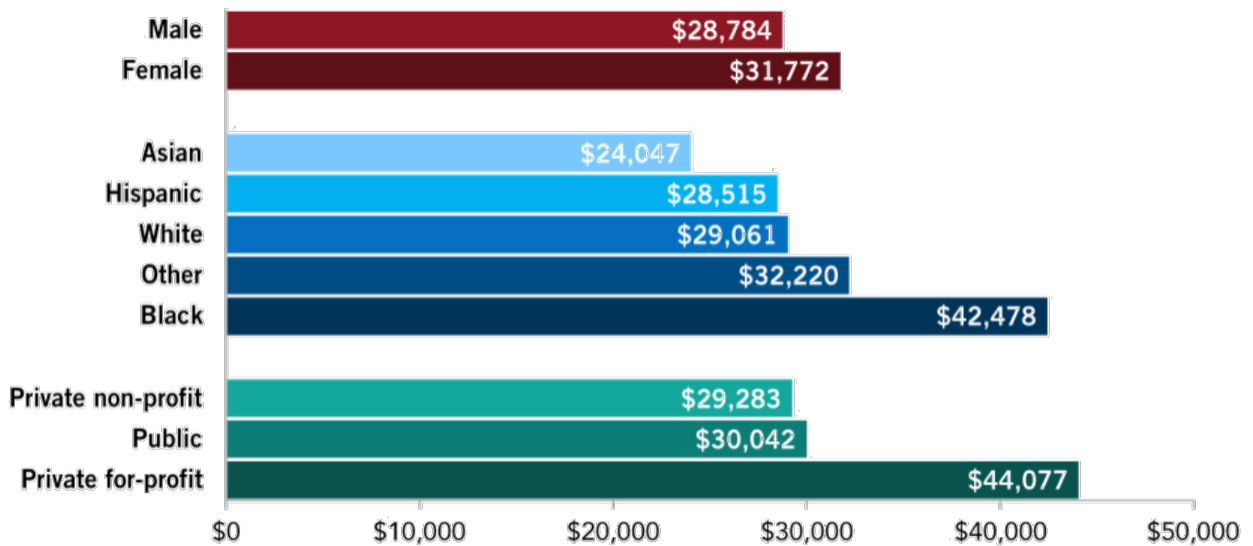


Figure 23
Average Student Loan Debt by Gender, Race and Type of College
 Notes: Cumulative federal student loan amount owed. Hispanic category includes Hispanic or Latino borrowers. The “other” category includes American Indian, Alaska native, Native Hawaiian/Other Pacific Islander and those who indicated more than one race (Peter G. Peterson Foundation, 2021).
 (Source: Peter G. Peterson Foundation, 2021)

Figure 22 above shows the average student loan debt by gender, race and type of college. Peter G. Peterson Foundation, in their report “10 Key Facts About Student Debt in the United States” report in one of their charts the cumulative federal student loan amount owed distributed by gender, race and the type of college (2021). The report highlights that women owe approximately \$32K on an average of the student loan as compared to \$29K owed by their male counterparts, which is nearly \$3,000, or 10 percent, more student debt than men. In terms of racial distribution, the report states that Black borrowers owe nearly \$42K on average as compared to approximately \$29K on average owed by Whites, approximately \$ 26K on average owed by Hispanics and approximately \$24K on average owed by the Asians (Peter G. Peterson

Foundation, 2021). The Black student borrowers owe over \$13,000, or nearly 50 percent, more than White borrowers. Several factors related to the higher education including type of college, post-graduation outcomes, etc also effect the student loan debt levels. For instance the report highlights that “those who attended private, for-profit colleges owed about \$14,000, or around 50 percent, more than borrowers who attended public or private, nonprofit schools” (Peter G. Peterson Foundation, 2021).

Debates on Student Debt Relief

The growing burden of student debt has sparked numerous debates about the most effective and equitable ways to provide relief to borrowers. The question of whether all students should receive the same debt relief has been a contentious issue in policy debates (Collins and Hoxby, 2020). Proponents of universal debt relief argue that it would stimulate economic growth and alleviate the burden on all borrowers (Baker and Bernstein, 2020). Critics, however, contend that such policies disproportionately benefit higher-income individuals and those with advanced degrees, further perpetuating economic inequality (Dynarski, 2020; Delisle, 2017). Some proposals suggest focusing on specific groups of borrowers, such as those with low incomes or working in public service, to provide more equitable relief (Delisle, 2014). These plans tie loan repayments to borrowers' incomes, ensuring affordability and potentially providing relief for those with lower earnings (Dynarski, 2016). This section reviews these debates, examining the merits and drawbacks of various relief proposals, and discussing potential alternatives for targeting relief to those most in need.

Universal Debt Forgiveness

Universal debt forgiveness has emerged as one of the most debated proposals, with supporters and critics arguing over its merits and potential consequences. Proponents of universal debt forgiveness argue that eradicating student debt would stimulate economic growth, reduce the burden on all borrowers, and promote social mobility (Baker and Bernstein, 2020). Critics, however, contend that such policies disproportionately benefit higher-income individuals and those with advanced degrees, further perpetuating economic inequality (Delisle, 2017; Dynarski, 2020). This section analyzes the arguments for and against universal debt forgiveness, considering factors such as fairness, economic impact, and long-term sustainability. Further the discussion also encompasses the key aspects of universal debt forgiveness, evaluating its potential benefits and drawbacks in the context of economic growth, social mobility, and equity.

Benefits of Universal Debt Forgiveness. Advocates of universal debt forgiveness argue that it offers several potential benefits, including:

Economic Growth. By eliminating student debt, proponents argue that consumer spending would increase, boosting economic growth and job creation (Baker and Bernstein, 2020).

Social Mobility. Forgiving student debt may help to promote social mobility by reducing financial barriers that hinder individuals from pursuing higher education and career advancement opportunities (Huelsenman, 2019).

Mental Health. The psychological burden of student debt has been linked to increased stress, anxiety, and depression. Universal debt forgiveness may help to alleviate these mental health issues, improving overall well-being for millions of borrowers (Sweet et al., 2018).

Drawbacks of Universal Debt Forgiveness. Critics of universal debt forgiveness, however, argue that it has several potential drawbacks, including:

Inequity. Universal forgiveness may disproportionately benefit higher-income individuals and those with advanced degrees, exacerbating existing economic inequalities (Delisle, 2017; Dynarski, 2020).

Moral Hazard. Forgiving student debt could create moral hazard, as borrowers may be more inclined to take on excessive debt in the future, anticipating that their loans may be forgiven once again (Akers and Chingos, 2016).

Long-term Sustainability. Universal debt forgiveness does not address the underlying causes of escalating college costs and may not be a sustainable solution to the student debt crisis. Critics argue that resources should be focused on reforming the higher education financing system and expanding access to affordable education (Scott-Clayton and Li, 2016).

The debate surrounding universal debt forgiveness is complex and multifaceted, with compelling arguments on both sides. Policymakers must carefully consider the potential benefits and drawbacks of this proposal, considering its implications for economic growth, social mobility, and equity. Moreover, efforts should be made to address the underlying causes of the student debt crisis, such as the rising cost of higher education and the need for financial literacy education. By taking a comprehensive approach to student debt relief, policymakers can develop strategies that promote equity, sustainability, and opportunity for all.

Income-Based Repayment Plans

Income-based repayment (IBR) plans, which tie loan payments to a borrower's income, have emerged as a potential alternative to universal debt forgiveness. IBR plans adjust monthly loan payments according to borrowers' income levels, aiming to make student debt more manageable while still ensuring repayment. Advocates argue that IBR plans address concerns about affordability and equity by ensuring that payments are manageable for borrowers with lower incomes (Collins and Hoxby, 2020). However, critics point out that these plans can extend repayment periods and potentially increase the total amount paid overtime (Akers, and Chingos, 2016). This section evaluates the advantages and disadvantages of income-based repayment plans, focusing on their implications for borrowers, taxpayers, and the higher education system.

Advantages of Income-Based Repayment Plans. Supporters of IBR plans argue that they offer several benefits:

Affordability. By tying loan payments to borrowers' income levels, IBR plans aim to ensure that payments remain manageable, reducing the likelihood of default and easing the financial burden on borrowers (Gross et al., 2020).

Equity. Income-based repayment plans can address concerns about fairness and equity by offering more substantial relief to borrowers with lower incomes, who may struggle the most with student debt repayment (Dynarski, 2016).

Reduced Financial Stress. By providing borrowers with the assurance that their monthly payments will be affordable, IBR plans can help reduce the financial stress associated with student loan repayment, potentially improving borrowers' overall well-being (Sweet et al., 2018).

Disadvantages of Income-Based Repayment Plans. Despite their potential advantages, income-based repayment plans also have drawbacks:

Longer Repayment Periods. IBR plans often extend repayment periods, which can result in borrowers paying more interest over time and potentially increasing the total amount paid (Akers, and Chingos, 2016).

Complexity. The complexity of income-based repayment plans may be confusing for borrowers, making it challenging for them to understand their options and select the best plan for their needs (Delisle, 2014).

Fiscal Sustainability. Critics argue that income-based repayment plans may shift the burden of unpaid student debt onto taxpayers, raising concerns about the long-term fiscal sustainability of these programs (Heller, 2017).

Policy Considerations. Policymakers must carefully consider the advantages and disadvantages of income-based repayment plans when designing policies to address the student debt crisis. Recommendations for improving the effectiveness of IBR plans include:

Simplification. Streamlining and simplifying income-based repayment plans can make them more accessible and understandable for borrowers, increasing the likelihood that they will choose the most appropriate plan for their needs (Burd, 2016).

Financial Education. Implementing financial literacy programs can help borrowers make informed decisions about their repayment options, ensuring they understand the long-term implications of their choices (Gervais and Ziebarth, 2019).

Targeted Forgiveness. Incorporating targeted loan forgiveness into income-based repayment plans, such as forgiving remaining debt after a certain number of years, may help

address concerns about the long-term financial burden on borrowers and encourage repayment (Choi, 2018).

Income-based repayment plans offer a potential solution to the student debt crisis by making loan payments more manageable and equitable for borrowers. However, concerns about longer repayment periods, complexity, and fiscal sustainability must be addressed to ensure the long-term effectiveness of these plans. By considering these factors and implementing targeted policy interventions, policymakers can strike a balance between affordability and sustainability in addressing the student debt crisis.

Targeted Debt Relief Programs

Targeted debt relief programs aim to provide support to specific groups of borrowers, such as those in public service professions, low-income earners, or individuals with high debt-to-income ratios (Huelsman, 2019). While these programs may be more equitable than universal debt forgiveness, they may also be more complex to administer and could face challenges related to targeting and eligibility criteria. This section assesses the potential of targeted debt relief programs, discussing their potential benefits and drawbacks, and exploring how they could be effectively designed and implemented.

Types of Targeted Debt Relief Programs. Several types of targeted debt relief programs exist, including:

Income-Driven Repayment (IDR) Plans. These plans adjust monthly loan payments based on borrowers' income and family size, ensuring affordability for lower-income borrowers (Dynarski, 2016).

Loan Forgiveness for Public Service. Programs such as Public Service Loan Forgiveness (PSLF) provide loan forgiveness for borrowers who work in qualifying public service jobs and make a certain number of qualifying payments (U.S. Department of Education, 2021).

Forgiveness for Specific Professions. Some targeted forgiveness programs focus on specific professions, such as teachers or healthcare workers, to encourage individuals to enter high-need fields (Harris, 2020).

Advantages of Targeted Debt Relief Programs. Targeted debt relief programs offer several benefits:

Focused Support. By targeting specific groups of borrowers, these programs can provide assistance to those who may be most in need, such as low-income borrowers or those in high-need professions (Huelsman, 2019).

Incentivizing Public Service. Programs like PSLF can incentivize borrowers to enter public service or high-need professions, addressing workforce shortages and benefiting society at large (Gross et al., 2020).

Fiscal Sustainability. By focusing resources on specific groups, targeted debt relief programs may be more fiscally sustainable than universal forgiveness approaches (Delisle, 2017).

Disadvantages of Targeted Debt Relief Programs. Despite their advantages, targeted debt relief programs also have drawbacks:

Complexity. The eligibility criteria and application processes for targeted debt relief programs can be complex and confusing for borrowers, potentially limiting their accessibility (Burd, 2016).

Limited Scope. Because targeted programs focus on specific groups, they may not address the broader student debt crisis or provide relief to all borrowers who struggle with repayment (Scott-Clayton, 2018).

Potential Inequity. Some targeted programs may disproportionately benefit certain demographic or socioeconomic groups, raising concerns about fairness and equity (Akers and Chingos, 2016).

Policy Considerations and Recommendations. Policymakers should consider the following recommendations to maximize the effectiveness of targeted debt relief programs:

Simplification. Streamlining eligibility criteria and application processes can make targeted debt relief programs more accessible and understandable for borrowers (Burd, 2016).

Expansion. Expanding the scope of targeted debt relief programs to include a broader range of borrowers can help address concerns about limited scope and potential inequity (Huelsman, 2019).

Coordination with Broader Reforms. Targeted debt relief programs should be implemented alongside broader reforms to the higher education financing system, such as

increased investment in need-based grants and efforts to contain college costs (Scott-Clayton, 2018).

Targeted debt relief programs offer a focused approach to alleviating the student debt crisis by providing support to specific groups of borrowers. While these programs have potential advantages, concerns about complexity, limited scope, and potential inequity must be addressed. Policymakers can implement targeted debt relief programs alongside broader reforms to create a more equitable and sustainable higher education financing system.

Student Loan in Other Developed Economies

Student Loan in Australia

Student loan debt is a growing concern in Australia, but it is not yet considered a major problem. According to data from the Australian government, the average amount of student loan debt for an Australian borrower is around AUD 28,000, which is lower than the average student loan debt in the U.S. (Australian government, 2021a).

However, student loan debt is still a significant burden for many Australian borrowers, especially for those who struggle to find well-paying jobs after graduation. High levels of student loan debt can limit a borrower's ability to make major life decisions, such as buying a home or starting a family, and can impact their overall financial stability (Australian government, 2021a).

In Australia, the total amount of outstanding student debt was around AUD 57 billion (approximately USD 40.7 billion) in 2018, according to the Australian Securities and Investments Commission (ASIC, 2019). The average debt per person with a HELP (Higher Education Loan Program) debt was AUD 22,210 (approximately USD 15,877) in 2018 (ASIC,

2019). As of 2018, the student loan debt was estimated to be around 2.7% of Australia's GDP (ASIC, 2019).

Student Loan in Australia Compared to United States

The student loan system in the United States is different from the student loan system in Australia in several ways. In the United States, students can take out federal student loans through the government's Direct Loan program, as well as private loans from banks and other financial institutions. In Australia, the government provides student loans through the Higher Education Loan Program (HELP).

In terms of loan amounts, students in the United States can borrow much larger amounts than students in Australia. According to data from the College Board, the average student loan debt for a bachelor's degree recipient in the U.S. is around \$30,000, while in Australia, the maximum amount that can be borrowed through the HELP program is around AUD 60,000 (College Board, 2021).

In terms of repayment terms, the U.S. and Australia have different systems. In the U.S., student loan repayments are based on the borrower's income and can be adjusted based on changes in income. In Australia, loan repayments are based on the borrower's income and begin once the borrower's income reaches a certain threshold (College Board, 2021).

Policy Measures in Australia to Mitigate the Problem

In Australia, there are several policy measures in place to mitigate the student loan debt issue. These measures aim to reduce the financial burden on students and graduates and to ensure that access to higher education is not restricted by financial barriers. The policy measures include

income-contingent repayment plans, HELP loan fee discounts, and financial assistance schemes (Chalmers and Reeson, 2019; Department of Education and Training, 2018; Norton, Cherastidtham, and Mackey2016).

Income-contingent repayment plans are designed to be flexible and accommodate changes in the borrower's financial situation. The repayment period can be extended up to 30 years, and the monthly payment amount is based on the borrower's income. This policy has been shown to be effective in reducing student loan debt burden and promoting access to higher education (Chalmers and Reeson, 2019).

HELP loan fee discounts are available to students who pay their tuition fees upfront, which means they do not have to take out a loan. These discounts range from 10% to 15% depending on the payment amount. This policy has been effective in reducing the financial burden on students and promoting access to higher education (Department of Education and Training, 2018).

Financial assistance schemes are available to students who are experiencing financial difficulties during their studies. These schemes can be used to cover living expenses or unexpected expenses, such as medical bills or travel costs. This policy has been effective in providing relief to students who are facing financial hardship (Norton, Cherastidtham, and Mackey2016).

In addition, students can access low-interest loans to cover living expenses during their studies. These loans have a low interest rate, and the repayment period can be extended up to 25 years. This policy has been effective in reducing the financial burden on students and promoting access to higher education (Australian Government, 2021b).

Since the student loan is also a concern in Australia, the government has taken several policy measures to mitigate student loan debt issues in Australia. Some of these measures are:

Income-Contingent Loans. The Australian government provides income-contingent loans to eligible students to help cover the cost of tuition fees, known as the Higher Education Loan Program (HELP) (Australian Government – StudyAssist, 2021a). These loans are repaid by the borrower once they reach a certain income threshold. The threshold is currently set at \$47,476 per annum, and the repayment rate is calculated as a percentage of the borrower's income above the threshold (Australian Government – StudyAssist, 2021a).

Loan Repayment Assistance Program. The Loan Repayment Assistance Program (LRAP) aids graduates who are experiencing financial hardship and are unable to make their HELP repayments (Australian Government – StudyAssist, 2021b). The program offers payment relief to eligible borrowers who have a low income or are experiencing financial hardship. The program covers the repayment of the borrower's HELP debt for up to two years (Australian Government – StudyAssist, 2021b).

Indexation of HELP Debt. The HELP debt is indexed annually to the Consumer Price Index (CPI) to ensure that the value of the debt does not decrease over time due to inflation (Australian Government – StudyAssist, 2021c). The indexation rate is determined by the Australian government and is applied to the outstanding loan balance on 1 June of each year (Australian Government – StudyAssist, 2021c).

Loan Fee Cap. The Australian government has introduced a loan fee cap of 25% for undergraduate courses, which limits the amount that institutions can charge students for their tuition (Australian Government – StudyAssist, 2021d). This measure is designed to reduce the financial burden on students and make higher education more affordable.

Reduction of Interest Rates. The Australian government has reduced the interest rates on HELP debts to zero for the period between 1 January 2020 and 30 June 2023 (Australian Government – StudyAssist, 2021e). This is to provide relief to graduates who are struggling to make repayments due to the economic impact of the COVID-19 pandemic. The zero-interest rate applies to all HELP debts, including those incurred under the HECS-HELP, FEE-HELP, and VET Student Loan schemes (Australian Government – StudyAssist, 2021e).

Revision of Loan Repayment Threshold. The Australian government has revised the loan repayment threshold for HELP debts to \$46,620 per annum, which means that graduates earning below this amount are not required to make any repayments (Australian Government – StudyAssist, 2021f). The new threshold applies from 1 July 2021 and is designed to provide relief to low-income earners (Australian Government – StudyAssist, 2021f).

Student Loan in Canada

Student loan debt is a growing concern in Canada, but it is not yet considered a major problem on the scale that it is in the United States. According to data from the Government of Canada, the average amount of student loan debt for a Canadian borrower is around CAD 26,000, which is lower than the average student loan debt in the U.S. (Government of Canada,

2021). However, student loan debt is still a significant burden for many Canadian borrowers, especially for those who struggle to find well-paying jobs after graduation. High levels of student loan debt can limit a borrower's ability to make major life decisions, such as buying a home or starting a family, and can impact their overall financial stability (Government of Canada, 2021).

According to the Canadian Federation of Students, as of 2019, Canadian students collectively owed over \$28 billion in student loan debt. The Canada Student Loans Program reported that approximately 1.6 million Canadians had outstanding student loans in 2018, with an average debt load of \$17,000. As of 2019, the student loan debt was estimated to be around 20% of Canada's GDP (CBC News, 2019).

Student Loan in Canada Compared to United States

The student loan systems in the United States and Canada are similar in some ways but also have some important differences. In both countries, students can take out government-sponsored loans to help pay for their education.

In the United States, students can take out federal student loans through the government's Direct Loan program, as well as private loans from banks and other financial institutions. In Canada, the government provides student loans through the Canada Student Loans Program (CSLP).

In terms of loan amounts, the maximum loan amounts available to students in both countries are similar. According to data from the Government of Canada, the maximum amount that can be borrowed through the CSLP is CAD 210,000 over a lifetime, while the maximum amount that can be borrowed through the Direct Loan program in the U.S. varies depending on the type of loan and the student's circumstances (Government of Canada, 2021).

In terms of repayment terms, the U.S. and Canada have different systems. In the U.S., student loan repayments are based on the borrower's income and can be adjusted based on changes in income. In Canada, loan repayments are also based on the borrower's income, but the repayment terms are more flexible, with longer repayment periods and lower monthly payments (Government of Canada, 2021).

Policy Measures in Canada to Mitigate the Problem

In Canada, policy measures have been implemented to mitigate the student loan debt issue and to ensure that access to higher education is not restricted by financial barriers. These measures include income-based repayment plans, tuition fee waivers, interest relief programs, and grants for low-income families.

Income-based repayment plans allow students to repay their loans based on their income level. These plans can be extended up to 15 years and the monthly payments are calculated based on the borrower's income. This policy has been effective in reducing the financial burden on students and graduates and promoting access to higher education (Houle and Berger, 2017).

Tuition fee waivers are available to students from low-income families, which means they do not have to pay tuition fees. This policy has been effective in reducing the financial burden on students and promoting access to higher education (McQuinn, 2016).

Interest relief programs provide relief to students who are facing financial hardship by temporarily suspending the accumulation of interest on their loans. This policy has been effective in providing relief to students who are facing financial hardship (Chen, 2016).

Grants for low-income families are available to students from low-income families to help cover their living expenses during their studies. These grants do not have to be repaid and

are awarded based on the student's financial need. This policy has been effective in reducing the financial burden of students and promoting access to higher education (Statistics Canada, 2018).

Since the student loan debt is also a growing concern even in Canada, the Canadian government has taken several policy measures to mitigate student loan debt issues. Some of these measures are:

Repayment Assistance Plan (RAP). The Repayment Assistance Plan (RAP) is a program that aids individuals who are having difficulty repaying their student loans. The program offers payment relief to eligible borrowers who have a low income or are experiencing financial hardships (Government of Canada, 2021a). Under the program, borrowers can apply for a reduced monthly payment or, in some cases, a period of no payments. The length of the repayment period depends on the borrower's income and family size. The program is available for both federal and provincial student loans (Government of Canada, 2021a).

Canada Student Loan Forgiveness for Family Doctors and Nurses. The Canada Student Loan Forgiveness for Family Doctors and Nurses program offers loan forgiveness to eligible family doctors, nurse practitioners, and nurses who work in designated rural or remote communities in Canada (Government of Canada, 2021b). The program forgives up to \$8,000 per year of study, up to a maximum of \$40,000, for a five-year commitment (Government of Canada, 2021b). The program is designed to help address the shortage of healthcare professionals in rural and remote communities.

Canada Student Grant Program. The Canada Student Grant Program provides financial assistance to low-income students to help cover the cost of tuition, books, and other

education-related expenses (Government of Canada, 2021c). The program is designed to reduce the need for students to take out loans to pay for their education. The program offers different types of grants, such as the Canada Student Grant for Full-Time Students, the Canada Student Grant for Part-Time Students, and the Canada Student Grant for Students with Permanent Disabilities (Government of Canada, 2021c). The grants are non-repayable and do not accumulate interest.

Interest Relief. Interest relief is available to borrowers who are experiencing financial hardship and are unable to make their loan payments. The program provides relief from interest charges on the outstanding loan balance for a specified period (Government of Canada, 2021d). The length of the relief period depends on the borrower's financial situation and can be extended in some cases. Interest relief is available for both federal and provincial student loans (Government of Canada, 2021d).

Revision of Student Loans Act. The Revision of Student Loans Act provides more flexibility for the repayment of student loans by eliminating the six-month waiting period before repayment begins, allowing borrowers to pause their repayment in case of financial hardship, and capping the maximum amount that can be garnished from borrowers' wages (Government of Canada, 2019). The act also allows the government to provide more assistance to borrowers who have defaulted on their loans and are experiencing financial hardship.

Increase in Canada Student Grants. The Canadian government increased funding for Canada Student Grants, which provide non-repayable financial assistance to students from low-

income families, starting in the 2021-2022 academic year (Government of Canada, 2021e). The increase in funding is expected to provide more assistance to over 570,000 students per year (Government of Canada, 2021e).

Student Loan in EU

The student loan systems in the United States and other developed countries in Europe vary significantly. In the U.S., students can take out federal student loans through the government's Direct Loan program, as well as private loans from banks and other financial institutions. In many developed countries in Europe, such as the United Kingdom, Germany, and France, the government provides student loans and/or grants to help cover the cost of higher education.

In terms of loan amounts, the maximum loan amounts available to students in the U.S. and other developed countries in Europe vary significantly. According to data from the Organization for Economic Co-operation and Development (OECD), the maximum amount that can be borrowed through student loan programs in the U.S. is typically higher than in many developed countries in Europe (OECD, 2021).

In terms of repayment, the U.S. and many developed countries in Europe have different systems. In the U.S., student loan repayments are based on the borrower's income and can be adjusted based on changes in income. In many developed countries in Europe, loan repayments are also based on the borrower's income, but the repayment terms are often more flexible, with longer repayment periods and lower monthly payments (OECD, 2021).

The European Commission reported that the average student loan debt in the EU was around €14,500 (approximately USD 17,000) in 2018 (European Commission, 2019). The total

student loan debt in the EU was estimated to be around €41 billion (approximately USD 48 billion) in 2018 (European Commission, 2019). As of 2018, the student loan debt was estimated to be around 0.3% of the EU's GDP (European Commission, 2019).

Student Loan in United Kingdom

In the United Kingdom, the government provides student loans and grants to help cover the cost of higher education. The Student Loans Company (SLC) administers the student loan program, which provides loans to cover tuition fees and living costs for eligible students.

According to data from the UK government, the average amount of student loan debt for a UK borrower is around £50,000, which is significantly higher than the average student loan debt in other developed countries in Europe (UK government, 2021).

In terms of loan amounts, the maximum amount that can be borrowed through the student loan program in the UK is capped at a certain amount each year, which varies depending on the type of program and the student's circumstances. According to data from the UK government, the maximum amount that can be borrowed for tuition fees is £9,250 per academic year for students in England and Wales, while the maximum amount for living costs is £11,672 per academic year for students in England (UK government, 2021).

In terms of repayment terms, the UK student loan system is based on the borrower's income. Repayments begin once the borrower's income reaches a certain threshold, and the amount repaid each month is based on the borrower's income (UK government, 2021).

According to the Student Loans Company (2020), the total outstanding student loan debt in the UK was £140 billion (approximately USD 194 billion) in March 2020. As of 2018-2019, the average student loan debt for students in England was £35,000 (approximately USD 48,000)

upon graduation (Student Loans Company, 2020). As of 2020, the student loan debt in the UK was estimated to be around 5.5% of the country's GDP (House of Commons Library, 2020).

Policy Measures in U.K. to Mitigate the Problem

In the UK, there are several policy measures in place to mitigate the student loan debt issue. These measures aim to reduce the financial burden on students and graduates and to ensure that access to higher education is not restricted by financial barriers. The policy measures include income-contingent repayment plans, tuition fee waivers, bursaries, and hardship funds.

Income-contingent repayment plans are designed to be flexible and accommodate changes in the borrower's financial situation. The repayment period can be extended up to 30 years, and the monthly payment amount is based on the borrower's income. This policy has been shown to be effective in reducing student loan debt burden and promoting access to higher education (Belfield et al., 2018).

Tuition fee waivers are available for students from low-income families or those who have experienced financial hardship. These waivers cover all or part of the tuition fees, depending on the student's circumstances. This policy has been effective in reducing the financial burden of students and promoting access to higher education (Hussey and Croxford, 2016).

Bursaries are provided to students from low-income families to help cover their living expenses during their studies. These bursaries do not have to be repaid and are awarded based on the student's financial need. This policy has been effective in reducing the financial burden of students and promoting access to higher education (Callender and Mason, 2017).

Hardship funds are available to students who are experiencing financial difficulties during their studies. These funds can be used to cover living expenses or unexpected expenses,

such as medical bills or travel costs. This policy has been effective in providing relief to students who are facing financial hardship (Owen et al., 2017).

In conclusion, the UK has implemented several policy measures to mitigate the student loan debt issue. These policies are aimed at reducing the financial burden of students and graduates and promoting access to higher education. The policy measures include income-contingent repayment plans, tuition fee waivers, bursaries, and hardship funds. These policies have been effective in reducing the financial burden of students and providing relief to those who are facing financial hardship.

The student loan debt is also a problem in the United Kingdom and the U.K. government has taken several policy measures to mitigate student loan debt issues. Some of these measures are:

Income-Based Repayment. The UK government offers income-based repayment plans for student loans, which means that borrowers repay their loans based on their income. The repayment threshold for the current plan is £27,295 per year, and borrowers are required to pay 9% of their income above this threshold (GOV.UK., 2021a). The repayment plan is income-contingent, which means that if the borrower's income falls below the repayment threshold, the repayment amount is reduced accordingly (GOV.UK., 2021a).

Loan Forgiveness. The UK government offers loan forgiveness options for borrowers who are experiencing financial hardship. The loan forgiveness options include the Total Permanent Disability (TPD) discharge and the Death Discharge (GOV.UK., 2021b). The TPD discharge is available to borrowers who are permanently disabled and unable to work. The Death Discharge is available to the next of kin of borrowers who have died (GOV.UK., 2021b).

Postgraduate Loans. The UK government offers postgraduate loans to eligible students to help cover the cost of tuition fees and living expenses. The loan amount is up to £11,570 for the academic year 2021-2022, and the repayment plan is income-based (GOV.UK., 2021c). The repayment threshold for postgraduate loans is £21,000 per year, and borrowers are required to pay 6% of their income above this threshold (GOV.UK., 2021c).

Interest Rates. The UK government has set the interest rate for student loans at 3% plus the Retail Price Index (RPI) for borrowers earning £27,295 or more per year (GOV.UK., 2021d). For borrowers earning less than £27,295 per year, the interest rate is equal to the RPI (GOV.UK., 2021d). The interest on student loans starts accruing from the date of disbursement, and the interest rate is adjusted annually based on the RPI (GOV.UK., 2021d).

Loan Term Extension. The U.K. government has introduced a policy to extend the loan term for borrowers who are struggling to make repayments. The loan term can be extended up to 25 years, and the repayment plan is income-based (GOV.UK., 2021e). The loan term extension is available to borrowers who started their course on or after September 1, 2012 (GOV.UK., 2021e).

Student Loan in France

In France, the government provides student loans and grants to help cover the cost of higher education. The student loan program in France is administered by the National Student Services and Solidarity Organization (CROUS).

In terms of loan amounts, the maximum amount that can be borrowed through the student loan program in France varies depending on the student's circumstances. According to data from the French government, the maximum amount that can be borrowed for tuition fees is approximately €170 per month, while the maximum amount for living costs is approximately €400 per month (French government, 2021).

In terms of repayment terms, the student loan system in France is based on the borrower's income. Repayments begin once the borrower is employed and earning a certain amount, and the amount repaid each month is based on the borrower's income (French government, 2021).

According to data from the French government, the average amount of student loan debt for a French borrower is around €10,000, which is lower than the average student loan debt in other developed countries in Europe (French government, 2021). However, student loan debt is still a significant burden for many French borrowers, especially for those who struggle to find well-paying jobs after graduation (French government, 2021).

The total student loan debt in France was estimated to be around €43 billion (approximately USD 50 billion) in 2018, according to the European Commission (2019). As of 2019, the average student loan debt in France was around €19,000 (approximately USD 23,000) per student (Studyrama, 2019).

Policy Measures in France to Mitigate the Problem

In France, several policy measures have been implemented to mitigate the student loan debt issue. These measures are aimed at reducing the financial burden of students and promoting access to higher education. The policy measures include income-contingent repayment plans,

interest-free loans, scholarship programs, debt cancellation policies, and loan consolidation programs.

The income-contingent repayment plan is designed to be flexible and accommodate changes in the borrower's financial situation. The repayment period can be extended up to 25 years, and the monthly payment amount is capped at 10% of the borrower's income. This policy has been shown to be effective in reducing student loan debt burden (Audouin, 2018).

Interest-free loans are provided to students from low-income families to help cover their living expenses during their studies. These loans do not have to be repaid until after the student has completed their studies. This policy has been effective in reducing the financial burden of students and promoting access to higher education (Sarfati, 2017).

Scholarship programs are available to both domestic and international students to help cover their tuition fees and living expenses. These programs include the Eiffel Scholarship, the French Government Scholarship, and the Erasmus+ program. Scholarship programs have been shown to be effective in reducing the financial burden of students and promoting access to higher education (Charlier and Geay, 2019).

Debt cancellation policies are in place for borrowers who have been unable to repay their loans after a certain period. This policy applies to both federal and private student loans, and the amount of debt cancelled varies depending on the borrower's circumstances. This policy has been effective in providing relief to borrowers who are facing financial hardship (Belhadj and Gouverneur, 2019).

Loan consolidation programs allow borrowers to combine their federal and private student loans into a single loan, with a single repayment plan and a lower interest rate. This

policy can help borrowers simplify their loan payments and reduce their overall monthly payments.

Income-Contingent Repayment Plan. France offers an income-contingent repayment plan for student loans, where borrowers repay their loans based on their income. The repayment amount is capped at 10% of the borrower's income, and the repayment period can be extended up to 25 years (French Government, 2021). The repayment plan is flexible, and borrowers can adjust their payments based on their financial situation (French Government, 2021).

Interest-Free Loans. The French government provides interest-free loans to students from low-income families to cover their living expenses during their studies (French Government, 2021). The loan amount varies depending on the student's financial need. The loans are available to both domestic and international students, and they do not have to be repaid until after the student has completed their studies (French Government, 2021).

Scholarship Programs. France offers several scholarship programs for students to help them cover their tuition fees and living expenses. These scholarships are available for both domestic and international students. Some of the scholarship programs include the Eiffel Scholarship, the French Government Scholarship, and the Erasmus+ program (French Government, 2021).

Debt Cancellation. France has a policy of debt cancellation for borrowers who have been unable to repay their loans after a certain period. The debt cancellation is subject to certain

conditions, such as financial hardship and disability. The cancellation policy applies to both federal and private student loans, and the amount of debt cancelled varies depending on the borrower's circumstances (French Ministry of Education, n.d.)

Loan Consolidation: France offers a loan consolidation program for borrowers who have multiple student loans (French Ministry of Education, n.d.). The program allows borrowers to combine their loans into a single loan, with a single repayment plan and a lower interest rate. The loan consolidation program is available to both federal and private student loans, and it can help borrowers simplify their loan payments (French Ministry of Education, n.d.).

Student Loan Germany

Student loan debt is not a major issue in Germany, as the country's student loan system is structured differently than in many other developed countries. In Germany, students are not required to take out loans to cover the cost of higher education, as the government provides grants and other forms of financial support to help cover the cost of tuition and living expenses (German government, 2021).

However, while student loan debt is not a major issue in Germany, the cost of higher education and the availability of financial support is still a concern for many students and their families. In recent years, there have been calls for the German government to increase funding for higher education and to provide more support for students in need (German government, 2021a).

According to the German Federal Statistical Office, the total outstanding student loan debt in Germany was around €19.6 billion (approximately USD 23 billion) in 2018 (Statistisches

Bundesamt, 2019). The average student loan debt in Germany was estimated to be around €12,000 (approximately USD 14,000) per student in 2018 (Deutsche Welle, 2019).

Policy Measures in Germany to Mitigate the Problem

In Germany, there are several policy measures in place to mitigate the student loan debt issue. These measures aim to reduce the financial burden on students and promote access to higher education. The policy measures include income-contingent repayment plans, tuition-free education, and state-funded grants.

Income-contingent repayment plans are designed to be flexible and accommodate changes in the borrower's financial situation. The repayment period can be extended up to 20 years, and the monthly payment amount is based on the borrower's income. This policy has been shown to be effective in reducing student loan debt burden and promoting access to higher education (Dümig, Janßen-Timmen, and Kemper, 2020).

Tuition-free education is available to students in Germany, which means that students do not have to pay tuition fees at public universities. This policy has been effective in reducing the financial burden on students and promoting access to higher education (Bock-Schappelwein and Ortlechner, 2017).

State-funded grants are available to students from low-income families to help cover their living expenses during their studies. These grants do not have to be repaid and are awarded based on the student's financial need. This policy has been effective in reducing the financial burden of students and promoting access to higher education (Weiß, 2019).

In addition, students can access low-interest loans to cover living expenses during their studies. These loans have a low interest rate, and the repayment period can be extended up to 20

years. This policy has been effective in reducing the financial burden on students and promoting access to higher education (Bock-Schappelwein and Ortlechner, 2017).

Policy Measures in United States to Mitigate the Problem

In the US, there have been several policy measures undertaken to mitigate the student loan debt issue. These measures aim to reduce the financial burden on students and graduates and to ensure that access to higher education is not restricted by financial barriers. The policy measures include income-driven repayment plans, loan forgiveness programs, and grants for low-income families.

Income-driven Repayment Plans. In the U.S., income-driven repayment plans are a key policy measure that has been implemented to mitigate the student loan debt issue. These plans allow borrowers to repay their loans based on their income level and provide a more flexible and affordable repayment option for those who are struggling with high levels of debt (Baum, McPherson, and Steele, 2016; Littenberg-Tobias, Dwyer, and Hershbein, 2017). Income-driven repayment plans are designed to be flexible and accommodate changes in the borrower's financial situation. These plans can be extended up to 25 years, and the monthly payment amount is based on the borrower's income. This policy has been shown to be effective in reducing student loan debt burden and promoting access to higher education (Kang and Yannelis, 2018).

Income-driven repayment plans are available for all types of federal student loans, and the monthly payment amount is based on a percentage of the borrower's discretionary income. There are currently four different income-driven repayment plans available: Income-Based Repayment (IBR), Pay As You Earn (PAYE), Revised Pay As You Earn (REPAYE), and Income-

Contingent Repayment (ICR). The repayment period for these plans ranges from 20 to 25 years, depending on the plan and the borrower's individual circumstances.

Studies have shown that income-driven repayment plans have been effective in reducing the financial burden of student loan debt for borrowers. A study by Littenberg-Tobias and colleagues (2017) found that borrowers who used income-driven repayment plans had lower monthly payments, lower default rates, and a lower likelihood of delinquency than borrowers who did not use income-driven repayment plans.

Moreover, income-driven repayment plans have been shown to promote access to higher education by reducing the financial barriers that prevent some students from pursuing higher education. A study by Baum and colleagues (2016) found that income-driven repayment plans have the potential to improve college affordability for low-income families and reduce the number of students who drop out of college due to financial difficulties.

However, there are also some challenges associated with income-driven repayment plans. For instance, the repayment period for these plans can be quite long, which means that borrowers may end up paying more in interest over the life of the loan. In addition, some borrowers may not qualify for income-driven repayment plans or may not be aware that these plans are available to them.

Loan forgiveness programs. Loan forgiveness programs are one of the policy measures implemented in the US to mitigate the student loan debt issue. Loan forgiveness programs aim to reduce the financial burden of student loan debt by forgiving or canceling a portion of the borrower's outstanding loan balance. are available to borrowers who meet certain eligibility requirements, such as working in certain fields, serving in the military, or making a certain

number of payments. These programs can provide significant relief to borrowers with high levels of debt and promote access to higher education (Dynarski, 2017).

One such loan forgiveness program is the Public Service Loan Forgiveness (PSLF) program. The PSLF program forgives the remaining balance of federal student loans for borrowers who work full-time for a qualifying public service organization, such as a government agency or non-profit organization, and make 120 qualifying payments on their loans (Department of Education, n.d.). The PSLF program has been shown to be effective in reducing the financial burden of student loan debt for borrowers in public service professions (Huang and Gao, 2019).

Another loan forgiveness program is the Teacher Loan Forgiveness program. This program forgives up to \$17,500 in federal student loans for teachers who work full-time for five consecutive years in a low-income school or educational service agency (Department of Education, n.d.). The Teacher Loan Forgiveness program has been found to be effective in reducing the financial burden of student loan debt for teachers, especially those in low-income areas (Kleinman and Borkoski, 2021).

Loan forgiveness programs have been shown to be effective in reducing the financial burden of student loan debt for borrowers. A study by Kleinman and Borkoski (2021) found that borrowers who participated in the Teacher Loan Forgiveness program had lower default rates and a lower likelihood of delinquency compared to those who did not participate in the program. Similarly, Huang and Gao (2019) found that borrowers who participated in the PSLF program had lower monthly payments and lower default rates compared to those who did not participate in the program.

While loan forgiveness programs have been effective in reducing the financial burden of student loan debt, there are some challenges associated with them. For example, loan forgiveness

programs may have complex eligibility requirements, and borrowers may not be aware of the availability of these programs. Additionally, loan forgiveness programs may be subject to changes in legislation or funding limitations.

Grants for Low Income Families. Grants for low-income families is another policy measure implemented in the U.S. to mitigate the student loan debt issue. These grants aim to reduce the financial burden of student loan debt by providing financial assistance to low-income families who are unable to pay for higher education. These grants do not have to be repaid and are awarded based on the student's financial need. This policy has been effective in reducing the financial burden of students and promoting access to higher education (Cellini and Turner, 2019).

One such grant program is the Federal Pell Grant program, which provides need-based grants to undergraduate students to help pay for college. The amount of the grant is determined by the student's financial need, cost of attendance, and enrollment status. The Federal Pell Grant program has been found to be effective in reducing the financial burden of student loan debt for low-income families (Dynarski, 2017a).

Another grant program is the Federal Supplemental Educational Opportunity Grant (FSEOG) program, which provides additional financial assistance to undergraduate students with exceptional financial need. The FSEOG program is administered by participating institutions and provides grants ranging from \$100 to \$4,000 per year (Perna and Jones, 2017). The FSEOG program has been shown to be effective in reducing the financial burden of student loan debt for low-income families (Dynarski, 2017a).

Grants for low-income families have been shown to be effective in reducing the financial burden of student loan debt. A study by Dynarski (2017a) found that students who received

Federal Pell Grants had lower levels of student loan debt and were more likely to complete their degree compared to those who did not receive the grant. Similarly, Dynarski (2017a) also found that students who received FSEOG grants had lower levels of student loan debt compared to those who did not receive the grant.

Another study by Baum and Steele (2018) found that grants for low-income families, including the Federal Pell Grant program, have been effective in reducing the financial burden of student loan debt for low-income families, especially those from racial and ethnic minority groups. The study suggests that increasing access to these grant programs could help reduce the disparities in student loan debt across different demographic groups.

While grants for low-income families have been effective in reducing the financial burden of student loan debt, there are some challenges associated with them. For example, grant programs may be subject to changes in legislation or funding limitations, and not all low-income families may be eligible for these grants.

In addition, there have been proposals for more ambitious policy measures, such as free college tuition for all students, which would further reduce the financial burden of higher education on students and families. However, the implementation of such policies has been met with challenges and debates (Dynarski, 2018).

Furthermore, this study intends to measure the impact of four such policy options on the key macroeconomic indicators of U.S. economy. The reasons for choosing the macroeconomic variables will now be discussed.

Chapter 3: Research Design

Restatement of the Research Question

As discussed earlier, the primary question that this study intends to address is –
What relationship exists between student debt cancellation and key US economic indicators – GDP, Inflation, and Unemployment?

Specific research questions (as replicated from Fullwiler's et al. (2018) research):

- Does any relationship exist between student debt cancellation and real GDP? If yes, then what is nature/magnitude of such a relationship?
- Does any relationship exist between student debt cancellation and Unemployment? If yes, then what is nature/magnitude of such a relationship?
- Does any relationship exist between student debt cancellation and inflation? If yes, then what is nature/magnitude of such a relationship?

Theoretical Framework

The aim of this study was to measure the impact of different policy measures related to student loan cancellation on U.S. Economy. Fullwiler et al. (2018) conducted a study in 2017, by simulating the impact of student loan cancellation on US economy using two models one of which was Ray Fair's model. While conducting the simulation Fullwiler et al (2018), assumed complete cancellation of student loan. This cancellation was assumed to be a one-time measure by the government, where the federal government cancels the loan held directly (Fullwiler et al., 2018). Fullwiler et al. further assumed that the loans financed by the privately owned agencies will also be taken over by the federal government on the behalf of the borrowers (2018). Their

research was focused on only one policy measure, that is, of a complete student loan cancellation as a one-time measure.

This study followed Fullwiler's et al. (2018) model, assumptions, and framework of measurement by using only the Ray Fair's macroeconomic model. However, the objective of this study was to assess the impact of 4 policy options of student loan debt cancellation on U.S. economy, as opposed to one policy measure analyzed by Fullwiler et al. Also, this study focused on three key macroeconomic variables of GDP, Unemployment, and Inflation as a proxy to measure the impact of the policy options on U.S. economy. The policy options being analyzed in this are discussed more in detail in the subsequent sections.

Macroeconomic Aspects of the Student Loan Debt

The impact of student loan cancellation on GDP, unemployment, and inflation over the next 10 years is subject to considerable debate and uncertainty, as the magnitude and distribution of the effects depend on various factors, such as the scale of the cancellation and the specifics of the policy implemented. However, for the sake of discussion some general potential effects as elaborated in literature by economists and experts are discussed below.

Gross Domestic Product (GDP)

Canceling student loan debt could lead to an increase in GDP in the short to medium term, as it would reduce the debt burden for millions of borrowers, potentially increasing their disposable income and consumption. This could result in higher demand for goods and services, leading to economic growth. However, the long-term effects on GDP are less clear and could be

influenced by factors such as government financing for the debt cancellation (e.g., through taxation or increased public debt), which may have counteracting effects on the economy.

The impact of student loan cancellation on GDP depends on a variety of factors, including the amount of debt forgiven, the policy's implementation, and the overall economic context. Some of the potential effects on GDP include:

Increased consumption: Canceling student loan debt could lead to an increase in disposable income for millions of borrowers, as their debt burden would be reduced or eliminated. This could result in higher consumption, as borrowers may spend more on goods and services. Increased consumption can stimulate demand, leading to economic growth (Fullwiler et. al., 2018).

Improved creditworthiness. Debt cancellation may improve the creditworthiness of borrowers, enabling them to qualify for mortgages, auto loans, and other forms of credit. Access to credit can stimulate further spending and investment, potentially leading to economic growth (Constantin Yannelis and Yannelis, 2019).

Entrepreneurship and job mobility. With reduced or eliminated student loan debt, individuals may be more likely to pursue entrepreneurship, start new businesses, or change jobs. This increased flexibility can contribute to economic growth by fostering innovation and increasing labor market efficiency (Rothstein, and Rouse, 2011).

Distributional effects. The impact of student loan cancellation on GDP may also depend on the distributional effects of the policy. If the benefits are concentrated among higher-income borrowers, the impact on consumption and GDP may be smaller, as these individuals have a lower marginal propensity to consume (MPC) than lower-income borrowers.

Government financing. The way in which the government finances student loan cancellation can also affect its impact on GDP. If the government raises taxes or cuts spending to finance the debt cancellation, this could have contractionary effects on the economy, potentially offsetting some of the positive effects of increased consumption (Stephanie Kelton, 2020).

Long-term effects. While the short- to medium-term effects on GDP may be positive due to increased consumption and investment, the long-term effects are less clear. Some argue that student loan cancellation could result in moral hazard or reduced incentives for fiscal responsibility among borrowers and educational institutions, potentially leading to higher costs and inefficiencies in the long run (Akers, 2014).

Unemployment

Canceling student loan debt could have a mixed impact on unemployment. On the one hand, reducing the debt burden may encourage entrepreneurship and job mobility, as borrowers with more disposable income might be more likely to take risks or switch jobs, potentially leading to lower unemployment rates. On the other hand, the increased consumption resulting from debt cancellation could lead to increased demand for labor in certain sectors, but this effect

may be offset if the government needs to raise taxes or cut spending to finance the debt cancellation, which could dampen economic activity and job growth.

The impact of student loan cancellation on the unemployment rate depends on several factors, such as the scale of the cancellation, the way it's financed, and the overall economic context. Some potential effects on unemployment include:

Increased consumption and job creation. Canceling student loan debt could lead to increased consumption, as borrowers may have more disposable income to spend on goods and services (Fullwiler et.al., 2018). Higher consumption may stimulate demand and potentially create jobs in sectors that benefit from this increased spending, which could lead to a decrease in the unemployment rate.

Entrepreneurship and innovation. Reduced or eliminated student loan debt may encourage entrepreneurship and innovation, as borrowers may feel more financially secure to start new businesses or take risks in their careers (Rothstein, and Rouse, 2011). This could lead to job creation and contribute to a decrease in the unemployment rate over time.

Job mobility and labor market efficiency. Student loan cancellation may increase job mobility, as individuals with less debt may be more likely to switch jobs or pursue opportunities that align better with their skills and interests (Daniel Herbst, 2018). Increased job mobility can improve labor market efficiency and potentially lead to a decrease in the unemployment rate.

Government financing and fiscal policy. The method used to finance student loan cancellation may influence its impact on unemployment. If the government raises taxes or cuts

spending to finance the debt cancellation, this could have contractionary effects on the economy and potentially offset some of the positive effects of increased consumption or job creation (Stephanie Kelton, 2020).

Distributional effects. The impact of student loan cancellation on the unemployment rate may also depend on the distributional effects of the policy. If the benefits are concentrated among higher-income borrowers, the impact on consumption and job creation may be smaller, as these individuals have a lower marginal propensity to consume (MPC) than lower-income borrowers (Chakrabarti, Nober, and Klaauw, 2019).

Long-term effects. While the short- to medium-term effects on unemployment may be positive due to increased consumption, entrepreneurship, and job mobility, the long-term effects are less clear. Some argue that student loan cancellation could result in moral hazard or reduced incentives for fiscal responsibility among borrowers and educational institutions, which may have unintended consequences for the labor market and the economy as a whole (Akers, and Chingos, 2016).

Inflation

The impact of student loan cancellation on inflation is also uncertain. If the cancellation leads to increased consumption, this could potentially lead to higher inflation due to increased demand for goods and services. However, the scale of the impact on inflation would depend on factors such as the size of the cancellation, the responsiveness of supply to increased demand, and the financing mechanisms employed by the government.

The impact of student loan cancellation on inflation depends on several factors, such as the scale of the cancellation, the way it's financed, and the overall economic context. Some potential effects on inflation include:

Increased consumption and demand-pull inflation. Canceling student loan debt could lead to increased consumption, as borrowers may have more disposable income to spend on goods and services (Scott Fullwiler, Stephanie Kelton, Catherine Ruetschlin, and Marshall Steinbaum, 2018). Higher consumption may stimulate demand for goods and services, and if supply does not respond quickly enough to this increased demand, it could lead to demand-pull inflation.

Wage-price spiral. If student loan cancellation leads to higher demand for goods and services, businesses might respond by raising prices. This could, in turn, lead to higher wages as workers demand compensation for the increased cost of living (J.W. Mason, 2019). A wage-price spiral could occur if businesses continue to raise prices in response to higher wages, leading to further inflation.

Government financing and monetary policy. The way student loan cancellation is financed could also influence its impact on inflation. If the government finances the debt cancellation through deficit spending or by increasing the money supply, it could potentially contribute to inflationary pressures (Stephanie Kelton, 2020). However, if the government

finances the cancellation through taxation or by reallocating existing resources, the inflationary impact may be more muted.

Distributional effects. The impact of student loan cancellation on inflation may also depend on the distributional effects of the policy. If the benefits are concentrated among higher-income borrowers, the impact on consumption and inflation may be smaller, as these individuals have a lower marginal propensity to consume (MPC) than lower-income borrowers (Chakrabarti, Nober, and Klaauw, 2019).

Long-term effects and expectations. While the short- to medium-term effects on inflation may be influenced by increased consumption and potential wage-price spirals, the long-term effects are less clear. If student loan cancellation leads to changes in inflation expectations, this could influence the long-term path of inflation (Blanchard, 2019). Additionally, factors such as productivity growth, global economic conditions, and central bank policy will also play a role in determining the long-term inflationary impact of student loan cancellation.

It's important to note that the actual effects of student loan cancellation on GDP, unemployment, and inflation would depend on various factors, including the specifics of the policy, the current economic context, and the response of households, businesses, and the government to the debt cancellation. Predicting the precise outcomes over a 10-year horizon is challenging, as it involves many uncertainties and assumptions.

Ray Fair's Macroeconomic Model

Ray Fair's Macroeconomic Model, also known as the Fair Model, is a structural econometric model of the United States economy, which was first published by Yale University economist Ray C. Fair in 1974 (Fair, 1974). The model aims to capture the behavior of the U.S. economy through its key sectors, such as households, firms, and the government, by describing the relationships among essential macroeconomic variables like GDP, consumption, investment, government spending, net exports, inflation, interest rates, and labor market variables (Fair, 1994).

The Fair Model comprises behavioral equations derived from economic theory, which specify how key economic variables are determined (Fair, 1974). For instance, consumption typically depends on income and wealth, while investment relies on factors such as interest rates and output. The model also includes accounting identities, such as the national income identity, which states that GDP is equal to the sum of consumption, investment, government spending, and net exports (Fair, 1976).

Certain variables in the model, like fiscal and monetary policy, are treated as exogenous, meaning their values are determined outside the model (Fair, 1994). These exogenous variables can be altered to simulate different policy scenarios and assess their impact on the economy. The Fair Model is dynamic, incorporating both short-run and long-run relationships among economic variables, allowing it to capture the effects of shocks and policy changes on the economy over time (Fair, 2004).

The model's equations are estimated using historical data, providing a basis for generating forecasts and policy simulations (Fair, 1994). The model is periodically updated to incorporate new data and improve its accuracy (Fair, 2004).

One noteworthy feature of the Fair Model is its ability to accommodate alternative assumptions about economic variables and their relationships (Fair, 1994). This flexibility enables researchers and policymakers to test different scenarios or policy options to better understand their potential implications on the economy.

The Fair Model has been employed to study a wide array of economic phenomena, such as the impact of fiscal and monetary policies, business cycles, and the role of expectations in shaping macroeconomic outcomes (Fair, 2004). By simulating various scenarios, the model provides valuable insights into the transmission channels through which economic policies influence the broader economy.

Over the years, the Fair Model has been subjected to various tests to evaluate its predictive accuracy and robustness (Fair, 1994). While no econometric model can perfectly capture the intricacies of a complex economy, the Fair Model has proven useful in forecasting key macroeconomic variables and assessing the likely consequences of policy interventions.

Moreover, the Fair Model has contributed to the broader field of macroeconometrics by inspiring the development of other models and refining the methodologies used in empirical macroeconomic research (Fair, 2004). This influence has extended beyond the U.S. economy, as similar modeling approaches have been adopted to study other countries and regions.

Cowles Commission and Econometric Modeling

Ray Fair's Macroeconomic Model is influenced by the broader tradition of econometric modeling that was advanced by the Cowles Commission for Research in Economics (Klein, 1947). The Cowles Commission, founded in 1932, played a crucial role in the development of

modern econometrics, which is the application of statistical methods to economic data to better understand and quantify economic relationships (Koopmans, 1950).

The Cowles Commission was involved in creating and promoting structural econometric models, which consist of a system of simultaneous equations representing economic relationships based on theory and empirical evidence (Tinbergen, 1939). Key researchers affiliated with the Cowles Commission, such as Tjalling Koopmans, Lawrence Klein, and Jan Tinbergen, made substantial contributions to the development of econometric modeling (Koopmans, 1950; Tinbergen, 1939). Their work focused on structural econometric models, which consist of a system of simultaneous equations representing economic relationships based on theory and empirical evidence (Christ, 1952). These models were used for policy analysis and forecasting purposes.

Ray Fair's Macroeconomic Model can be considered as part of the larger tradition of structural econometric models that emerged from the Cowles Commission's influence (Fullweiler et.al., 2018). The Fair Model shares similarities with the models developed during the Cowles Commission era, such as its reliance on economic theory, use of simultaneous equations to represent key economic relationships, and application of econometric techniques to estimate model parameters using historical data (Fullweiler et.al., 2018).

The Fair-Parke Program

The Fair-Parke Program, developed by Ray C. Fair and William R. Parke, is a command prompt computer program based on the Fair model for solving and analyzing non-linear econometric models (Fair, 2004). It is designed to handle systems of simultaneous equations, allowing users to input their econometric models and explore the potential implications of

different policy scenarios. The program can be used for various purposes, including solving, estimating, and simulating non-linear econometric models, like the Fair Model (Fair, 1974; Fair, 1976).

Fair-Parke Program Process

The Fair Parke program is a user-friendly software tool that allows users to generate forecasts for the US economy based on their own assumptions and inputs. While the program is based on the Fair model, it is designed to be accessible to a wide range of users and does not require advanced statistical expertise to use (Fair, 1994; Fair, 2004)

To use the program, a user would first input their assumptions for the exogenous variables in the model by specifying the parameters (Fair, 1994). These variables are typically fiscal and monetary policy variables, which are determined by factors outside of the model (Fair, 1994). The program allows the user to specify their own assumptions (parameters) for these variables, or to use default assumptions (parameters) provided by the program.

Once the user has input their assumptions, the program uses the Fair model to generate a forecast for the endogenous variables in the model, which are things like GDP, inflation, and unemployment (Fair, 1994). The Fair Parke program then uses simulation in several ways to generate forecasts for the economy.

Model Solution. After estimating the model parameters using historical data, the program solves the system of simultaneous equations, which represent the relationships among key economic variables (Fair, 1974; Fair, 1976).

Forecast Simulation. Users can perform forecast simulations by setting values for the exogenous variables, which are determined outside the model (e.g., fiscal and monetary policy variables). The program generates forecasts for the endogenous variables, which are determined within the model, based on the model's equations and the specified values of the exogenous variables (Fair, 1994).

Sensitivity Analysis. The Fair-Parke Program allows users to perform sensitivity analyses by varying the values of the exogenous variables or the parameters of the model (Fair, 2004). By simulating the model under different assumptions, users can assess the robustness of the forecasts and explore the potential implications of alternative policy scenarios or changes in external factors.

Stochastic Simulation. The program can also perform stochastic simulations by incorporating random shocks into the model (Fair, 1994). This allows users to account for the uncertainty and randomness inherent in economic systems and assess the model's performance under various potential future scenarios.

Fair-Parke Program can use Monte Carlo simulation as part of its stochastic simulation process to analyze the behavior of an econometric model under different conditions and evaluate the potential effects of uncertainty and randomness in economic systems (Fair, 1994). Monte Carlo simulation is a technique that involves generating a large number of random scenarios for a model, based on probability distributions for uncertain variables or parameters (Robert, and Casella, 2004). By running the model with these random scenarios, the program can produce a

distribution of outcomes, allowing users to assess the probability of various results and better understand the risks and uncertainties associated with the model's forecasts (Fair, 1994).

In the context of the Fair-Parke Program, Monte Carlo simulation can be used to incorporate random shocks into the model, which may represent unexpected changes in economic variables or policy settings. By simulating the model with these random shocks, users can analyze the model's performance under various potential future scenarios and better understand the implications of uncertainty for their forecasts (Fair, 1994).

The Fair Model – U.S. Version

The Fair model's version specified for the U.S. economy is based of 25 stochastic and 100 identity equations with about 225 variables, fully integrating data from “National Income and Product Accounts and Flow of Funds” (Fullwiler et.al.; 2018). Per Ray Fair, his model uses the Cowles Commission's macroeconomic approach for modeling stochasticity for estimating the structural equations via “two-stage least square” method (Fair, 2004; Fair, 2007). This model will be used to undertake sensitivity analysis on 4 different policy options, wherein different values will be plugged into Ray Fair's model for projections of GDP, Inflation, and Unemployment. The values to be plugged in shall be based on various assumptions discussed in the subsequent sections.

Research Methodology

Fullwiler et.al. (2018) conducted a study in 2017, by simulating the impact of student loan cancellation on US economic indicators using Moody's model and Ray Fair's model. This research extended their research by undertaking a sensitivity analysis on four different policy

measures using Ray Fair's model. Just like the simulation research conducted by Fullwiler et.al., this research also modelled cancellation of student debt as one of the policy measures. The assessment of the post COVID-19 pandemic impact added on to their research, as their projections did not include the impact by the COVID-19 pandemic. Their research had predicted the U.S. economy's projections without the shocks of the pandemic, this research re-simulated the complete loan forgiveness policy by including the real-world data from 2017 to 2022. Similarly, modeling the scenario just like how it was done in the Fullwiler et al. model, in this research as well it was assumed that the federal government cancelled the loan held directly. Furthermore, the loans financed by the privately owned agencies was taken over by the federal government on the behalf of the borrowers. The impact of the policy options was then measured on the U.S. economy using the U.S. version of the Fair model. As mentioned in previous section this study analyzed 4 policy scenarios, which were considered for measuring their impact on key macroeconomic variables of GDP, Unemployment, and Inflation to assess the overall effect on U.S. economy.

Simulations are replication of real-world scenarios that have inbuilt mathematical formulations for predictions/projections. By their nature, they have limitations pertaining to the designing and dependency on parametric assumptions. Most of the times such simulations use parametric comparisons to variance in inputs or sensitivity of certain variables. This feature of testing sensitivity of certain variables to impact the output is used to compare a policy to a status quo situation, which sometimes is referred to as a baseline. This study assessed different policy options of student debt cancellation to a scenario where there is no cancellation (baseline). A sensitivity analysis on the key macroeconomic variables was undertaken by using the Diff-in-Diff methodology for testing the different policy options compared to the baseline.

Policy Options

The different policy options are –

- Policy option 1 – progressive debt cancellation of \$50,000 for households with income below \$100,000; \$35,000 for households with income more than \$100,000 and below \$150,000; and \$17,000 for households with income more than \$150,000 and below \$200,000 respectively.
- Policy option 2 – \$20,000 and \$10,000 loan forgiveness for Pell grant recipients and non-recipients with incomes less than \$125,000 for individuals and \$250,000 for married couples.
- Policy option 3 – \$50,000 loan forgiveness for all student borrowers
- Policy option 4 – Complete loan forgiveness

This research built upon the Fullwiler’s et.al. (2018) research, in the sense that it attempted to align the student loan debt with the current policy vision of the Biden administration of partial loan forgiveness. Furthermore, this research further added on to the previous research for total loan forgiveness as the current model of Ray Fair’s model accounts for the adjustments post the Covid-19 pandemic.

Data Description

For the purpose of this study two different data sets were needed. The first data set was of the loan holding by the borrowers to estimate the magnitude of the loan balances and the number of borrowers to estimate the parameters of certain variables for specifying the assumptions in the Fair Parke Program. The second data set that was needed was for the macroeconomic variables used in the Fair Parke Program.

The data on the population of student loan borrowers based on age, income category, marital status was sourced from the Federal Reserve Board website, specifically from the Report on the Economic Well-Being of U.S. Households in 2021. The data on the loan amount based on income category, and age for the different types of loan was sourced from the Federal Student Aid Portfolio Summary, National Student Loan Data System. The data from the two sources was triangulated to calculate the loan share for the federal loan, private guaranteed loan, and private non-guaranteed loan for all the four policy options. These were then used as parameters in the respective policy simulations.

For the data set needed for the macroeconomic variables the Fair-Parke program was used. Although, the Fair-Parke application is designed to allow users to input their own data, but it provides tools and guidance to access and manipulate a variety of data sources that are commonly used in macroeconomic analysis. It also provides tools and commands to manipulate data used by the Fair Model to make projections in its U.S. model, such as the National Income and Product Accounts (Fair, 2023). In order to assess the impact of student loan forgiveness, Fair-Parke program was used and the default values for the variables from the National Income and Product Accounts was used, which was released in January 2023.

As explained previous section, while explaining about the Ray Fair's model, the U.S. version of the model is based on 25 stochastic and 100 identity equations with about 225 variables (Fair, 2023). These variables are integrated from the National Income and Product Accounts data. Since the application has commands to access and manipulate data directly, I used the default variables for the purpose of my simulation.

Model Specification

Ray Fair’s model is a complex model having 25 stochastic and 100 identity equations with about 225 variables (2023). However, the following specification is a simple representation of how the model works (also referred to as a simple multiplier model). C_t is consumption, I_t is investment, Y_t is total income or GDP, G_t is government spending, and r_t is the interest rate. The t subscripts refer to period t (Fair, 2023).

$$C_t = \alpha_1 + \alpha_2 Y_t + e_t \quad \text{-----(1)}$$

$$I_t = \beta_1 + \beta_2 r_t + u_t \quad \text{-----(2)}$$

$$Y_t = C_t + I_t + G_t \quad \text{-----(3)}$$

Equation (1) is the consumption function, equation (2) is the investment function, and Equation (3) is the income identity (Fair, 2023).

Equations (1) and (2) are stochastic equations, and equation (3) is an identity (Fair, 2023).

The endogenous variables are C_t , I_t , and Y_t ; they are explained by the model (Fair, 2023).

r_t and G_t are exogenous variables; they are not explained (Fair, 2023).

Assumptions

As mentioned before, similar to the research conducted by Fullwiler et.al., in this research as well the student loan held directly by the federal government was cancelled as a one-time policy measure (2018), however, in this study the extent to which the loan was cancelled depended on the 4 policy options being tested, instead of just one policy option. Similar to the Fullwiler et.al. model, the loan financed by the privately owned agencies was be taken over by the federal government on the behalf of the borrowers (Fullwiler et al., 2018). The impact of the

policy was then be measured on the U.S. economy using the U.S. version of the Fair model. For the policy measure of partial loan forgiveness, the loan is distributed between the government and privately owned on pro-rata basis triangulated from the data sourced from the National Student Loan Data System, and Report on the Economic Well Being of U.S. Households in 2021 (NSLDS, 2022; Federal Reserve Board, 2022).

1. For progressive loan cancellation:

For the purpose of simulation, the policy decision to cancel student loan is taken and its implementation starts in January 2023. Since the Ray Fair's model predicts quarterly, I triangulated the data for the first three months of 2023. The data represents the loan holdings in three categories as detailed below: -

- Loan provided directly by the Education Department (Federal) = \$632 billion.
- Loan given out by the private lenders (The loan amount is guaranteed by the government) = \$116 billion.
- Loan given out by private lenders (The loan amount is not guaranteed by the government) = \$62 billion.

2. For loan cancellation of \$20,000 and \$10,000:

For the purpose of simulation, the policy decision to cancel student loan is taken and its implementation starts in January 2023. Since the Ray Fair's model predicts quarterly, I triangulated the data for the first three months of 2023. The data represents the loan holdings in three categories as detailed below: -

- Loan provided directly by the Education Department (Federal) = \$268 billion.

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- Loan given out by the private lenders (The loan amount is guaranteed by the government) = \$49 billion.
- Loan given out by private lenders (The loan amount is not guaranteed by the government) = \$27 billion.

3. For loan cancellation of \$50,000:

For the purpose of simulation, the policy decision to cancel student loan is taken and its implementation starts in January 2023. Since the Ray Fair's model predicts quarterly, I triangulated the data for the first three months of 2023. The data represents the loan holdings in three categories as detailed below: -

- Loan provided directly by the Education Department (Federal) = \$701 billion.
- Loan given out by the private lenders (The loan amount is guaranteed by the government) = \$128 billion.
- Loan given out by private lenders (The loan amount is not guaranteed by the government) = \$70 billion.

4. For complete loan cancellation:

For the purpose of simulation, the policy decision to cancel student loan is taken and its implementation starts in January 2023. Since the Ray Fair's model predicts quarterly, I triangulated the data for the first three months of 2023. The data represents the loan holdings in three categories as detailed below: -

- Loan provided directly by the Education Department (Federal) = \$1,344 billion.

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- Loan given out by the private lenders (The loan amount is guaranteed by the government) = \$246 billion.
- Loan given out by private lenders (The loan amount is not guaranteed by the government) = \$133 billion.

Operationalization for simulation

The operationalization is replicated from the Fullwiler's et al. research (2018) for all the 4 policy scenarios one at a time. Accordingly, in each of the policy scenarios being tested, the borrowers who are currently servicing the loans saw a gain in their net worth equating to the cancellation of the loan amount (Fullwiler's et al., 2018). Households now had access to the money that they would have used to pay down their debt for other purposes, such as spending, saving, or borrowing (Fullwiler's et al., 2018). These two effects were used to measure the impact on the economy. Furthermore, from the standpoint of the private investors who own the student loans, nothing has changed because they will still be receiving the payments they would have otherwise received. The difference is only from the perspective of the borrowers that they are no longer responsible for making these payments, and they now have more money at their disposal for expenditure (Fullwiler's et al., 2018). Finally, the loan owed by the students lent by private entities and not guaranteed by the government is presumed to have been paid in equal payments over a 10-year period.

Similar to Fullwiler's et al. (2018) research, this study as well presumes the following rates of interest for the three different types of student loans:

- Loan provided directly by the Education Department = 4.6 %

- Loan given out by the private lenders (The loan amount is also guaranteed by the government) = the prevalent interest rate (short term) in the quarter preceding immediately plus 2.3%
- Loan given out by private lenders (The loan amount is not guaranteed by the government) = 10% (mean of interest rates on loans that are currently outstanding, proxy)

Baseline values

For the purpose of this study Ray Fair's U.S. was used to project the U.S. economy's key variables – GDP, Unemployment, and Inflation¹. The model was run on the Fair-Parke application which is available on Ray Fair's website for use as an open source. This application runs the Fair's model in a computer-generated simulation. The projections of this model are only through 2025 on his website. However, Ray Fair's website describes the built-in assumptions of the model, which were used in the default mode in this study to extend the estimates to 2030. These projections were used as a baseline to compare to the projections for each of the 4 policy options of student loan debt cancellation. The projections beyond 2025 may not be accurate, however, the purpose of this study is not to project the estimates, but to measure the difference in the projections based on implementation of each of the policy options.

¹Assistance of my colleague Dr. M. R. Shrivastav, who is well-versed with the use of Fair-Parke application was sought to ascertain the parameters for the variables, based on the assumptions made by in the Fair-Parke workbook (Fair, 2023).

Chapter 4: Results and Findings

The Fair-Parke application was used to project the values of the baseline as well as for the 4 policy interventions one at a time till the fourth quarter of 2030. The projections were made for the Real GDP, Inflation, and Unemployment.

Real GDP

Figure 24 shows the year-wise difference in the value of projections with regard to the baseline values. For the purpose of measuring the magnitude of the impact on the Real GDP for the 4 policy options, the difference in projections over the baseline for each quarter was estimated. It can be seen in Figure 24 above that at the end of fourth quarter of 2030 Policy 1 has the potential of adding up to \$237 billion to the U.S. GDP year-on-year. Similarly, Policy 2, which is the current plan of the Biden Administration may add up to \$124 billion to the U.S. GDP year-on-year. Policy 3 has a potential to add up to \$318 billion to the U.S. GDP year-on-year, and finally Policy 4 may add up to \$614 billion to the U.S. GDP year-on-year.

The biggest impact on the Real GDP is expected to be seen with the implementation of Policy 4, which is the complete cancellation of Loan. The impact of implementation of Policy 1, which is the progressive loan cancellation, shows a cyclical yearly impact on the GDP, which will be underperforming for a few quarters before showing improved results over policy 2, which is Biden Administration's current policy. Biden Administration's current plan implementation will show a better performance than policy 1 for a few quarters initially, however, after several quarters, it projects a linear growth, which underperforms at the later stages into policy 1. Policy 3, which is cancellation of \$50,000 of student debt across all sections, also shows a linear impact on the GDP post few years of its implementation.

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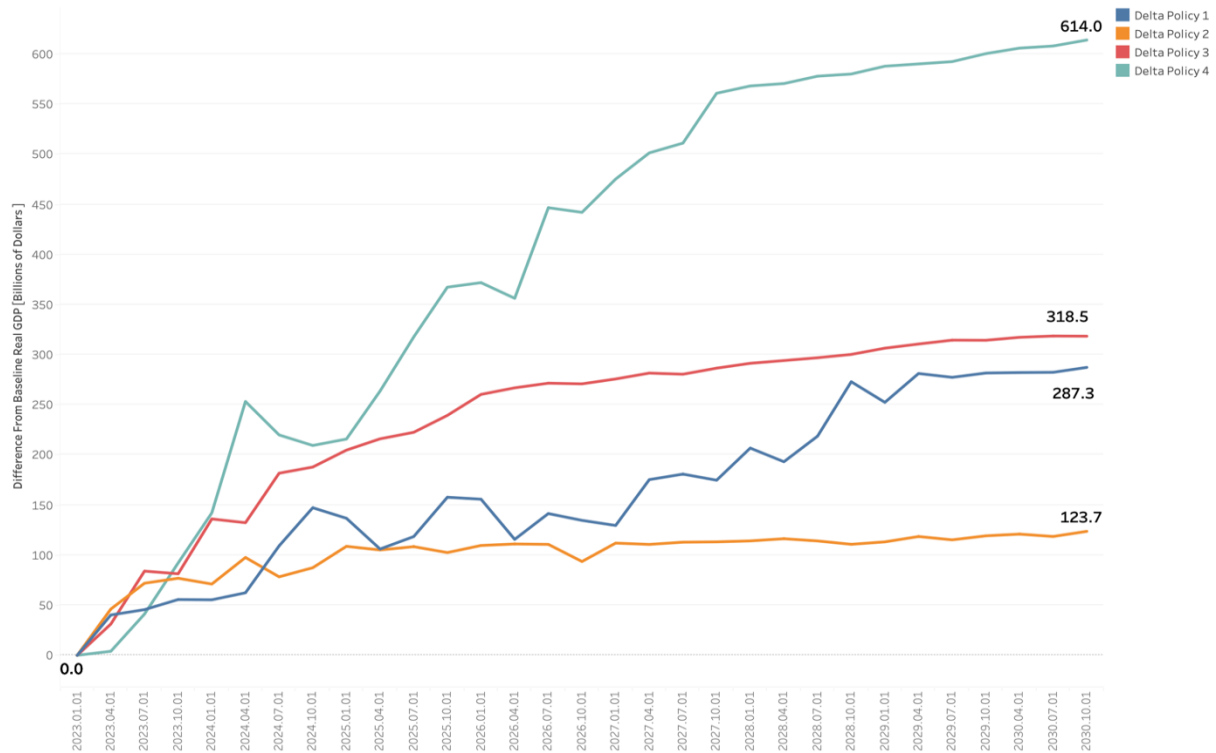


Figure 24
Real GDP Projections for all Four Policy Options' Difference from Baseline

Inflation

Figure 25 shows the year-wise difference in the value of projections with regard to the baseline values. For the purpose of measuring the magnitude of the impact of the 4 policy options on the rate of inflation, the difference in projections of rate of inflation over the baseline for each quarter was estimated. It can be seen in Figure 25 above that at the end of fourth quarter of 2030 Policy 1, if implemented has the potential of adding up to 0.12 percentage points to the inflation. Similarly, implementation of policy 2 can add 0.05 percentage points to the rate of inflation. Implementation of policy 3 can add 0.14 percentage points and implementation of policy 4 can add up to 0.26 percentage points.

It is again reiterated that the projections based on the Fair model show a cyclical pattern for a few years before showing a linear pattern as the predictions can be only made to a certain amount of time in future. However, as mentioned in the previous chapter, the objective of this study is not to make the exact predictions but to measure the differences in the impact made by implementation of different policies, which may resonate in the same ratio if there are shocks felt in the macroeconomic ecosystem. Similar to the GDP simulation, the biggest impact on the rate of inflation is expected to be seen with the implementation of Policy 4, which is the complete cancellation of Loan. The impact of implementation of Policy 1, which is the progressive loan cancellation, shows a cyclical impact and will have a bigger impact on the rate of inflations as compared with policy 2, which is Biden Administration's current policy. Biden Administration's current plan implementation will impact inflation at a lower level than the implementation of policy. Policy 3, which is cancellation of \$50,000 of student debt across all sections, does not show much of difference as compared to policy 1. However, as stated previously, the implementation of policy 4 is the one that is expected to heat up the economy the most and result in the rate of inflation reaching around 2.68%.

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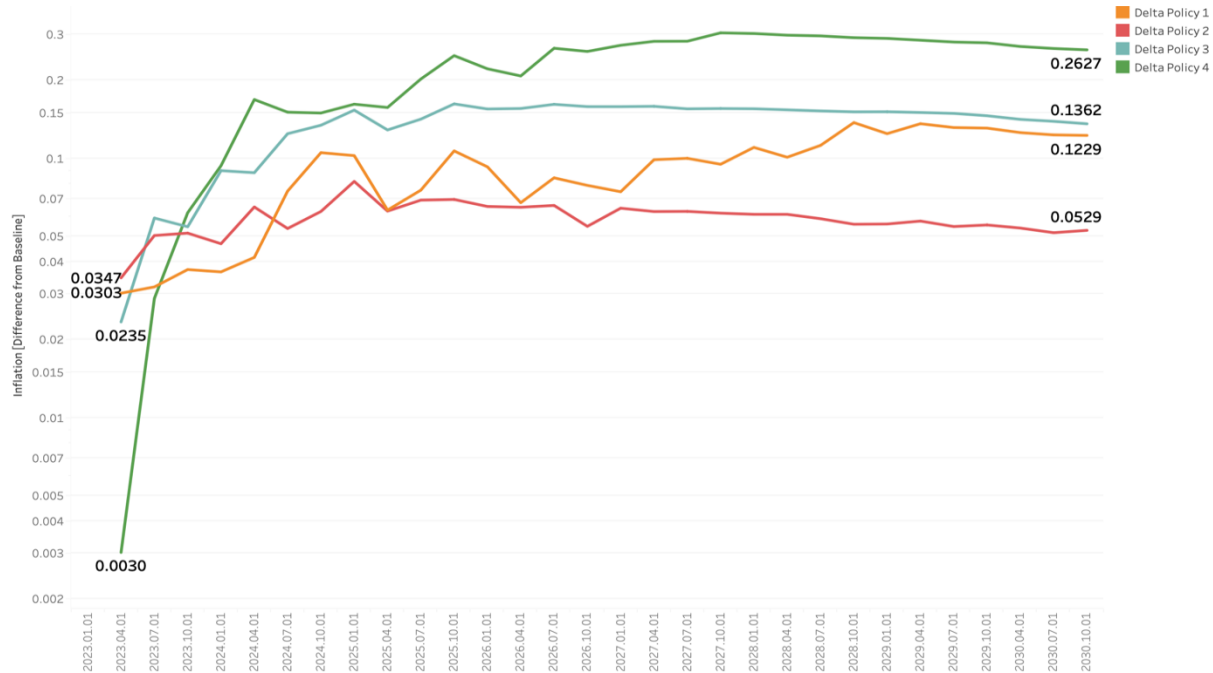


Figure 25
Inflation Projections for all Four Policy Options' Difference from Baseline

Unemployment

Since we are currently dealing with the shock of Covid 19 lockdown, the model projects that the unemployment, similar to the inflation, will cycle over the next few years. Since projections can be made only to a certain period in future, the projections past that point can be made based on the average of fluctuations on a linear scale. In reality, these numbers may fluctuate further into the future and may dampen or amplify depending on the prevalent circumstances at that point in time. Figure 26 shows the year-wise difference in the value of projections of unemployment figures with regard to the baseline values. For the purpose of measuring the magnitude of the impact of the 4 policy options on the rate of unemployment, the difference in projections of unemployment over the baseline for each quarter was estimated. It can be seen in Figure 29 above that at the end of fourth quarter of 2030 Policy 1, if implemented has the potential of reducing unemployment by a third of a million. Similarly, implementation of

policy 2 can reduce unemployment numbers by 0.14 million. Implementation of policy 3 may reduce the unemployment by 0.27 million and implementation of policy 4 can reduce unemployment numbers up to 0.71 million.

As mentioned previously, the projections based on the Fair model show a cyclical pattern in the unemployment figures for a few years before showing a linear pattern as the predictions can be only made to a certain amount of time in future. However, the objective of this study is not to make the exact predictions but to measure the differences in the impact made by implementation of different policies, which may resonate in the same ratio if there are shocks felt in the macroeconomic ecosystem. Similar to the GDP and inflation simulation, the biggest impact on the unemployment is expected to be seen with the implementation of Policy 4, which is the complete cancellation of Loan. The impact of implementation of Policy 1, which is the progressive loan cancellation, shows a cyclical impact and will have a better impact on the unemployment compared with policy 2, which is Biden Administration's current policy. Biden Administration's current plan implementation will impact unemployment at a lower level than the implementation of policy 1. Policy 3, which is cancellation of \$50,000 of student debt across all sections, does not show much of difference as compared to policy 1. However, as stated previously, the implementation of policy 4 is the one that is expected to activate the economy the most and result in the unemployment decreasing to 5.84 million.

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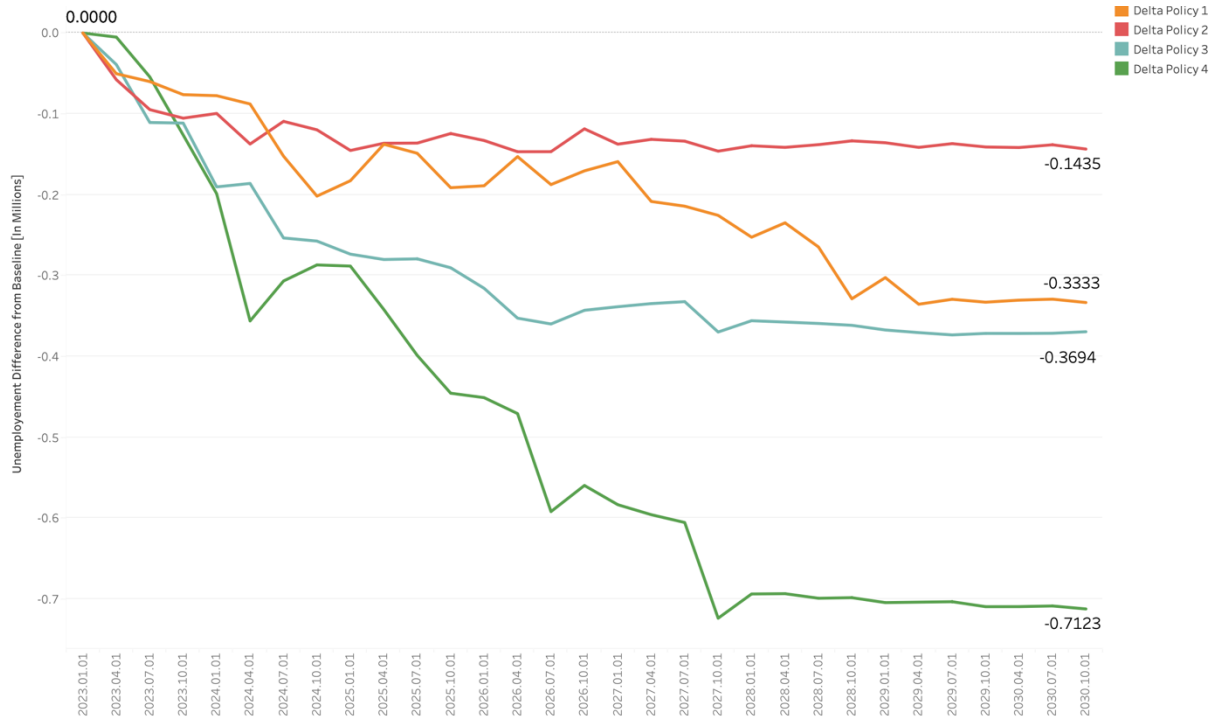


Figure 26
Unemployment Projections for all Four Policy Options' Difference from Baseline

Difference in Difference Statistical Analysis

Policy Impact on Real GDP

The table below shows the results output for the diff-in-diff analysis measuring the effect attributable to the four Policy options on Real GDP of U.S. by 2030.

Difference in Difference Statistical Analysis					
Number of Policy	Variables	Coef	Adj R-squared	Root MSE	p-Value
Policy 1	GDP***	271.6609	0.7776	197.42	0.000
Policy 2	GDP	114.3332	0.7252	195.83	0.129
Policy 3	GDP***	300.6585	0.786	197.9	0.000
Policy 4	GDP***	576.5202	0.8523	201.01	0.000

Table 1
Difference in Difference Output of Real GDP

The results show a statistically significant impact of implementation of policy 1, 3 and 4 on the Real GDP as the interaction variables for these three policies have a p-Value ~ 0.

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Furthermore, the results show a positive coefficient depicting a positive impact of these policy options on the Real GDP. Only policy 2 does not show statistically significant results as it has a p-Value more than 10%.

The following figures is a comparative visualization of the diff-in-diff measurement showing the effect of the policy implementation for all the four the policy options.

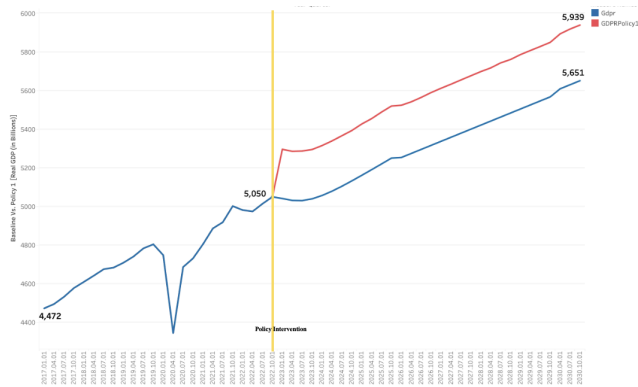


Figure 27
Real GDP Policy 1

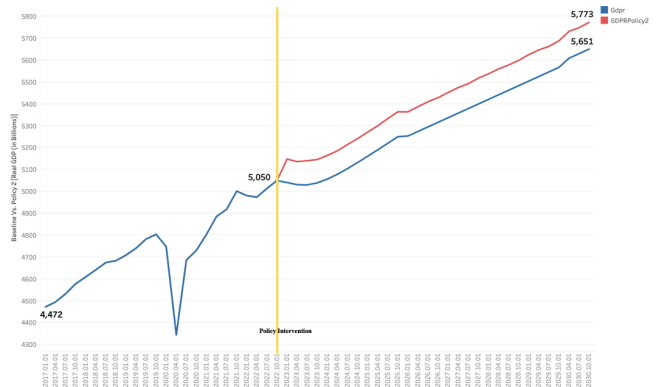


Figure 28
Real GDP Policy 2

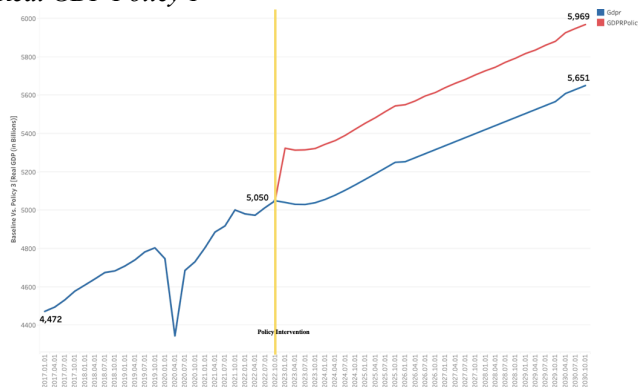


Figure 29
Real GDP Policy 3

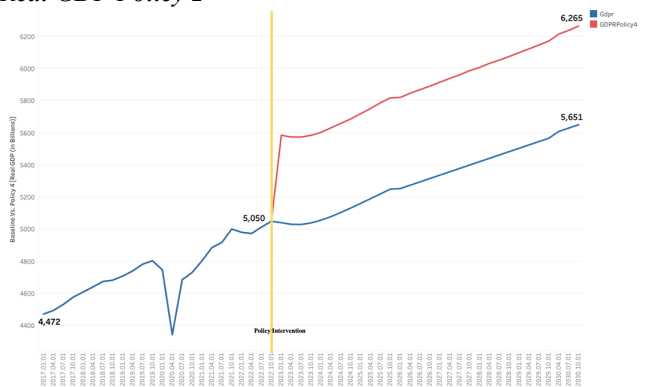


Figure 30
Real GDP Policy 4

The four policy options show similar trends over time and the maximum impact can be seen with the implementation of policy 4. Policy 1 and 3 show similar impacts. The least impact is shown by policy 2, which is not statistically significant therefore cannot be taken into consideration.

Policy Impact on Inflation

The table below shows the results output for the diff-in-diff analysis measuring the effect attributable to the four Policy options on Inflation of U.S. by 2030.

Difference in Difference Statistical Analysis					
Number of Policy	Variables	Coef	Adj R-squared	Root MSE	p-Value
Policy 1	Inflation	0.1577229	-0.024	1.6492	0.803
Policy 2	Inflation	0.0663307	-0.0236	1.6401	0.916
Policy 3	Inflation	0.1745079	-0.024	1.6493	0.782
Policy 4	Inflation	0.3346792	-0.0211	1.6512	0.597

Table 2
Difference in Difference Output of Inflation

The results show that the none of the policy implementation will have statistically significant impact on Inflation.

The following figure is a comparative visualization of the diff-in-diff measurement showing the effect of the policy implementation for all the four the policy options.

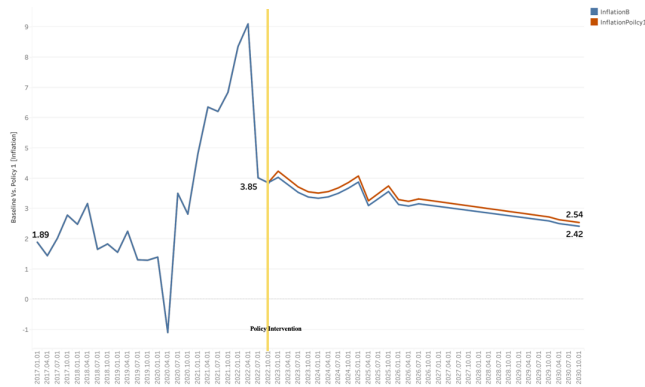


Figure 31
Inflation Policy 1

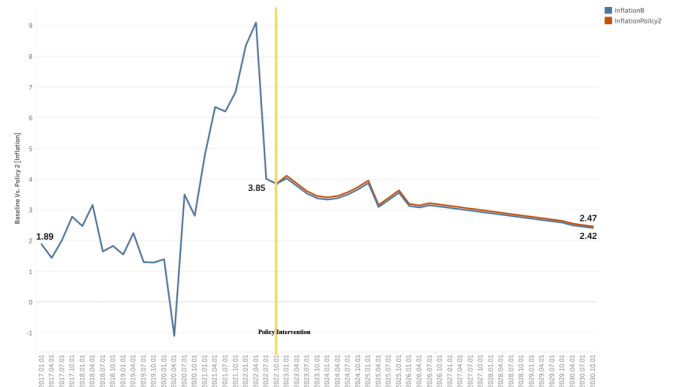


Figure 32
Inflation Policy 2

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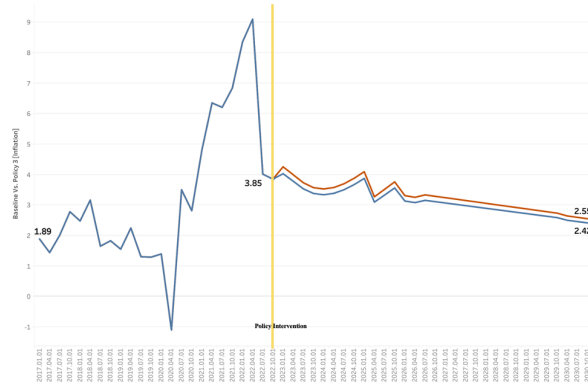


Figure 33
Inflation Policy 3

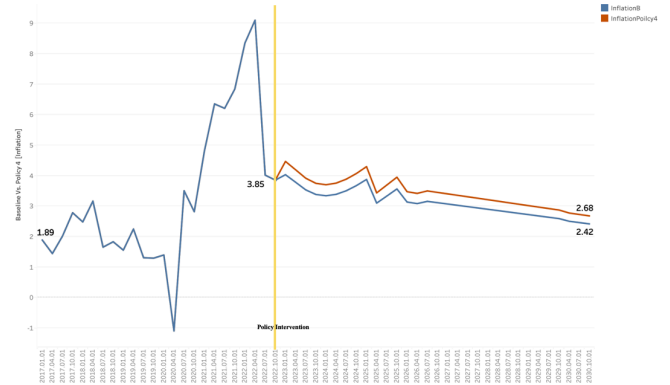


Figure 34
Inflation Policy 4

The four policy options show similar trends over time and the maximum change can be seen with the implementation of policy 4. Policy 1 and 3 show similar impacts. The least impact is shown by policy 2.

Even though visually there seems to be a change but this change cannot be attributable to the implementation of the four policy options as none of them are statistically significant.

Policy Impact on Unemployment

The table below shows the results output for the diff-in-diff analysis measuring the effect attributable to the four Policy options on Inflation of U.S. by 2030.

Difference in Difference Statistical Analysis					
Number of Policy	Variables	Coef	Adj R-squared	Root MSE	p-Value
Policy 1	Unemployment	-0.3397764	0.063	2.2304	0.691
Policy 2	Unemployment	-0.1429746	0.0492	2.2306	0.867
Policy 3	Unemployment	-0.3760207	0.0658	2.2303	0.66
Policy 4	Unemployment	-0.721074	0.0962	2.2299	0.399

Table 3
Difference in Difference Output of Unemployment

Similar to the results for Inflation the results for Unemployment also show that the none of the policy implementation will have statistically significant impact on Unemployment.

OPPORTUNITY COST OF STUDENT LOAN DEBT FORGIVENESS

The following figure is a comparative visualization of the diff-in-diff measurement showing the effect of the policy implementation for all the four the policy options.

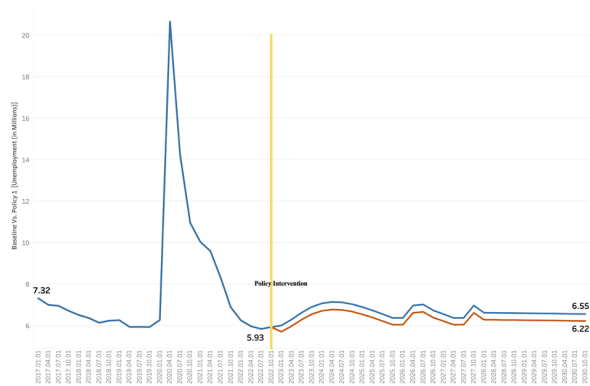


Figure 35
Unemployment Policy 1

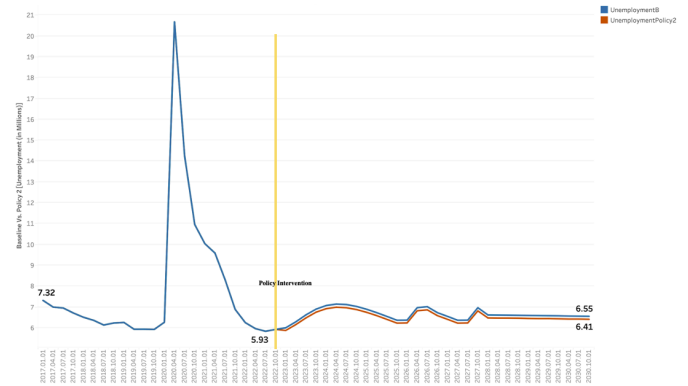


Figure 36
Unemployment Policy 2

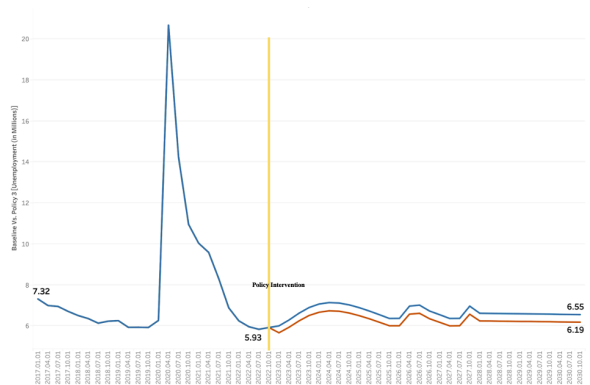


Figure 37
Unemployment Policy 3

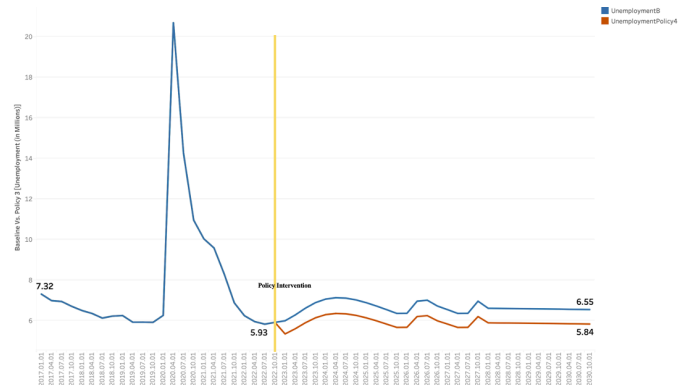


Figure 38
Unemployment Policy 4

Just like Inflation even for Unemployment the four policy options show similar trends over time and the maximum change can be seen with the implementation of policy 4. Policy 1 and 3 show similar impacts. The least impact is shown by policy 2.

Even though visually there seems to be a change but just like Inflation, even this change cannot be attributable to the implementation of the four policy options as none of them are statistically significant.

Chapter 5: Discussion and Policy Implications

Restatement of the Research Question

As discussed earlier, the primary question that this study intends to address is –
What relationship exists between student debt cancellation and key US economic indicators – GDP, Inflation, and Unemployment?

Specific research questions (as replicated from Fullwiler’s et al. (2018) research):

- Does any relationship exist between student debt cancellation and real GDP? If yes, then what is nature/magnitude of such a relationship?
- Does any relationship exist between student debt cancellation and Unemployment? If yes, then what is nature/magnitude of such a relationship?
- Does any relationship exist between student debt cancellation and inflation? If yes, then what is nature/magnitude of such a relationship?

Discussion on Results

The results of the simulation show that implementation of the student loan debt cancellation policies will yield different results based on the quantum and reach of the student loan debt cancellation approach. This study came up with 4 policy options which are restated below:

- Policy option 1 – progressive debt cancellation of \$50,000 for households with income below \$100,000; \$35,000 for households with income more than \$100,000 and below \$150,000; and \$17,000 for households with income more than \$150,000 and below \$200,000 respectively.

- Policy option 2 – \$20,000 and \$10,000 loan forgiveness for Pell grant recipients and non-recipients with incomes less than \$125,000 for individuals. The criteria of \$250,000 for married couples will be excluded for lack of data.
- Policy option 3 – \$50,000 loan forgiveness for all student borrowers
- Policy option 4 – Complete loan forgiveness

The results as discussed in the previous chapter show that the biggest impact is made by the policy option 4 of complete loan forgiveness. The simulation of the Fair model shows that in terms of all the three variables, that is Real GDP, Inflation and Unemployment, Policy 4 has the maximum potential of making a change. The second biggest impact is made by the policy option 3, which is not too much different in terms of impact being made by the policy option 1. It is the policy option 2, that is the current plan of loan forgiveness by the Biden Administration that performs the least.

Measurement of Impact

Real GDP. For the purpose of measuring the magnitude of the impact on the Real GDP for the 4 policy options, the difference in projections over the baseline for each quarter was estimated. By end of fourth quarter of 2030 Policy 1 has the potential of adding up to \$237 billion to the U.S. GDP year-on-year. Similarly, Policy 2, which is the current plan of the Biden Administration may add up to \$124 billion to the U.S. GDP year-on-year. Policy 3 has a potential to add up to \$318 billion to the U.S. GDP year-on-year, and finally Policy 4 may add up to \$614 billion to the U.S. GDP year-on-year.

Inflation. For the purpose of measuring the magnitude of the impact of the 4 policy options on the rate of inflation, the difference in projections of rate of inflation over the baseline for each quarter was estimated. By the end of fourth quarter of 2030 Policy 1, if implemented has the potential of adding up to 0.12 percentage points to the rate of inflation. Similarly, implementation of policy 2 can add 0.05 percentage points to the rate of inflation. Implementation of policy 3 can add 0.14 percentage points to the rate of inflation, and implementation of policy 4 can add up to 0.26 percentage points to the rate of inflation.

Unemployment. For the purpose of measuring the magnitude of the impact of the 4 policy options on the unemployment, the difference in projections of unemployment over the baseline for each quarter was estimated. By the fourth quarter of 2030 Policy 1 has the potential of reducing unemployment by a third of a million. Similarly, implementation of policy 2 can reduce unemployment numbers by 0.14 million. Implementation of policy 3 may reduce the unemployment by 0.27 million and implementation of policy 4 can reduce unemployment numbers up to 0.71 million.

	Real GDP (Compared to baseline)	Inflation (Compared to baseline)	Unemployment (Compared to baseline)
Policy 1 Progressive Loan Cancellation	may increase by \$287 billion	may increase by 0.12%	may decrease by 0.34 million
Policy 2 Biden Administration’s current policy	may increase by \$184 billion	may increase by 0.05%	may decrease by 0.14 million
Policy 3 \$50,000 Loan Cancellation	may increase by \$318 billion	may increase by 0.14%	may decrease by 0.37million
Policy 4 Complete Loan Cancellation	may increase by \$614 billion	may increase by 0.26%	may decrease by 0.26%

Table 4
Simulation Output table (The numbers in red box are statistically not significant)

The above table shows the outputs of the simulation measuring the implementation of all the four-policy options on the three different macroeconomic variables. The data in the red boxes are statistically not significant.

Difference-in-Difference Analysis

Policy 1. The difference-in-difference analysis of the simulation data showed that policy option 1 had statistically significant impact only on Real GDP but did not have a statistically significant impact on inflation, and unemployment. Though the coefficients indicated that the implementation of policy may have a good impact on unemployment and may increase the inflation. But the magnitude of change for Inflation and Unemployment cannot be attributed to the implementation of the policy.

Policy 2. The difference-in-difference analysis of the simulation data showed that policy option did not have a statistically significant impact on any of the variables, that is, Real GDP, inflation, and unemployment. This means that it cannot be asserted that implementation of this policy will have any impact on U.S. economy.

Policy 3. The difference-in-difference analysis of the simulation data showed that policy option 3 also had statistically significant impact only on Real GDP but did not have a statistically significant impact on inflation, and unemployment. Similar to the policy option 1, the coefficients indicated that the implementation of policy may have a good impact on unemployment and may increase the inflation. However, the magnitude of change for Inflation and Unemployment cannot be attributed to the implementation of the policy.

Policy 4. The difference-in-difference analysis of the simulation data showed that policy option 4 also had statistically significant impact only on Real GDP but did not have a statistically significant impact on inflation, and unemployment. Similar to the policy option 1, and 3 the coefficients indicated that the implementation of policy may have a good impact on unemployment and may increase the inflation. Here also, the magnitude of change for Inflation and Unemployment cannot be attributed to the implementation of the policy.

Policy Implications of the Findings

It is pertinent here to mention two very important points, which are just limited to the statistical findings of this study and not a generic. This study found that there is a relation between student loan cancellation and the macroeconomic variables. With the help of Fair model

and Fair-Parke application this study measured the extent or the magnitude of the effect different policy measures, as defined in this study can make on these variables. However, it was found that the statistical significance of the measure impacts does not hold good. A very important implication of this finding is that advocates of loan cancellation policy pushing for its implementation on the argument that it will benefit the U.S. economy, will have difficulty justifying their stance, as none of the policy showed statistically significant impact on Unemployment and Inflation. The only variable that showed statistically significant impact was Real GDP and even for that Policy 2 did not hold good.

As mentioned, a few times before that the objective of this study was to measure the difference in the impact of different policy measures and not to project the exact magnitude of impact. This study has been successful in assessing the difference in the impact of the various policy options. There may be several other aspects, such as social and economic aspects related to the loan cancellation.

Policy Recommendation

The objective of measuring the impact of student loan debt forgiveness in this study was for the purpose of enabling the political leadership and stakeholders to make a choice out of the four different propositions discussed in the political circles.

As discussed in the first chapter during that there are four major policy suggestions the first one was propagated by Senator Elizabeth Warren, who suggested a progressive debt cancellation policy, proposing debt cancellation of \$50,000 for households with total income less than \$100,000; \$35,000 for households with income between \$100,000 and \$150,000; and \$17,000 for households with total income between \$150,000 and \$200,000. Similarly, President Biden has a policy for student debt cancellation of up to \$20,000, Senator Chuck Schumer had

proposed student loan debt cancellation of \$50,000 for all student borrowers, and Senator Bernie Sanders had suggested total student loan cancellation for all borrowers of student loan.

Based on these options this study conducted analysis of all the four options. In this study the four policy options were

- Policy option 1 was based on the policy suggested by Senator Elizabeth Warren, that is progressive loan cancellation.
- Policy option 2 was based on Biden administration's student loan cancellation of up to \$20,000.
- Policy option 3 was based on the policy suggested by Senator Chuck Schumer of a blanket \$50,000 loan cancellation.
- Policy option 4 was based on the policy suggested by Senator Bernie Sanders's of complete loan forgiveness.

As discussed in the previous section none of the above policy options showed a statistically significant impact on Unemployment and Inflation. The only statistically significant impact was seen on Real GDP. But Biden administration's student loan forgiveness policy failed to show statistically significant results on any of the measured variables.

Therefore, based on the findings of this study, if economic impact is an important criterion for policy implementation, then *ceteris paribus* total loan cancellation policy of Senator Bernie Sanders is the best policy option, which is policy option 4. Policy option 1 and 3 are similar, however President Biden's loan cancellation plan will have no impact on the U.S. economy.

Limitations

Simulations are computational models that work on a very tightly specified mathematical modeling. This makes them more of deterministic predictions. Therefore, to ensure introduction of stochasticity, randomization of parametric inputs were introduced. This helped adding a layer of stochasticity in the model, which is very important to ensure non-linearity of projections. Also, this leads to near replication of the real-world scenario. However, these randomizations may not fully replicate the real world, which is full of shocks and tipping points, which may not be easily visualized by the model. This exactly, is what may have happened with the Fullwiler et.al. (2018) projections, which probably may not hold the test of time given the effects of COVID-19 pandemic on the economy.

Possible Extensions

Since the current research is limited to cancellation of the past loans, a very important questions remains unanswered – what about the future? Accordingly, a possible extension to this research is to simulate the possible impact of free higher education with federal involvement in funding the higher-ed sector. This research could have various possible dimensions from measuring the impact on economy to measuring the impact on taxation structure.

The current research is aimed at the macroeconomic variables, a possible extension may be to include the demographic variables into consideration. The possible extensions could test the impact of policy measures aimed at different demographic, ethnic, or economically backward communities.

Apart from measuring impact on the economy, an extension to this research could possibly focus of having a progressive tuition cost structure based on the median income of

professions which a course or degree produces, that is prescribing the tuition costs based on the economic value of the degree. For example, a degree in Computer Engineering vs a degree in Political Philosophy.

Conclusion

The student loan debt issues remain an important policy and political issue. There have been discussions on either side of cancellation of this debt. Furthermore, there also has been debate about if the debt is to be cancelled then what amount shall be the optimum amount? Different policy makers have suggested cancellation of loan in different amounts. President Biden is implementing his policy of student loan debt cancellation of upto \$20,000. What will be the impact of such a decision on the U.S. economy? This study answers these questions. Furthermore, this study goes on to also measure the impact on U.S. economy of different policy options as proposed by other politicians. This study extends the research model of Fullwiler et al. (2018) and uses Ray Fair's U.S. model for making projections on the impact of 4 student loan debt cancellation policy options on the U.S. economy by 2030.

The study informs that President Biden's policy may have no impact on the economy. Furthermore, this study also found that in case impact on economy is the most important concern then Senator Bernie Sanders's policy of full loan cancellation shall be the most effective. Finally, the policy initiatives suggested by Senator Elizabeth Warren and Senator Chuck Schumer will have similar impacts on the U.S. economy. However, these impacts can only be seen on the Real GDP.

The study was successful in providing evidence for choosing an option out of the four policies tested.

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Appendix A – Description of Tools

The model is run on an application which is available on Ray Fair’s website for use as an open source. This application, referred to as the Fair-Parke application, runs the Fairs model in a computer-generated simulation. The website of the program describes the application as a program that “allows one to estimate and analyze dynamic, nonlinear, simultaneous equations models” (The Fair-Parke Program, n.d.). The researcher learned the application through the user’s guide and other documentation provided along with application download. A description of the model is provided in the Research Design section.

Appendix B – Tables

Difference in Difference Statistical Analysis					
Number of Policy	Variables	Coef	Adj R-squared	Root MSE	p-Value
Policy 1	GDP***	271.6609	0.7776	197.42	0.000
Policy 2	GDP	114.3332	0.7252	195.83	0.129
Policy 3	GDP***	300.6585	0.786	197.9	0.000
Policy 4	GDP***	576.5202	0.8523	201.01	0.000
Policy 1	Inflation	0.1577229	-0.024	1.6492	0.803
Policy 2	Inflation	0.0663307	-0.0236	1.6401	0.916
Policy 3	Inflation	0.1745079	-0.024	1.6493	0.782
Policy 4	Inflation	0.3346792	-0.0211	1.6512	0.597
Policy 1	Unemployment	-0.3397764	0.063	2.2304	0.691
Policy 2	Unemployment	-0.1429746	0.0492	2.2306	0.867
Policy 3	Unemployment	-0.3760207	0.0658	2.2303	0.66
Policy 4	Unemployment	-0.721074	0.0962	2.2299	0.399

Table B1
Difference in Difference Output table of key metrics

Stata Output Tables for all Policy Options for the Three Macroeconomic Variables

Source	SS	df	MS	Number of obs	=	112
Model	15240366.2	3	5080122.07	F(3, 108)	=	130.35
Residual	4209153.69	108	38973.6453	Prob > F	=	0.0000
				R-squared	=	0.7836
				Adj R-squared	=	0.7776
Total	19449519.9	111	175220.9	Root MSE	=	197.42

GDPR1	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]
1.Policy	-1.83e-12	56.98951	-0.00	1.000	-112.9631 112.9631
1.YR	580.1224	53.3088	10.88	0.000	474.4551 685.7897
yrpol	271.6609	75.39003	3.60	0.000	122.2248 421.0971
_cons	4744.131	40.29767	117.73	0.000	4664.254 4824.008

Table B2
Difference in Difference Output of Real GDP for Policy 1

OPPORTUNITY COST OF STUDENT LOAN DEBT FORGIVENESS

Source	SS	df	MS	Number of obs	=	112
Model	11348919	3	3782973	F(3, 108)	=	98.64
Residual	4141759.45	108	38349.6245	Prob > F	=	0.0000
				R-squared	=	0.7326
				Adj R-squared	=	0.7252
Total	15490678.4	111	139555.662	Root MSE	=	195.83

GDPR2	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]
1.Policy	-2.89e-12	56.53143	-0.00	1.000	-112.0551 112.0551
1.YR	580.1224	52.88031	10.97	0.000	475.3045 684.9404
yrpol	114.3332	74.78405	1.53	0.129	-33.90177 262.5681
_cons	4744.131	39.97375	118.68	0.000	4664.896 4823.366

Table B3
Difference in Difference Output of Real GDP for Policy 2

Source	SS	df	MS	Number of obs	=	112
Model	16081107.3	3	5360369.09	F(3, 108)	=	136.87
Residual	4229728.88	108	39164.1563	Prob > F	=	0.0000
				R-squared	=	0.7918
				Adj R-squared	=	0.7860
Total	20310836.1	111	182980.506	Root MSE	=	197.9

GDPR3	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]
1.Policy	-1.10e-12	57.12862	-0.00	1.000	-113.2388 113.2388
1.YR	580.1224	53.43893	10.86	0.000	474.1972 686.0477
yrpol	300.6585	75.57407	3.98	0.000	150.8576 450.4594
_cons	4744.131	40.39604	117.44	0.000	4664.059 4824.203

Table B4
Difference in Difference Output of Real GDP for Policy 3

OPPORTUNITY COST OF STUDENT LOAN DEBT FORGIVENESS

Source	SS	df	MS	Number of obs	=	112
Model	26001571.1	3	8667190.38	F(3, 108)	=	214.51
Residual	4363598.83	108	40403.6929	Prob > F	=	0.0000
				R-squared	=	0.8563
				Adj R-squared	=	0.8523
Total	30365170	111	273560.09	Root MSE	=	201.01

GDPR4	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]
1.Policy	-2.84e-12	58.02564	-0.00	1.000	-115.0169 115.0169
1.YR	580.1224	54.27801	10.69	0.000	472.534 687.7109
yrpol	576.5202	76.7607	7.51	0.000	424.3672 728.6732
_cons	4744.131	41.03032	115.63	0.000	4662.802 4825.46

Table B5
Difference in Difference Output of Real GDP for Policy 4

Source	SS	df	MS	Number of obs	=	112
Model	1.07313131	3	.357710436	F(3, 108)	=	0.13
Residual	293.730945	108	2.71973097	Prob > F	=	0.9411
				R-squared	=	0.0036
				Adj R-squared	=	-0.0240
Total	294.804076	111	2.65589258	Root MSE	=	1.6492

Inflation1	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]
1.Policy	1.07e-15	.4760717	0.00	1.000	-.9436567 .9436567
1.YR	-.2357476	.4453243	-0.53	0.598	-1.118458 .6469623
yrpol	.1577229	.6297836	0.25	0.803	-1.090618 1.406063
_cons	3.326686	.3366335	9.88	0.000	2.65942 3.993952

Table B6
Difference in Difference Output of Inflation for Policy 1

OPPORTUNITY COST OF STUDENT LOAN DEBT FORGIVENESS

Source	SS	df	MS	Number of obs	=	112
Model	1.19605352	3	.398684508	F(3, 108)	=	0.15
Residual	293.36817	108	2.71637195	Prob > F	=	0.9316
				R-squared	=	0.0041
				Adj R-squared	=	-0.0236
Total	294.564224	111	2.65373175	Root MSE	=	1.6481

Inflation2	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
1.Policy	1.52e-15	.4757776	0.00	1.000	-.9430738	.9430738
1.YR	-.2357476	.4450492	-0.53	0.597	-1.117912	.6464171
yrpol	.0663307	.6293946	0.11	0.916	-1.181239	1.3139
_cons	3.326686	.3364256	9.89	0.000	2.659832	3.99354

Table B7
Difference in Difference Output of Inflation for Policy 2

Source	SS	df	MS	Number of obs	=	112
Model	1.09205847	3	.364019491	F(3, 108)	=	0.13
Residual	293.790149	108	2.72027916	Prob > F	=	0.9397
				R-squared	=	0.0037
				Adj R-squared	=	-0.0240
Total	294.882208	111	2.65659647	Root MSE	=	1.6493

Inflation3	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
1.Policy	2.20e-15	.4761197	0.00	1.000	-.9437518	.9437518
1.YR	-.2357476	.4453692	-0.53	0.598	-1.118547	.6470513
yrpol	.1745079	.6298471	0.28	0.782	-1.073958	1.422974
_cons	3.326686	.3366674	9.88	0.000	2.659353	3.99402

Table B8
Difference in Difference Output of Inflation for Policy 3

OPPORTUNITY COST OF STUDENT LOAN DEBT FORGIVENESS

Source	SS	df	MS	Number of obs	=	112
Model	1.92051919	3	.640173065	F(3, 108)	=	0.23
Residual	294.442405	108	2.72631856	Prob > F	=	0.8719
				R-squared	=	0.0065
				Adj R-squared	=	-0.0211
Total	296.362924	111	2.66993625	Root MSE	=	1.6512

Inflation4	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]
1.Policy	1.34e-15	.4766479	0.00	1.000	-.9447988 .9447988
1.YR	-.2357476	.4458633	-0.53	0.598	-1.119526 .6480307
yrpol	.3346792	.6305459	0.53	0.597	-.9151721 1.584531
_cons	3.326686	.337041	9.87	0.000	2.658613 3.99476

Table B9
Difference in Difference Output of Inflation for Policy 4

Source	SS	df	MS	Number of obs	=	112
Model	52.070039	3	17.3566797	F(3, 108)	=	3.49
Residual	537.254381	108	4.9745776	Prob > F	=	0.0183
				R-squared	=	0.0884
				Adj R-squared	=	0.0630
Total	589.32442	111	5.30922901	Root MSE	=	2.2304

Unemploye~1	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]
1.Policy	-2.69e-15	.6438541	-0.00	1.000	-1.276231 1.276231
1.YR	-1.183272	.6022704	-1.96	0.052	-2.377076 .0105325
yrpol	-.3397764	.8517389	-0.40	0.691	-2.028071 1.348518
_cons	7.842285	.4552736	17.23	0.000	6.939853 8.744716

Table B10
Difference in Difference Output of Unemployment for Policy 1

OPPORTUNITY COST OF STUDENT LOAN DEBT FORGIVENESS

Source	SS	df	MS	Number of obs	=	112
Model	43.511177	3	14.5037257	F(3, 108)	=	2.91
Residual	537.381278	108	4.97575258	Prob > F	=	0.0376
				R-squared	=	0.0749
				Adj R-squared	=	0.0492
Total	580.892455	111	5.23326536	Root MSE	=	2.2306

Unemployme~2	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]
1.Policy	-4.88e-15	.6439302	-0.00	1.000	-1.276381 1.276381
1.YR	-1.183272	.6023415	-1.96	0.052	-2.377217 .0106735
yrpol	-0.1429746	.8518395	-0.17	0.867	-1.831468 1.545519
_cons	7.842285	.4553274	17.22	0.000	6.939747 8.744822

Table B11
Difference in Difference Output of Unemployment for Policy 2

Source	SS	df	MS	Number of obs	=	112
Model	53.8393602	3	17.9464534	F(3, 108)	=	3.61
Residual	537.232489	108	4.9743749	Prob > F	=	0.0157
				R-squared	=	0.0911
				Adj R-squared	=	0.0658
Total	591.071849	111	5.32497162	Root MSE	=	2.2303

Unemployme~3	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]
1.Policy	4.20e-17	.643841	0.00	1.000	-1.276205 1.276205
1.YR	-1.183272	.6022581	-1.96	0.052	-2.377052 .0105082
yrpol	-0.3760207	.8517216	-0.44	0.660	-2.064281 1.312239
_cons	7.842285	.4552643	17.23	0.000	6.939872 8.744697

Table B12
Difference in Difference Output of Unemployment for Policy 3

OPPORTUNITY COST OF STUDENT LOAN DEBT FORGIVENESS

Source	SS	df	MS	Number of obs	=	112
Model	73.6909391	3	24.5636464	F(3, 108)	=	4.94
Residual	537.016552	108	4.97237548	Prob > F	=	0.0030
Total	610.707491	111	5.50186929	R-squared	=	0.1207
				Adj R-squared	=	0.0962
				Root MSE	=	2.2299

Unemploye~4	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]
1.Policy	-2.52e-15	.6437116	-0.00	1.000	-1.275948 1.275948
1.YR	-1.183272	.6021371	-1.97	0.052	-2.376812 .0102682
yrpol	-.721074	.8515504	-0.85	0.399	-2.408995 .9668466
_cons	7.842285	.4551728	17.23	0.000	6.940053 8.744516

Table B13
Difference in Difference Output of Unemployment for Policy 4