Assessing the Relative Progressivity of the Biden Administration's Federal Student Loan Forgiveness Proposal

Jacob Goss* Daniel Mangrum† Joelle Scally‡

December 15, 2023

Abstract

We quantify the total stock of balances eligible for the Biden Administration's 2022 student loan forgiveness proposal and examine which groups would have benefited most. Up to $442 billion in loans were eligible. Those who would have benefited most were younger, had lower credit scores, and lived in lower- and middle-income neighborhoods. We also find that Black and Hispanic borrowers would have disproportionately benefited from the proposal. We then compare the distribution of beneficiaries for the proposed policy to several alternative hypothetical forgiveness proposals and three existing tax credits. The additional forgiveness for Pell grant recipients increased the progressivity of the policy at a cost of $129 billion. Reducing the income eligibility criterion in half from the proposal would have reduced the cost by nearly $100 billion and made the policy more progressive. Compared to existing tax credits, the announced forgiveness policy is less progressive than the Earned Income Tax Credit but more progressive than the 2019 Child Tax Credit and higher education tax credits. We conclude with a discussion of how each policy lever affects the progressivity of loan cancellation to help inform future policy.

JEL: H22, H31, H52, I22.
Keywords: student loans, debt forgiveness, COVID-19, policy analysis.

*jgoss3@wisc.edu. Department of Economics, University of Wisconsin, 1180 Observatory Drive, Madison, WI 53706-1393.

†Corresponding author: daniel.mangrum@ny.frb.org. Research and Statistics Group, Federal Reserve Bank of New York, 33 Liberty Street, New York, NY 10045.

‡joelle.scally@ny.frb.org. Research and Statistics Group, Federal Reserve Bank of New York, 33 Liberty Street, New York, NY 10045.

We would like to thank Jason Somerville, Raji Chakrabarti, Ellora Derenoncourt, Wilbert van der Klaauw, Donghoon Lee, Andy Haughwout, and Lesley J. Turner for helpful comments on this paper. We also thank Danno Lemu for excellent research assistance.

Disclaimers: Mangrum holds federal student loans. The views expressed herein are those of the authors and do not represent those of the Federal Reserve Bank of New York or the Federal Reserve System. Limited preliminary results were first posted to the Liberty Street Economics blog as "Revisiting Federal Student Loan Forgiveness: An Update Based on the White House Plan." This manuscript refines the methodology, updates the preliminary estimates, and expands the scope of the analysis.

Introduction

On August 24, 2022, the Biden Administration announced a federal student loan forgiveness proposal to be coupled with the resumption of federal student loan payments. The announced policy allowed for up to $20,000 in forgiven loans for borrowers who ever received a Pell grant and up to $10,000 otherwise. Borrowers would qualify if their income was less than $125,000 for individuals or less than $250,000 for households. Borrowers whose income information was not already on file with the Department of Education (ED) were required to complete a short online application to qualify. Although the policy was later overturned by the Supreme Court in June 2023, 23.6 million borrowers submitted the application prior to the portal being suspended (POLITICO, 2023)

The White House (WH) and ED released a limited set of headline statistics summarizing who would benefit from the proposal, but no official comprehensive analysis was published. Due to this vacuum of information, debate quickly emerged across media, academics, and policymakers as to who the policy most benefits and whether the policy is regressive (more benefits go to those of higher means) or progressive (more benefits go to those of lower means) (Chen et al., 2022; Catherine and Yannelis, 2020; Looney, 2022; Eaton et al., 2021; Daniels Jr. et al., 2022; Sullivan and Wheat, 2022; Bennett et al., 2022). Several studies have analyzed who benefits from general student loan cancellation and a few studied the specific proposal from the WH, however no other study incorporates all parameters of the WH proposal using a nationally representative sample of federal student loan borrowers. Our analysis helps provide both the public and policymakers with a better understanding of the costs and who would have benefited from the proposal including an understanding of which policy levers make for a more or less progressive policy.

We use data from a nationally representative sample of anonymized credit reports to analyze the proposal. We separate balances that are potentially eligible for forgiveness (loans owned by the federal government) from ineligible balances (loans owned by commercial banks). For each borrower, we estimate a probability that they are income eligible and a probability they ever received a Pell grant by matching each borrower's neighborhood identifier (Census block group)

to data on the distribution of their neighborhood income. Our estimates of income eligibility and Pell grant receipt are broadly consistent with national and state level statistics from the Department of Education. We then combine our estimated probabilities with observed eligible balances to calculate the estimated forgiveness amount for the 1.9 million borrowers in our sample.

We find that roughly $440 billion of federal student loans would have been eligible for forgiveness under the proposal, which would have forgiven over 30% of the outstanding federal portfolio across 38 million borrowers. The plan disproportionately benefited younger borrowers and those with below-median credit scores. Borrowers living in below-median income neighborhoods would have received a larger share of total forgiveness than their share of outstanding balances. We find that Black borrowers had the largest average forgiveness amount and Hispanic borrowers were the most likely to have their balance entirely forgiven. The South and Midwest would have benefited the most as regions, and Mississippi, South Carolina, and Georgia the most by state.

We compare the distribution of forgiven debt by ZIP code median household income under the proposed policy to several alternative hypothetical forgiveness policies to test how various policy levers affect the distribution of beneficiaries. Under the proposed policy, half of forgiven debt would have gone to the bottom half of ZIP code population (by income), three-quarters to the bottom 75%, and 8.5% to the top 10%. Had the threshold for income eligibility been cut in half (to $75,000 for individuals and $125,000 for households), the overall cost of forgiveness declines by 23%, or almost $100 billion, but removing the means-test only increases the cost by $25 billion. We also find that targeting additional forgiveness to former Pell grant recipients increased the share of benefit to the lower end of the ZIP income distribution. We then compare the proposed policy to several existing tax credits and find the proposal distributes less benefit to lower income neighborhoods than the Earned Income Tax Credit (EITC), but is more progressive than the Child Tax Credit (CTC) and two existing tax credits for higher education.

The Supreme Court struck down the WH proposal on June 30, 2023, leaving open the question of how struggling borrowers will weather the resumption of payments on September 1, 2023. Our analysis provides a framework and empirical analysis to inform future legislative and executive

action by identifying which policy parameters lead to a more or less progressive policy.

Background

We begin by summarizing several existing analyses of the student loan forgiveness proposals. Two analyses use similar data and thus are prone to similar data limitations. The first is an analysis from the Penn Wharton Budget Model and the second is the analysis from the JP Morgan Chase Institute (Chen et al., 2022; Sullivan and Wheat, 2022). Both studies rely on the Survey of Consumer Finances (SCF) from the Federal Reserve Board of Governors which is a nationally representative sample of household heads that contains rich details about debts and assets at the household level. The SCF provides many advantages, particularly with regard to unique depth of information on household income and wealth. However, because of its structure, many student loan borrowers' debts are allocated to the household heads or simply excluded from the sampling universe, causing the sample to not be representative of the universe of student loans and borrowers (Dettling et al., 2014; Brown et al., 2015; Bricker et al., 2015; Bruenig, 2019, 2022). In Appendix A.1, we compare the SCF to our primary data, which is a random sample of credit reports, to show that the SCF under-counts outstanding student loan balances by almost 25% in 2019. Additionally, the SCF does not allow for the separation of federal loans (loans owned by the federal government) from loans (federal or private) owned by commercial banks. This contributes to bias primarily relevant to this research question, because only the former is eligible for forgiveness while the latter tends to be held by the more affluent and have lower delinquency rate across all credit products. Thus, including these loans skews analyses to appear more regressive. While the SCF allows researchers to directly observe the income and wealth of the households sampled, the potential sampling bias and inclusion of non-federal loans necessitates analysis using data that is nationally representative sample of eligible federal student loans.

These studies, along with (Bennett et al., 2022), are also not able to track previous Pell grant receipt status. Since Pell grant receipt doubles the maximum amount of cancelled debt, this is a key

input to estimating total forgiveness. However, the SCF, as used in Chen et al. (2022) and Sullivan and Wheat (2022), and the Survey of Program Participation, as used in Bennett et al. (2022), are both cross-sectional surveys and information on Pell status or income during college (to proxy for Pell grant status) are not available, so these studies cannot reliably determine the likelihood a borrower is eligible for $10,000 or $20,000 in forgiveness, which has drastic consequences for measuring the progressivity of the proposal.

This brief focuses narrowly on the announced student loan forgiveness proposal by the Biden Administration and the associated policy levers used. However, there exists a broader literature on student loan forgiveness that we also build and rely upon. While there are several papers that study the effects of cancelling student loans for a relatively small set of borrowers (Di Maggio et al., 2024), there are fewer papers discussing the distributional benefits of broad forgiveness policies. Catherine and Yannelis (2020) makes several important conceptual and methodological contributions to the calculation of distributional benefits of loan forgiveness. Most importantly, the authors make the case that calculating forgiveness based on outstanding balances will overstate the benefits derived by low-income borrowers since these borrowers can enroll in an income-driven repayment (IDR) plan, make low (or no) monthly payments for 20-25 years, and be forgiven under current law. Hence, they argue that the true benefit of forgiveness today is the net present value (NPV) of the stream of monthly payments that are cancelled. This argument has many compelling features, but the baseline analysis omits several benefits of loan cancellation beyond the monthly payments. First, after 2025, the total amount of forgiven debt through IDR will be considered taxable income while balances cancelled prior to 2025 are not taxable. In this case, the focus on the NPV of cancelled monthly payments will understate the benefits by ignoring the federal and state income tax owed on cancelled debts. While the paper explores the implications of taxation of forgiveness in the appendix, it is not included in the baseline analysis. Additionally, outstanding balances elevate borrowers' debt-to-income ratios, resulting in higher borrowing costs and reduced home-ownership during the 20-25 years before IDR forgiveness. Additionally, Di Maggio et al. (2024) shows improvements in labor market outcomes for borrowers after debt cancellation even when

monthly payments were unaffected, suggesting that broad debt cancellation can result in increased earnings even when cash flow does not change. Lastly, the analysis in Catherine and Yannelis (2020) does not account for the additional debt cancellation for borrowers who had received a Pell grant while in school. Our analysis shows this added parameter directs a significant additional cancellation for borrowers who are more likely to be lower income, minorities, and less likely to have earned a degree (Cook and Tilsley, 2022).

In contrast, Eaton et al. (2021) argues against several assumptions and modeling decisions in Catherine and Yannelis (2020). They note (as we do in the next section) that Catherine and Yannelis (2020) includes ineligible private student loans in their distributional analysis. Since private student loans are disproportionately held by higher-income and more credit-worthy borrowers, this inclusion skews the results to appear more regressive. Additionally, Eaton et al. (2021) argues that the distribution of beneficiaries should be analyzed across the full population and not conditional on only student loan borrowers. They make the point that conditioning on benefit receipt would cause programs like the EITC to be considered regressive since those who receive the largest benefits are the highest earners *among those receiving the benefit*. This is clearly not the case since the EITC has strict income limits ensuring that only relatively low-income workers receive the credit. They argue a similar logic should hold for student loan cancellation. Since the highest income (or wealth in their analysis) individuals are less likely to hold loans, they are less likely to receive cancellation, thus excluded from the analysis population. Lastly, they argue that since debt cancellation is a wealth transfer, the progressivity of the policy should focus on benefits received by the distribution of wealth, and not income.

Our analysis falls more closely in line methodologically with Eaton et al. (2021) than Catherine and Yannelis (2020), partially due to data limitations and partly due to what we believe are the appropriate modelling choices. For instance, we are able to limit the sample of student loans to only those owned by the federal government and thus potentially eligible for cancellation, so our analysis is not prone to this particular critique from Eaton et al. (2021). However, we ascribe the benefits to forgiveness based on the dollar amount of cancelled balances and not the reduction in the

NPV stream of monthly payments as in Catherine and Yannelis (2020). We do this in part because only considering monthly payments understates the full benefit to borrowers. Outstanding balances more accurately capture the total impact of student loans: on credit access (through debt-to-income ratios), eventual taxable liabilities for forgiveness under IDR, and the mental and psychological burden of holding student loans. Since we do not observe income or wealth, we cannot directly match either methodology above. Instead, we observe the Census Block Group (CBG) associated with a borrower's address. We use this as a proxy for their socioeconomic status and sort them based on the rank of their neighborhood's median household income. We believe a borrower's neighborhood is more likely to proxy permanent income than current wealth (which does not factor in human capital) or current income (which can be artificially low for recent graduates).

Our analysis has several features not present in other works. First, we use administrative data from a nationally representative sample from the universe of credit reports. Hence, our data is not subject to the sampling issues present in the SCF because it is reported by lenders at the individual borrower level. Also, we observe a panel of student loan borrowers merged with data on the distribution of neighborhood household income from when they first borrowed federal student loans, allowing us to estimate the probability of Pell receipt for each borrower. These data and methods, described in the next section and more completely in Appendix A, allow us to better analyze the federal student loan forgiveness proposal.

Data and Methods

Our primary data is the New York Fed Consumer Credit Panel (CCP) (Federal Reserve Bank of New York/Equifax, 2023) which is a 5% random sample of Equifax credit reports that includes attributes like age, current and past balances, credit scores, and other person and balance attributes. Credit scores are Equifax Risk Score 3.0, which are highly correlated with FICO. We do not observe a person's income or demographics, so we rely on Census Block Group (CBG) identifiers for each observation merged to CBG-level income and demographic information from the American

Community Survey (ACS) and the 2010 Decennial Census (Manson et al., 2022). We also use the Internal Revenue Service (IRS) Statistics of Income (SOI) (Internal Revenue Service, 2019) data for ZIP code aggregated tax credit outlays.

Table 1 reports summary statistics for three populations from the CCP. The first column shows the full sample, the second restricts to observations with a student loan (in the second quarter of 2022), and the last restricts to observations with a student loan owned by the federal government and thus potentially eligible for cancellation. Aggregate totals come from multiplying the 5% CCP population by 20. Student loan borrowers with eligible loans are younger, have lower credit scores, and are less likely to hold a mortgage than the broader population and those with ineligible loans. Conditional on having an account, they are also more likely to be delinquent on their debts.

To estimate the expected forgiveness for each student loan borrower in the CCP we first identify federally-owned balances by identifying loans contained in servicer sub-portfolios that were paused after the administrative forbearance went into effect (This includes Direct loans, Grad PLUS, Parent PLUS, and any other federal loans owned by the federal government. A more comprehensive discussion of different types of federal loans and eligibility can be found in Appendix A.2.). Next, we estimate the probability each borrower is income-eligible for the proposal by using information about the income distribution of their CBG from the ACS and by using the income distribution of student loan borrowers from the New York Fed Survey of Consumer Expectations (SCE) conditional on age and credit score. Last, we estimate a probability for having ever received a Pell grant using the income distribution of each borrower's CBG at the time they first borrowed federal student loans matched with data from the Department of Education on the probability of receiving a Pell grant in each year conditional on income and dependency status. Our estimates for the share of borrowers income-eligible and for the share of student loan borrowers having ever received a Pell grant align closely with estimates published by the White House and Department of Education. We document our methods more completely in Appendix A.3.

Findings

National Forgiveness Estimates

We estimate that the Biden Administration's proposal would have forgiven a total of $442 billion across 36 million income-eligible borrowers, 23 million of whom ever received a Pell grant and thus are eligible for an additional $10,000 in forgiveness. The plan would have forgiven 30.1% of the total outstanding federal student debt, and 14.7 million borrowers, 38.6% of the total, would have seen their federal balances completely erased. $53.4 billion of debt that was delinquent or in default prior to the pandemic would have been forgiven, and 2.5 million delinquent borrowers would have seen their federal balances completely forgiven.

Who Benefits by Age?

Figure 1 reports several statistics for the distribution of balances and forgiveness by age (Full details from Figures 1 to 4 can be found in Table 2). First, student borrowing is strongly correlated with age: over 25% of borrowers aged 18-39 have student loans, and they hold over 50% of the outstanding balance despite being less than 40% of the adult population. The average student loan balance increases sharply with age, likely due to older borrowers having taken out loans for graduate degrees and those under 30 still actively borrowing. Borrowers aged 18-29 would receive a far greater share of forgiveness than their share of the outstanding balance, holding 21% of the outstanding balance but receiving 32% of the forgiven debt. Every other age group would receive less in cancelled debt than their share of held balances. Federal student loan prevalence is also significantly changed by the policy. The share of borrowers aged 18-29 with any federal loans would have been more than halved due to forgiveness, from 25% to 12%, but many of these borrowers would likely take out new loans as they continue their college education.

Who Benefits by Credit Score?

Figure 2 shows the distribution of forgiveness by credit score bins which approximates financial stability. We use credit scores from just before the pandemic (when available) since the administrative forbearance event mechanically increased credit scores for many student loan borrowers, specifically delinquent borrowers (Mangrum et al., 2022). Student loan borrowers have lower credit scores than the rest of the population (as shown in Table 1) and nearly one quarter of borrowers have a credit score less than 620. For borrowers with credit scores below 720 (roughly the median score), average balances are flat around $35,000, but balances skyrocket for higher scores, with those over 760 holding an average balance of nearly $55,000. Student loans are more prevalent among individuals with lower credit scores: about 26% of individuals with scores under 720 hold any student loans, but only 5% of individuals with scores over 760 hold federal student loans. Each group under 720 would receive a larger share of dollars forgiven than the share of balances they hold, while those over 720 would receive less. Due to their high balances, few borrowers with scores over 720 would see their federal student debts completely forgiven, while over 40% of the borrowers with scores below 720 would see their federal student debts completely wiped out.

Who Benefits by Neighborhood Income?

Figure 3 splits borrowers into quintiles of the population according to median neighborhood (Census block group) income from the ACS. The share of the population with any student loans generally rises with income, from 10.7% in the first quintile to 12.6% in the fourth, before falling back to 11.3% in the top quintile. The average student loan balance strictly rises with income, from nearly $33,000 in the bottom quintile to nearly $46,000 in the top. Each group makes up roughly 20% of the population by construction, but the bottom two groups each hold less than 20% of the outstanding debt, while the top two groups each hold more. On the other hand, the bottom three quintiles each would have received a larger share of the balance forgiven than their share of the outstanding balance, while the top two would have received a smaller share. The bottom quintiles also would have seen more of their borrowers completely forgiven due to their smaller average

balances and higher odds of having received a Pell grant - nearly half of the borrowers in the bottom two quintiles would have seen their debts completely wiped out.

Who Benefits by Race/Ethnicity?

Figure 4 reports the distribution of potentially forgiven debt by racial and ethnic groups. Since we do not directly observe borrower race or ethnicity in the CCP data, we exploit variation in the demographic composition of Census block groups by race/ethnicity and age to compute weighted average student debt statistics. We describe our novel methods more completely in Appendix A.4. We estimate that Black non-Hispanic student loan borrowers have the largest outstanding balance at $40,200 while Hispanics (of any race) have the smallest at $34,500. Black non-Hispanic borrowers and Hispanic borrowers were the groups most likely to benefit most from the forgiveness proposal. Black non-Hispanic borrowers have the largest average potential forgiven debt while Hispanic borrowers would have seen the largest share of their average balance forgiven at one-third. These groups were also the most likely to have their entire balance forgiven. The prevalence of federal student loans would have been cut by 10 percentage points for Black non-Hispanic borrowers, from 25% to 15%, and the prevalence for Hispanic borrowers would have been cut roughly in half, from 20.5% to 11.4%. The larger estimated impact on Black non-Hispanic and Hispanic borrowers is because these borrowers tend to have lower incomes which translates to a higher likelihood of qualifying based on the means-test, and they are more likely to have received a Pell grant while in school (Cook and Tilsley, 2022).

Who Benefits by State?

In Figure 5 we compare the distribution of forgiven debt by state along three measures - a) the average forgiven amount per eligible borrower, b) the average forgiveness per adult population, and c) the percent of the state's adult population receiving any forgiveness (values for each statistic by state are detailed in Table B.1). The distribution of average forgiveness per eligible borrowers is tight - ranging by only $1,600, from just under $11,500 in Utah to over $13,100 in D.C. The six

with the highest averages are all in the Southern Census region: D.C., North Carolina, Georgia, South Carolina, Alabama, and Mississippi. The six lowest averages are all in the West: Utah, Wyoming, Hawaii, Nevada, Alaska, and California. The rank order for the average forgiveness per capita is similar, but the relative range is wider, from just over $1,000 in Hawaii to over $2,300 in Georgia. In the last panel, similar regional trends emerge for the share of the adult population with any forgiveness. Across all three categories, Southern states consistently rank near the top of benefits received and Western states in the bottom. Only three states (not including Washington, D.C.) rank in the top 10 across all three measures and all three are Southern: Mississippi, South Carolina, and Georgia. Similarly, the only states to rank in the bottom ten in all three measures are Western: Alaska, California, Hawaii, Nevada, Utah, Washington, and Wyoming. Differences across states are largely driven by differences in income, delinquency, and student loan borrowing rates. Southern states tend to be lower income which increases a borrower's odds of being income-eligible and also increases Pell grant receipt. Figure A.2 shows higher rates of Pell grant receipt for Southern states. Mangrum et al. (2022) shows higher average balances and higher delinquency rates for Southern states, suggesting that students living in Southern states borrow larger balances and are more likely to struggle with repayment (leading to even larger balances through penalties, fees, and interest). Southern states like Georgia and South Carolina are also in the top five for the share of the adult population with federal student loans. Combined, this results in larger balances eligible for forgiveness and a higher probability of being income eligible in Southern states.

Forgiveness Policy Alternatives and Comparisons to Tax Credits

In this section, we explore the share of forgiven debt that would have been distributed to ZIP codes, ranked from lowest to highest median household income (from the ACS). We compare the distribution of benefits from the announced policy to other hypothetical student loan forgiveness policies. Then we compare the proposed policy to the distribution of benefits from three tax policies in the 2019 tax year using aggregated tax return data from the IRS SOI.

Comparison to Alternate Hypothetical Forgiveness Policies

Table 3 reports our comparison of policies. First, we find that the original forgiveness proposal would have distributed 23.6% of forgiveness dollars to the bottom 25% of ZIP codes, 48.8% to the bottom 50% of ZIP codes, 75.6% to the bottom 75% of ZIP codes, and 8.5% to the top 10% of ZIP codes. These results suggest that the proposal was broadly proportional across ZIP median household income, distributing a similar share of benefit across ZIP codes by income, up until the top 10% which receives less benefit.

Next, we compare the White House proposal to several hypothetical alternative forgiveness policies. We start by cutting the income criteria in half, to $75,000 for an individual and $125,000 for a household. In this case, the total stock of eligible loans would have been cut by roughly $100 billion and a higher share of forgiveness dollars would have been distributed to lower-income ZIP codes and a lower share to higher points in the distribution. For each point in the bottom of the distribution we present, the share of benefit distributed is larger than the population share, trivially revealing that a more binding income limit produces a more progressive policy.

On the other hand, the income limit of the announced policy does not substantially affect the distribution of forgiven debt. As discussed above, only 5.3% of borrowers are estimated to be excluded from the policy by income. Entirely removing the income threshold increases the share going to the top 10% of ZIP codes by less than a percentage point and has a minimally regressive effect throughout the distribution. However, the income requirement does come at a cost of added bureaucracy in verification, administration, and delivery of benefits.

Next, we remove the Pell grant condition to examine the impact of the additional forgiveness for Pell grant recipients. We study both a $10,000 and $20,000 forgiveness policy, coupled with the same income criteria from the Biden Administration proposal. We find that the additional relief to recipients of a Pell grant shifts a larger share of benefits to lower-income borrowers largely because these borrowers were lower-income to begin with and because these borrowers were less likely to complete college (Cook and Tilsley, 2022). The Pell grant consideration in the announced policy would have distributed an additional $129 billion to Pell recipients, but providing $20,000

cancellation to all income-eligible borrowers would have distributed an additional $90 billion to borrowers who never received a Pell grant.

The cost of cancelling all federal student loans with no means-testing is extraordinarily high ($1.465 trillion) and rather regressive. As presented in Table 2, older and higher income borrowers have significantly larger federal student loan balances, so universal loan forgiveness disproportionately benefits high-income individuals. Only 69.7% of benefits would be directed to the bottom 75% of ZIP codes while almost 12% of benefit would go to the top 10%, representing the most regressive and most expensive of the forgiveness policies we study.

Comparison to Tax Credits

The last portion of Table 3 compares the distribution of benefits of the announced student loan forgiveness proposal to three policies that direct tax credits to households. The first row shows the distribution of the Earned Income Tax Credit (EITC), a tax-based cash assistance program which provides support to low- and middle-income households, particularly those with children. EITC is a progressive program by design, and specifically uses tax filing income to determine eligibility. Thus, if this analysis were conducted with tax-filer level data, it would necessarily show that 100% of 2019 funds went to tax-filers below the $55,952 income limit for that year. However, some lower income households live in higher income ZIP codes and receive EITC. Using our methodology and grouping at the ZIP code level, we find that 39.2% of the EITC benefit goes to households living in the bottom quartile of income areas, and 67.7% goes to the bottom half. By this measure, the student loan forgiveness proposal is less progressive than the EITC, as we would expect.

We next compare to the Child Tax Credit (CTC), which was originally intended to provide relief to lower-income families with children, but has since been revised to be more inclusive of higher-income households. In the 2019 filing year, households were eligible with up to $200,000 AGI filing individually and $400,000 filing jointly. However, only some of this credit was refundable in 2019 meaning that lower-income families who did not owe income tax received a smaller credit. By our measure, the CTC for the 2019 tax year was *more regressive* than the announced student

loan forgiveness proposal, with the top decile of ZIP codes reaping 11.5% of benefits, and the top quartile taking 27.8%.

The last row shows the results for the Education Tax Credits (ETC) from the IRS SOI which combine the American Opportunity Tax Credit (AOTC) and the Lifetime Learning Credit (LLC) into one total. These credits can be used to offset various tuition and fee related expenses associated with higher education and were available for up to $2,500 per eligible student for the AOTC and up to $2,000 per eligible return for the LLC during the 2019 tax year. Both have maximum eligibility thresholds based on taxable income and the AOTC is partially refundable. We focus on these credits because they are similar in scope (expenses for higher education) and magnitude to the forgiveness proposal. Both policies provide relief meant for college education expenses, but the ETC provides relief while the student is in college while the forgiveness proposal provides relief ex post. As for magnitude, the ETC totaled $14 billion in 2019, whereas the CBO estimated that the Biden Administration's forgiveness plan would cost $21 billion in 2023 and would average $13.3 billion over 30 years (Congressional Budget Office, 2022). As for the distribution of beneficiaries, we found the combination of these two education tax credits directs only 19.3% of benefits to the bottom quartile, 42.9% to the bottom half, and 70.7% to the bottom 75% of residents by ZIP median household income. These credits distribute the same share of benefits to the top 10% as the CTC, at 11.1%, which is more than the forgiveness proposal at 8.5%.

A natural question after "who benefits" is "who pays for the proposal?" Since the reduction in government revenues is not offset by additional tax revenue, taxpayers could expect higher future taxes. If we hold the distribution of taxes paid by median zip income fixed at 2019 levels as above for the tax credits, we find that 6.7% of federal income taxes are paid by the bottom 25% of median zip income neighborhoods, 19.6% by the bottom 50%, 44% by the bottom 75%, 70.6% by the bottom 90%, 29.4% of federal income taxes are paid by the top 10%. Hence, if taxes were increased evenly across all taxpayers to offset the reduction in revenue from the proposal, the top 50% of median zip income neighborhoods would pay 80.4% of the additional burden while the top 50% would receive only 51.2% of benefits. On the other hand, the bottom 50% of median zip income neighborhoods

would pay 19.6% of the additional tax burden while receiving 48.8% of cancelled loans, suggesting a transfer from higher income neighborhoods to lower income neighborhoods. Alternatively, if we consider transfers across time, future taxpayers would pay for the proposal, which aligns with younger borrowers benefiting more from the proposal. More obviously, this is a transfer from those without federal student loans to those who hold student loans.

Conclusion

In this brief, we study the 2022 proposal from the Biden Administration that would have cancelled more than $440 billion in federal student loans. We explore who would have benefited most from the policy and compare the policy's distribution of beneficiaries to several alternative forgiveness schemes and other existing tax policies. From our analysis, we find that the policy levers available to craft a student loan forgiveness proposal can help to produce a policy that is better targeted toward struggling borrowers. First, the most direct signal of a struggling borrower is their previous delinquency or default status. Cancelling loans of those who were previously delinquent or in default is likely the most direct way to target forgiveness to struggling borrowers. Additionally, borrowers who were delinquent or in default prior to the pandemic had smaller loan balances on average at $29,707 (median of $15,091) compared to $34,309 (median of $17,562) for all student loan borrowers (Mangrum et al., 2022). Forgiving some or all of these loans would forgive smaller balances and those held by borrowers with demonstrated struggles, although this approach may heighten public concerns with fairness for ineligible taxpayers and moral hazard for future borrowers.

Next, targeting loan forgiveness toward Pell grant recipients lends toward a more progressive policy. For students entering college in 2012, Pell grant recipients were half as likely to have earned their degrees than non-Pell recipients, likely because Pell borrowers were lower income before college (Cook and Tilsley, 2022). If it is not possible to directly target borrowers by degree status, targeting by Pell grant status can operate as a proxy. We also have shown (trivially) that

reducing the income limit for eligibility makes for a more progressive policy. Cutting the income limit from the original proposal in half would have increased the progressivity of the proposal and reduced costs by roughly $100 billion.

Outside of our analysis, there are other policy levers that the literature suggests would create a more progressive policy. Our data does not allow us to separate graduate student borrowing from the broader pool, so we are unable to test the effects of excluding these loans from eligibility. Those with graduate student loans have larger balances, but are more likely to have higher earning power and have earned (at least) an undergraduate degree. These facts combined suggest that excluding graduate loans, would also increase the progressivity of the policy.

On June 30, 2023, the Supreme Court voted in favor of the plaintiffs in *Biden vs Nebraska*, thus striking down the Biden Administration's federal student loan forgiveness proposal. On the same day, the Administration announced they would introduce an alternative federal student loan forgiveness plan, which would originate through the rule-making process of the Higher Education Act of 1965. The specifics of this plan have yet to be determined, but the results from this brief can help policy makers design more progressive legislative or executive policies to help struggling borrowers.

Table 1: Consumer Credit Panel Summary Statistics

	Full sample	Any student loan	Eligible student loan
Borrowers (millions)	14.0	2.1	1.9
Median age	52	35	33
Median credit score (2019Q4)	730	660	653
Median credit score (2022Q2)	741	685	678
Percent with any delinquency	7.7%	11.8%	12.5%
Percent with auto loan	31.2%	46.3%	45.8%
Median auto balance	$12.6k	$13.2k	$13.2k
Percent with auto delinquency	7.5%	7.8%	8.5%
Percent with credit card	67.7%	78.2%	76.9%
Median credit card balance	$2.1k	$2.7k	$2.5k
Percent with credit card delinquency	8.7%	11.9%	12.8%
Percent with mortgage	25.3%	26.9%	23.8%
Median mortgage balance	$114.2k	$128.8k	$130.1k
Percent with mortgage delinquency	0.7%	0.7%	0.8%

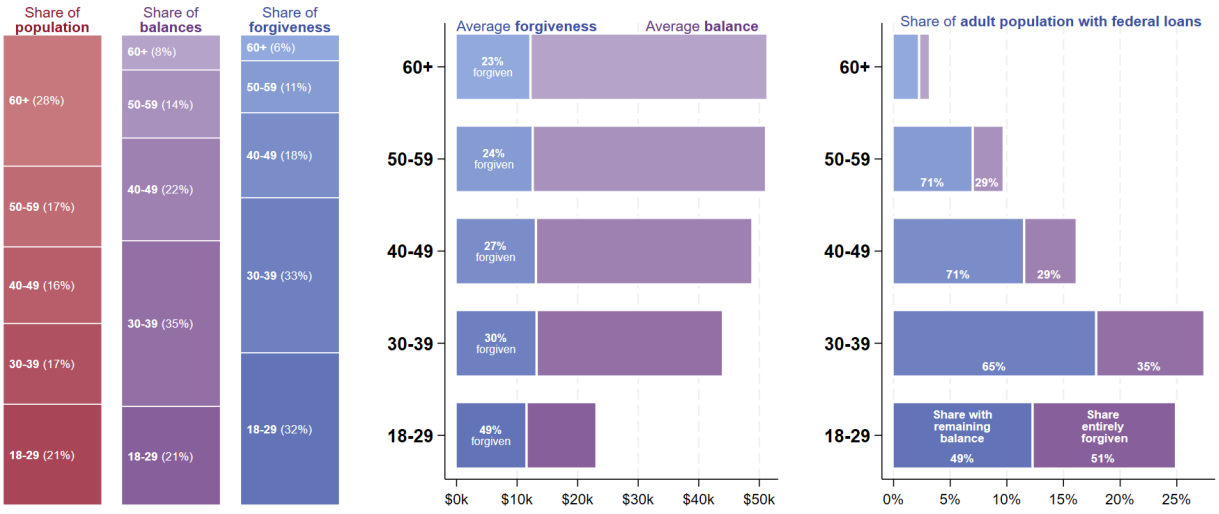
Notes: The table above details summary statistics from the Consumer Credit Panel data which is a 5% nationally representative dataset from based on Equifax credit reports. The first column includes the full primary sample. The second column restricts the sample to any individual with a student loan on their credit profile in the second quarter of 2022. The last column further restricts to those with a student loan potentially eligible for cancellation under the Biden Administration proposal. For median balances and the percent with a delinquency (any debt payment that is reported as 30 or more days past due), we report values conditional on having an account.
Source: New York Fed Consumer Credit Panel/Equifax.

Figure 1: Federal Student Loan Balance and Forgiveness Statistics by Age Group

(a) Share of population, balances, and forgiveness

(b) Average balance (purple) and average forgiveness (blue)

(c) Share of population with federal loans before/after forgiveness



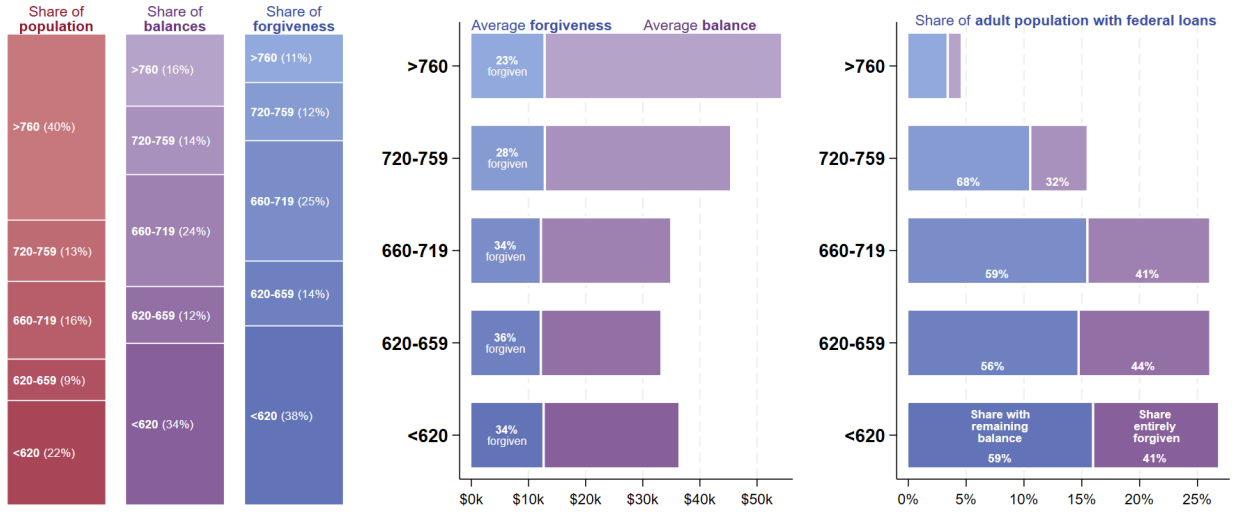
Notes: The three panels above plot statistics for the distribution of balances held and estimated forgiveness for the population by age group. The first panel plots the share of the adult population, the share of balances held, and the share of estimated forgiveness dollars by groups. The second panel plots the average balance by group and the average estimated forgiveness amount per eligible borrower by group. Within each blue box, we report the fraction of each group's eligible balance that the average forgiveness amount comprises. Panel c reports the share of the adult population with student loans before (in purple) and after forgiveness (in blue). In each blue box, we report the fraction of borrowers in each group that either has a remaining balance or a balance that is entirely forgiven by the proposed policy. Population counts come from the ACS. Precise statistics are available in Table 2.
Source: New York Fed Consumer Credit Panel/Equifax; American Community Survey.

Figure 2: Federal Student Loan Balance and Forgiveness Statistics by Credit Score Group

(a) Share of population, balances, and forgiveness

(b) Average balance (purple) and average forgiveness (blue)

(c) Share of population with federal loans before/after forgiveness



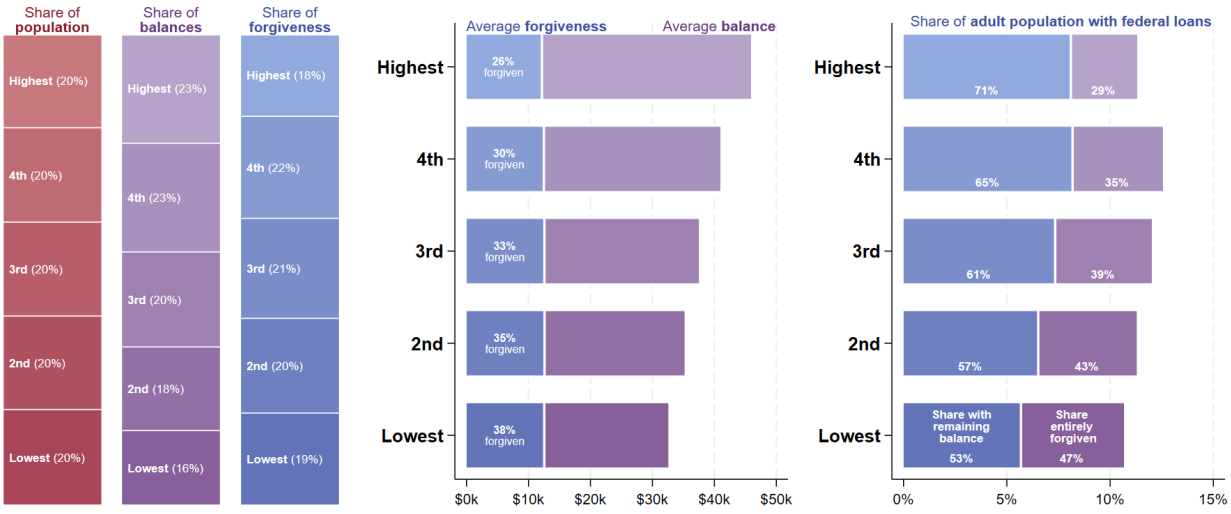
Notes: The three panels above plot statistics for the distribution of balances held and estimated forgiveness for the population by credit score group. Credit score is from the last quarter of 2019 (when available) to avoid the credit score inflation as a direct result of the administrative forbearance. The first panel plots the share of the adult population, the share of balances held, and the share of estimated forgiveness dollars by groups. The second panel plots the average balance by group and the average estimated forgiveness amount per eligible borrower by group. Within each blue box, we report the fraction of each group's eligible balance that the average forgiveness amount comprises. Panel c reports the share of the adult population with student loans before (in purple) and after forgiveness (in blue). In each blue box, we report the fraction of borrowers in each group that either has a remaining balance or a balance that is entirely forgiven by the proposed policy. Population counts come from the ACS. Precise statistics are available in Table 2.
Source: New York Fed Consumer Credit Panel/Equifax; American Community Survey.

Figure 3: Federal Student Loan Balance and Forgiveness Statistics by Quintiles of Median Neighborhood Income

(a) Share of population, balances, and forgiveness

(b) Average balance (purple) and average forgiveness (blue)

(c) Share of population with federal loans before/after forgiveness



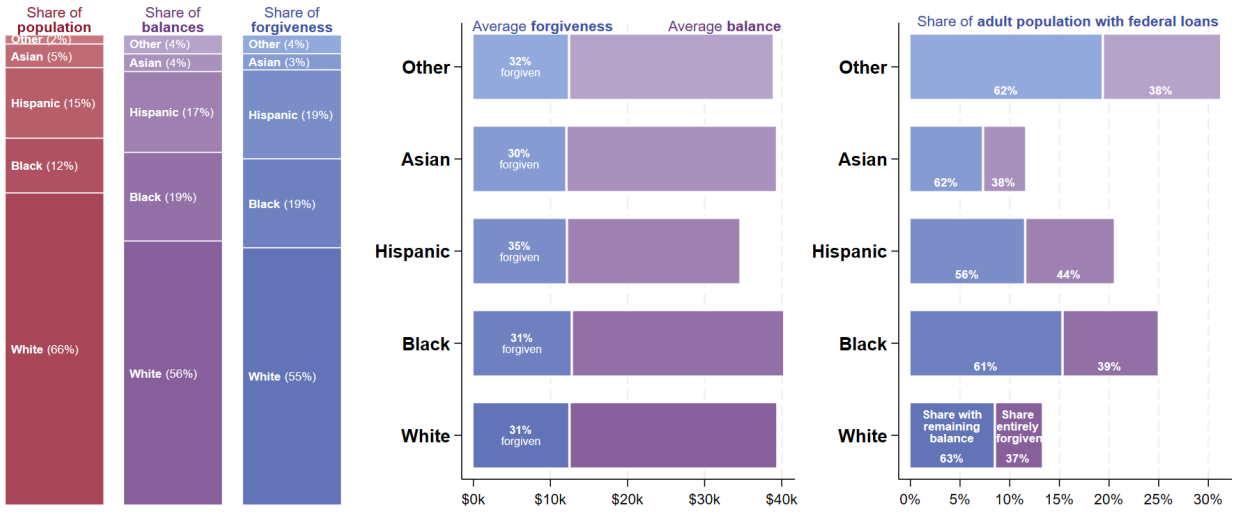
Notes: The three panels above plot statistics for the distribution of balances held and estimated forgiveness for the population by quintiles of median household income for each borrower's Census Block Group from the ACS. The first panel plots the share of the adult population, the share of balances held, and the share of estimated forgiveness dollars by groups. The second panel plots the average balance by group and the average estimated forgiveness amount per eligible borrower by group. Within each blue box, we report the fraction of each group's eligible balance that the average forgiveness amount comprises. Panel c reports the share of the adult population with student loans before (in purple) and after forgiveness (in blue). In each blue box, we report the fraction of borrowers in each group that either has a remaining balance or a balance that is entirely forgiven by the proposed policy. Population counts come from the ACS. Precise statistics are available in Table 2.
Source: New York Fed Consumer Credit Panel/Equifax; American Community Survey.

Figure 4: Federal Student Loan Balance and Forgiveness Statistics by Race/Ethnicity

(a) Share of population, balances, and forgiveness

(b) Average balance (purple) and average forgiveness (blue)

(c) Share of population with federal loans before/after forgiveness



Notes: The three panels above plot statistics for the distribution of balances held and estimated forgiveness for the population by Race/Ethnicity using Census categories. Race/ethnicity is not directly reported in our data so we estimate these shares leveraging variation over space. Our methodology is detailed in Appendix A. The first panel plots the share of the adult population, the share of balances held, and the share of estimated forgiveness dollars by groups. The second panel plots the average balance by group and the average estimated forgiveness amount per eligible borrower by group. Within each blue box, we report the fraction of each group's eligible balance that the average forgiveness amount comprises. Panel c reports the share of the adult population with student loans before (in purple) and after forgiveness (in blue). In each blue box, we report the fraction of borrowers in each group that either has a remaining balance or a balance that is entirely forgiven by the proposed policy. Population counts come from the ACS. Precise statistics are available in Table 2. Source: New York Fed Consumer Credit Panel/Equifax; American Community Survey.

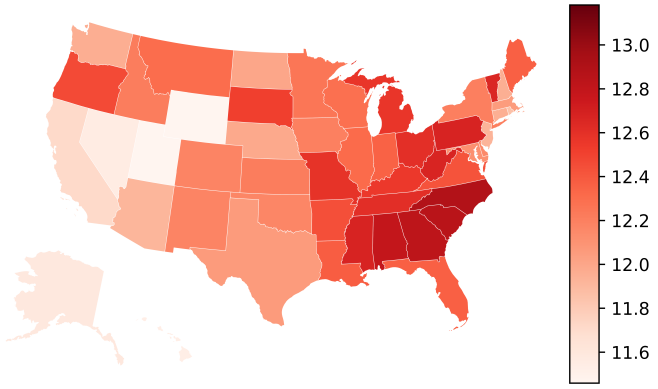
Table 2: Student loan statistics before and after Biden forgiveness plan by group

A. Age	18–29	30–39	40–49	50–59	60+
Group's share of ACS adult population	21.4%	17.1%	16.2%	17.1%	28.2%
Percent with any loans	24.8%	27.3%	16.1%	9.6%	3.1%
Percent with any loans after forgiveness	12.2%	17.8%	11.4%	6.9%	2.1%
Total balances held	$306b	$516b	$319b	$210b	$113b
Total balances forgiven	$143b	$145b	$79b	$48b	$25b
Average balance	$22.9k	$43.8k	$48.7k	$50.9k	$51.2k
Average forgiven balance	$11.4k	$13.0k	$12.9k	$12.4k	$12.0k
Percent of total balance	20.9%	35.2%	21.8%	14.4%	7.7%
Percent of total forgiven	32.3%	32.9%	18.0%	10.9%	5.8%
B. Credit Score	<620	620–659	660–719	720–759	760+
Group's share of CCP population	22.1%	8.7%	16.4%	12.9%	39.9%
Percent with any loans	26.8%	26.0%	26.0%	15.4%	4.5%
Percent with any loans after forgiveness	15.9%	14.6%	15.4%	10.4%	3.3%
Total balances held	$502b	$175b	$347b	$211b	$229b
Total balances forgiven	$168b	$60b	$113b	$54b	$47b
Average balance	$36.2k	$33.1k	$34.8k	$45.3k	$54.2k
Average forgiven balance	$12.4k	$11.9k	$12.0k	$12.7k	$12.6k
Percent of total balance	34.3%	12.0%	23.7%	14.4%	15.6%
Percent of total forgiven	38.0%	13.7%	25.5%	12.3%	10.6%
C. Neighborhood Income (Census block groups)	1st Quintile	2nd Quintile	3rd Quintile	4th Quintile	5th Quintile
Group's share of ACS adult population	19.8%	19.4%	19.5%	19.6%	19.6%
Percent with any loans	10.7%	11.3%	12.0%	12.6%	11.3%
Percent with any loans after forgiveness	5.6%	6.5%	7.3%	8.1%	8.0%
Total balances held	$226b	$253b	$288b	$330b	$335b
Total balances forgiven	$84b	$87b	$91b	$93b	$76b
Average balance	$32.6k	$35.2k	$37.5k	$41.0k	$45.9k
Average forgiven balance	$12.3k	$12.4k	$12.4k	$12.3k	$12.0k
Percent of total balance	15.8%	17.7%	20.1%	23.1%	23.4%
Percent of total forgiven	19.0%	19.6%	20.7%	21.1%	17.2%
D. Race/Ethnicity	White (non-Hispanic)	Black (non-Hispanic)	Hispanic (any race)	Asian (non-Hispanic)	Other (non-Hispanic)
Group's share of 2010 Census population	66.4%	11.6%	14.9%	4.9%	2.2%
Percent with any loans	13.2%	24.9%	20.5%	11.6%	31.2%
Percent with any loans after forgiveness	8.4%	15.2%	11.4%	7.2%	19.3%
Total balances held	$818.3b	$273.6b	$249.4b	$52.8b	$62.5b
Total balances forgiven	$240.4b	$82.8b	$82.8b	$14.7b	$18.6b
Average balance	$39.3k	$40.2k	$34.5k	$39.3k	$38.8k
Average forgiven balance	$12.3k	$12.6k	$12.0k	$11.9k	$12.3k
Percent of total balance	56.2%	18.8%	17.1%	3.6%	4.3%
Percent of total forgiven	54.7%	18.8%	18.8%	3.3%	4.2%

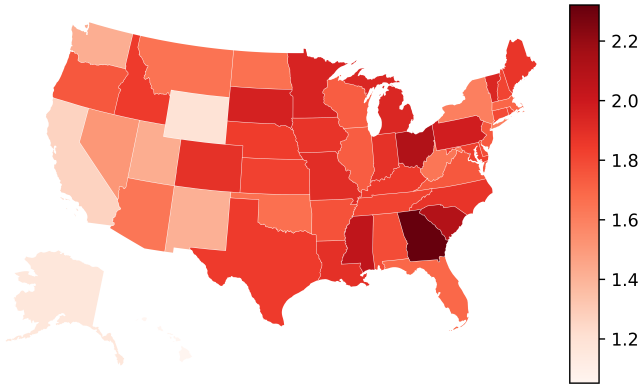
Notes: Each column denotes a segmentation of the population into various partitions of the variable denoted in the Panel title. The first row of each panel reports the share of the population within each group. The second set of variables compares the share of the group with loans before and after forgivenesss. The third set shows the total balances held and the total balances forgiven within each group. The fourth set reports the average balance before forgiveness and the average forgiveness amount for that group. The last set of variables within each panel shows the percent of total outstanding balance held by each group and the perfect of total forgiveness dollars received by each group. We color the last variable green if the group receives a larger share of forgiveness than the group's share of holdings of federal student loans. Shares colored red denote that the group receives a smaller share than their holdings of federal student loans. Gray denotes plus or minus 0.5%. Approximately 7.9% of the US adult population does not have a credit score and is excluded from this panel.
Source: New York Fed Consumer Credit Panel/Equifax; American Community Survey; 2010 Decennial Census.

Figure 5: Forgiveness Statistics for Biden Administration Forgiveness Proposal, by state

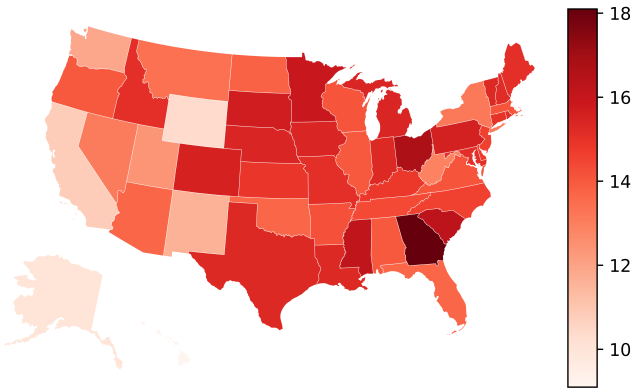
(a) Average forgiven balance per eligible borrower (in thousands)



(b) Average forgiven balance per adult population (in thousands)



(c) Percent of adult population receiving any forgiveness



Notes: Each map above presents a statistic representing the distribution of forgiven debt by U.S. state. The top panel denotes the average amount of forgiveness per income-eligible borrower eligible. The second map shows the average forgiven balance per adult population with the state (from the ACS). The bottom map shows the share of the adult population (from the ACS) within each state that receives any federal student loan forgiveness. Precise statistics are available in Table B.1
Source: New York Fed Consumer Credit Panel/Equifax; American Community Survey.

Table 3: Comparing the Distribution of Beneficiaries of the White House Forgiveness Proposal to Alternatives and Other Fiscal Policies

Policy	Cost	Share of benefit distributed to: Bottom 25%	Bottom 50%	Bottom 75%	Top 10%
White House Forgiveness Proposal	$442b	23.6%	48.8%	75.6%	8.5%
Alternative forgiveness policies					
WH plan with $75k/$125k income limit	$343b	26.0%	52.2%	78.4%	7.2%
WH plan with no income limit	$467b	22.9%	47.5%	74.2%	9.4%
$10k forgiveness with $125k/$250k income limit	$313b	22.9%	47.6%	74.6%	9.1%
$20k forgiveness with $125k/$250k income limit	$531b	22.4%	47.0%	74.1%	9.3%
Total loan forgiveness	$1,465b	19.9%	42.6%	69.7%	11.9%
Other fiscal policies					
Earned Income Tax Credit [2019]	$63b annually	39.2%	67.7%	88.6%	3.2%
Child Tax Credit [2019]	$116b annually	21.8%	46.1%	72.2%	11.1%
Education Tax Credits [2019]	$14b annually	19.3%	42.9%	70.7%	11.1%

Notes: The table above summarizes the cost and distribution of beneficiaries for the Biden Administration student loan forgiveness compared to a) alternative hypothetical student loan forgiveness policies and b) other recent salient fiscal policies. We rank each ZIP code from lowest income to highest income using the median household income from the American Community Survey. We then compute the bottom 25%, bottom 50%, bottom 75% and top 10% of zip codes using adult population counts from the American Community Survey. For student loan forgiveness policies, we aggregate the total estimated canceled debt within each ZIP code from the Consumer Credit Panel to compute the total cost and the share of benefits. For the Earned Income Tax Credit and the Child Tax Credit, we compute the total cost and the distribution of benefits by aggregating the value of tax credits to the ZIP code level. Education Tax Credits is shorthand for the combination of the American Opportunity Tax credit and the Lifetime Learning Credit.
Source: New York Fed Consumer Credit Panel/Equifax; Internal Revenue Service Statistics of Income 2019; American Community Survey.

References

Bennett, N. M., M. D. King, and M. A. Klee (2022, Sep). Proposed debt forgiveness would make large dent in student loan and total unsecured debts.

Bleemer, Z., M. Brown, D. Lee, W. Van der Klaauw, et al. (2014). Tuition, jobs, or housing: What's keeping millennials at home. *Staff Reports* (700).

Bricker, J., M. Brown, S. Hannon, and K. M. Pence (2015). How much student debt is out there? *FEDS Notes* (2015-08), 07.

Brown, M., A. F. Haughwout, D. Lee, and W. Van der Klaauw (2015). Do we know what we owe? consumer debt as reported by borrowers and lenders. *Economic Policy Review* (21-1), 19–44.

Bruenig, M. (2019, Jun). Low income people have more student debt than realized.

Bruenig, M. (2022, Aug). A note on the wharton student debt forgiveness model.

Catherine, S. and C. Yannelis (2020). The distributional effects of student loan forgiveness. Technical report, National Bureau of Economic Research.

Chen, J., K. Smetters, and M. Paulson (2022, Aug). The biden student loan forgiveness plan: Budgetary costs and distributional impact.

Congressional Budget Office (2022, Sep). Costs of suspending student loan payments and canceling debt.

Cook, B. J. and A. Tilsley (2022). Exploring the relationship between student loan forgiveness, the pell bonus, and race.

Daniels Jr., G. E., J. Galloway, and V. Kakar (2022, August). Who Benefits from Blanket Student Loan Forgiveness? Technical report, Policies for Action, Robert Wood Johnson Foundation.

Dettling, L. J., J. W. Hsu, et al. (2014). The state of young adults' balance sheets: Evidence from the survey of consumer finances. *Federal Reserve Bank of St. Louis Review 96*(4), 305–330.

Di Maggio, M., A. Kalda, and V. Yao (forthcoming 2024). Second chance: Life with less student debt. *Journal of Finance*.

Eaton, C., A. Goldstein, L. Hamilton, and F. Wherry (2021). Student debt cancellation is progressive: Correcting empirical and conceptual errors. *Available at SSRN 3909430*.

Federal Reserve Bank of New York/Equifax (2023). Consumer credit panel. Technical report.

FINRA (2018). National financial capability study. Technical report.

Internal Revenue Service (2019). Statistics of income. Technical report.

Looney, A. (2022). Student loan forgiveness is regressive whether measured by income, education, or wealth. *Hutchins Center Working Papers*.

Mangrum, D., J. Scally, C. Wang, et al. (2022). Three key facts from the center for microeconomic data's 2022 student loan update. Technical report, Federal Reserve Bank of New York.

Manson, S., J. Schroeder, D. Van Riper, T. Kugler, and S. Ruggles (2022). Ipums national historical geographic information system: Version 17.0. Technical report.

POLITICO (2023, Feb). What we know about the 25m americans who signed up for biden's student debt relief.

Sullivan, D. and C. Wheat (2022, Aug). Who benefits from the 2022 student debt cancellation?

White House (2022, Aug). Fact sheet: President biden announces student loan relief for borrowers who need it most.

White House (2023, Jul). Biden-harris administration releases state-by-state data on $39 billion in loan forgiveness for 804,000 borrowers as a result of fixes to income-driven repayment plans.

A Data and Methods Appendix

A.1 Comparing the Survey of Consumer Finances to the Consumer Credit Panel

As discussed in the Background section, we use the CCP rather than other data sources because we believe it to be the most nationally representative sample of the population of student loan borrowers in which we can parse eligible loans for analysis. In Figure A.1, we show how the CCP compares to the SCF in terms of total outstanding balance and the distribution of balances held by age. In Panel A, we show that the implied total outstanding balance from the SCF is consistently lower than the CCP and the gap between the two sources varies over time. In 2007 and 2010, the gap was consistently around 10%, but the series began to diverge in 2013. The timing of the divergence also corresponds to the largest growth in federal student loans on record, fueled by a surge in college enrollment during the Great Recession and rising tuition prices due to state funding cuts. This series divergence could be caused by the sampling universe of the SCF - since the SCF surveys the economically dominant person in the household, many people, such as economically independent adult children in the household, are excluded from the sampling universe. These exclusions would have increased after the Great Recession, when parental co-residence increased particularly among student loan borrowers Bleemer et al. (2014).

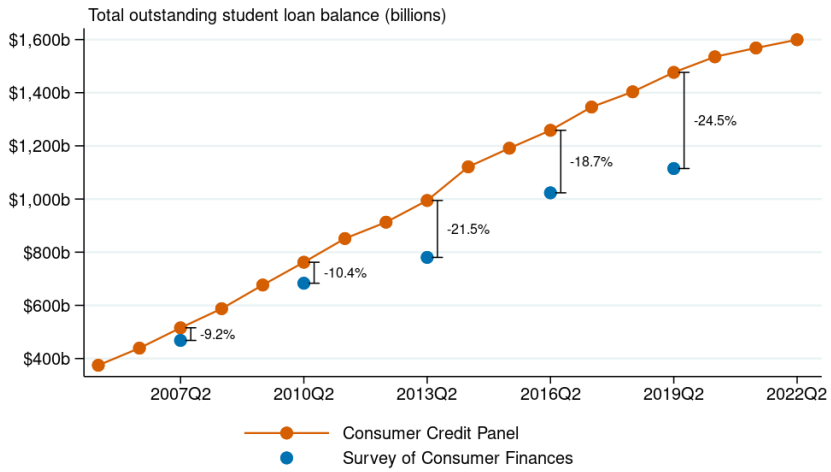
Panel B compares the age distribution of outstanding balances between the SCF in 2019, the CCP in 2019, the CCP in 2022, and the subset of forgiveness-eligible loans in the CCP in 2022. Comparing the SCF to the CCP in 2019 provides more evidence of the under-counting of balances that differs by age bin. The SCF total balance for respondents in their 30s in 14% smaller in the SCF than the CCP, but the under-counting for borrowers under 30 is 32%.

A.2 Federal Student Loans and Eligibility for Forgiveness

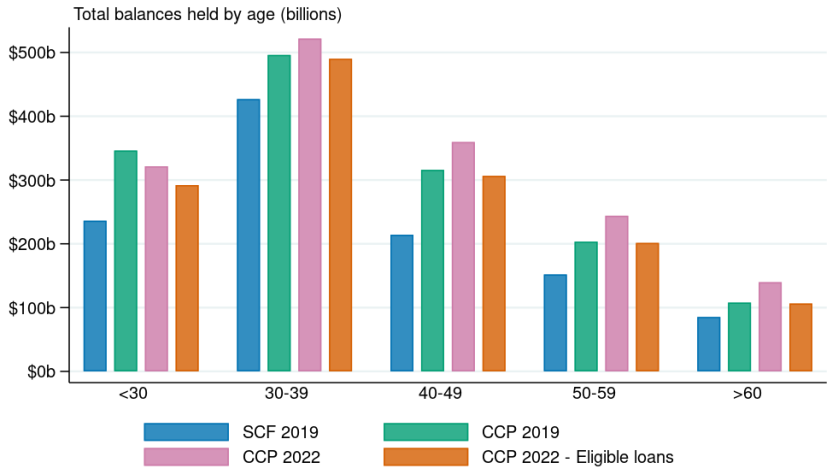
There are generally two types of federal student loans. The first type, Federal Family Education Loan (FFEL) Program loans, were a type of federal student loans disbursed by private commercial banks and guaranteed by the federal government. These loans were discontinued in 2010 and replaced by the Direct Loan program where student loans were directly issued by the federal government. Although the FFEL Program is no

Figure A.1: Comparison of Consumer Credit Panel and Survey of Consumer Finances

(a) Total Student Loan Balance Over Time



(b) Total Student Loan Balance by Age



Notes: Above we compare the total implied aggregate outstanding student loan balance between the Consumer Credit Panel and the Survey of Consumer Finances. In the top panel, we plot the total outstanding student loan balances over time for each quarter from the CCP against the implied total outstanding balances using the included survey weights from the SCF. In each year, the SCF under-reports the total outstanding student loans by 9 to 25%. In the bottom panel, we split out total balances by age of respondent for different waves of the SCF and CCP. We compare the 2019 SCF to the 2019Q4 CCP to show that balances are not equally under-reported by age. Additionally, we report the CCP totals as of 2022Q2 to show how balances have changed since 2019Q4. Lastly, we report the total stock of loans eligible for forgiveness as of 2022Q2 by age.
Source: New York Fed Consumer Credit Panel/Equifax; Survey of Consumer Finances

longer issuing loans, there are still roughly $195 billion in FFEL loans outstanding as of the second quarter of 2023. Of this total, around $90 billion are still owned by commercial banks and are thus not eligible for the automatic forbearance nor the student loan forgiveness proposal. Additionally, private student loans are not eligible for the forgiveness proposal. Instead, only federal student loans owned by the federal government are eligible. This includes any type of federally-owned loans including Direct loans, Grad PLUS loans, Parent

PLUS loans, any consolidated loan, and any FFEL or Perkins loan that was disbursed by a commercial bank or university and now owned by the federal government.

A.3 Estimating Expected Forgiveness

We estimate the expected value of cancelled loans for each borrower with eligible loans using:

$$E(\text{forgiveness}) = P^{\text{Eligible}}\Big[(1 - P^{\text{Pell}}) \cdot \min\{\text{balance}, \$10,000\} + P^{\text{Pell}} \cdot \min\{\text{balance}, \$20,000\}\Big], \tag{1}$$

where P^{Eligible} denotes the probability a given borrower is income eligible for forgiveness, P^{Pell} is the probability a given borrower ever received a Pell grant, and balance is the total outstanding federally-held student loan balance for a given borrower.

First, we identify each borrower's federal student loan balance. Since we do not directly observe the lender, we exploit the administrative forbearance for federal student loans to identify loans owned by the federal government and thus potentially eligible for forgiveness (given income eligibility). This total includes loans from various loan programs such as Direct Loans, Grad PLUS loans, Parent PLUS loans, and any other loans (including FFEL or Perkins loans) owned by the federal government. The forbearance marked current all eligible student loans that were delinquent but not in default. We flag loans as government-owned if they belong to a lender sub-portfolio whose February 2020 delinquent-but-not-defaulted rate was non-zero and whose April 2020 delinquent-but-not-defaulted rate was zero. We also include defaulted federal student loans since these are also eligible. We arrive at a total of $1.42 trillion held by an implied 38 million borrowers in the second quarter of 2022 which compares favorably to the "federally-managed" portfolio reported from ED's Federal Student Aid portfolio at $1.476 trillion. Since ED issued guidance that any voluntary payment made during the pause that would have been eligible for forgiveness would be refunded (via the CARES Act), we use the balance total as of March 2020 for any loan whose balance declined (but remained open) since March 2020.

Next, we estimate the probability of income-eligibility for each borrower. Since we do not directly observe each borrower's income, we use the borrower's CBG, age, and credit score matched to conditional income distributions from external data. First, we use the distribution of household income for each CBG

from the ACS. Borrowers are eligible if they had an Adjusted Gross Income (AGI) less than $125,000 for individual tax-filers or $250,000 for joint or head-of-household filers in 2020 or 2021. We do not observe tax-filing status, so we use the share of households in each CBG whose income was below $200,000. We also use the NY Fed's Survey of Consumer Expectations (SCE) Credit Access Module to estimate the share of student loan borrowers with income below $200,000 for five bins each of age and credit scores. We average these two probabilities to arrive at our preferred estimate for the probability of eligibility,

$$\begin{aligned} P^{\text{Eligible}} =& 0.5 \cdot P^{ACS}(\text{income} < \$200,000 \quad | \quad \text{CBG}) \quad + \\ & 0.5 \cdot P^{SCE}(\text{income} < \$200,000 \quad | \quad \text{age, credit score}). \end{aligned} \tag{2}$$

We calculate that 5.3% of borrowers will be income-ineligible for forgiveness, a statistic that aligns with White House estimate of 5% (White House, 2022). In Table B.2, we show how our estimates vary when using only ACS or only SCE estimated probabilities and with different assumptions for estimating the probability of receiving a Pell grant.

Finally, we estimate the probability each borrower received a Pell grant to determine eligibility for $10,000 or $20,000 in cancellation. We first use the National Post-secondary Student Aid Study (NPSAS) via the PowerStats tool to compute the probability of receiving a Pell grant by first borrowing year, dependency status, and the distribution of neighborhood income (at first borrowing).The algorithm proceeds as follows:

1. Collect the year of each borrower's first federal student loan. Simulate Pell receipt for this year and one additional year.

2. Assign each borrower-year into a household income bin via a random draw using the distribution of household income from the corresponding ACS survey year and borrower CBG during corresponding borrower-year.

3. The simulated income bin, observed year of borrowing, and observed age at borrowing correspond to a probability of Pell grant receipt from the NPSAS survey.

4. Assign Pell grant status via random draw using the corresponding Pell grant probability for each borrower-year.

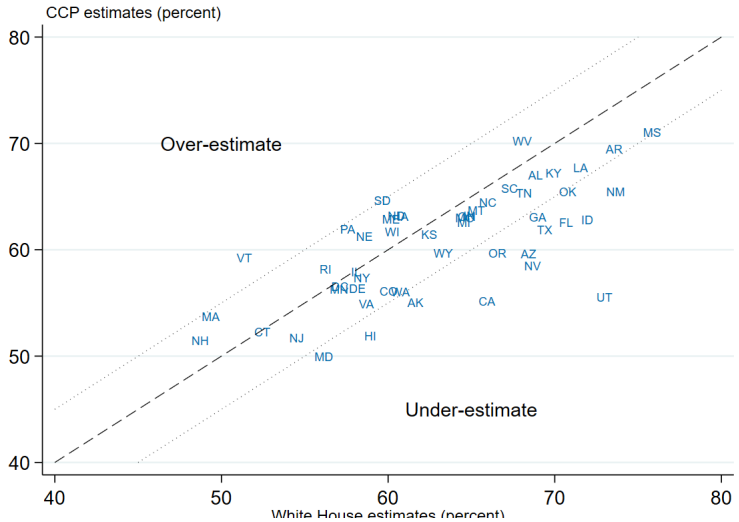
5. If the borrower received a Pell grant in one or both of the two opportunities, denote the borrower as a

Pell recipient for the simulation.

We repeat this algorithm 1,000 times for each of the 1.9 million borrowers and calculate the share of simulations in which each borrower received at least one Pell grant, becoming P^{Pell}. We arrive at a probability of Pell receipt of 59.6% for the borrower population which matches the posted estimate of 60% from the White House. We also compare our estimates at a state-level with publicly released data from the Department of Education. The data include totals for each state of the number of borrowers who are estimated to be income eligible and the number of borrowers estimated to be income eligible and also had received a Pell grant. We compute the share of income eligible borrowers who received a Pell grant and compare the public state-level statistic to our estimates. Figure A.2 plots the comparison by state with the ED released rates on the x-axis and our estimates on the y-axis. We present a 45-degree line along with lines to show estimates within 5 percentage points. Of the 50 states and D.C., all but 15 are within 5 percentage points of ED's estimates. Overall, the White House estimates suggest a 64.2% Pell grant rate among income-eligible borrowers while we arrive at a 60.4% rate. We believe the small error in estimating Pell grant receipt is due to variation in family size which directly affects Pell grant aid. Larger families have a smaller Expected Family Contribution (EFC) and receive larger grants while smaller families have larger EFCs and receive smaller grants. This is why Vermont, the smallest family size according the NPSAS, is consistently over-estimated while Utah, the largest family size, is under-estimated.

In Table B.2, we repeat our analysis using only one and only three draws from the income distribution for estimating Pell grant receipt. Using only one draw dramatically underestimates average Pell grant receipt (39.8%) and using three draws overestimates (70%), while our preferred two-draw method closely matches the WH state-level Pell rates. Additionally, we repeat our analysis using Pell grant receipt rates that are adjusted for each individual such that the estimated state-level average matches the WH reported rates.

Figure A.2: Model Validation: Comparison of estimated Pell grant rates to White House Pell grant rates, by State



Notes: The x-axis plots the share of income-eligible borrowers who ever received a Pell grant as posted by the White House. The y-axis plots the equivalent rate from our Pell grant estimation using the CCP data. 35 states and D.C. have estimated Pell grant rates within 5 percentage points of the posted White House rates while 15 states have estimated rates outside of this window. Differences in average household size are the largest driver of this error.
Source: New York Fed Consumer Credit Panel/Equifax; White House.

A.4 Computing Credit Bureau Data Demographic Averages Using Re-weighting

In this paper, we introduce an innovation for credit bureau data in which we exploit geographic variation in the demographic composition of Census block group delineations to compute averages of credit bureau data variables by demographic. This was previously not possible since demographics are not directly observed in credit bureau data. To calculate demographically re-weighted averages, we combine data on the demographics of Census block groups by age and race/ethnicity with probabilities that certain age and race/ethnicities hold a particular debt to back out the probability any given borrower in the credit bureau data belongs to each demographic group. We then aggregate the share of the variable of interest belonging to each demographic group up to the national level and divide by the total implied shares of each demographic group to arrive at the average.

More precisely, we calculate $\bar{X}_d$, the average value of particular credit bureau variable, x, for demographic d, by first calculating s_j^d, which is the estimated share of x in Census block group j held by demographic d. To arrive at these shares, we calculate population counts, C_{ja}^d, of residents in CBG j belonging to a particular age bin a and demographic group d. We use a combination of the ACS 5-year survey and the

2010 Decennial Census to calculate these totals.[1] We use the population counts for each demographic group d in each CBG j from the ACS combined with the age-shares of each demographic group d in each CBG j from the 2010 Decennial Census which becomes C^d_{ja}. Next, we use the National Financial Capability Study (FINRA, 2018) to compute a probability, $P^d_{a,s(j)}$, that each age bin a by demographic group d holds the particular loan type associated with x, where each CBG j is matched to a state through $s(\cdot)$.[2] Using these two estimates, we then compute s^d_j, which is the share of the credit bureau variable held by demographic d for CBG j:

$$s^d_j = \frac{\sum_{a=1}^{A} C^d_{ja} \cdot P^d_{a,s(j)}}{\sum_{d=1}^{D}\sum_{a=1}^{A} C^d_{ja} \cdot P^d_{a,s(j)}},$$

where A is the total number of age bins, and D is the total number of demographic groups. With these shares computed for each demographic group d and each CBG j, we can aggregate across the full sample from the credit bureau data to compute $\bar{X}_d$ for each d:

$$\bar{X}_d = \frac{\sum_{j=1}^{J}\sum_{i=1}^{I} s^d_j \cdot x_i \cdot \{i \in \mathcal{J}_j\}}{\sum_{j=1}^{J} s^d_j},$$

where borrowers in the data are denoted i from 1 to I, and $\mathcal{J}_j$ is the set of borrowers residing in CBG j.

In Table A.1, we benchmark our estimates for the average outstanding mortgage balance by race/ethnicity against the same estimate in the Survey of Consumer Finance 2019. Note that the SCF estimate for mortgage balance is not likely to be biased in the same way as its estimate for student loan holdings since for most households, the mortgage holder is also the economically dominant household member and thus the sampling universe is likely the same as the universe of mortgage holders. The first row reports the overall average outstanding mortgage balance in the SCF ($203,116) and the CCP ($203,913). These estimates are remarkably similar, evidence that the SCF correctly captures the sample of mortgage holders in its

[1] Ideally, we would use the race/ethnicity by age bins for each CBG from the same data. However, the ACS does not report this cut. This calculation will be possible using the 2020 Decennial Census directly when it becomes available later this year. Until then, we apply the 2010 Decennial Census age shares by race/ethnicity to the recent ACS race/ethnicity totals for each CBG.

[2] For small cell sizes at the state level (fewer than 10 respondents), we match CBGs to Census Division level probabilities. If small cells still exist at the Census Division level, we use national probabilities.

sampling universe. For each demographic group, the estimate using our demographic re-weighting method is consistent with the SCF estimates. Although the estimate for Black mortgage holders is 9.7% higher and for Hispanic mortgage holders is 5.6% lower, the estimate for each demographic is well within the 95% confidence interval presented in brackets. This lends confidence that this method reliably estimates the demographic averages for mortgages, and we expect this method to also be valid for student loans.

Table A.1: Benchmarking Demographic Averages for Mortgages using Demographic Re-weighting in the Consumer Credit Panel

Race/Ethnicity	SCF Estimate	CCP Estimate
Overall	\$203,116 *[\$189,556 - \$216,675]*	\$203,913
White (not-Hispanic)	\$203,973 *[\$187,889 - \$220,057]*	\$201,762
Black (not-Hispanic)	\$148,474 *[\$110,731- \$186,216]*	\$162,826
Hispanic (any race)	\$208,512 *[\$183,568 - \$233,456]*	\$196,924
Other (not-Hispanic)	\$278,071 *[\$231,471 - \$324,670]*	\$267,489

Notes: The table above reports estimates for the overall average outstanding mortgage balance and the average outstanding mortgage balance by race/ethnicity using the SCF 2019 and our estimates from the CCP in the second quarter of 2018. We present 95% confidence intervals for the SCF estimates. SCF estimates are computed using the Survey Documentation and Analysis tool from UC Berkeley.
Source: New York Fed Consumer Credit Panel/Equifax; Survey of Consumer Finances (2019); National Financial Capability Study (2018); 2010 Decennial Census; American Community Survey.

A.5 Accounting for Potentially Overlapping Forgiveness Policies

One important caveat to our analysis is how the announced policy might overlap with other existing forgiveness proposals. Aside from the more general student loan forgiveness proposal that we study, the Biden Administration has announced cancellations totaling \$116 billion across 3.4 million borrowers (White House, 2023). While some of these cancellations are already reflected in the outstanding balances for this analysis, several provisions such as the Public Service Loan Forgiveness waiver and the Income-Driven Repayment waiver have not yet been fully enacted. Hence, these balances could be considered cancelled outside of the more general forgiveness proposal. As such, the results presented in this analysis may be biased to appear more or less progressive depending on whether borrowers with loans cancelled under the IDR or PSLF waivers are more or less affluent than the average forgiven balance under the general forgiveness proposal.

Unfortunately, we cannot yet identify all borrowers whose balances have or will be forgiven by other policies. However, the White House released state-level totals for cancelled loans for the IDR and PSLF waivers that help us track the scale of forgiveness eligible loans that are likely duplicated.

In Table A.2, we report state-level totals of estimated forgiveness under the general proposal alongside totals from the White House for the IDR and PSLF waivers. We estimate the total amount of duplicated loans by summing the total IDR and PSLF waiver borrowers for each state and multiplying the total number of waiver borrowers by the average forgiveness amount for each state under the general forgiveness proposal. Of course it is possible that the waiver borrowers might have higher average forgiveness amounts than the general population due to their higher average balances, however without micro-level data on the waiver borrowers, it is not possible to estimate a separate average forgiveness amount under the general proposal for these sets of borrowers. Lastly, for each state we compute the percent of the state's total forgiveness amount under the general proposal that is estimated duplicated by the IDR and PSLF waivers using this back-of-the-envelope calculation. Leading the way is D.C. at 5.5% duplicated, followed by Montana, Vermont, South Dakota, and Maryland. On the other end, the states with the lowest share duplicated (least benefits from IDR and PSLF waivers) are Utah (2.7%), New Jersey (3%), Texas (3.1%), Connecticut (3.2%), and Massachusetts (3.2%). From this analysis, it appears that the share of borrowers benefiting under IDR and PSLF waivers, combined with each state's average forgiveness amount under the more general plan, suggests that states are not vastly different in the propoortionate scale of IDR and PSLF waiver volumes relative to the more general forgiveness proposal. This suggests that the IDR and PSLF waivers would not drastically affect our measure of the distributional beneficiaries of the more general proposal, however a micro-level analysis of these waivers should be conducted to study this in more detail.

Table A.2: Accounting for IDR and PSLF Waiver Forgiveness by State

	Broad forgiveness proposal		IDR Waiver		PSLF Waiver			
	Total forgiveness (millions)	Average forgiveness (thousands)	Total borrowers (thousands)	Total forgiveness (millions)	Total borrowers (thousands)	Total forgiveness (millions)	Estimated duplicated forgiveness (millions)	Percent duplicated forgiveness
Alabama	$6,764.5	$12.4	12.7	$553.9	10.0	$762.2	$280.7	4.1%
Alaska	$642.7	$10.9	1.0	$51.4	1.2	$77.2	$23.8	3.7%
Arizona	$8,876.2	$11.4	20.5	$1,030.4	10.8	$747.5	$355.9	4.0%
Arkansas	$4,062.2	$12.1	6.9	$342.6	5.9	$397.3	$155.0	3.8%
California	$38,383.5	$10.8	61.9	$2,958.8	56.3	$3,967.6	$1,282.1	3.3%
Colorado	$8,210.2	$11.4	15.0	$805.4	12.1	$819.7	$308.6	3.8%
Connecticut	$5,080.3	$11.0	7.2	$309.9	7.8	$507.4	$164.5	3.2%
Delaware	$1,348.1	$11.5	2.4	$113.1	2.1	$147.8	$52.2	3.9%
District Of Columbia	$1,283.0	$11.9	2.2	$130.2	3.7	$311.1	$70.6	5.5%
Florida	$28,329.9	$11.9	56.9	$3,036.8	37.5	$3,033.4	$1,120.0	4.0%
Georgia	$18,332.1	$12.3	38.6	$2,130.4	27.1	$2,334.5	$807.0	4.4%
Hawaii	$1,175.6	$10.7	1.7	$90.2	2.1	$141.5	$40.0	3.4%
Idaho	$2,358.6	$11.7	5.7	$252.9	3.5	$213.3	$108.2	4.6%
Illinois	$17,076.3	$11.5	28.4	$1,316.0	25.5	$1,731.7	$622.7	3.6%
Indiana	$9,608.1	$11.9	19.5	$932.8	12.0	$777.9	$374.2	3.9%
Iowa	$4,527.5	$11.7	10.7	$465.1	6.7	$357.7	$204.2	4.5%
Kansas	$4,008.6	$11.7	8.4	$424.5	6.4	$392.0	$172.8	4.3%
Kentucky	$6,376.5	$12.1	11.2	$447.7	8.1	$505.3	$233.8	3.7%
Louisiana	$6,737.4	$12.0	15.2	$824.7	8.4	$645.6	$281.7	4.2%
Maine	$2,025.7	$11.8	4.8	$212.5	3.2	$202.4	$94.9	4.7%
Maryland	$8,569.8	$11.1	16.8	$918.3	20.0	$1,523.6	$408.8	4.8%
Massachusetts	$9,300.0	$11.0	12.5	$592.0	14.3	$929.8	$294.2	3.2%
Michigan	$15,083.6	$12.0	27.0	$1,267.3	23.6	$1,590.1	$607.7	4.0%
Minnesota	$8,340.3	$11.5	13.6	$645.2	14.1	$832.4	$318.5	3.8%
Mississippi	$4,658.3	$12.4	9.5	$450.9	6.5	$538.0	$197.9	4.2%
Missouri	$9,002.7	$12.1	18.8	$956.8	14.4	$938.8	$401.0	4.5%
Montana	$1,356.7	$11.8	3.7	$185.2	2.5	$143.7	$73.1	5.4%
Nebraska	$2,657.0	$11.4	5.7	$268.9	4.2	$246.0	$112.9	4.2%
Nevada	$3,457.8	$11.1	6.8	$330.0	3.9	$275.1	$118.4	3.4%
New Hampshire	$1,974.4	$11.1	3.1	$143.8	3.1	$196.2	$69.1	3.5%
New Jersey	$12,067.1	$10.9	17.3	$788.0	16.4	$1,078.4	$366.0	3.0%
New Mexico	$2,262.5	$11.8	5.4	$260.3	3.6	$231.4	$106.0	4.7%
New York	$24,842.9	$11.3	42.1	$1,924.1	52.8	$3,457.7	$1,073.2	4.3%
North Carolina	$14,959.5	$12.3	24.9	$1,135.1	18.2	$1,269.7	$531.5	3.6%
North Dakota	$962.7	$11.4	2.1	$100.6	1.2	$71.5	$38.2	4.0%
Ohio	$19,103.6	$12.1	37.1	$1,736.9	28.8	$1,923.7	$797.2	4.2%
Oklahoma	$4,952.7	$11.7	11.5	$548.4	6.0	$394.9	$206.3	4.2%
Oregon	$5,706.4	$11.8	11.8	$572.8	11.1	$697.1	$269.5	4.7%
Pennsylvania	$20,052.6	$12.0	29.8	$1,343.5	29.3	$1,977.6	$710.6	3.5%
Rhode Island	$1,534.4	$11.2	2.6	$109.7	2.1	$135.1	$52.1	3.4%
South Carolina	$8,229.6	$12.4	16.3	$855.2	12.2	$986.8	$353.8	4.3%
South Dakota	$1,287.1	$12.0	3.0	$147.4	2.2	$121.7	$62.4	4.8%
Tennessee	$9,449.4	$12.1	17.0	$867.9	12.0	$902.5	$351.6	3.7%
Texas	$38,700.7	$11.5	63.7	$3,091.8	42.2	$2,894.9	$1,213.5	3.1%
Utah	$3,097.0	$10.8	3.9	$212.0	3.7	$246.5	$82.2	2.7%
Vermont	$982.8	$12.0	1.9	$95.8	2.1	$143.8	$48.7	5.0%
Virginia	$11,505.5	$11.5	21.6	$1,042.5	21.6	$1,448.7	$496.5	4.3%
Washington	$8,180.8	$11.2	16.3	$777.1	14.5	$929.4	$343.3	4.2%
West Virginia	$2,371.1	$12.3	5.0	$196.2	3.9	$219.9	$108.7	4.6%
Wisconsin	$7,803.7	$11.7	12.2	$576.1	12.4	$725.4	$289.5	3.7%
Wyoming	$530.9	$11.0	1.2	$61.5	1.0	$53.4	$24.1	4.5%

A.6 Within-ZIP Code Comparison of Those with and without Student Loans

In our comparison of fiscal policies, we propose a method for measuring the relative progressivity of a policy by aggregating the total benefits received at the ZIP code level and ordering ZIP codes by median household income to calculate the share of benefits received at different points in the ZIP income distribution. A potential critique of this method centers around the *within ZIP code* distribution of benefits. In essence, it is possible to design a policy in which benefits are delivered only to the highest income individuals *within each ZIP code*. In this case, our results could purport to be proportional (distributing a similar share of benefits to populations across the income distribution) when in reality the policy would skew regressive due to the within-ZIP dispersion. This could be the case for student loan forgiveness if borrowers with eligible student loans have higher incomes than other residents for each ZIP code. However, we present two pieces of evidence against this potential critique.

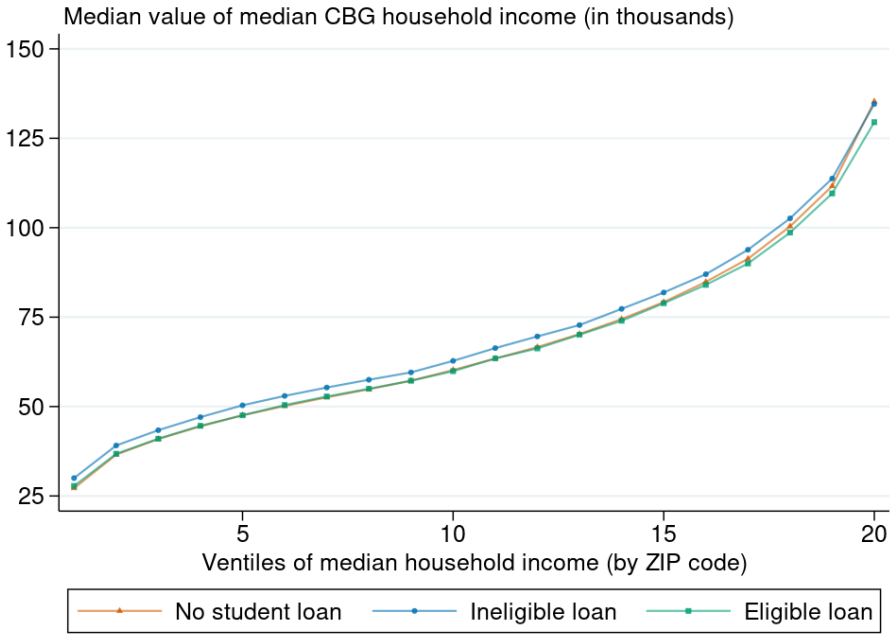
First, we test to see if borrowers who have eligible student loans live in higher income neighborhoods *within ZIP codes*. We begin by ordering ZIP codes from lowest median income to highest median income as in the policy comparison section. We then bin ZIP codes into ventiles so that we have 20 bins. Within each ventile bin, we compute the median value of the median CBG income across three populations: 1) those with no student loan, 2) those with student loans that are not eligible for the proposal, and 3) those with an eligible student loan. We account for individuals without credit scores (and thus are missing from our data) by adding observations to the first group in each CBG such that the CCP population is equal to the CBG adult population from the ACS.

Panel A of Figure A.3 shows the median of median CBG income for each group across the income spectrum. From the lowest income ZIP codes through to around the 75th percentile income (15th ventile), we find that the median borrower with eligible student loans lives in a neighborhood with a similar median income as an adult with no student loan, suggesting that borrowers with eligible student loans have similar incomes to the median adult living in a bottom-75% median income ZIP code. For ZIP codes in the top 25%, the median adult with no student loan actually lives in a higher income neighborhood than the median borrower with an eligible student loan, suggesting that borrowers with eligible loans are *less affluent* than the median adult in higher income ZIP codes. The median forgiveness-ineligible borrower lives in a relatively higher-income neighborhoods across the entire range of ZIP income, and lives in a higher income neighborhood than those without a student loan in each bin of ZIP income except for the highest income.

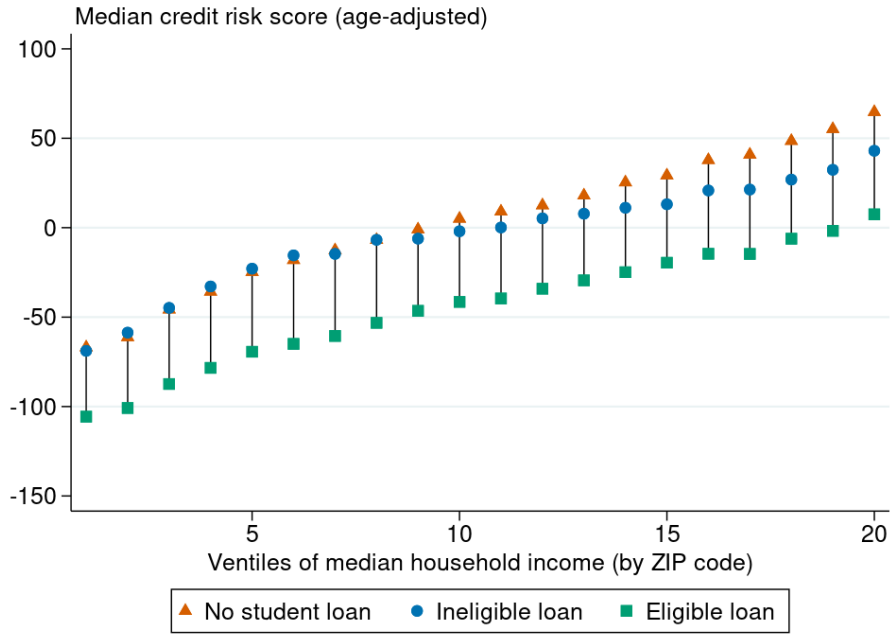
This evidence relies on leveraging variation in income within each ZIP, but Census Block Groups are still potentially heterogeneous neighborhoods with some income dispersion. To show individual variation in socio-economic status across borrower types and within ZIP code income bins, we use age-adjusted credit scores for each borrower. In Panel B of Figure A.3, we demean credit risk scores for each age and compute the median demeaned credit score within each ventile of ZIP code by median household income for the same three groups. Across the range of ventiles, those with an eligible student loan have lower credit risk scores than those without a student loan. While it could be the case that the presence of a student loan could mechanically lower credit risk scores, we note that those with an eligible loan also have lower risk scores than those with an ineligible loan, and for those in the bottom half of zip codes, the median risk score for those with an ineligible loan is actually *higher* than those without a student loan. If age-adjusted credit risk score serves as a proxy for income or financial stability, these results would suggest that student loan borrowers eligible for forgiveness are actually of lower-income or less financially secure than the overall population *within each ZIP code ventile*, further evidence against the potential critique.

Figure A.3: Estimates of income proxies by ventiles of median ZIP income and by student loan holding status

(a) Median of median CBG household income



(b) Median (age-adjusted) credit score



Notes: In each plot, we compute a statistic within ventiles of the median household income for ZIP codes separately for borrowers without a student loan, borrowers with an ineligible student loan, and for borrowers with an eligible student loan. We then compute the associated median value for each statistics for each group and for each ventile bin. For the top panel, we compute the median of each borrower's median CBG income. To account for adults without a credit score, we create observations in each CBG to account for the difference between the ACS CBG population and the CCP population and add these observations to the no student loan group. For the bottom panel, we compute the age-adjusted risk score by regressing individual credit scores from 2019Q4 onto age fixed effects and collecting the residuals. We then compute the median age-adjusted credit risk score for each ventile bin and each borrower group. Credit scores here are Equifax Risk Score 3.0.
Source: New York Fed Consumer Credit Panel/Equifax; American Community Survey.

B Additional Tables and Figures

Table B.1: White House Forgiveness Policy Statistics by State

Region	State	Average per borrower		Average per capita		Population benefiting		Completely forgiven	
		$	Rank	$	Rank	%	Rank	%	Rank
Midwest	Illinois	12,319	23	1,729	35	14.0	35	36.3	39
Midwest	Indiana	12,360	22	1,886	14	15.3	16	40.7	20
Midwest	Iowa	12,205	30	1,878	15	15.4	11	41.8	12
Midwest	Kansas	12,213	28	1,822	23	14.9	24	40.3	22
Midwest	Michigan	12,571	13	1,937	9	15.4	10	37.8	34
Midwest	Minnesota	12,258	26	1,954	8	15.9	6	36.2	41
Midwest	Missouri	12,589	12	1,906	11	15.1	19	38.5	29
Midwest	Nebraska	11,990	39	1,845	21	15.4	12	41.5	14
Midwest	North Dakota	12,002	38	1,657	39	13.8	37	43.4	7
Midwest	Ohio	12,607	11	2,111	3	16.7	3	38.2	31
Midwest	South Dakota	12,521	15	1,960	7	15.7	7	40.9	19
Midwest	Wisconsin	12,292	25	1,730	34	14.1	32	40.0	24
Northeast	Connecticut	11,957	41	1,794	27	15.0	23	35.2	45
Northeast	Maine	12,364	21	1,870	17	15.1	20	40.4	21
Northeast	Massachusetts	12,055	37	1,697	36	14.1	31	34.9	46
Northeast	New Hampshire	11,954	42	1,814	25	15.2	18	34.6	48
Northeast	New Jersey	11,929	43	1,745	33	14.6	27	34.7	47
Northeast	New York	12,209	29	1,607	43	13.2	42	36.5	38
Northeast	Pennsylvania	12,678	7	1,980	6	15.6	8	36.9	37
Northeast	Rhode Island	11,861	45	1,805	26	15.2	17	41.1	16
Northeast	Vermont	12,663	9	1,936	10	15.3	14	35.3	44
South	Alabama	12,796	5	1,790	28	14.0	36	39.3	28
South	Arkansas	12,448	17	1,770	30	14.2	30	44.3	2
South	Delaware	12,157	34	1,789	29	14.7	26	37.0	35
South	District of Columbia	13,182	1	2,256	2	17.1	2	25.6	51
South	Florida	12,364	20	1,694	37	13.7	39	39.7	26
South	Georgia	12,829	4	2,321	1	18.1	1	36.0	42
South	Kentucky	12,553	14	1,854	18	14.8	25	41.7	13
South	Louisiana	12,379	19	1,892	12	15.3	15	44.1	3
South	Maryland	12,117	35	1,832	22	15.1	22	31.4	50
South	Mississippi	12,683	6	2,051	5	16.2	5	43.3	8
South	North Carolina	12,887	2	1,877	16	14.6	28	37.0	36
South	Oklahoma	12,170	33	1,664	38	13.7	40	43.9	4
South	South Carolina	12,848	3	2,100	4	16.3	4	38.4	30
South	Tennessee	12,613	10	1,816	24	14.4	29	39.7	25
South	Texas	12,060	36	1,850	19	15.3	13	42.2	10
South	Virginia	12,423	18	1,746	32	14.1	33	32.9	49
South	West Virginia	12,676	8	1,638	42	12.9	44	43.4	6
West	Alaska	11,591	47	1,163	50	10.0	50	40.1	23
West	Arizona	11,923	44	1,639	41	13.7	38	41.3	15
West	California	11,714	46	1,268	48	10.8	48	39.6	27
West	Colorado	12,182	32	1,888	13	15.5	9	35.9	43
West	Hawaii	11,538	49	1,052	51	9.1	51	38.0	33
West	Idaho	12,216	27	1,848	20	15.1	21	41.0	17
West	Montana	12,306	24	1,650	40	13.4	41	41.0	18
West	Nevada	11,558	48	1,509	44	13.1	43	43.6	5
West	New Mexico	12,182	31	1,411	47	11.6	47	43.0	9
West	Oregon	12,463	16	1,749	31	14.0	34	36.3	40
West	Utah	11,459	51	1,425	45	12.4	45	41.9	11
West	Washington	11,959	40	1,420	46	11.9	46	38.1	32
West	Wyoming	11,465	50	1,194	49	10.4	49	45.3	1

Notes: The table above reports summary statistics and relative rankings for the statistics for each state plus the District of Columbia under the proposed federal student loan forgivenss policy from the Biden Administration. The set of states are categorized into Census regions and then sorted alphabetically. The first statistic is the average amount of cancelled debt per (estimated) eligible federal student loan borrower in the state. The second statistic is the average amount of cancelled debt per population 18 and over. The third statistic is the fraction of the population receiving any cancelled debt over the population 18 and over. The last statistic is the share of federal borrowers with expected zero balance remaining after the policy. Ranks colored green denote the top 15. Ranks colored red denote the bottom 15.
Source: New York Fed Consumer Credit Panel/Equifax; American Community Survey.

Table B.2: Robustness: National statistics varying estimated income eligibility and Pell grant probabilities

Statistic	Baseline	ACS weights only	SCE weights only	Alternate Pell (WH adjusted)	Alternate Pell (one chance)	Alternate Pell (three chances)
Total forgiven balances (billions)	$441.7	$433.5	$452.4	$443.8	$398.1	$466.2
Share income eligible	94.6%	92.8%	97.0%	94.6%	94.6%	94.6%
Share of balances forgiven	30.2%	29.6%	30.9%	30.3 %	27.2 %	31.8 %
Share of borrowers completely forgiven	38.7%	38.1%	39.7%	38.9 %	34.7 %	40.8 %
Share to Bottom 25%	23.4%	23.8%	22.9%	23.4%	23.4%	23.2%
Share to Bottom 50%	48.3%	49.0%	47.4%	48.3%	48.2%	48.2%
Share to Bottom 75%	74.9%	75.7%	73.8%	74.9%	74.7%	74.8%
Share to Top 10%	8.5%	7.9%	9.2%	8.5%	8.6%	8.5%

Notes: The table above compares some of our baseline national statistics of the Biden Administration's proposed student loan forgiveness proposal to those derived from variations of our estimated probability of income eligibility and our estimated probability of Pell grant receipt. The first column presents our baseline estimates for national statistics which equally weights probabilities derived from the American Community Survey (ACS) Census block group income distributions and the Survey of Consumer Expectations (SCE) according to borrower age bin and credit risk score bin. The second column presents estimates where we use only the ACS. The third column presents the estimates when we only use the SCE. The fourth column shows estimates using our baseline income eligibility probability but adjusts each individual's estimated Pell grant probability such that the state level average matches the state level average reported from the White House. The fifth and sixth columns present results that gives each student loan borrower in the sample either one or three simulated chance for Pell receipt instead of the two chances in our baseline.
Source: New York Fed Consumer Credit Panel/Equifax; American Community Survey, NY Fed Survey of Consumer Expectations