

BUSINESS CONTINUITY INSURANCE: KEEPING AMERICA'S LIGHTS ON DURING THE PANDEMIC

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I. EXECUTIVE SUMMARY

We argue that a one-time government program, which we call **Business Continuity Insurance (BCI)**, should be included in the U.S. government's response to the COVID-19 pandemic and the resulting sudden economic stop. The goal of this program is to prevent the sudden stop from triggering an unprecedented wave of non-financial business bankruptcies, which would greatly amplify the economic contraction and inhibit economic recovery once the health emergency passes. **Put simply, the goal is to enable businesses to keep their lights on during the health emergency so they can rapidly reopen afterwards.** This new BCI program, in combination with other programs, maximizes the chance of a rapid economic recovery and minimizes the chance of a deep, prolonged recession.

Under our plan, the government would provide **payment assistance to enable impacted businesses to meet their recurring fixed obligations**—including interest, rent, lease, and utility payments—during the health emergency. A key advantage of our plan is that it can be easily implemented and administered. Firms would apply for grants up to a maximum limit determined by their recurring fixed obligations, measured using items on the front page of the firm's 2019 corporate tax return. Both to protect taxpayers and for reasons of fairness, firms—especially the largest firms—that receive temporary BCI assistance would be required to gradually repay most of these benefits over time. Large firms that receive assistance would also face temporary restrictions on their ability to pay dividends and repurchase shares, as well as limitations on executive compensation.

In this note, we outline the economic policy challenges posed by the COVID-19 pandemic and discuss the motivation for our Business Continuity Insurance proposal. Our diagnosis is inspired by the proposals recently sketched by [Emmanuel Saez and Gabriel Zucman](#) and by [Glenn Hubbard and Michael Strain](#) and shares some similarities with the expansion in Small Business Administration lending authorized by the recently passed CARES Act. We quantify the size of firms' recurring fixed obligations using tax data, an exercise that motivates the design of our program. We then summarize how the U.S. government could set up a broad-based BCI program and provide details on how the program could be implemented. We estimate that our BCI proposal would cost taxpayers \$348 billion, a smaller sum than other similarly-motivated proposals.¹

II. DIAGNOSIS AND POLICY OBJECTIVES

The COVID-19 pandemic and the extraordinary public health measures needed to slow its spread have triggered a sudden stop in global economic activity. Due to this unprecedented drop in consumption and production, the revenues of many firms have fallen dramatically.

The vast majority of smaller, privately-owned businesses in the U.S., as well as many larger, publicly-traded firms, do not have the financial reserves needed to survive this large, temporary decline in

¹ This estimate assumes 50% take-up of BCI and 12 weeks of coverage at a cost of \$29 billion per week. We provide further detail on costs below.

revenue.² Furthermore, existing fiscal and monetary policies are largely powerless to restore firms' revenues during this health emergency. Many firms will soon be, or have already been, forced to lay off many of their employees. In short order, firms will also begin having trouble meeting their interest payments and other recurring fixed obligations.

A large expansion of unemployment insurance and other forms of direct cash assistance to households are clearly needed to cushion the impact of the sudden stop on U.S. workers. **However, we believe that the second key goal of economic policy must be to ensure that the sudden stop does not lead to a mass of business bankruptcies that will hobble the economy's productive capacity for years to come.**

As the sudden stop drags on, many businesses will exhaust their cash reserves and will be unable to service their debts and other fixed obligations. In some cases, businesses will be able to work with their liability holders to voluntarily restructure their obligations. As recently argued by [Markus Brunnermeier and Arvind Krishnamurthy](#), government policymakers should encourage important liability holders—including banks, landlords, equipment lessors, and utility providers—to prudently work with impacted businesses to reduce and reschedule payments during the sudden stop.³

However, in many cases, businesses—especially smaller businesses—will likely be unable to restructure their fixed obligations out of court. Conflicts of interest between creditors and firms, coordination failures between creditors, and other frictions are the reason bankruptcy courts exist in the first place. As the health emergency drags on, concerns about firm liquidity will quickly morph into solvency concerns, increasing the severity of these frictions and forcing firms to file for bankruptcy protection.

While the U.S. bankruptcy process does an excellent job of allocating losses to liability holders and enabling large firms to restructure during ordinary recessions, it was not designed to deal with mass business bankruptcies on the scale that may result from the COVID-19 pandemic. Such a wave of business bankruptcies would likely create significant delays in bankruptcy court proceedings—which may be further exacerbated by the need to conduct proceedings remotely for public health reasons—and a shortage of debtor-in-possession financing for firms operating under bankruptcy protection. Due to the resulting court delays, rushed business liquidations, and business fire sales, we worry that any attempt to shepherd a large number of firms through bankruptcy during the health emergency would create large deadweight losses for society, exacerbating the economic contraction and foreclosing the possibility of a more rapid recovery.

Furthermore, the sudden economic stop is likely to trigger significant knock-on effects and unleash powerful amplification forces, both real and financial. As a result, the economy may very well be in deep recessionary state—or even a depressionary state—once the health emergency ends. In the absence of government interventions, many businesses that are lucky enough to avoid bankruptcy during the sudden stop will nonetheless emerge from the health emergency with weakened balance sheets in an environment with low aggregate demand. This erosion in the health of firm balance sheets is likely to greatly limit the ability of U.S. businesses to rehire workers and resume normal levels of investment, significantly inhibiting the subsequent recovery.

² Using proprietary customer data, the [JPMorgan Chase Institute](#) recently estimated the average small business, defined as those with less than 500 employees, has only 27 days of cash in reserve..

³ For instance, the [Federal Communications Commission](#) has encouraged phone and internet broadband providers to continue providing services to customers who cannot cover their bills during the sudden stop. Similarly, the [Federal Reserve](#) has encouraged banks to work with households and firms to modify loan terms in light of the COVID-19 shock.

The goal of our Business Continuity Insurance proposal is to **preserve non-financial businesses as going concerns during the sudden economic stop and to cushion the immediate impact on firm balance sheets, setting the stage for a rapid recovery after the public health crisis ends.** Put differently, **we need to flatten the business failure curve.** To do so, the U.S. government would provide temporary payment assistance to enable heavily impacted businesses to meet their fixed obligations—including interest, rent, lease, and utility payments—during the health emergency. In this way, our BCI program would help avert unnecessary business bankruptcy filings, thereby minimizing the associated deadweight economic losses and amplification effects.

The BCI program should be terminated once the peak health emergency is over. Firms—especially the largest firms—that received BCI assistance would then be required to gradually repay most of these benefits over time. Once the health emergency lifts, the normal Chapter 11 bankruptcy process should be used to permanently restructure the liabilities of firms that are no longer viable.

The BCI program would complement the direct business lending programs recently announced by the Treasury and Federal Reserve, including the Primary Market Corporate Credit Facility and the forthcoming Main Street Lending Program. The goal of these more conventional lending facilities is—and should be—to provide unsecured bridge financing, ensuring that affected businesses can refinance maturing debt as it comes due. While it is necessary to ensure that the pandemic does not lead to a debt rollover crisis, to further avoid financial distress and business bankruptcies, we believe the government must also help affected businesses meet their *recurring* fixed obligations—i.e., interest, rent, lease, and utility payments—during the health crisis. Thus, our proposal should be seen as a complement to the direct lending programs that have recently been announced.

Is our BCI proposal a “bailout” for U.S. businesses? We would argue that it is not. Unlike the Global Financial Crisis, which was largely caused by reckless corporate behavior, the COVID-19 pandemic is a natural disaster. Like U.S. households, U.S. firms have not self-insured against the risk of a deadly global pandemic, nor should we have expected them to. Indeed, the pandemic has triggered such a large and widespread economic shock that even prudently managed firms are now at an elevated risk of failure. And, while it is certainly the case that some firms have unwisely taken on excessive leverage in recent years, the mere fact that most firms have been returning profits to shareholders—whether in the form of dividends or shares repurchases—instead of building up vast cash buffers is a *healthy* feature of our economic system, not a reckless act that should be punished.⁴

Nonetheless, it is desirable to allocate losses to firms’ equity holders, creditors, and other fixed claimants—both to protect taxpayers and for reasons of fairness. Our proposal is designed to assign as much pandemic-induced economic loss to these private sector actors as is practicable, while simultaneously reducing the scope for damaging deadweight losses and spillovers that will impede the broader economic recovery. Given the potentially catastrophic consequences of a wave of business bankruptcies for the broader economy, we believe that it is prudent to err on the side of caution and make the program broadly available on terms that are not overly onerous.

⁴ Indeed, financial economists and corporate governance experts typically argue that many large companies have a problematic tendency to hold excessively large cash buffers—cash that should have been returned to shareholders so it can be more efficiently re-invested in other firms.

III. PRINCIPLES OF BUSINESS CONTINUITY INSURANCE

III.A. Estimating Firms' Fixed Obligations

In designing a Business Continuity Insurance program, it is useful to understand the scale of the problem businesses face. How large are the recurring fixed obligations—including interest, rent, lease, and utility payments—firms need to meet during the public health emergency? We can estimate a firm's recurring fixed obligations as:

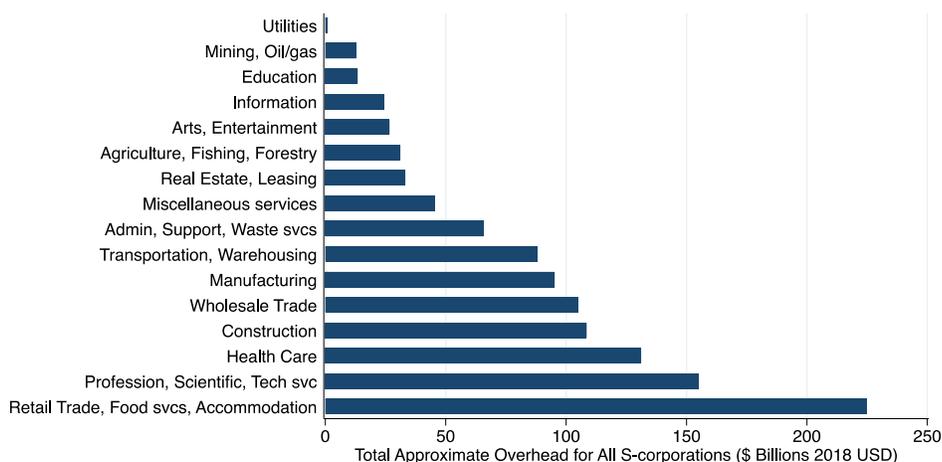
$$\text{\$Obligations} = \text{\$Revenues} - \text{\$Cost of Goods} - \text{\$Wages} - \text{\$Depreciation} - \text{\$Profits}.$$

The idea is simple. A firm's revenue must go towards (i) variable costs of production as captured by the cost of goods sold, (ii) compensating employees and managers (iii) depreciation, (iv) equity holder profits, or to (v) covering recurring fixed obligations.⁵ By subtracting off items (i), (ii), (iii), and (iv) from revenue, we can reasonably approximate a firm's recurring fixed obligations.⁶

Based on recent corporate tax filings, we use our definition to arrive at the following estimates (in 2018 dollars) of the annual fixed obligations of private, non-financial U.S. companies, broken down according to their corporate form (see Appendix A for details):

- **C corporations:** \$860 to \$950 billion per year;
- **S corporations:** \$850 to \$970 billion per year;
- **Partnerships:** \$340 to \$540 billion per year;
- **Sole proprietorships:** \$250 to \$550 billion per year;
- **Combined total:** \$2.2 to \$3.0 trillion to per year or \$40 to \$60 billion per week;

These fixed obligations are especially important in retail and wholesale trade. These industries have many small private firms likely to be hardest hit by the crisis. The figure below illustrates costs for S-corporations by industry.



⁵ We have chosen to subtract depreciation because we believe the depreciation deductions that businesses are allowed to claim under the U.S. tax code are, with few exceptions, overly generous relative to true economic depreciation—i.e., relative to the capital expenditures that must undertake to maintain the true economic value of their physical capital.

⁶ Alternately, our measure of obligations is the sum of a firm's tax deductions for (a) repairs and maintenance, (b) bad debts, (c) rents, (d) taxes and licenses, (e) interest, (f) charitable contributions, (g) depletions, (h) advertising, (i) pension plans, (j) employee benefit plans, and (k) other. Thus, since each of these tax deductions is non-negative, our proxy for each firm's fixed obligations is always non-negative. The case for including bad debts is that this is a way of helping non-financial firms who are unable to collect their accounts receivables because their customers are suddenly in trouble.

III.B. Design Principles

These estimates inform the design of our BCI program. Our estimate of aggregate annual fixed obligations for all non-financial private firms in the U.S. is approximately 150–200% of aggregate annual profits for these firms. Moreover, there is significant heterogeneity across firms and industries, meaning that recurring fixed obligations are a much larger percentage of profits for some firms.

Thus, a first key principle in designing a BCI program is that any repayment terms for firms must be “soft”: BCI should not take the form of traditional loans or debt. For many firms, recurring fixed obligations are so large that it would be uneconomical for them to borrow to cover these costs. Even if firms were willing to borrow, providing BCI assistance in the form of traditional loans is likely to leave firm balance sheets impaired, creating significant drag on the recovery once the pandemic ends.

To the extent that recurring fixed costs are interest payments on debt, our program indirectly provides support for firm’s debtholders, including banks and other financial institutions. In the absence of economic and financial amplification effects, the program will provide business debtholders with less than one year of interest payments, which is a small amount in a low interest rate environment. The key purpose of the BCI program is to avoid these amplification effects from missed interest payments, which have the potential to create much larger losses for society.

A second key principle in designing a BCI program is that it should be broadly available to and widely used, by a wide set of non-financial firms that are facing financial distress due to the pandemic.⁷ Since the goal is to avoid economic amplification effects and congestion in bankruptcy courts, assistance must reach a large number of affected firms. In particular, the terms of the program should be most generous for small and medium-sized businesses, which are unlikely to benefit from other government programs aimed at stabilizing financial markets. This principle implies that program simplicity is critical. Otherwise administrative issues will severely limit program take-up.

Our proposal deliberately does **not** cover the costs of employment because we believe that the existing infrastructure for unemployment insurance (UI) is a more effective vehicle for delivering aid to U.S. workers during the COVID-19 pandemic. Specifically, our BCI proposal should be paired with recent proposals, like the one by [Arin Dube](#), to significantly expand and reconfigure the UI system.⁸ Aid to businesses and households should be paired to ensure that once the public health crisis ends: (i) household balance sheets are strong enough to drive a recovery in spending and (ii) business balance sheets are strong enough to drive a recovery in employment and investment. A strong recovery critically hinges on *both* conditions being met.⁹

⁷ Financial firms should not be eligible for BCI assistance. Financial firms receive contractually fixed payments on their assets and are obligated to make fixed payments on their liabilities. Since our BCI program would help many non-financial firms meet their fixed payments to financial firms, financial firms would still receive a large fraction of their normal income. Thus, financial firms should be obligated to continue servicing their fixed obligations to their liability holders.

⁸ Specifically, like Dube, we believe that the U.S. should temporarily convert UI from (1) an *insurance system* that provides partial earnings replacement to unemployed workers, while encouraging them to search for a new job to (2) a *funding system* that provides significant earnings replacement to unemployed and under-employed workers, thus enabling non-essential workers to stay at home. This funding system should: (a) encourage temporary “job sharing” arrangements in which impacted businesses reduce employee hours, with the government helping replace lost hourly earnings; and (2) provide significant income replacement for workers who are laid off, with the goal of structuring as many layoffs as possible as temporary “furloughs” as opposed to permanent “terminations.” Provisions in the recently enacted CARES Act take a first step in this direction, but we believe that more could be done.

⁹ Of course, it would be possible to include payments covering employee wages in our BCI program, structuring the part of the assistance for wages as a grant. Programs like this are being used in Germany, Australia, Denmark, and the U.K.

IV. DESIGNING A BUSINESS CONTINUITY INSURANCE PROGRAM

Our proposal is for the government to provide temporary payment assistance to enable non-financial businesses to meet their recurring fixed obligations—including interest, rent, lease, and utility payments—during the public health emergency. These business continuity insurance (BCI) payments will provide firms with enough cash that they do not go delinquent, preserving the condition of their balance sheets and preventing liquidations.

Once each quarter, eligible non-financial firms would apply for BCI assistance up to a limit determined by their recurring fixed obligations, measured using the firm's 2019 corporate tax return with the formula above. The relevant items can be read off the front page of any business's tax return, which offers two advantages.¹⁰ First, it facilitates rapid approval. Second, since these businesses tax returns have already been filed with the Internal Revenue Service, they are difficult to manipulate at this point and easy for the Treasury Department to verify after the fact.

Firms—especially the largest firms—that receive temporary BCI assistance would be required to gradually repay most of these benefits over time. At the same time, large firms that receive assistance would also face temporary restrictions on their ability to pay dividends and repurchase shares, as well as limitations on executive compensation.

Below, we attempt to fill in some key details of this kind of BCI program. Specifically, we discuss how policymakers can:

- 1) Target BCI assistance towards more financially vulnerable businesses whose revenues have been most adversely impacted by the pandemic;
- 2) Ensure beneficiary firms repay the assistance they receive in a fair way over time; and
- 3) Ensure beneficiary firms face appropriate restrictions on their use of BCI assistance.

Inevitably, policymakers will face important tradeoffs between these objectives and the fundamental principles of a BCI program we outlined above. Due the potentially catastrophic economic consequences of a large wave of business bankruptcies, we believe that it is prudent to err on the side of caution. Therefore, the goal should be to develop a fair and workable BCI program than can be deployed rapidly—each day and week counts—and that can be made available to the broadest number of firms that are facing financial distress due to the pandemic.¹¹

In the remainder of this section, we discuss the following program design elements in detail:

- A. *Program Administration:* We discuss how our BCI program could be administered directly by Internal Revenue Service (IRS). While this would require new Congressional legislation, it would make it much easier for small and mid-sized businesses to access the program. Alternately, the Treasury and the Federal Reserve could implement a variant of our BCI proposal using the \$454 billion of assistance funds that Congress recently allocated under the CARES Act. However, this might make it more difficult for small and mid-sized businesses, which have been especially hard hit by the sudden stop, to access BCI assistance.

The total fiscal outlays of such programs would be similar to the combination of UI and BCI we are proposing, and these programs have the additional benefit of preserving valuable firm-worker links.

¹⁰ See [Form 1120](#) for C corporations, [Form 1120S](#) for S corporations, [Form 1065](#) for Partnerships, and [Schedule C of Form 1040](#) for Sole Proprietorships.

¹¹ A key lesson of mortgage modification programs from 2009 like the Home Affordable Modification Program is that too much emphasis on targeting and preventing moral hazard delivers programs that are slow and have limited impact.

- B. *Targeting*: In the ideal world, BCI assistance would be optimally targeted towards (i) businesses whose revenues have been most negatively impacted by the pandemic and (ii) toward firms that are unable to smooth the shock on their own and whose bankruptcies would create large deadweight costs and knock-on effects. In practice, to minimize the program’s administrative burden and maximize take-up, we believe the BCI program should feature relatively little targeting. We discuss how to implement simple targeting using information that is readily available to the government.
- C. *Repayment and Other Financial Terms*: For reasons of both fiscal prudence and fairness, firms—especially the largest firms—that receive temporary BCI assistance should be required to gradually repay a large portion of these benefits over time. Furthermore, well-designed repayment terms and restrictions on BCI recipients can help ensure that the only firms applying for assistance will be those that genuinely need help from taxpayers. However, to set the stage for a rapid recovery, we believe the repayment terms should be relatively flexible in order to minimize the risk of future business insolvencies and “debt overhang problems” once the health emergency passes. For instance, if the BCI program is implemented by the IRS, beneficiary firms should be required to gradually repay benefits over time through a special corporate tax surcharge.
- D. *Conditions on Businesses Receiving BCI Assistance*: Large businesses that receive BCI assistance should be temporarily prohibited from distributing capital to their common shareholders—whether through dividends and share repurchases—and should face temporary limitations on executive compensation.

We now discuss each of these program design elements in turn.

IV.A. *Program Administration*

The BCI program could be administered in two ways.

- First, the **Internal Revenue Service (IRS)** could directly administer the program, since the IRS has direct access to the corporate tax returns needed to construct our measure of fixed obligations. While this would require new Congressional legislation, it would make it much easier for small and mid-sized businesses to access the program. Under this implementation, firms would apply directly to the government for BCI assistance once each quarter. Following an automated approval process, the IRS would then send cash assistance to firms’ bank accounts using an electronic funds transfer. As discussed below, some portion of this cash assistance could be treated as a grant—especially for very small firms—and the rest would become a liability that the firm would be required to repay to the IRS over time. Specifically, beneficiary firms and the IRS would maintain a tax account tracking each firm’s accumulated BCI liabilities. Once the health emergency is over, beneficiary firms would gradually repay their BCI liabilities over time through a special corporate tax surcharge.
- Second, the **Treasury and the Federal Reserve** could implement a variant of our BCI proposal using the authorities in the recently-enacted CARES Act. In this case, the Federal Reserve would create a special purpose vehicle (SPV) that would provide BCI assistance by making financial investments in affected firms. We flesh out this alternate implementation approach in a companion piece.

In administering the program, the presumption should be towards disbursing funds quickly. However, there should be high penalties for fraud and abuse in the BCI program. This is a national emergency,

so it should be made clear that regulatory, legal, and tax arbitrage will be dealt with more severely than in normal times. Firms who abuse the BCI program should be held to account with high penalties, an immediate claw-back of all cash grants, and recourse to the personal wealth of managers and entrepreneurs (i.e., limits on limited liability). To administer these penalties, both a watchdog agency and a special Congressional committee should be established to monitor the BCI program.

IV.B. Targeting

To accomplish the goal of “flattening the business failure curve” in a way that is both fiscally prudent and fair, to the extent possible, BCI assistance should be targeted towards firms that suddenly find themselves at the greatest risk of undergoing costly failures due to the sudden stop. We discuss how to best target BCI assistance both in the cross-section of firms and dynamically over time, bearing in mind that overly aggressive attempts at targeting are likely to lead to low take-up.

Cross-sectional targeting: There are two main program features that policymakers can harness to efficiently target BCI assistance in the cross-section of firms at a given time. First, policymakers can use firm characteristics to adjust the amount of BCI that each firm is eligible to apply in a given quarter. Second, as we discuss below, firms that obtain BCI assistance will face certain restrictions and repayment requirements. These program terms will help ensure that BCI is well-targeted: facing such terms, firms will only have an incentive to apply for BCI if they genuinely need it.

Here we discuss how program designers might determine the amount of BCI assistance each firm is eligible to apply for each quarter. Specifically, beyond the level of a firm’s recurring fixed obligations, program designers should ideally take the following factors into consideration:

- **The realized shortfall in a firm’s revenue due to the pandemic**, which determines a firm’s ability to meet its recurring fixed obligations during the pandemic in the absence of government support. Firms facing greater revenue shortfalls should be eligible to receive greater BCI assistance, all else equal. In principle, policymakers could use information on a firm’s industry to approximate the expected revenue shortfall due to COVID-19—e.g., one expects larger revenue shortfalls in the retail trade, restaurant, and hospitality industries than, say, among firms that produce non-durable consumer goods. In practice, given the uncertainty about the distribution of revenue shortfalls and the imperative to rapidly roll out this program, we believe that any targeting along industry lines should be limited, at least at the outset.
- **The financial constraints facing a firm**, which determine a firm’s ability to smooth a large shock to revenue on its own without facing the threat of bankruptcy. Thus, all else equal, more financial constrained firms should be eligible to receive greater BCI assistance. While financial constraints are difficult to measure, in practice it likely makes sense to proxy for a firm’s financial constraints using a combination of (i) firm size—e.g., measured using past revenues or employees—and (ii) whether the firm’s shares are publicly traded.
- **A firm’s costs of financial distress and bankruptcy**—i.e., the expected deadweight loss from allowing the firm to approach and then potentially file for bankruptcy. All else equal, firms with high costs of financial distress should be eligible to receive greater BCI assistance. Costs of distress are also difficult to measure, but there are good reasons to think that they are also greater for smaller firms, which are more likely to be liquidated in bankruptcy, than for larger firms.

Combining these factors, in quarter t firm i would be eligible to apply for BCI assistance no greater than:

$$\$BCI_Assistance_{i,t} \leq (\$Obligations_{i,t-1}/4) \times Factor_t \times \%Vulnerable_{i,t},$$

where $\$Obligations_{i,t-1}$ is our tax-return-based proxy for firm i 's annual recurring fixed obligations based on its previous tax filings, $Factor_t \geq 0$ controls the overall generosity of the BCI program in quarter t , and $\%Vulnerable_{i,t}$ is a number between 0% and 100% that reflects firm i 's financial vulnerability to the COVID-19 economic shock and controls the generosity of the BCI program in the cross-section of firms in quarter t . In theory, $\%Vulnerable_{i,t}$ could be based on a large number of firm characteristics.¹² In practice, as just discussed, we believe that $\%Vulnerable_{i,t}$ should be based on a few characteristics, including industry, size, and whether a firm is privately owned.

Time-series dynamics: How should the amount of BCI that firms can apply for each quarter be managed dynamically over time? At a high level, there are two relevant scenarios for the path of the COVID-19 health emergency and the current global economic recession:

- In a “V-shaped” recession scenario, the COVID-19 global health emergency will be contained in the next few months and public health officials will implement strategies that enable the global economy to safely “re-open” and rapidly recover. In this case, policymakers should begin to quickly withdraw BCI assistance once the recovery is underway. Specifically, BCI should be withdrawn by reducing $Factor_t$ over the course of a several quarters until it reaches zero. In this optimistic scenario, the BCI program will prevent a large, but ultimately short-lived shock from triggering a wave of business failures that permanently hobbles the productive capacity of the U.S. economy.
- In a “L-shaped” recession scenario, the U.S. economy will enter a deep and protracted economic recession—or maybe even a depression. This pessimist scenario might occur for public health reasons, or because the current economic stop unleashes powerful knock-on and amplification effects that induce a deep and long-lasting recession. In this pessimistic scenario, a large number of businesses will ultimately need have their liabilities permanently restructured in bankruptcy, and many firms will need to be liquidated. For reasons of efficiency, fairness, and fiscal prudence, policymakers should not attempt to indefinitely delays business bankruptcies in this case. Nonetheless, even in this pessimistic case, policymakers should still seek to “flatten the business failure curve,” to avoid the severe congestion problems that would arise if a large fraction of U.S. businesses were to simultaneously file for bankruptcy. To do so, policymakers would gradually withdraw BCI assistance to firms by slowly reducing $Factor_t$ over time. Furthermore, if it becomes clear that many firms in a particular industry will need significant restructuring, policymakers might also choose to reduce $\%Vulnerable_{i,t}$ for firms in that industry. In this pessimistic scenario, the BCI program will ensure that this unavoidable bankruptcy wave plays out in a far more *orderly* fashion than it otherwise would have, thereby limiting the associated deadweight costs and collateral damage to the broader economy.

¹² In an ideal world, the government would set

$$\%Vulnerable_{i,t} = E_t[\%Revenue\ Shortfall_{i,t+1}] \times \%Financial\ Constraints_i \times \%Distress\ costs_i.$$

The idea is that $\$Obligations_{i,t-1}$ is the optimal cash grant for a firm in the extreme case where three conditions are met. First, the firm's *current* revenue has fallen to zero: the firm's expected revenue shortfall due to COVID-19 is 100%, so it is expected to have no ability to service its fixed obligations using current cash inflows. Second, the firm is 100% financially constrained: it has no spare cash and no ability to tap external finance and, thus, is wholly unable to smooth the revenue shock on its own without facing the prospect of bankruptcy. Third, the firm has very high costs of financial distress, so that the economic cost of allowing the firm to go into delinquency and bankruptcy are high.

IV.C. *Repayment and Other Financial Terms*

We now discuss how the government could structure the repayment and other financial terms of the BCI program.

- **Implementation by the Internal Revenue Service:** Implementing our BCI program using the IRS would require a new Congressional Act, perhaps as a part of the fourth round of COVID-19 legislation currently being discussed.

If the BCI program is implemented by the IRS, some fraction of a firm’s BCI assistance could be treated as a grant that does not need to be repaid and the remainder would be treated as a liability than needs to be repaid to the IRS over time. Specifically, we would set:

$$\$BCI_Grant_{i,t} = \%Grant_{i,t} \times \$BCI_Assistance_{i,t}$$

and

$$\$BCI_Liability_{i,t} = (1 - \%Grant_{i,t}) \times \$BCI_Assistance_{i,t}$$

where $\%Grant_{i,t}$ is a number between 0% and 100%. In general, we believe that $\%Grant_{i,t}$ should be greater for smaller firms and for private firms.

Beneficiary firms would be required to gradually repay their BCI liabilities—i.e. the portion of BCI assistance that is not a direct grant—over time through a special corporate tax surcharge. Crucially, these surcharges should only begin once the health emergency is over and the economic recovery is underway. For instance, if the normal corporate tax rate is $T\%$, BCI recipients would pay taxes at rate $(T + S)\%$ on their earnings until they have repaid their accumulated BCI liabilities. Such a proposal would be straightforward for recipient firms and the IRS to administer: a firm’s BCI liability account would be a simple tax account, just like depreciation, that is debited each quarter to reflect the firm’s tax surcharge payments.

From a corporate finance perspective, this tax-based repayment scheme is like having the government make preferred stock investments in firms affected by the COVID-19 pandemic. Specifically, the owners of a beneficiary firm would retain the financial upside in their business, just as if the government had made a loan to the firm. However, like preferred stock, this tax-based repayment scheme is “softer” than an ordinary debt contract, reducing the likelihood that beneficiary firms face insolvency following the health emergency and suffer the kinds of “debt overhang” problems that limit the ability of near-bankrupt firms to hire, invest, and grow. In particular, like a preferred stock investment, this tax-based scheme ensures that repayment would automatically be extended to the extent that a firm has lower earnings in the wake of the health crisis; and, repayments would automatically be deferred each quarter if the firm’s earnings are negative.

To enhance targeting and fairness, the level of the BCI tax surcharge $S\%$ could be conditioned on firm size and whether a firm is publicly traded. For instance, $S\%$ could be set at a higher level for larger firms and for public-traded firms, effectively reducing the period over which any BCI assistance will be repaid. Since larger firms and public-traded firms are less financially constrained than smaller firms and private firms, this would provide even greater incentives to ensure that large, public-traded firms only apply for BCI assistance if they genuinely need temporary support from taxpayers.

- **Implementation by the Treasury and Federal Reserve:** If the BCI program is implemented as a joint Treasury and the Federal Reserve program under the CARES Act, the government would provide BCI assistance by making financial investments in firms. As we discuss in our

companion piece on CARES Act implementation, these investments should be structured as junior debt instruments that share many of the features of preferred stock.

IV.D. Conditions on Businesses Receiving BCI Assistance

As in the recently enacted CARES Acts, all publicly-traded firms and larger private firms that receive BCI assistance should be temporarily restricted from distributing capital to their common shareholders—whether through dividends or share repurchases—and should face temporary limitations on executive compensation. These conditions are essential from a fairness standpoint: shareholders and executives of large firms receiving taxpayer assistance must share in the sacrifice during this national emergency. Furthermore, these conditions will help ensure that the only large firms who apply for BCI assistance are those that genuinely need taxpayer help.

However, we believe that smaller private firms who receive BCI assistance should face few, if any, restrictions on capital distribution and employee compensation. In the case of smaller private firms, capital distributions are conceptually analogous a wage that is earned by the small business owner. Thus, from a social insurance perspective, it makes sense for small business owners to continue earning some portion of their normal wage during the sudden economic stop.

Other than the restrictions for large firms discussed above, we believe BCI assistance should come with few, if any, additional strings attached. Adding further restrictions is likely to unnecessarily limit program take-up by impacted firms, frustrating the goal of flattening the business failure curve.

IV.E. Precedent Programs for Tax-Based Grants

Speedy and effective implementation of our BCI program will need to harness the IRS's past experience with similar programs to design an application and a rapid approval process for BCI assistance. Two programs that could be useful models are (1) the net operating loss carryback refund program and (2) the first-time homebuyer credit. In both cases, the tax forms for applications were short and clearly articulated the benefit formula and the conditions for eligibility.

- Net Operating Loss Carrybacks. This program allows firms to apply for refunds for past tax payments when they incur a current loss. Historically, Form 1139 allowed firms to apply for a provisional refund with relatively few up-front requirements in terms of documentation. These refunds were applied for and approved quickly using existing IRS systems during the Great Recession. In implementing BCI, the IRS could use a very similar form and process.
- First-Time Homebuyer Credit. Created in 2008, this program allowed individuals to apply for a refundable tax credit when making an eligible home purchase via Form 5405. Individuals were required to certify that they were eligible, information that could have been used subsequently to prosecute fraud. In addition, individuals were allowed to apply the refund to past tax returns, which made them eligible to receive the credit shortly after application. Last, for those individuals who subsequently moved, there was a tax form that required them to calculate and repay a portion of the credit they received. In implementing BCI, the IRS could use a similar form to determine any future repayment of BCI grants received.

In summary, we encourage policymakers to design a BCI program that is informed by their experience with past tax programs, enabling the IRS to implement a BCI program with minimal delays.

APPENDIX A: ESTIMATING OBLIGATIONS USING AVAILABLE TAX DATA

We first provide estimates of firms' recurring fixed obligations based on publicly available information. We then provide an alternative estimate informed by administrative data used in Smith, Yagan, Zidar, and Zwick (2019).

For C-corporations (businesses filing Form 1120)

We can estimate obligations using the most recent public "Form 1120 Line Item Estimates" produced by the Statistics of Income (SOI): see page 13 of <https://www.irs.gov/pub/irs-pdf/p5108.pdf>. These estimates include aggregate dollar amounts for select items for all C-corporation tax returns filed in 2015.

Top-down obligations estimate (more inclusive)

1. Revenues: \$27.492T
2. Cost of goods sold: \$17.044T
 - o Total income: \$13.981T
3. Profits = Total income – Total deductions = \$2.034T
4. Labor compensation not including benefits = \$3.236T for salaries and wages + \$0.501T for officer compensation = \$3.737T
 - o This does not include the labor part of costs of goods sold, reported separately on Form 1125-A.
5. Depreciation = \$0.822T
6. Obligations estimate = #1 - #2 - #3 - #4 - #5 = \$3.855T
 - o Implies obligations/revenues = 14%.
 - o Implies obligations/total income = 28%.

Bottom-up obligations estimate (more restrictive)

1. Repairs and maintenance = \$219B
2. Interest = \$580B
3. Rents = \$530B
4. Taxes and licenses = \$580B
5. Employee benefit programs, likely including health benefits = \$397B
6. Other deductions = \$4.043T
7. Total deductions = \$12.028T
 - o Some firms have bad tax accounting, so they just dump all their deductions into the "other deductions" category. It is not clear we want to punish these firms.
 - o #1 through #5 equal 29% of total deductions less other deductions. If other deductions are proportionately allocated to #1 through #5, then we want to add another \$1.172T.
8. Obligations estimate = Sum(#1 through #5) + \$1.172T = \$3.479T
 - o Implies obligations/revenues = 13%.

Smith, Zidar, and Zwick (2020) estimate that 20% of C-corporation profits and 40% of C-corporation revenues are due to private C-corporations. If BCI is only available to private firms, then the obligations estimate for C-corporations could be scaled down by 60 to 80%.

For S-corporations (businesses filing Form 1120-S)

We can estimate obligations using the most recent public "Form 1120-S Line Item Estimates" produced by the Statistics of Income (SOI): see page 125 of <https://www.irs.gov/pub/irs-pdf/p5108.pdf>. These estimates include aggregate dollar amounts for select items for all S-corporation tax returns filed in 2015. Unfortunately, SOI publishes fewer line items for these businesses.

Top-down and bottom-up obligations estimate using C-corporation parameters

1. Total income = \$3.052T
2. Total deductions = \$2.595T
3. Profits = Total income – Total deductions = \$457B
4. Top-down obligations estimate = 28% of \$3.052T = \$855B
5. Bottom-up obligations estimate = 29% of \$2.595T = \$753B

S-corporations tend to have business structures that are similar enough to C-corporations that these calculations are likely to be in the right ballpark. One key difference is that closely held S-corporations tend to have higher profits and lower wages for owner-managers. This consideration would imply higher obligations shares for S-corporations on the order of a few percent of total deductions.

For partnerships (businesses filing Form 1065)

We can estimate obligations using the most recent public “Form 1065 Line Item Estimates” produced by the Statistics of Income (SOI): see page 2 of <https://www.irs.gov/pub/irs-pdf/p5035.pdf>. These estimates include aggregate dollar amounts for select items for all partnership tax returns filed in 2017.

Top-down obligations estimate (more inclusive)

1. Revenues: \$5.460T
2. Cost of goods sold: \$3.012T
 - Total income: \$2.809T
3. Profits = Total income – Total deductions = \$359B
4. Labor compensation not including benefits = \$657B for salaries and wages + \$74B for guaranteed payments to partners = \$731B
 - This does not include the labor part of costs of goods sold, reported separately on Form 1125-A.
 - Partners do not pay themselves wages, so most labor compensation to partners comes out in the form of profits. Since we are subtracting both from the formula, this difference is inconsequential.
5. Depreciation = \$227B
6. Obligations estimate = #1 - #2 - #3 - #4 - #5 = \$1.131T
 - Implies obligations/revenues = 21%.
 - Implies obligations/total income = 40%.
 - Higher than C-corporation number because partnerships are less intermediate-input-intensive, so they tend to have lower cost of goods sold.

Bottom-up obligations estimate (more restrictive)

1. Repairs and maintenance = \$37B
2. Interest = \$111B
3. Rents = \$113B
4. Taxes and licenses = \$95B
5. Employee benefit programs, likely including health benefits = \$48B
6. Other deductions = \$1.050T
7. Total deductions = \$2.450T
 - Some firms have bad tax accounting, so they just dump all their deductions into the “other deductions” category. It is not clear we want to punish these firms.
 - #1 through #5 equal 29% of total deductions less other deductions. If other deductions are proportionately allocated to #1 through #5, then we want to add another \$303B.
8. Obligations estimate = Sum(#1 through #5) + \$303B = \$707B
 - Implies obligations/revenues = 13%. Very similar to C-corporation figure.

Many partnerships are owned by corporations, so would be eligible for BCI through their owner. Based on data from Smith, Yagan, Zidar, and Zwick (2019), approximately 60% of partnership profits accrue to individual-owned partnerships. Of these firms, 25% are in financial services. If BCI is only available to individual-owned, non-financial partnerships, then the obligations estimate for partnerships could be scaled down by 40 to 50%.

For sole proprietorships (businesses filing Form 1040, Schedule C)

We can estimate obligations using the most recent public “Form 1040 Line Item Estimates” produced by the Statistics of Income (SOI): see page 37 of <https://www.irs.gov/pub/irs-pdf/p4801.pdf>. These estimates include aggregate dollar amounts for select items for all sole proprietorship tax returns filed in 2017.

Top-down obligations estimate (more inclusive)

1. Revenues: \$1.521T
2. Cost of goods sold: \$433B
 - Total income: \$1.100T
3. Profits = Total income – Total deductions = \$346B
4. Labor compensation not including benefits = \$65B + \$97B + \$19B for contract labor, wages, and commissions = \$181B
 - This does not include the labor part of costs of goods sold, reported separately on Form 1125-A.
 - Proprietors do not pay themselves wages, so most labor compensation to them comes out in the form of profits. Since we are subtracting both from the formula, this difference is inconsequential.
5. Depreciation = \$42B
6. Obligations estimate = #1 - #2 - #3 - #4 - #5 = \$519B
 - Implies obligations/revenues = 34%. Higher than C-corps and partnerships.

- Implies obligations/total income = 47%. Higher than C-corps and partnerships.

Bottom-up obligations estimate (more restrictive)

1. Items from insurance through maintenance, excluding rents = \$73B
2. Interest = \$10B
3. Rents and utilities = \$84B
4. Taxes and licenses = \$21B
5. Employee benefit programs, likely including health benefits = \$3B
6. Other deductions = \$137B
7. Total deductions = \$744B
 - Some firms have bad tax accounting, so they just dump all their deductions into the “other deductions” category. It is not clear we want to punish these firms.
 - #1 through #5 equal 31% of total deductions less other deductions. If other deductions are proportionately allocated to #1 through #5, then we want to add another \$43B.
8. Obligations estimate = Sum(#1 through #5) + \$43B = \$234B
 - Implies obligations/revenues = 15%. Very similar to C-corporation and partnership figure.

Alternative estimate based on data from Smith, Yagan, Zidar, and Zwick (2019)

Here we use industry-specific data to estimate a top-down obligations cost figure for S-corporations and C-corporations, excluding financial firms. The formula is the same as in the main text, defined as revenues – cost of goods sold – labor compensation – profit – depreciation.¹³ These data underlie the industry-specific graph in the main text. The total estimate for S-corporations is \$1,161B in 2018 dollars, which is somewhat larger than our top-down estimate of \$965B from applying C-corporation aggregate assumptions to S-corporation aggregates. It is plausible that S-corporations have a higher obligations share than C-corporations, given their relative concentration in services, retail, and wholesale trade. In addition, financial corporations make up a relatively small share of S-corporation activity. We focus on the C-corporation-derived number below to allow comparison of top-down and bottom-up approaches.

The total estimate for C-corporations is \$2,815B, which is 73% of our top-down estimate for C-corporations from public data. This difference partly reflects excluded financial corporations and also reflects excluded holding companies, which have incomplete line item estimates in the microdata. These firms are predominantly public companies.

Based on this data, we will use the public data-based estimate for S-corporations directly and will scale down the C-corporation estimate to remove financial corporations and holding companies.

Adding it all up

To bring all numbers to \$2018, which would be the tax return used for BCI during the current crisis, we use a GDP inflator of 1.129 for 2015 numbers and 1.054 for 2018 numbers.

Total top-down estimates for private firms under 100% program take-up

1. C-corporations = 30% of 73% of \$3.855T times 1.129 = \$953B
2. S-corporations = \$855B times 1.129 = \$965B
3. Partnerships = 45% of \$1,131B times 1.054 = \$536B
4. Sole proprietorships = \$519B times 1.054 = \$547B
5. Total obligations estimate = \$3,001B or \$58B per week

Total bottom-up estimates for private firms under 100% program take-up

1. C-corporations = 30% of 73% of \$3.479T times 1.129 = \$860B
2. S-corporations = \$753B times 1.129 = \$850B
3. Partnerships = 45% of \$707B times 1.054 = \$335B
4. Sole proprietorships = \$234B times 1.054 = \$247B
5. Total obligations estimate = \$2,292B or \$44B per week

Comparing obligations to total profits for private, non-financial firms, which are \$1,554B, implies obligations is 150% to 200% of profits. This comparison is useful for thinking about the private net present value of loans versus grants for obligations costs.

¹³ We proxy for depreciation using a measure of capital investment derived from Form 4562, the schedule for depreciation deductions.