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A PROGRAM OF GUARANTEED LOANS TO COMPENSATE SME COVID-19 REVENUE LOSSES: RAPID DISPERSAL AND LARGE NET ECONOMIC BENEFITS

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A Program of Guaranteed Loans to Compensate SME Covid-19 Revenue Losses: Rapid Dispersal and Large Net Economic Benefits

Alistair Milne

Abstract

This paper explores the costs and benefits of compensating those UK SMEs who have experienced substantial revenue loss as a result of the current closure of their business activities. It finds that the benefits very substantially exceed the costs, by a ratio of 5:1 (every £1 of government spending to save small business has a payback of £5). It also argues that this relief can be provided extremely rapidly – within days – through a quick-dispersing loan, 100% or near-100% guaranteed by government and routed through bank and non-bank lenders, and with the available loan amount calculated from the revenue loss of the firm (so avoiding fraud) and subsequent conversion to a grant based on restoring that proportion of value-added needed to maintain the firm and prevent insolvency. This mechanism can be offered to SMEs of all sizes and also all ownership structures (corporates, single director companies with no employees, non-profits and mutuals, partnerships etc.) and could even be extended to larger firms. This argument is supported by a simple circular flow of income analysis, from which we estimate that the resulting economic shock could easily be around one-quarter of GDP as long as the lock down continues, with a resulting reduction of productive capacity through SME failure of around 5% of GDP. This reduced productive capacity, with an estimated consequent cumulative output loss of 15% of GDP, can be prevented through a loan program for SMEs at a net fiscal cost (in addition to those already taken) of only 2.9% of GDP.

Keywords: Coronavirus, Covid-19, Disaster Risk, Financial Crises, Fiscal policy, Insurance, Monetary policy, Pandemic risk, Systemic Risk

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1. Introduction

The Covid-19 pandemic is a global economic shock of unprecedented peacetime magnitude. Its large magnitude is a consequence of the decision of the majority of countries worldwide to impose lockdowns of indefinite duration with severe restrictions on social and business activity. The pandemic is consequently not only a substantial public health challenge: it is the greatest economic policy challenge since the great depression of the 1930s.

It is a particularly severe problem for small and medium sized enterprises (SMEs), those which in the usual classification have less than 250 employees and so face great difficulties in accessing external finance or – in the event of an episode of financial distress -- going through a business restructuring in order to prevent liquidation and maintain themselves as a going concern.

This paper makes two main arguments.

- First, it employs that basic class-room device the circular flow of income and some basis supporting analysis using UK business and national accounting statistics to assess the scale of the economic contraction and to argue that the costs of 'restoring' the blockage in the circular flow resulting from pandemic business interruption, at least by enough to prevent business failure, is fairly modest (estimated here at 2.9% of GDP in addition to existing measures to support wages of furloughed workers). The circular flow also, usefully, highlights that not all these funds need come from government borrowing; at least some of this can be raised by one-off taxation of accruing balances that relatively unaffected households are unable to spend because of the lock-down.
- Second, it explores the possibility of rapidly dispersing loans that subsequently convert to grants, with the loan amount based on loss of revenue, as a mechanism to get funds to small business much, much quicker than has been possible in the UK to date (though this has been achieved in other countries).

Diagnosis

The pandemic is triggering the most severe global economic downturn since the 1930s – possibly, if there is not an effective policy response and a rapid V or at least reverse-L shaped recovery – the global downturn could be even deeper and more long lasting. We have moreover little time in which to respond with appropriate remedial economic measures. The effectiveness of the economic policy responses made so far, despite the large sums of government money already mobilised, are questionable especially in the UK where there have been more delays and bureaucratic obstacles than in other countries. It is clear that further

policy action will be needed to minimise the economic costs and to be fully effective this action is likely to be required rapidly, within days rather than weeks.

But what exactly is needed? To answer this question there is much to be said for looking at the problem in terms of the "circular flow of income", the flow of expenditures around the economic system, whose representation can be traced back to Quesnay's Tableau Economique and appears in the first chapter and first macroeconomic lecture of almost every introduction to economics. It offers a simple diagnosis of the economic challenge of the pandemic: it is an interruption to the circular flow of income so we need to restore at least some of the circular flow, in particular to those small businesses that are threatened with failure in the next two or three months.

Some may argue that concerns about business failure have already been addressed, especially through widespread provision of government guaranteed loans to business to cover immediate cash flow needs and through programs to provide government support for the furloughing of employees, hence making it easier for firms to re-employ their staff when the pandemic is over. The problem is though that a loan must still be repaid, it simply pushes back the problem of interrupted circular flow into the future; moreover by framing as loans concerns about credit risk have lead to the UK programs being hedged around with bureaucratic restrictions which are limiting loan dispersal. If firms fail, then they will not be able to reemploy their furloughed workers.

It appears that many firms both large and small have only a few weeks of cash resources available to them. This accords with the views of many businesses on the ground dealing with the impact of the pandemic, even though it is not highlighted by most economic commentators. The support on offer so far is not going stop a large proportion of firms in all the sectors substantially impacted by the crisis failing in the coming months. If this is allowed to happen, it will, in turn, lead to significant loss of productive capacity and a reduction of per-capita incomes lasting some years.

The scale of the reduction in the circular flow is perhaps 28% of business revenue and hence a reduction in expenditure on GDP of around one quarter. It is also unevenly distributed, far more in some sectors than others.[1] A loss of capacity and permanent fall in GDP of 5% seems entirely possible (see Appendix for a calculation of this loss based only on SME failures).

Why are widespread business failures likely to impose such heavy economic costs? Bankruptcy is a messy and protracted process. Some larger firms will be able to avoid bankruptcy through an alternative form of reorganization such as US chapter 11 or UK receivership which allows

[1] The Appendix provides a sector by sector analysis consistent with this 20% fall. An earlier calculation in (Milne, 2020a) focusing on the composition of household expenditure suggests a fall in UK GDP in 2020 compared by 2019 of around 10%, but updating that analysis would suggest also a 15% fall in 2020 GDP.

debts to be written down or cancelled; but this also takes a long time and requires substantial business restructuring to lower costs. The network of relationships of each firm, with employees, customers, suppliers and the banks and investment firms who provide their financial resources will be impaired and many cases ruptured. Where bankruptcy takes place, in the absence of any buyers who are able to purchase the firm as a going concern, then its productive capacity will be broken up and assets sold for whatever they price can command.

Prescription

Suppose we accept that the problem is the interruption of the circular flow and the need to stop this resulting in widespread, can we then do better than current policy responses? It is argued here that we can. The crux of the prescription developed here is that banks know the decline in revenue triggered by the pandemic for all businesses and also non-profits (the exception will be some businesses which rely on cash payments and do not bank these payments). Therefore, we can calculate the money we need to save business from failure, based on their "value added" i.e. wages and salaries, rent, debt servicing, profits and depreciation – and then use the banking system to quickly respond to the loss of circular flow, doing enough to avoid the failure of any sound business or organisation, especially small businesses.

This restoration should be first in the form of fully guaranteed government loans with a two year maturity and a repayments holiday until end 2019 (variations are possible for example adoption to convert to partially guaranteed loans within the second year); then in the second year after checks on behaviour, these loans should convert to grants to the extent required to prevent insolvency.

In line with the circular flow and the basic building blocks of national accounting, the support should not offer a complete restoration of revenue but rather be based on compensating a share of lost valued added, enough to maintain wage, rent and debt servicing. In this form support flows appropriately down supply chains, with each firm or other organisation getting sufficient transfers to prevent their failure.

With further financial support from reduced profits, voluntary wage reductions and accompanying one off taxes e.g. on highly paid football stars, the fiscal cost can be kept very low, to support our small businesses 3% or less of public expenditure including measure already announced may be all that is required to maintain economic capacity (though further more conventional stimulus is also likely to be needed to support recovery). Additional spending to support larger businesses might also be appropriate, though here shareholders should be expected to also participate.

The policy prescription is related to that in another current NIESR policy paper (Bougheas, 2020) with similar goals. Bougheas suggests 'freezing' the economy: postponing all debt and

pension obligations, closing financial exchanges, fixing a standard salary, enough for basic expenditures of £900 per month for all employees and a stipend of £500-600 for all those retired or without work. His goal is to "align economic incomes with needs": The prescription developed here is similar, but it suggests instead a widespread program of taxes and transfers to support the circular flow of income. But avoiding the need for legislation (which is inherent to the Bougheas plan) the ideas set out here may be much more easily and rapidly implemented.

Structure of paper

The paper is set out as follows. Section 2 presents a standard circular flow model tailored to the current situation. The initial pandemic shock is presented an interruption to the circular flow and its economic consequences are then represented in a comprehensive way within the model.

The principal challenge that emerges here, when applying this stylised model in this way, is distinguishing short term reversible impacts from longer term permanent or hysteresis effects. If the circular flow can be restored easily to run relatively unaffected in its old channels, as many hope, then economic costs of the crisis while large will be short lived. If it proves difficult to restore the circular flow, because of damage to these channels within which it previously flowed then the economic costs will be much larger. This is a crucial issue in determining the appropriate response.

The circular flow model cannot itself tell us when impacts will be long-lasting, but it can help us think about what long-lasting impacts are most likely to arise and need to be considered by policy makers and hence help us reach consensus on policy responses.

Section three discusses the range of policy tools available to restore the circular flow and proposes a practical economic policy response. Policy makers have thus far focused on a small selection of a much wider range of available policy responses. By and large they have reached immediately for the policy tools that were applied in the crisis of 2007-2008. Where they have been innovative, e.g. the mail out of cheques by the US government to US households as a 'helicopter money' distribution, it is questionable how effective these can be compared to other available tools, for restoring the circular flow and avoiding longer term economic damage.

This section makes the case for a substantial transfer program to both business and non-profits preventing long term damage to the networks of relationships linking firms, suppliers, customers and their sources of finance. The potential for suggests that we may, so far, being doing much too little by way of economic policy response to the pandemic, threatening a substantial loss of capacity for the production of goods and especially of services that could sharply reduce per capita incomes for years to come. Given the uncertainty about this potential

loss of capacity and essential asymmetries involved in the balance of marginal costs and benefits we should err on the side of overresponse, seeking to save every reasonably sound business and non-profit organisation from failure (the marginal costs i.e. additional fiscal burden are fairly symmetric, but marginal benefits are highly asymmetric, those of under response are very much greater than those of over-response, hence bias to towards over-response).

Section four draws conclusions, arguing that the circular flow analysis points toa substantial increase in the use of state resources to limit damage to businesses and non-profit organisations; linking this analysis to other recent discussion of the economic policy response to the pandemic; and recommending the adoption of something along the lines of the practical framework of 'retrospective insurance' first set out in (Milne, 2020a) for restoring the circular flow and avoiding long term damage.

An Appendix provides a detailed calculation of costs and benefits. For reasons of tractability it makes a rather strong assumption, that the impact of closures is a 100% reduction in revenue for all affected businesses and other businesses are unaffected. It also focuses solely on failure of small and medium sized businesses with less than 250 employees (on the grounds that large businesses are well enough understood by investors to be restructured when in financial distress through more normal processes of administration or takeover). It is this Appendix that supports the claim that £1 spent on saving small business will yield a return of £5.

2. Applying the circular flow.

Figure 1 shows the circular flow and is used here to analyse the economic impacts of the current pandemic. This figure will be familiar to any student of economics. It can be simplified (many versions omit financial markets) or it can be elaborated even further. This purpose of this diagram is identifying key payments flows impacted by the pandemic.

Omitted from this figure and this section – this is a conscious choice – is any detailed discussion of the impact of the pandemic asset values or on financial markets. In the global financial crisis of 2007-2008 the critical points of failure within the financial sector, and especially the liquidity and solvency problems of the banking system. We dealt with the crisis, using three main tools:

- broad fiscal stimulus and monetary stimulus, justified on Keynesian grounds (so justified by standard macroeconomic models)
- intervention in money markets with central banks both directly and through international swap lines replacing the money market with a centrally bank intermediation between financial institutions (addressing the fragility captured buy new models of short-term funding fragility.[2])
- further programs of support for banks threatened unable to provide collateral for money market lending, including state support for RBS in the UK, for Fannie Mae and Freddie Mac and other institutions through the TARP program, because of the importance of preserving systemically important financial institutions; [3] and the subsequent impose stronger regulation on firms essential to the financial system to prevent a recurrence of the need for state support.

The latter two tools were aimed at addressing systemic fragilities in the banking system.

The current pandemic is different from 2007-2008 because the fragilities are rooted in the real economy not the financial economy – the problems are in Main Street not Wall Street – therefore the required measures must focus on the real economy and restoring the circular flow of Figure 1 (in turn reducing stresses in banking and financial markets).

This suggests that the economic policy response this time around can consist of

- immediate measures to restore much of the circular flow of income, targeted to deal with the systemic fragility of the real economy, the threat of widespread bankruptcy caused by a temporary but severed interruption to the circular flow of income. This is where current measures taken so far appear slow, poorly targeted and insufficient in both scope and size.

[2] Well known examples include (Gorton and Metrick, 2012; Brunnermeier and Oehmke, 2013)

[3] Generating a further literature on systemically important institutions, and too connected to fail such as (Blinder, 2010; Xavier and Rochet, 2013; Gofman, 2017)

- Subsequent broad fiscal and monetary stimulus, again on Keynesian grounds (so justified by standard macroeconomic models). Unlike in 2007-08, when this measure was needed at the outset of the crisis to address falling consumer confidence and falling asset prices, it cannot be effective immediately today, while the circular flow is interrupted. This will be required later as economic activity is released from lockdown.

The inner circuit of Figure 1, running from households through goods and services market to firms and then again to households is the largest direct impact of the pandemic and where most threat of business failure is emerging. Therefore, it is here that immediate measures should be directed.

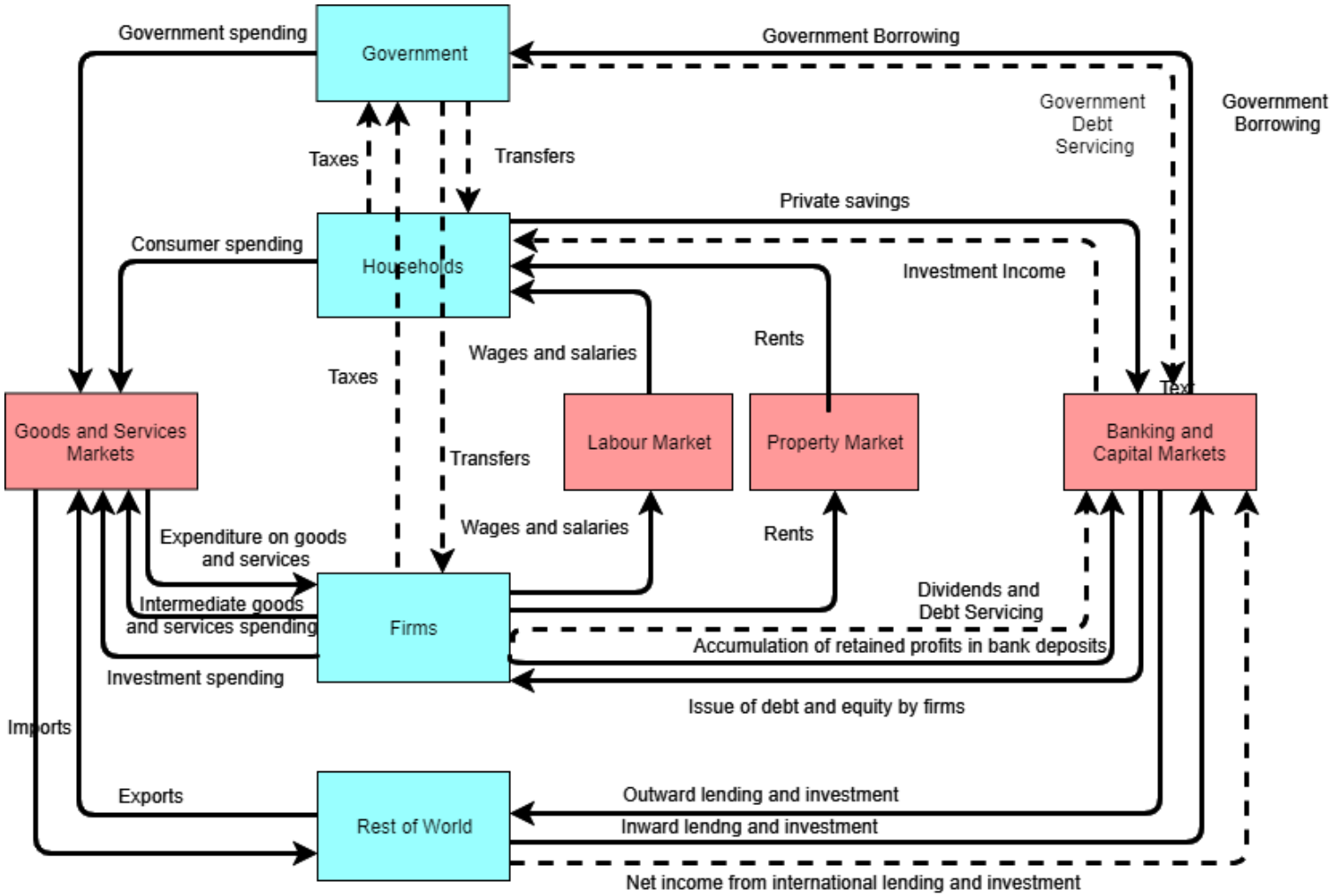

Figure 1: the Circular Flow of Incomes and Expenditures
Adapted from template on https://online.visual-paradigm.com/

First, and most obviously, is the sharp reduction in consumer spending. Households cannot spend money in shops, restaurants, hotels, bars that are closed. Since this spending cannot be revived under lockdown the income support must be for the businesses that supply these services.

This is not the only reduction household expenditure. Purchase of consumer durables and 'semi durables' e.g. clothing are also sharply reduced. While online sales can make up for some of the lost high-street expenditures, they can do so only in part. Expenditure on heating and other homes services will be rising slightly. Supermarket expenditures have also risen, especially with the uncertainties of future supply leading to a stocking up of essentials. But these do not make up for the loss of expenditure elsewhere and higher revenue for an online firm does not protect a firm which has only a physical high street presence. Again, many firms will need support.

All forms of travel expenditure by households but also by governments and businesses are also sharply reduced, often by nearly 100%, affecting directly airlines, railways, travel agencies, petrol stations, bus services and others. These are further sectors where support will be necessary.

The impact has though gone even further than this: firms of all sizes are now locked down. This is not just limiting consumer spending, intermediate expenditures by many firms is now sharply reduced, partly because of supply problems and also because firms now fear for their own financial future and are cutting back expenditures substantially. Many construction sites are now closed – a major part of investment. Even government current expenditures on are being hit if not supporting the public health response to the pandemic.

The property market and all the associated expenditures with estate agents, lawyers and surveyors has come to an almost complete halt.

There are some areas of increased expenditure, anything associated with the medical response to the pandemic, producing masks, other personal protective equipment and medical equipment such as oxygen and ventilators these are boom times. Security services are in high demand, to protect locked down offices.

At the same time key areas of business expenditure are contractually committed and cannot be reduced (the right/hand side of the inner circuit of Figure 1). Rents, notably on close high street premises, are still due. Debt servicing both interest and principal must be made to avoid default on loans or bonds.

To a broad estimate, the reduction in the circular flow from the pandemic close to 30%.[4] If lockdown is maintained at least in part for six months then the annual drop in circular flow during 2020 compared to 2019 could amount to one half of this i.e. 15%, with much greater impact a fall of up to 75% for the most affected sectors and firms where recovery is slow.

These falls in revenue are far too much for most severely impact firms to absorb without support. Without a robust policy response, widespread failure is to be expected. The remainder of this paper considers, again using Figure 1, how policy makers can respond in order to avoid such widespread failure. It turns out that providing widespread support to prevent failure is easily affordable, especially if other forms of financing not just government borrowing are utilised.

[4] The calculations in the Appendix looking at the sectoral impact suggest a drop of 28% as long as the lock down continues. A related calcuilation based on household expenditure suggests a 20% fall (Milne, 2020a). This though is based on different and more cautious assumptions about the expenditure reduction, updating would yield a figure closer to 30%.

3. The policy response.

This section considers the policy responses to restore the circular flow and prevent widespread failure of firms and non-profit organizations. It then proposes a specific and practical scheme for implementing this policy response.[5]

The economics of the policy response

Figure 1 suggests two tools available to maintain the circular flow sufficiently to prevent widespread failure of firms and other organizations (to be followed later by monetary and fiscal stimulus).

- Government backed loans to businesses, non-profit organizations and the self-employed.
- Government transfers *targeted on those with the most substantial loss of income*.

While government backed loans are an appropriate initial response (provided they are distributed rapidly) they support the current circular flow only at the expense of weakening the future circular flow., Much of the lost expenditure will not come back (I may celebrate the end of the pandemic by going out to eat and drink a bit more than normal, but I will not have two haircuts the week that my barber re-opens). To the extent that the expenditure is not coming back and so solvency of sound firms and organisations are threatened, then the financing should be through transfers not loans.

The principal practical objection to transfers is that it is difficult, very difficult if done quickly, to ascertain how much transfers are to be provided. There is though a simple and practical solution, discussed further below: start with a loan and then subsequently convert to a grant as appropriate when there is sufficient information to determine how much grants is needed to avoid failure.

Figure 1 also suggests a variety of mechanisms for financing these interventions. One key point here is that the circular flow has not stopped entirely, so *not all the money has to come from government*. Much of the required circular flow can be taken from where it is trapped and transferred to those sound firms and non-profits that have lost most revenue to avoid their failure.

Here are two examples of such "trapped" income:

[5] Earlier iterations of this scheme, developed over the past two weeks, are set out in (Milne, 2020a, 2020b, 2020c). Further discussion and future analyses are all or will be posted on the personal webpages https://alistairklmilne.com/ .

1. Many households, many of those in secure positions such as employment by government, in universities or research institutions or in financial services industry continue to draw salaries and yet are locked down at home unable to spend as before. Some of the highest earners in the country (sports stars have attracted particular attention) are suddenly unable to spend their lavish salaries. It is therefore appropriate to introduce – in coming days – an emergency tax on those who remain on secure higher incomes which will last until the lockdown is over.
2. Firms have – when there is a normal circular flow of income – an accumulation of retained profits in bank deposits (at least to the extent this is not spent on investment). This cash flow is a first cushion for absorbing any unanticipated loss of revenue. Anticipated accumulation of profits provides a major first defence against failure, worth several percent of GDP, so there is no need to compensate fully for loss of revenue. Thus, *targeted transfers need only be made to firms whose loss of revenue is relatively large,* I would suggest only when greater than 10 %. Similarly, there are some firms whose profits are rising rather than falling and they can be subjected to a one-off tax limiting their excess profits.

1. These steps can and indeed are supported by further measures. Business taxes can be delayed. Household borrowing from banks through mortgage and credit cards can, rightly, be put on hold. But these, like other forms of loans, are only temporary solutions that must be supported by transfers, primarily targeted on firms and non-profit organisations to ensure that individuals have jobs to go back to. There might also be a targeted program to address personal bankruptcy triggered by a pandemic related loss of income (again the principle; convert loans to grants).

2. We can sketch out here, leaving the detail for further work, a theoretical framework than can provide an economic justification for such interventions. The high economic costs of financial distress and bankruptcy are a substantially researched and well understood phenomena, rooted in the agency costs of corporate governance. In a textbook world of complete markets, all risks including pandemic risks would be fully diversified and appropriately shared amongst households. The loss of income and expenditure would be broadly shared. One can envisage this as an 'insurance' solution in which those whose incomes are directly reduced as a result of the pandemic are compensated by those whose incomes are least affected. Because the shock is temporary there would be no need for any firms to be restructured,

3. In the absence of complete markets, and in order to address concerns about the incentives and behaviour of managers and other insiders who control corporate and productive assets, a broadly constrained efficient outcome is one with limited liability for equity holders and with debt finance subject to a borrowing constraint which forces a change in management control and restructuring of assets and liabilities in the event of default. This arrangement is

'constrained efficient' in the sanse that, provided risks can be quantified reasonably accurately and decision makers take these risks into account in setting up the financial structure of each firm, then the threat of a costly default and subsequent restructuring and transfer of control provides appropriate incentives for management to act to promote value for investors.

4. The risk of pandemic however cannot be quantified (if they could then an insurance solution, admittedly an expensive insurance, would be possible and this would reduce the expected default related costs of such a major exogenous shock without weakening disciplines on management).

5. In the absence of such insurance arrangements, the appropriate public policy intervention is targeted restoration of the circular flow of income of Figure 1, restoring loss of income sufficiently to avoid widespread failures and financed by a combination of contributions from wage earners, especially those less affected by pandemic loss of income, investors and taxpayers. The overall balance of fiscal costs and benefits is substantially positive, because relatively small expenditure now to save firms and other organisations from failure saves a substantial proportion of the tax base and supports higher future tax revenues.

6. Such intervention can also be further justified distributionally, on "Rawlsian" grounds that in the presence of veil of ignorance in which individuals are unaware of their own circumstances and situation in the pandemic, they would agree to transfers from those most substantially affected to support others. This more philosophical argument, while a strong one, is though probably less persuasive than the need to prevent a damaging costs of widespread bankruptcy.

A proposed design for the policy response

7. The remainder of this section sets out how this might work in practice and assesses the fiscal costs of this policy. What is proposed here is surely not perfect, but it is very much better than anything being attempted so far and can deliver help to businesses within days not weeks.

    - The key, as discussed above, is providing fully government guaranteed loans that later convert in part to grants. Near complete guarantees are essential in order to remove the requirement of banks to conduct credit assessments. The interest rate charged by banks should be a small margin, perhaps 0.25% for two year loans to small firms, over and above the cost of short term market funding (which if necessary can be provided by the central bank against the loan guarantees provided by government). It is probably advisable that banks maintain a small exposure, to incentivise them to

administer these loans efficiently, so a guarantee of say 98% of principal might be better than 100% but this is not critical. Siilar lending could be provided to larger firms with even smaller margins.

- How much lending? Here a "triple percentage calculation" is appropriate.[6] These three percentages are as follows (all using information easily available to bank and non-bank lenders to quickly determine the amount of principal that the government will guarantee).
    1. The first percentage is the loss of revenue of the firm in 2020 relative to corresponding period in 2019. 100% Guaranteed lending is only made against revenue falls of greater than 10%. Shareholders and reserves are the loss absorbers for smaller revenue declines.
    2. The second percentage are the shares of the components of value added in revenue. i.e. the ratio of wages, rent, debt interest and profit after interest but before tax and depreciation, as recorded in the most recent annual accounting statement for each firm, other organisation or self-employed individual. The percentage for wages should be reduced for firms with unusually high average remuneration so that the average supported wage is not well above the median national full-time salary.
    3. The third percentage is an item specific percentage for each of these components fo value added. AS envisaged in (Milne, 2020b) this pay out would be 100% of rent, 80% of wage payments. In addition, it will be enough to provide 100% support of interest on debt, for smaller firms, and some further payment for other essential costs.

  With these percentages then a simple formula can be applied as in (Milne, 2020c) , with a single coefficient applied to each component of value added, wages, rent, interest payments and other profit.
- Because the lending is based on components of value added it flows through the supply chain, providing appropriate support for the circular flow of income for every firm and organisation. There is no limit on firm size or type, other than being nationally based on conducting the bulk of its business domestically. The entire circular flow is supported. Financial firms though are not supported directly, they are saved because their customers are saved.
- The near 100% guarantee means that banks get the loans out rapidly and widespread failure is avoided. Subsequently there is part conversion to grant, after the pandemic is brought under control and the normal circular flow is restored, which will likely not be until close to the end of calendar 2020, so in 2021. This is the only point where there is any substantial administrative burden. The requirements are as follows

[6] The Appendix to this paper provides a closely related calculation, but it puts to one side the 80% of support for furloughed staff provided by the current government scheme. It also, for simplicity, assumes that all affected businesses suffer a 100% fall in revenue and remaining businesses none. This assumption exaggerates both the computed costs and the benefits.

1. Information is checked for accuracy and to avoid fraud. The guarantee to the bank is based on the information collected originally by the bank, but conversion to grant depends on the accurate fuller information later collected and confirmed.
2. The loan for wages converts into a grant only in relation to the amount of the workforce retained in employment or in furlough. If workforce is reduced by say 10% with 90% retained, then only 90% of the corresponding loan converts to grant.
3. The loan for paying interest converts to a grant only to the extent that the does not have an excessive amount of interest relative to other firms in the same sector. Thus grant support is limited for highly leveraged firms.
4. In the event of insolvency there is no grant, the loan remains a senior claim.

- Is it affordable? Yes. Even in the case of a massively impacted firm the required insurance compensation is only around one half of value added (this number comes from a calculation of this kind is made in (Milne, 2020a) for the case of the airline IAG, the owner of British Airways assuming a 75% revenue loss). Even when the shock is as high as 15% and skewed towards a few especially substantially affected sectors, the required support is still less than this.

The Appendix to this paper assesses the cost of providing support for a six-month pandemic induced business interruption to all substantially affected SME businesses in the UK. Widespread bankruptcy from a shock of 15% of GDP as we now appear to be faced with threatens to reduce productive capacity of SMEs by around 10% or around 5% of GDP. This can be contained with government expenditure to compensate for their loss of revenue, covering essential expenditures for a six-month period, for around 2.9% of GDP.

This "retrospective insurance" as it is called in (Milne, 2020a) prefer to call it, deals with six shortcomings of the current piecemeal measures.

1. Targeting is both wider and more accurate. It sets out the amount of support available to all small businesses and can include the self-employed and also cultural, social and religious organisations (and might even be extended to large businesses, but on a somewhat less generous schema).
2. It also makes a payout which ensures that all businesses can survive, but requires the businesses themselves to absorb the first loss.
3. It supports more timely and accurate delivery. Delivery through government distribution e.g. through the tax authorities can continue. But the promise of future payment based on retrospective insurance combined with complete government guarantees allows quick delivery through alternative delivery channels of the requirement money through banks and non-bank lenders.

4. There is longer a concern about insufficiency, or the possibility of the money running out, since it is affordable the support can be offered for an indefinite time period (even 24 months of lockdown could be absorbed).
5. It minimises continuing uncertainty.
6. It reduces political concerns about bailing out firms with public funds or the need to respond to one special case after another. All companies of all types are treated on a consistent basis (there is no political favouritism) and because the basis of calculation is transparent and fair (based only on revenue loss).

4. Conclusion

This paper argues that the principal economic impact of Covid-19 is from the interruption it has caused to the circular flow of income. The violent oscillations in the prices of financial assets and disruption to shorter funding markets are a secondary effect that can be largely ignored in designing the appropriate policy response.

Instead the policy response to Covid-19 should be focused on a targeted compensation of income lost from the circular flow (Figure 1) in order to prevent widespread failure of SMEs including non-profits.

This approach is a targeted relatively low-cost intervention that directly addresses the major economic threat of the pandemic, the degradation and eventual breakdown of the network of relationships that links smaller firms and organisations to their employees, customers, suppliers and providers of finance. A simple formula-based approach based on restoring a proportion of value added and linked to the decline of revenue of each firm (with support only forthcoming when the revenue decline exceeds 10%).

The key is providing 100% guaranteed loans (as is already being done in Switzerland) not loans guaranteed to 80% or 90% as in the UK or France which leads to extensive delays in disbursement. This intervention can be carried out rapidly and at low administrative costs (there is an administrative burden but this all comes in 2021 when a proportion of this lending converts to grants).

The calculations in the Appendix suggests that without this intervention the pandemic could lead to small business failures that in turn result in a loss of economic capacity of 5% of GDP with corresponding loss of tax revenue, but that this capacity can be saved at a cost to the public purse of around 2.9% of GDP. This is a payback of less than one year. If it takes five years for the productive capacity to be restored (i.e. at a similar pace to recovery from the global financial crisis of 2007-08) then the benefits of spending this 2.9% of GDP are worth around 15% of GDP. For every one pound that is spent, five pounds are returned.

Given the continuing concerns about the failure of the UK government to give sufficient support to protect small businesses from failure as a result of the pandemic business interruption, this seems like an overwhelming case for measures along the lines proposed here.

Appendix: the benefits and costs of protecting SMEs from failure

This appendix looks more closely at the economic impact of the pandemic, assessing: the potential loss of productive capacity from the failure of small businesses; the rate of business failure if actions are not taken to protect small businesses from the loss of revenue resulting from the pandemic; the impact of allowing failure on economic output now and in the future and the costs of protecting these businesses from failure. The overall finding is that the economic benefits of protecting small businesses from failure far outweigh the economic costs.

This analysis is carried out in four stages.

1. The first is a calculation of the maximum loss of productive capacity and employment, that which would arise if all affected business to close. The working assumption is that small and medium sized firms – those with 250 employees or less who account for 50% of business sales and 60% of employment – cannot be restructured and relaunched after failure so their productive capacity is lost; whereas larger firms with more than 250 employees can be restructured and their productive capacity is saved. This analysis uses data from the BEIS Business Population Estimates 2019 and ONS on turnover and value added of small businesses by broad industrial sector. Imposing assumptions about the sectoral impact of closure a closure of 34% of small businesses with a reduction of 15.1% in productive capacity of the business sector, 16.0% in business turnover and 20.6% in business employment.
2. Additional information on debt financing (from the Bank of England review of Open Data for small business finance, from the BVA-BDRC SME Finance Monitor, supplemented by some information from the recently established British Chamber of Commerce Covid-19 impact tracker) is then used to assess what proportion of this productive capacity could be lost in the coming months without support for essential business expenditures. Some businesses, those that make little use of external debt finance and have few other ongoing commitments such as rent or maintenance of equipment, could survive many months even years of lockdown (the SME finance monitor suggests that some 40% of small businesses may fall into this category). Others are already struggling. Without additional intervention, a loss of productive capacity of around 5% of GDP within 2-3 months appears likely.
3. Productive capacity will not be lost for ever. Much of the productive capacity is human capital together with networks of productive relationships linking firms, customers, suppliers, employers and providers of finance. These can over time be rebuilt. Physical capital may be re-allocated, with costs of refurbishment and reallocating to different use, rather than be thrown away altogether. The assumption here is that this rebuilding will take place gradually over five implying that the loss of output from failing to protect small businesses – and hence the benefit of saving them – is worth 15% of GDP.

4. The final stage is an assessment of the economic costs of saving all these businesses, covering all the essential debt, rent and operating costs required to save them from failure. This assessment requires some additional assumptions: 20% of the workforce must be retained, and one quarter of the depreciation of assets set aside to ensure that productive capacity is not lost. This works out in flow terms at 5.8% of GDP per annum i.e. if the lockdown continued for one year this is the amount of resource required to avoid all small business failures. With the more reasonable but still cautious assumption that the lockdown of different sectors averages 6 months, then the cost is 2.9% of GDP (over and above the existing measures to protect the incomes of furloughed employees and the self-employed). Spending and additional 2.9% of GDP to save 15% is clearly worthwhile.

Calculations of maximum loss of productive capacity

All calculations are contained in an Excel Workbook available on the COVID-19 page of https://alistairklmilne.com/ . The main spreadsheet is the first "TotalTurnover". This distinguishes seventeen industrial sectors and imposes the following assumptions about the proportion of each sector that has been closed down by the pandemic lockdown:

Business Sector	Assumed proportion of sector closed by lockdown
01-03 : Agriculture, forestry & fishing	0%
05-39 : Production	30%
41-43 : Construction	50%
45 : Motor trades	80%
46 : Wholesale	25%
47 : Retail	40%
49-53 : Transport & Storage (inc. postal)	50%
55-56 : Accommodation & food services	95%
58-63 : Information & communication	5%
64-66 : Finance & insurance	5%
68 : Property	0%
69-75 : Professional, scientific & technical	20%
77-82 : Business administration & support services	40%
84 : Public administration & defence	0%
85 : Education	10%
86-88 : Health	0%
90-99 : Arts, entertainment, recreation & other services	90%
Total (average reduction weighted by turnover)	28%

Note that the imposed assumptions about the proportion of each sector close by the lockdown are *not* crucial to the subsequent analysis and in particular to the finding that the benefits of saving small business from failure far outweigh the costs. Very possibly they are too small, the impact of the pandemic lockdown will be larger than assumed here. But this will increase both the benefits and the costs of protecting business income. The finding of large benefits relative to costs of intervention to save SMEs from failure will not be altered.

The impact of closing these proportions of each sector on turnover, value-added (turnover less purchase of inputs), employment and also on the number of SMEs affected are shown in columns X-AK. The calculations use data on turnover, employment and number of SMEs in each of the industrial sectors from the BEIS Business Population Estimates 2019 (BEIS, 2020). The value added calculations use additional data of the ratio of value added (defined to include rent as well as wages and salaries, profits and depreciation) from the ONS Input Output Tables for 2016 (ONS, 2019b).[7]

Essential expenditures, debt financing and the threat of failure.

This stage of the analysis is unavoidably judgemental. The principal difficulty is that the financial and business circumstances of SMEs vary so substantially – some may be able to survive a collapse of revenue for many months, even years, by going into "hibernation". Without a very detailed large-scale sample survey/ analysis of available cross-sectional data on SME balance sheet and income statements (both time and resource intensive exercise), it is be not possible to get a precise idea of the number of businesses under threat of failure or how quickly this happen. A fairly clear picture though still emerges by combining a number of sources, suggesting that a large proportion of affected businesses, perhaps one third, are likely to fail within 2-3 months (even with the support of furlough expense already provided to many, others such as sole proprietors or unable to take advantage of the furlough expenses).

A number of expenditures will be essential expenditures required to keep businesses going. The following assumptions, implemented in the supporting spreadsheet, suggest that these average out at 11.6% of turnover of all SME businesses.

- *Debt servicing*. Figure 2 of (BoE FinTech, 2020) provides up to date figures on aggregate debt finance of UK SME enterprises, a total of £191bn of which 85% is provided by banks. In the absence of other information, the spreadsheet calculations assume that the sectoral distribution of this debt is in proportion to sectoral value added. Assuming

[7] The BEIS numbers combine together motor trade and servicing, wholesale and retail and omit financial services; so additional data from the ONS statistics on UK Business: Activity, Size and Location (ONS, 2019a)are used to derive estimates for these four sectors.

a 2-year payback period and an interest rate on lending of 10% per annum, requires a debt servicing payment of 4.615% per month (computed in a separate spreadsheet in the workbook). This amounts to an average of *3.2% of turnover per year*.

- *Business (or direct taxes).* The ONS input-output table provide sectoral information on rent payments, depreciation, wages and salaries and on profits (operating surplus) and also product taxes (or indirect taxes principally VAT and duties) and other direct taxes (principally rates and corporate taxation). These 'unavoidable' direct taxes vary substantially from sector to sector but *average at 0.8% of turnover* (unavoidable in the sense that rates must usually be paid, aside from the current limited relief, and corporate taxation will still be due on profits from the previous year).
- *Rent* Using the input – output data, indicates average across the economy, *rent is 1.2% of turnover*, but higher in two of the most affected sectors 2.8% in retail (higher again for high street retail), 3.0% in accommodation and food services.
- *Other essential expenditures*. These are *estimated, extremely crudely, as 6.4% of turnover*. All businesses have other essential expenditures, simply to "keep the lights on". These will include security for closed buildings, maintaining and operating computer and telephone systems, unavoidable administration relating to the furloughing of employees and managing the business when revenues have collapsed. These expenses are assumed to be 20% of wage bill. In addition, for businesses to survive without damage they must put aside some proportion of depreciation for managing and maintaining their physical capital. This is assumed to be 25% (one quarter) of annual depreciation.

These are essential expenditures needed to keep a business alive. Businesses also have cash balances which they can draw on for these essential expenditures in order to maintain their business. The BVA-BDRC SME finance monitor 2019 Q4 (BVA-BDRC, 2020) page 55 reports data on cash credit balances as a percentage of turnover (this tabulation does not distinguish industry sectors). Around 22% hold less than 5% of turnover as a cash balance and 53% hold less than 10% of turnover as a cash balance.

However, critically, these SMEs with lower cash balance will typically be those SMEs who utilise external finance. If we assume all the debt finance and burden of debt service is with these SMEs, then their essential costs will rise from 11.6% to 14.8% of turnover.

These figures in turn suggest that around one half of the most directly affected businesses (those whose cash balances are less than 10% of turnover) are threatened with failure (or approximately one sixth of all SMEs in the UK), and that avoiding failure (i.e. cash balances falling to zero) depends on them furloughing a large proportion of their workforce (here assumed at 80%) and even then *a fifth of them will still fail (cash balances will be exhausted) within around 3 months and half will fail withing 8 months* (these calculation are columns AD and AE of the main spreadsheet in the supporting Excel workbook). This calculation assumes that they obtain the furlough support on offer from the UK government, offering 80% of wages to furloughed staff, which many busineses e.g. sole proprieterships cannot properly access.

A recently launched small sample survey conducted by the British Chamber of Commerce to track the impact of the pandemic (only 1,000 SMEs surveyed) paints a bleaker picture (BCC, 2020). Their second survey for April 1st-3rd indicated that 57 per cent of firms have three months cash in reserve or less, 6 per cent of respondents have already run out of cash. This suggests that the calculations made using BEIS and ONS statistics may be a little too optimistic. On the other hand there may well be bias in the survey results, for example the three months of cash in reserve may be extended through expenditure reduction.

This does not overturn the central argument developed in this appendix: that the benefits of saving business from failure are much greater than the costs. We will adopt relatively conservative assumptions here will be of an extended lock down of six months and that one third of affected firms fail during this time. If more firms than this fail then, while it is true that the costs of saving them are likely to be greater so too will the benefits.

Productive capacity will not be lost for ever.

It is tempting to assume that productive capacity will be lost forever, implying at a real discount rate of 2% (typical of the assumptions used for e.g. investment in protecting the climate) a present value of 50 × 5% = 250% of GDP.

This though is clearly exaggerated. The scars to the economy from the pandemic will eventually heal, but the healing will take time. A reasonable assumption here, one consistent with the recover from the global financial crisis of 2007-2008 is that the lost productive capacity will be restored over a five year period. i.e. loss of 5% of GDP in year 1, 4% in year 2, 3% in year 3, 2% in year 4and finally 1% in year 5.

Adding these together (and ignoring discounting) results in a benefit from saving small businesses of 5% + 4% + 3% + 2% + 1% = 15% GDP.

These benefits greatly exceed the costs of saving all our small businesses.

Now for the 'coup de grace'. The essential expenditures which small business require to maintain themselves for resuming normal business when the pandemic is over are computed here as 11.6% of the turnover of all SMEs. Around one third of SMEs are impacted. The ratio of business turnover to GDP is 1.50. So as a percentage of GDP the annual costs of government covering the essential costs is 1.50 × 11.6 / 3 = 5.8% GDP per annum. If the lock down lasts for six months then this cost is 2.9% of GDP (in addition to what the government is already spending on furloughed staff). This is markedly less than the 15% GDP benefit of saving these businesses.

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