



COVID-19 Notes

Finance Series

Assessing the impact and policy responses in support of private-sector firms in the context of the COVID-19 pandemic¹

March 26, 2020

Key messages

- *COVID-19 is damaging otherwise healthy firms through four channels: (i) falling demand, (ii) reduced input supply, (iii) tightening of credit conditions and liquidity crunch, and (iv) rising uncertainty.*
- *Short-term support to keep firms viable includes grants, guarantees, concessional lending, trade finance, increased bank lending, factoring, and tax credits. It may involve temporary suspension, reprofiling or even cancellation of a range of financial obligations, such as taxes, debt repayments, and rental or utility payments. Easing financial conditions and exercising regulatory forbearance might be necessary as long as conditions remain difficult.*
- *Measures should be transparent and time-bound, and where feasible, should direct scarce resources to the most affected parts of the economy, while avoiding financial instability.*
- *Tools to be considered include fintech (mobile payments, factoring), public procurement, and legal and regulatory reform (e.g. of licensing, labor laws, bankruptcy and debt enforcement mechanisms).*
- *The most vulnerable firms should not be left out of the support net, including smaller and informal firms, young firms, and firms strongly integrated in domestic and international value chains. Stronger support can be given as an incentive for firms to maintain workers.*
- *Policy responses during the recovery phase should focus on helping firms return to their pre-crisis production and employment.*

1. Introduction

Private-sector firms and workers are feeling the economic brunt of the COVID-19 pandemic.

The outbreak is quickly evolving from a health emergency into a full-blown economic crisis, spreading rapidly throughout the financial sector and the real economy. This note dissects the channels through which firms in Emerging Markets and Developing Economies (EMDEs) are affected. It presents a menu of possible policy responses based on past episodes of economic distress, as well as a quick scan of interventions recently announced across regions. In doing so, it

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takes into consideration the immediate implications of COVID-19 as the outbreak unfolds, as well as challenges that will remain once the pandemic is contained and recovery begins. It also draws attention to the heterogeneity of impacts across sectors, geographies, and types of firms, but cautions that certain types of policy responses used extensively in advanced countries – such as bank lending or tax breaks – may be less effective in reaching a large share of developing country SMEs which do not pay (all) taxes and are not well linked to formal financing channels. As such, the note proposes a wider menu of options to reach vulnerable firms. To help guide policy responses, the annex also describes basic indicators to assess the varying impacts of the crisis on different categories of firms and types of workers.

Without timely support, there may be persistent harm as otherwise-healthy firms are shuttered and the related jobs are permanently lost. The objective in supporting firms in the short term should be to address immediate liquidity challenges (i.e. “to keep the lights on”), limit firm closures/bankruptcies (particularly in cases where more productive firms may be at greater risk of closure), and prevent widespread layoffs. It is important that this type of support is rapid, transparent and time-bound. In the recovery phase, policies should be geared towards supporting growth-oriented enterprises, promoting reallocation of resources to more efficient companies, and avoiding measures that risk propping up zombie firms (i.e., firms that earn just enough money to continue operating and service debt but are unable to pay off their debt, and in turn, unable to invest or grow, thus diverting resources away from healthy, viable firms²).

This note is divided into two sections. The following section provides a *framework* that presents the pathways through which the COVID-19 pandemic is affecting businesses. The second section delves into possible *policy responses* including examples of actions applied in the past or currently being deployed around the world.

2. Pathways of the economic shock

The COVID-19 shock is impacting firms simultaneously through four distinct channels (illustrated in greater detail in Figure 1 in the Annex):³

1. **Demand-side shocks:** (a) negative impact on final consumption and export demand, (b) negative impact through value chains as firms experience lower demand from other firms that are themselves experiencing a drop in demand, or buyers/customers going into bankruptcy resulting in payment delays and defaults.
2. **Supply-side shocks:** (a) decline in the availability of labor as firms must stay closed and workers’ lives are disrupted as they are unable to fully participate because of illness, childcare or household duties or face restrictions related to their mobility; (b) decline in firm productivity as workers are less efficient as they adapt to new working

² Adalet McGowan et al (2017): “The walking dead: zombie firms and productivity performance in OECD countries” and Ricardo Caballero et al (2008) “Zombie Lending and Depressed Restructuring in Japan”

³ Annex 4 provides a conceptual framework describing the interaction of these channels between firms, workers, government, financial sector, and external sector.



hours and modalities of work, and as firms use new combinations of inputs—all of which may require adjustments to organizational or production processes; (c) lack of intermediate goods as value chains are disrupted, particularly for those businesses relying on imported inputs (e.g. imports from China).⁴

3. **Financial shocks:** Funding strains for private sector firms, in particular: (a) MSMEs which are fully reliant on bank funding or commercial lending; (b) corporates in EMDEs with high debt levels and USD-denominated funding; (c) larger corporates that have funded themselves increasingly in financial markets, but are dependent on backup lines of bank credit; (d) deterioration of credit conditions from banks and non-bank financial institutions arising from an overall curtailment in financial intermediation, including through restricted physical access to banking services; and (e) a rush to prematurely force businesses into liquidation as a tool of debt collection by other firms feeling the brunt of the crisis.
4. **Uncertainty:** (a) lower investments; (b) lower appetite for risk associated with innovation and entrepreneurship.⁵

Impacts on firms will vary over time. In particular, it is useful to distinguish between two distinct phases of the current crisis: Phase I – Outbreak and Phase II – Recovery.

- **Phase I – Outbreak** refers to the stage in which many countries find themselves at present, owing to the channels above. Most current scenarios assume this phase can last up to six months until the spread of COVID-19 is contained, although this is subject to the epidemiological evolution of the disease. The characteristics and implications for firms during this phase are summarized in Table 1.

Table 1: Phase I - Characteristics and Implications

Phase I – Outbreak (first six months)		
	Characteristics	Implications for firms
Demand Shocks	<ul style="list-style-type: none"> ✓ Reduced consumer spending on services like travel, entertainment, restaurants ✓ Reduced consumer demand for goods as lockdown measures are adopted ✓ Reduced demand from other firms ✓ Fall in exports due to disruption to supply chains 	<ul style="list-style-type: none"> ✓ Liquidity problems as reduced sales results in an inability to pay creditors (banks, suppliers) ✓ Inability of buyers to pay past receipts ✓ Inability to pay workers and maintain workforce levels
Supply Shocks	<ul style="list-style-type: none"> ✓ Reduced access to imported inputs due to disruption to supply chains ✓ Temporary closures, reduced business hours, lockdowns (either mandatory or voluntary) 	<ul style="list-style-type: none"> ✓ Reduced output ✓ Worker layoffs ✓ Liquidity problems as reduced sales result in an inability to pay creditors

⁴ This effect is likely to be stronger for those firms that are dependent on specific suppliers and cannot readily switch to other alternatives (e.g., those who are dependent on imports from China have been affected earlier than those dependent on inputs from Southeast Asia).

⁵ Uncertainty has also direct effects on the other channels (e.g. demand of non-essential goods, willingness of workers to get exposed to health risks, and financial market). This particular channel focuses on how uncertainty may affect long term outcomes.



Phase I – Outbreak (first six months)		
	Characteristics	Implications for firms
Uncertainty Shocks	<ul style="list-style-type: none"> ✓ Worker absenteeism due to illness or lockdown measures ✓ Reduced labor productivity as a result of illness, remote work arrangements, etc. ✓ Lower total factor productivity due to adjustments in factor composition, skill mix, organizational changes required to adapt to new ways of working 	
Financial Shocks	<ul style="list-style-type: none"> ✓ Liquidity squeeze and high volatility in financial markets with extraordinarily high levels of risk aversion affecting negatively financial intermediation (volume and prices) ✓ Pressure in all firms, but especially in highly-leveraged corporates, which in turn affects credit availability to SMEs and increases interest rates ✓ In extremis, potential financial crises 	<ul style="list-style-type: none"> ✓ Reduced access to working capital ✓ Liquidity problems as lack of access to credit results in an inability to pay creditors ✓ Rush to liquidation as a tool for debt enforcement ✓ Widespread debt default that hampers credit ratings and inhibits future recovery ✓ Investments are postponed due to credit restraints
Uncertainty Shocks	<ul style="list-style-type: none"> ✓ Novelty of COVID19 creates apprehension about length of the outbreak and depth of its impact on human health, and hence on the economy ✓ Panic in extreme circumstances 	<ul style="list-style-type: none"> ✓ Investments postponed due to uncertainty ✓ Firms overreact to the crisis and reduce employment more drastically

- **Phase II – Recovery** considers the challenges firms will face once the epidemic is contained and economic conditions gradually return to their pre-crisis level. During this phase, mobility restrictions and mandatory lockdowns are removed, allowing businesses to reopen. Still, many firms, including both larger corporates and SMEs, will have not escaped the previous phase unscathed and may be facing the risk of insolvency. Moreover, the negative effects on credit markets, supply chains, and worker productivity will dissipate only gradually. The deterioration of balance sheets will affect financial sector decisions and will increase risk aversion parameters when extending new credit. Most current scenarios assume that Phase II extends for 18 months after the outbreak is contained, although that assumption is contingent on the effectiveness of broader macro-financial measures to stem the outbreak’s economic fallout. The characteristics and implications for firms in this phase are summarized in Table 2.

Table 2: Phase II - Characteristics and Implications

Phase II – Recovery (next 18 months)		
	Characteristics	Implications for firms
Demand Shocks	<ul style="list-style-type: none"> ✓ Lockdown measures are lifted ✓ Export restrictions gradually abated ✓ Travel/tourism demand slowly recovers 	<ul style="list-style-type: none"> ✓ Private sector demand may recover too slowly without government intervention
Supply Shocks	<ul style="list-style-type: none"> ✓ Supply chains gradually reestablished, but some reconfiguration takes place (e.g., near-shoring) 	<ul style="list-style-type: none"> ✓ Import-export credit needed to reestablish pre-existing trade relationships ✓ Delays and difficulties in rehiring workers



Phase II – Recovery (next 18 months)		
	Characteristics	Implications for firms
	<ul style="list-style-type: none"> ✓ Most, but not all, working-age adults recover and resume work 	<ul style="list-style-type: none"> ✓ Composition of employment may shift to younger, less experienced workers ✓ New export opportunities may arise, but information about them may be scarce
Financial Shocks	<ul style="list-style-type: none"> ✓ Bank balance sheets remain weak and face the impact of phase one. Gradual recovery ✓ Companies continue to face credit constraints 	<ul style="list-style-type: none"> ✓ Working capital remains scarce ✓ Delayed investment due to credit restraints ✓ Firms’ credits scores may have been affected ✓ Firms continue to face solvency challenges ✓ Main lenders focused on managing/restructuring portfolio and not on new lending opportunities ✓ Uncertain impact on risk aversion and pricing
Uncertainty Shocks	<ul style="list-style-type: none"> ✓ Uncertainty will recede as the pandemic is contained 	<ul style="list-style-type: none"> ✓ Investment recovers only gradually as uncertainty dissipates, firms avoid investing in risky projects.

Targeting of support should be kept as simple as possible during the response phase, and gradually evolve during the recovery phase by taking into account new circumstances and firms’ characteristics. Targeting the support to the firms most affected, and more deserving, has various advantages. First, it preserves scarce fiscal resources. Second, it helps ensure that firms receive an adequate level of support in line with their immediate needs, given the short-term effect of the shock. In the absence of targeting, interventions could be insufficient for those firms that need them the most and superfluous – or, even worse, distortive – for firms who don’t need them. At the same time, however, targeting adds elements of complexity and discretion in a context of crisis where very quick response is needed. Furthermore, targeting can be hard to implement in settings where institutional capabilities are weak. It may open the door to rent-seeking behavior and ultimately run the risk of capture by well-connected firms, thus undermining the effectiveness of policy responses.⁶ Any targeting of policies in Phase I is therefore best limited to the locations and sectors that are hit the hardest initially, and can expand as the effect of the shock propagates. During Phase II, support policies could be targeted to more specific groups of beneficiaries, as described in more detail in Annex 2.

When providing support, policymakers should consider a range of instruments to ensure that particularly vulnerable firms are not left out of the support net. One example of such vulnerability is asymmetric access to financial markets (finance, equity, insurance) because of

⁶ Schwab and Werker (2018) provides evidence of the negative association between rent seeking and economic growth, while Rajan (2009) describes some of the relevant mechanisms. A number of countries have put forth proposals to support firms that can demonstrate that they have been affected by the COVID-19 shock, yet determining who has and has not been affected opens the door to discretion and rent-seeking. Such more complex measures are best reserved for the recovery phase.



market failures, and therefore the need to reach the following firms with a broad range of instruments (the next section provides examples of potential instruments):

1. **Smaller firms:** Enterprise Surveys show that most firms in developing countries do not have loans or access to lines of credit. In Africa, and many parts of MENA and South Asia, more than 80 percent of firms lack access to financial markets. The temporary liquidity shock could thus quickly become a solvency shock and force potentially productive and profitable firms to close down. It will be important to ensure that smaller and less formal firms are aware of the public support interventions and are able to apply for them and receive them – expanding the range beyond the formal banking and tax channels.
2. **Younger firms:** Similar to SMEs, younger firms and startups face more stringent financial constraints than established ones. Young companies may be more productive than incumbents, but less able to weather adverse demand shocks (Foster et al, 2016). This implies disproportionate losses to aggregate productivity, if the impact of the shock cannot be mitigated. Interventions to help these firms should recognize that they face imperfect access to credit and insurance markets, and may therefore benefit more through direct public support.
3. **Integrated firms:** Firms engaged in trade—exporters, importers or firms integrated in global or domestic value chains—are also likely to be more exposed to the shock. It is important that these firms are not left out of the support net, implicitly or explicitly, as they normally tend to be more productive. Therefore, their loss would slow recovery depress overall productivity.
4. **Innovation intensive firms:** Higher uncertainty and lower access to financial markets would have a negative impact on highly-innovative firms, which are typically more productive than the average firm.

3. Policy Responses

During Phase I – Outbreak, there is an urgent need to adopt emergency measures to address immediate liquidity challenges, reduce layoffs, and avoid firm closures and bankruptcies. A key consideration in this phase is providing support that is rapid, broad-based, transparent, and time-bound. All measures implemented during the initial phase should have clear exit strategies as the objective is to mitigate the impact of an unforeseen disruption, rather than keeping unviable (in the extreme cases, “zombie”) firms alive artificially.⁷ Support, especially in the form of grants or wage subsidies, may be conditional on maintaining workers. Table 3 describes actions taken by different countries for consideration, and lays out some important aspects related to the feasibility and effectiveness of the policy responses, as well as their distributional impact. The implementation of any of these actions by specific countries will need to be contextualized and the design will need to be carefully considered.

⁷ Consider that firms in some hard-hit sectors such as retail, food services, and hospitality normally face exit rates that are 2-3 times higher than exit rates in manufacturing or skill-intensive services. This means that, in the absence of the shock, a number of support beneficiaries would have exited the market anyway (although their employees would have been able to find other employment) and therefore such firms should not be eligible for continuous public support.



Informal firms are harder, but not impossible, to reach. Informal businesses frequently have few or no paid employees, are highly dependent on social networks and community-based financing, and many are women-owned. With these challenges in mind, Table 3 also includes potential instruments to reach them (e.g., factoring, support for rent or utility payments, etc.; see column on considerations). Additional considerations include:

- *Support for the functioning and expansion of individual transaction accounts, including digital, to facilitate relief payments and remittances.* Policies could include: (i) introducing online systems for account enrollment, as well as opening e-wallets online;⁸ (ii) simplifying Know Your Customer requirements for low-value accounts, enabling agents to open accounts quickly;⁹ and (iii) introducing a no-charge policy for mobile money transactions up to a threshold and lifting limits (daily, monthly) for mobile money transactions.¹⁰
- *Ensuring continued flow of financing through remittances and community-based financial institutions (CBFIs), such as savings and credit cooperatives.* Policies could include: (i) classifying CBFIs as ‘essential’ services during the crisis so that they can remain open; (ii) providing exceptional liquidity assistance to CBFIs that are rated and supervised by the central bank or supervisory authority; (iii) facilitating partnership between banks and mobile network operators (MNOs) to provide loans to the latter subscribers;¹¹ and (iv) enforcing or encouraging leading MNOs to reduce the impact of FX costs on senders and receivers of remittances.
- *Using mobile to reach women-owned businesses.* Policies could include: (i) providing mobile phones to women to facilitate access to financing;¹² and (ii) using customer data on mobile phone and mobile banking transactions to identify women more likely to be vulnerable during this crisis to more effectively target relief payments.

Table 3: Phase I – Policy actions and considerations

Phase I – Outbreak (first six months)	
Policy actions	Considerations
<p><i>Maintain access to finance:</i></p> <ul style="list-style-type: none"> • Expanded fintech solutions for SME finance • With support from state-owned and/or central banks, financial institutions extend loan repayment schedules • Provide partial credit guarantees, export financing and credit insurance mechanisms to businesses facing liquidity shocks 	<ul style="list-style-type: none"> • Explicit action to ensure that informal firms, mostly outside tax and financial system, are not excluded from responses to the crisis, and may include: <ul style="list-style-type: none"> - Provide, through their suppliers, informal firms access to direct transfer based on invoices from their suppliers (e.g. 50% of previous 3 months) - Extend factoring and credit guarantee programs to informal firms

⁸ This is being considered by Jordan.

⁹ Ecuador is considering deferring KYC/CDD on new basic account openings (as long as an ID is present) on the condition that KYC/CDD can be done after the crisis subsides.

¹⁰ This is being considered by several central banks and already implemented by Kenya.

¹¹ Mshwari in Kenya and Ecocash in Zimbabwe are typical examples of MNOs partnering with banking institutions to issue credit to their subscribers on the back of mobile data. These initiatives could be replicated in other markets.

¹² For example, this was already being planned in Pakistan before the covid-19 outbreak.



Phase I – Outbreak (first six months)	
Policy actions	Considerations
<ul style="list-style-type: none"> • Address the cash flow challenges of MSMEs • Stimulate bank lending • Regulatory measures that allow for flexible accounting measures to prevent firms credit scores to be damaged long-term¹³ <p><i>Ease and postpone tax obligations:</i></p> <ul style="list-style-type: none"> • Tax credits, waivers, and/or deferrals • Instant asset write-offs limited in time for SMEs • Reduce and/or defer payroll and social security taxes • Full deduction of crisis-related extraordinary outlays in VAT and income tax payments¹⁴ • Defer local property tax payments, with support from national authorities¹⁵ <p><i>"Keep lights on" for businesses:</i></p> <ul style="list-style-type: none"> • Consider expansion of public procurement initiatives (see, for example, a proposal for a temporary “government-as-buyer-of-last-resort” program¹⁶, Saez & Zucman, 2020) • Amend insolvency & restructuring frameworks to urgently respond to the needs of MSMEs • One-time direct transfer for SMEs to keep them in business¹⁷ (e.g. grant for rental payment, flat grant conditional on registering firm/workers, etc.) • Expedited payment to government suppliers as well as suppliers to SOEs (e.g. all pending payments to SMEs be completed in 2 weeks and payments to large companies within 1 month)¹⁸ • Provide direct support to cover wage bill or have governments directly cover the wage bill¹⁹ • One-time grant for informal businesses that decide to formalize 	<ul style="list-style-type: none"> - Provide direct support for rental payment and deferrals of utility payments - Simplify access to transaction accounts, including for receipt of emergency support and transfers - Support community-based financing institutions - Mitigate damage to remittance flows - Restructure consumer loan payments - Provide a flat transfer (based on average profits/labor costs) for anybody who accepts to register the firm or workers. <ul style="list-style-type: none"> • Condition support to maintaining workers <ul style="list-style-type: none"> - Benefits may not reach workers and firms may still rely on layoffs. - Support to “keep lights on” should be conditional to maintain workers • If support is provided to large firms, it is important that this support is conditional on large businesses paying their vendors and avoiding massive layoffs. • More flexible or rapid procurement should still safeguard against possible bid-rigging • Country heterogeneity makes some responses unfeasible <ul style="list-style-type: none"> - Fiscal space may be limited - Access to finance might be limited to begin with, so that benefits only accrue to a few firms that have access to credit - Implementation capabilities may be much limited in LICs and FCVs • Firm heterogeneity

¹³ During the 2009 GFC, Mexico adopted “special accounting criteria” to support SMEs and offset a long-lasting impact on their credit scores.

¹⁴ Example: Chile

¹⁵ Example: Chile

¹⁶ For details see proposal from Saez & Zucman (2020). [Keeping Business Alive: The Government as Buyer of Last Resort](#).

¹⁷ Example from Australia: Subsidy for SMEs to boost Cash Flow for Employers by up to \$25,000 with a minimum payment of \$2,000 for eligible small and medium-sized businesses. The payment will provide cash flow support to businesses with a turnover of less than \$50 million that employ staff, between 1 January 2020 and 30 June 2020. The payment will be tax free. This measure will benefit around 690,000 businesses employing around 7.8 million people. Businesses will receive payments of 50 per cent of their Business Activity Statements or Instalment Activity Statement from 28 April with refunds to then be paid within 14 days.

¹⁸ In Chile, starting April 2020, the central government will immediately pay all creditor suppliers.

¹⁹ In Australia, eligible employers (small firms) can apply for a wage subsidy of 50 per cent of the apprentice’s or trainee’s wage for up to 9 months from 1 January 2020 to 30 September 2020. Where a small business is not able to retain an apprentice, the subsidy will be available to a new employer that employs that apprentice. Another example is kurtzarbeit in Germany, where the government temporarily takes over wage bill, or Denmark where the government is proposing to cover 70-90% of the wage bill for companies to keep workers on payroll while not working.



Phase I – Outbreak (first six months)	
Policy actions	Considerations
<ul style="list-style-type: none"> • One-time income support transfer²⁰ for the self-employed to reduce the effect of closure for 1-2 months • Direct support to cover up to 80% of rental payments during the lockdown period • Deferral or temporary support to cover utility payments (e.g., electricity) • Relaxed regulatory compliance requirements, particularly in low to medium-risk sectors; shift towards deemed approval, self-certification, and risk-based inspections; fee waivers • Forward-looking advice/guidance to support businesses resilience²¹ <p><i>Reduce cost of intermediate inputs and final goods</i></p> <ul style="list-style-type: none"> • Reduce import restrictions (NTBs, duties) on intermediate goods • Reduce import restrictions (NTBs, duties) on essential goods (e.g. agriculture, food, and health material) <p><i>Support systemically important firms</i></p> <ul style="list-style-type: none"> • Where firms are systemically important, particularly sectors with significant input-output linkages, the aggregate impact of their failure could be devastating. However, any support to these companies should be specifically conditioned on: (1) keeping existing workers and continue to pay them, (2) continuing to pay suppliers. 	<ul style="list-style-type: none"> - Sector-specific needs: tax breaks and credit facilities for SMEs in travel/tourism, entertainment - Support program may emphasize women-owned firms <ul style="list-style-type: none"> • Regional heterogeneity <ul style="list-style-type: none"> - Industries that are most affected may be concentrated in certain regions of a country (e.g., travel destinations, manufacturing hubs) - Authorities may take advantage of that situation and enact focalized emergency plans (e.g., more generous VAT payments deferrals/breaks, credit assistance to all firms in beach resorts) <ul style="list-style-type: none"> • Time-bound interventions <ul style="list-style-type: none"> - Most interventions should be temporary, phased out as the pandemic subsides - Clear sunsets should be spelled out to avoid time-consistency problems <ul style="list-style-type: none"> • Targeting may not be feasible, opening room to cheating and mis-directing scarce resources

Immediate measures should deal with the cash flow problems of MSMEs. The key priority will be to alleviate the shortage of working capital. Direct measures to increase cash flows, therefore contributing to working capital, may encompass accelerated depreciation on certain or all categories of assets, which would reduce taxable income.²² Governments could also consider giving tax credits, cuts, deferrals and refunds.²³ In cases where the government is a significant

²⁰ Amount of subsidy should be commensurate to the foregone income estimated using informal surveys or household survey data as suggested in Section 2.

²¹ An example of forward-looking support for companies to strengthen their business resilience has been launched in Queensland, Australia, where a mentoring program and financial workshops have been set up to assist small companies to address further impacts on their businesses. Similarly, Belgium has opened up existing instruments to support SME growth to help companies find new markets where demand from existing markets has slowed due to the outbreak. Korea is encouraging brick-and-mortar shops to open their business online.

²² For example, as a part of the federal stimulus announced on March 12, Australia will allow businesses with a turnover below AUD 500 million to deduct 50% of their asset cost in the year of purchase.

²³ For example, on March 10 Belgium announced an optional deferral of VAT payment, social contributions and corporate tax; reduced, cancelled or deferred social contributions for self-employed tailored to circumstances.



debtor of MSMEs, moves to shorten payment delays could also help.²⁴ For MSMEs participating in global value chains, governments could put in place or strengthen existing export financing and credit insurance mechanisms.²⁵ Finally, some countries are considering some form of debt moratorium; that needs to be analyzed carefully and closely with the implementation of regulatory forbearance.²⁶

Governments can play an important role in stimulating bank lending. The objective of such a scale-up in lending should be to help firms keep paying workers and suppliers. In some countries, commercial banks are proactively providing emergency loans to SMEs with flexibility in repayments, including on existing loans.²⁷ Governments could increase availability of credit to SMEs using several approaches. Given the extraordinary circumstances, a significant degree of support could be appropriate; however, it should be temporary to avoid, or minimize, market distortions. There should be clear sunset clauses. Governments could extend and diversify partial credit guarantee schemes for loans provided by private banks.²⁸ Alternatively, governments could mobilize funding through state development banks,²⁹ including via concessional loans. This funding should be based on clear eligibility criteria, ideally through second-tier lending, to crowd in private lenders. Countries that are considering having central banks extend credit lines to financial institutions for on-lending to MSMEs should only do so in extreme circumstances and under well-defined pre-conditions.

FinTech solutions could be leveraged to improve SME access to financing. Digital technology offers an unprecedented opportunity to mitigate the impact of the COVID-19 crisis on MSME financing. Simplified loan application processes and use of alternative data for credit decisioning could be leveraged by state development banks to reduce turn-around times of MSME loans.³⁰ Additionally, financial institutions (private banks or state owned banks, if needed) could leverage online platforms for conducting reverse-factoring transactions that could facilitate supply-chain finance to MSMEs and shorten the maturity of the payments involved.³¹ There are several initiatives of digital services providers which are offering help to small businesses.³² Tech-focused firms could be included in government emergency funding programs.

²⁴ For example, New Zealand has directed all administrations to pay their bills within ten working days to support small businesses.

²⁵ To support export activity, the Italian export credit agency (SACE) has announced a EUR 4 billion package to help MSMEs address cash flow needs and diversify export markets.

²⁶ For example, on March 9 Italy announced a moratorium on debt payments of firms, which is mostly backed by government guarantees, and therefore differs significantly from other countries that are not using/do not have the fiscal space to use the sovereign guarantee. A detailed analysis of the impact on the banking regulation is needed.

²⁷ For example, new financing facilities for small businesses have been set up by banks in Malaysia.

²⁸ Several countries such Italy, Japan and the UK have expanded and diversified existing partial credit guarantee schemes to stimulated bank lending to MSMEs.

²⁹ For example, Brazil and Germany, among others, have directed their state development banks to scale up concessional financial assistance to MSMEs hit by the crisis.

³⁰ An example is Canada, where the Business Development Bank of Canada is availing online small business loans below certain threshold with 48 hour-turn-around time.

³¹ For example, Mexico has gained significant experience in this area.

³² In the US, many tech-based firms are scaling support to MSMEs hit by the crisis through special programs and initiatives.

**Complementary measures may be necessary to address the solvency problem of SMEs.**

Providing liquidity can help businesses weather the storm, but this policy may prove insufficient should the COVID-19 crisis extend for more than two or three months, as looks increasingly likely. Liquidity does not compensate businesses for their losses; it just allows them to smooth costs over a longer time horizon. Should the crisis threaten the solvency of MSMEs, governments would have to consider additional measures to complement the emergency actions discussed above. Some options may include: direct compensation through grants for viable firms/sectors that have been significantly impacted;³³ support to publicly funded venture capital companies and funds to inject equity, if markets failures are clearly identified;³⁴ indirect support through loss-sharing mechanisms and other forms of leverage funding; and stimulating private equity investment.³⁵ Any of these options should be considered extraordinary and deployment should be based on the identification of clear market failures. These schemes can be controversial if they lead to large scale nationalizations and can be expensive in terms of fiscal resources. Therefore, they would have to be rationed and designed with a clear sunset clause and exit strategy.

Urgently amending the insolvency framework with temporary measures can facilitate the ongoing operations of MSMEs, as opposed to inevitably pushing them into liquidation.

For micro and small businesses, increasing the debt threshold required for a creditor to initiate bankruptcy proceedings against a debtor³⁶ or limiting access in modern personal bankruptcy systems to a debtor's petitions alone, for a fixed time period, will prevent the system from becoming one of debt collection during a pandemic. It will also control the number of cases entering the overburdened court system. For larger MSMEs, other policies have been implemented in the corporate insolvency framework, such as suspending the director's duty to file³⁷ or suspending the personal liability of directors for a fixed time period for insolvent trading.³⁸ Governments could also consider temporarily prolonging the protections afforded to debtors, such as lengthening the automatic stay period and limiting requests to lift the stay, which would help prevent creditor foreclosure.³⁹ Ensuring that there are flexible options for repayment plans and debt rescheduling will be particularly important in this period of uncertainty, when debtors might not have the income to rapidly make an arrangement. Governments should consider extending the period to propose a repayment plan and incentivize creditors to negotiate with debtors balancing

³³ For example, the European Commission indicated that direct compensation for damages suffered due to the covid-19 outbreak for companies active in sectors that have been particularly hit (e.g. transport, tourism and hospitality or organizers of cancelled events) would be authorized even though they are state aids, which are typically prohibited in the EU.

³⁴ For example, France and Germany have a long tradition of using these instruments through state development banks to provide risk capital to MSMEs.

³⁵ Like for lending, guarantees have the potential to provide large-scale effects, and subsidy leverage, if they are well designed and implemented. The US Small Business Administration's leverage program for Small Business Investment Companies has a long history and provides a number of lessons.

³⁶ Australia has just introduced similar measures through the Coronavirus Economic Response Package Omnibus Bill 2020

³⁷ For example, Spain and Germany

³⁸ Australia

³⁹ Many countries such as Bulgaria and Switzerland are implementing measures to limit creditors' ability to enforce on debt for a temporary period of time.



the need to mitigate any unintended consequences on lenders. The impact on lenders and how to mitigate the unintended consequences is needed.

Credit reporting disclosures may be necessary to mitigate the negative impact of unintended delinquencies. Policy makers and regulatory authorities of credit reporting systems (including bureaus and credit providers (CPs)) should direct all institutions to continue full (file) sharing of credit information and incorporate necessary disclosures for payment deferrals due to COVID 19 Crisis, such as separate reporting codes for facilities that are under a forbearance or deferred payment status window.⁴⁰ Credit providers should create an online portal to handle complaints and to allow consumers and MSMEs to submit payment deferral requests as a result of COVID 19. Credit reporting bureaus should offer unlimited access to free credit reports and scores during the crisis⁴¹. Financial literacy programs for consumers and MSMEs should advise borrowers affected by the crisis on how to respond, including requesting payment deferral,⁴² and publicize public- and private-sector facilities for MSMEs. CRSPs and CPs must implement adequate business continuity procedures to offer full services during the crisis, given the potential of service disruptions⁴³.

In Phase II, the policy objective should shift to helping firms return to their pre-crisis production and employment levels and set the foundations for longer-term productivity-driven growth. During this phase, opportunities to address pre-crisis constraints on firm development may also arise. Credit and tax support measures should be focused on promoting investment and reactivating supply chains. Fiscal measures should be geared toward temporary job creation programs, as well as establishing government programs that aim to promote firm and productivity growth (see Table 4).

Table 4: Phase II – Policy actions and considerations

Phase II – Recovery (next 18 months)	
Actions	Considerations
<p><i>Restore credit flows to boost investment:</i></p> <ul style="list-style-type: none"> • SME credit guarantees schemes • Expanded credit factoring programs <p><i>Reactivate trade flows and value chain participation:</i></p> <ul style="list-style-type: none"> • Expanded import- and export-credit arrangements • Keep import duties low to facilitate access to imported inputs <p><i>Recalibrate tax incentives toward promoting investment:</i></p> <ul style="list-style-type: none"> • Scale-back payroll tax breaks adopted during Phase I 	<p>(Additional qualifications to those stated regarding Phase I)</p> <ul style="list-style-type: none"> • Efforts to restore growth may offer an opportunity to address barriers affecting firms’ growth: <ul style="list-style-type: none"> - Access to SME support programs (e.g., credit support, procurement) may serve as an incentive for informal firms to become formal - Improving the business environment - Strengthened/revamped firm-support programs

⁴⁰ Italy and UK are among several countries who have used separate codes to report negative payment data in the past and will be implemented in the current crisis.

⁴¹ A Bill before the US Senate proposes unlimited access to credit reports and scores, among other measures.

⁴² Several regulatory authorities such the CFPB(US), FCA(UK), Data Protection Authority (Italy), Central Bank of Nigeria, Central Bank of Kenya have issued communiques encouraging customers to approach their lenders to restructure their facilities.

⁴³ ECB requested banks to review their business continuity plans.



Phase II – Recovery (next 18 months)	
Actions	Considerations
<ul style="list-style-type: none">• Accelerated depreciation for capital investments• Incentives for investments in innovation• Introduce full tax deduction for expenses in workers training <p><i>Redirect fiscal support from emergency measures to temporary job creation programs:</i></p> <ul style="list-style-type: none">• Ease SME participation in public procurement• Public works with an emphasis on SMEs <p><i>Revamp/create SME support programs focused on promoting firm and productivity growth:</i></p> <ul style="list-style-type: none">• Promote investments for worker training, management training, BDS, technology adoption<ul style="list-style-type: none">- Introduce tax deductions for up to 80% of expenses in these areas up to a maximum limit (limit could be per firm based on turnover/employees.• Forward-looking advice/guidance to support businesses resilience⁴⁴	

⁴⁴ An example of forward-looking support for companies to strengthen their business resilience has been launched in Queensland, Australia, where a mentoring program and financial workshops have been set up to assist small companies to address further impacts on their businesses. Similarly, Belgium has opened up existing instruments to support SME growth to help companies find new markets where demand from existing markets has slowed due to the outbreak. Korea is encouraging brick-and-mortar shops to open their business online



Annex 1: What have we learned from financial, natural disasters, and epidemiological crises and their effects on SMEs?

The most-studied significant crises have been concentrated on financial markets, military wars, or natural disasters. As in a war or natural disaster, this health crisis is leading to simultaneous disruption in the real economy, both in the supply side and the demand side. As in a deep financial crisis, these effects are quickly propagating across the globe and across time. Yet, differently from a war or natural disaster, an epidemic shock can be significantly affected by individual behavior. Changes in behavior can reduce its diffusion and convert it to a temporary shock. Further, as in the case of a financial crisis, it does not lead to destruction of infrastructure.

Previous epidemiological shocks, such as SARS and Ebola, can provide relevant insights, but the literature is limited. Most of the relevant work related to the economic impact of these shocks are at the aggregated level.⁴⁵

A short summary of these lessons:

- Effects are heterogeneous across sectors;
- Facilitating access to capital is important, particularly for the retail sector, which employs a large share of the population through SMEs in developing countries;
- Technological diversification may facilitate the capacity of firms to deal with these crises;
- The duration of the effects goes well beyond the end of the crises, particularly effects on employment and productivity that persist even after revenues and unemployment have recovered.

Table A1. Summary of key findings related to epidemiological crisis, natural disasters, or financial crisis

Crisis/Country	Paper/ Findings
Assessment of COVID-19's Impact on Small and Medium-Sized Enterprises: Implications from China	Bouey (2020) <ul style="list-style-type: none"> • Businesses relying on physical space and shops, such as supermarkets, traditional food markets, restaurants, car dealers, movie theaters, gyms, and bars, suffered significant losses • Local neighborhood markets (convenience stores), Online retail shops with apps built into social media were popular, as were such recent innovations as human-free markets and vending machines. • As (some) regions go to complete shutdown a mechanism needs to be designed to define what are the activities that will get priority to be reopened. Dai, R., Hu, J., and Zhang X. (2020); Zhang, X. and Wang, R. (2020) <ul style="list-style-type: none"> • The Enterprise Survey for Innovation and Entrepreneurship in China (ESIEC) launched a survey on the “condition of micro, small and medium-sized enterprises (SMEs) amidst the coronavirus outbreak.”

⁴⁵ See Thomas et. al. for the economic impact of Ebola.



Crisis/Country	Paper/ Findings
	<ul style="list-style-type: none"> • 80 percent of surveyed firms had not resumed operations at the time of the survey, February 10, 2020, and 40 percent could not determine a timeframe for resumption; • 50 percent and 61 percent, respectively, of the entrepreneurs interviewed consider that wages and rents represent the main costs of doing business. • 20 percent of surveyed firms will be unable to last beyond a month on a cash flow basis, and 64 percent beyond three months, presenting a dire picture for SME bankruptcies under an extended epidemic scenario; • Barriers to business operations vary along the supply chain, with upstream firms mainly affected by labor shortages, while downstream firms face more serious challenges related to supply chains and consumer demand.
<p>Impact of Tsunami 2004 on microenterprises in Sri Lanka</p>	<p>Mel, McKenzie, Woodruff (2014)</p> <ul style="list-style-type: none"> • Lack of access to capital inhibits the recovery process; • Firms receiving randomly allocated grants recover profit levels almost 2 years before other damaged firms. • Access to capital is particularly important for the retail sector; the role of capital in recovery for manufacturing and services sectors may be limited by disruptions in supply chains. • Business recovery is much slower than commonly assumed, underscoring the role targeted aid may play in hastening microenterprise recovery following such disasters.
<p>Impact of Great East Japan Earthquake 2011 on SMEs</p>	<p>Kashiwagi (2019)</p> <ul style="list-style-type: none"> • Capital subsidies were effective for the recovery of the performance of SMEs in the retail sector. • However, in manufacturing and other service sectors, it finds no significant difference between the recovery of SMEs with and without the subsidy.
<p>Effects of 28 natural disasters reported in the United States in 2013 on firm performance</p>	<p>Hsu, Lee, Peng and Yi (2018)</p> <ul style="list-style-type: none"> • Firms with factories located in states affected by natural disasters are much less profitable. • Firms with diversified technologies are significantly less subject to the impact of natural disasters, suggesting that technology diversity enhances firms' sustainability
<p>Labor Market Adjustment to External Shocks: Evidence for Workers and Firms in Brazil, Chile, Ecuador and Mexico</p> <p>Based on the effects of the global financial crisis 2008</p>	<p>Fernandes and Silva (2020/Manuscript)</p> <ul style="list-style-type: none"> • The duration of the effects goes well beyond the end of the crises. It includes effects on revenues that eventually disappear. But it also includes effects on employment and productivity that persist even after revenues and unemployment have recovered. • Firms have different shocks. The loss depends on the shock (whose magnitude can be estimated), but also on the characteristics of firms. • Despite being a macro-shock, a big part of the responses should be at the micro-level (supporting directly firms and workers, compensating their losses. This goes beyond providing access to credit). • Effects of firm dead of a crisis—even one that lasted much more than 3 months such as the Global Financial Crisis—are relatively small. But effects on productivity appear to be significant and with persistent effects. • Labor market flexibility appear to matter a lot for the nature of workers' and firms' adjustment.



Annex 2: Assessing the asymmetric impact on firms

This section provides a series of suggestions on how to estimate the varying impact of the COVID-19 shock on firms, sectors, and locations to help guide policy responses.

Supply side

As described in the previous section, the impact of the shock on the supply side will vary across businesses, due to differences in the ability of firms to adjust to reductions in labor supply and remote work. The availability of infrastructure, worker skills, and firms' organizational and managerial capacity will determine firms' ability to adjust. Business exposure to a decline in labor supply and plant closure could be measured as follows:

- Identify locations/sectors that are (most) affected by restricted mobility and plant closure due to health concerns;⁴⁶
- Estimate the number of firms, employment, wage bill, and turnover of affected businesses in these locations;⁴⁷
- Estimate the share of businesses that can continue operations with remote work, measured by level of adoption of digital technologies by firms, as well as by the occupation of workers.

Firms are also likely to differ in the extent to which they rely on imported intermediate goods, in general and particularly from China – which thus far has been the most impacted. This may be changing as China reopens and other suppliers may experience greater difficulties. Typically, more productive firms tend to rely more heavily on imported intermediate goods, which may suggest that more productive firms could experience greater adverse effects from the COVID-19 shock. The potential impact of the supply-side shock due to disruption in value chains could be estimated by quantifying exposure of businesses to imported inputs:

- Calculate shares of intermediate goods imported based on trade data;⁴⁸
- Calculate employment and turnover in firms or industries that with a higher-than-average reliance on imported intermediate goods based on firm- or industry-level data.

For many developing countries, informal businesses might be especially common in sectors that are likely to be strongly affected by closures and limited mobility (e.g. offline retail and

⁴⁶ Official information based on guidance from central and local governments can be used as a reference for constraint on mobility.

⁴⁷ These pieces of information are usually available on firm- or establishment-level census data conducted by National Statistical Offices or administrative data (e.g. matched employer-employee data). The [WB Enterprise Survey](#) provides references for a large amount of countries. Keep in mind that it covers establishments with 5 or more employees and the sector stratification varies across countries. Yet, it provides large amount of comparable data across countries, stratified among small, medium, and large firms; and across subnational regions.

⁴⁸ Data on intermediate goods can be obtained from COMTRADE BEC Classification for categories: 111*, 121*, 21*, 22*, 31*, 322*, 42*, 53*. Detailed information on trade data can be download from WITS (<https://wits.worldbank.org/>).



restaurants).⁴⁹ In this case, it is important to consider whether existing sources of data include these types of businesses. The following indicators can be of use (see Table 3 for suggestions of measures that may be specifically adapted to the needs of such firms):

- Household survey data or labor survey to identify number of individuals involved in self-employment or micro-firms and their average monthly income;⁵⁰
- Whenever survey of informal businesses are available rely on these to estimate the potential exposure to the shock by estimating: (a) turnover, (b) employment and wage bill.⁵¹

Demand side

On the demand side, firms' vulnerability to the COVID-19 shock will vary by firms' exposure to export markets. Typically, more productive firms are more likely to export. More productive firms export to more markets, produce more products and export larger shares of their output. This could leave more productive firms more exposed to the shock with negative national productivity effects if these firms are forced to close down. To assess potential impact of drop in export demand:

- Identify sectors and destinations where a decline in export demand is likely to be larger (e.g., using input-output tables);
- Calculate employment and turnover in export-oriented firms based on survey data.

Firm vulnerability will also depend on the ability to respond to drop in consumer demand by switching to online retailing or home delivery (or in some cases to become a supplier to the government through public procurement programs). Key firm characteristics which can help facilitate this type of demand switching include organizational and managerial capacity, as well as familiarity with online retail. At the location level, this will also require that there is enough infrastructure and "consumer preferences" to allow for this. The vulnerability of firms to a decline in demand could be assessed by looking at the following different channels of exposure:

- Estimate share of businesses that are more affected by face-to-face interactions (see Box 1);⁵²
- Estimate share of businesses that is less likely switch to online sales or operations because of lack of access to ICT;

⁴⁹ Most informal firms might not be identified by standard policy instruments (e.g. through tax authorities). At the same time, they tend to be more flexible regarding fixed cost, imposed by labor contracts and financial commitments. Thus, this is a particular group of firms for which strong coordination with social safety net interventions focused on workers and low-income households is needed.

⁵⁰ The WB I2D2 database provides a large amount of harmonized household and labor surveys for more than 150 countries. A simpler version of the data is available by the [Global Jobs Indicators Database \(JoIn\)](#).

⁵¹ For many middle-income countries (i.e. Mexico, Brazil, etc.) these surveys are available, similarly these surveys are available also for several African and Latin American countries as they were implemented by the WB Enterprise Survey team (see [here](#) for a list).

⁵² Refer to the Appendix XX for an index to measure degree of dependence on face-to-face interactions.



- Estimate share of businesses involved in “hospitality industry”;⁵³
- Calculate the turnover, employment (and if possible, also the wage bill) and number of affected businesses.

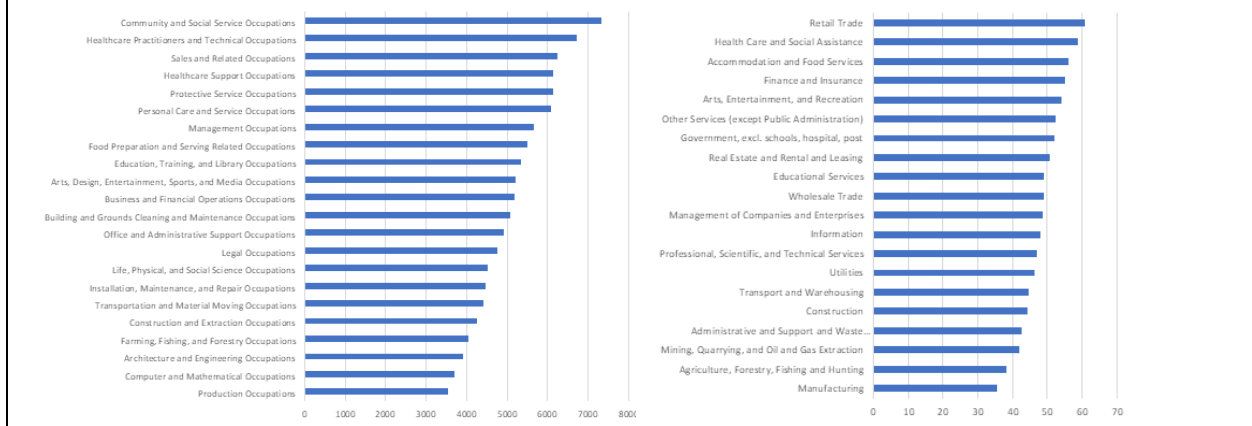
Box 1: Face-to-face interactions index

Avdiu and Nayyar (2020) develop a face-to-face interactions index, following the methodology used in Oldenski (2012) and Blinder (2009). Blinder (2009) identifies five tasks which indicate that the occupation is likely to require face-to-face interaction with customers and/or is difficult to deliver remotely. They are:

1. Establishing and maintaining personal relationships
2. Assisting and caring for others
3. Performing for or working directly with the public
4. Selling or influencing others
5. Social perceptiveness

Of these, the first four are available in the current O*NET database for the United States, which contains “importance scores” for each task by occupation (figure 1). Oldenski (d2012) combines these occupation-level scores (after some rescaling) with the occupational shares by industry to develop an index of task intensities at the sectoral level (figure 2). A larger value of the index indicates a stronger need for face-to-face interactions. At the occupation level, the face-to-face index has changed little over time, which indicates something intrinsic to nature of tasks in a given occupation.

Face-to-face interactions, by occupation Face-to-face interactions, by industry (USA) (USA)



⁵³ Based on the US Department of Labor Standard Industry Classification (SIC) this industry includes businesses in the codes 701, 703, 704, 58, 472



For many countries, particular attention should be paid to informal businesses and self-employed entrepreneurs who may be hard to reach through traditional fiscal measures (e.g. tax breaks) or formal banking channels. Identifying the potential magnitude of the demand shock that these businesses and micro-entrepreneurs may face is important when planning policy response and interventions (see Table 3 for suggestions of measures that may be specifically adapted to the needs of such firms). The following indicators could be of use:

- Calculate share of informal businesses and self-employed in sectors more affected by face-to-face interactions using household survey or labor survey data;⁵⁴
- Calculate share of informal businesses involved in “hospitality industry”;
- When data on informal businesses are available, estimate potential exposure to the shock by calculating: (a) turnover, (b) employment and wage bill.⁵⁵ When not available, it may be possible to estimate this using average household monthly income from household or labor surveys.

Countries may use different sources of information to reach informal business and self-employed, as the concept of informality may vary across countries. Some countries do have registration of informal firms, despite the fact they are not considered formal through the tax authorities. Two sectors with high concentration of informality and self-employed activities in developing countries are agriculture (rural areas) and retail (mostly in high-density urban areas). For agriculture, the database of beneficiaries of existent programs that includes informal establishments and self-employed (e.g. programs that distribute fertilizers) might be a useful source. If there is no clear channel to identify those businesses activities, expansion of existent social safety net benefits targeting individuals or workers should be considered.

Financial shock and uncertainty

On the financial side, inadequate cash reserves is among the top barriers to the success of startups and young firms, as well as SMEs in general. A survey of SMEs in Guangdong, China, identified that even at the early stage of the crisis, a large share of them were already facing liquidity constraints.⁵⁶ Firm vulnerability to the financial shock could be assessed using balance sheet information usually available through datasets like ORBIS, but these data tend to exclude many small firms. Additional data on firm balance sheets may be available through datasets like the Enterprise Survey or using bank’s and NBFIs own balances to assess vulnerabilities in the financial sector in order to take action to release credit constraints on firms.

⁵⁴ The WB I2D2 database provides a large amount of harmonized household and labor surveys for more than 150 countries. A simpler version of the data is available by the [Global Jobs Indicators Database \(JoIn\)](#).

⁵⁵ For many middle-income countries (i.e. Mexico, Brazil, etc.) these surveys are available, similarly these surveys are available also for several African and Latin American countries as they were implemented by the WB Enterprise Survey team (see [here](#) for a list).

⁵⁶ <https://www.scmp.com/economy/china-economy/article/3075099/coronavirus-chinas-small-factories-brace-big-hit-pandemic>



The uncertainty pathway is more likely to cause damaging effects in the medium-to-long run. Long-term strategic decisions, such as investments in R&D, equipment, machinery, and expansion of capacity are usually put on hold in time of crisis. Organizational ability to undertake strategic decisions also weakens.⁵⁷ To remain aware of the potential adverse impacts of this channel, the following may be important:

- Monitor high frequency changes in the economic policy uncertainty index;⁵⁸
- Identify vulnerable firms and sectors by considering domestic acquisition and import of machines and equipment, as well as levels of innovative activity.⁵⁹

Systemic impact of large firms

In certain countries, it is possible that some sectors are dominated by one or a few large firms (who may also dominate a regional economy). When this is the case,⁶⁰ idiosyncratic shocks to these firms can lead to significant aggregate shocks.⁶¹ To assess the importance of these “granular” firms which could have systemic impact on the economy, it may be useful to identify the top 100 companies in the economy (“granular companies”) based on their size (turnover) and assessing their potential systemic risk using three indicators:

- Sectors where these granular companies represent more than 50% of total turnover;
- Workers employed by these granular companies;
- Using the input-output matrix identify sectors that are potentially exposed to these “granular companies” because in sectors that are strongly connected to the sectors where granular companies are dominant.

This analysis will help identify granular companies that may require specific type of support and intervention. It is important to stress that support to these companies should be specifically conditioned to two elements: keeping existing workers and continue to pay them and continuing to pay suppliers.

⁵⁷ Bloom, Bond, and Van Reenen (2007) shows that with higher uncertainty reduces the responsiveness of investment to demand shocks. Their findings suggest that the responsiveness of firms to any given policy stimulus may be much weaker in periods of high uncertainty, such as after the 1973 oil crisis and September 11, 2001. More specifically on innovation, Bhattacharya (2017) suggest that Innovation activities, however, drop significantly during times of policy uncertainty measured by national elections.

⁵⁸ The monthly Economic Policy Uncertainty index for several countries is available at: https://www.policyuncertainty.com/global_monthly.html. Given the current development of the outbreak, it might be useful to use daily risk indicators available for the United States as a proxy for the global risk at: <https://fred.stlouisfed.org/series/USEPUINDXD>.

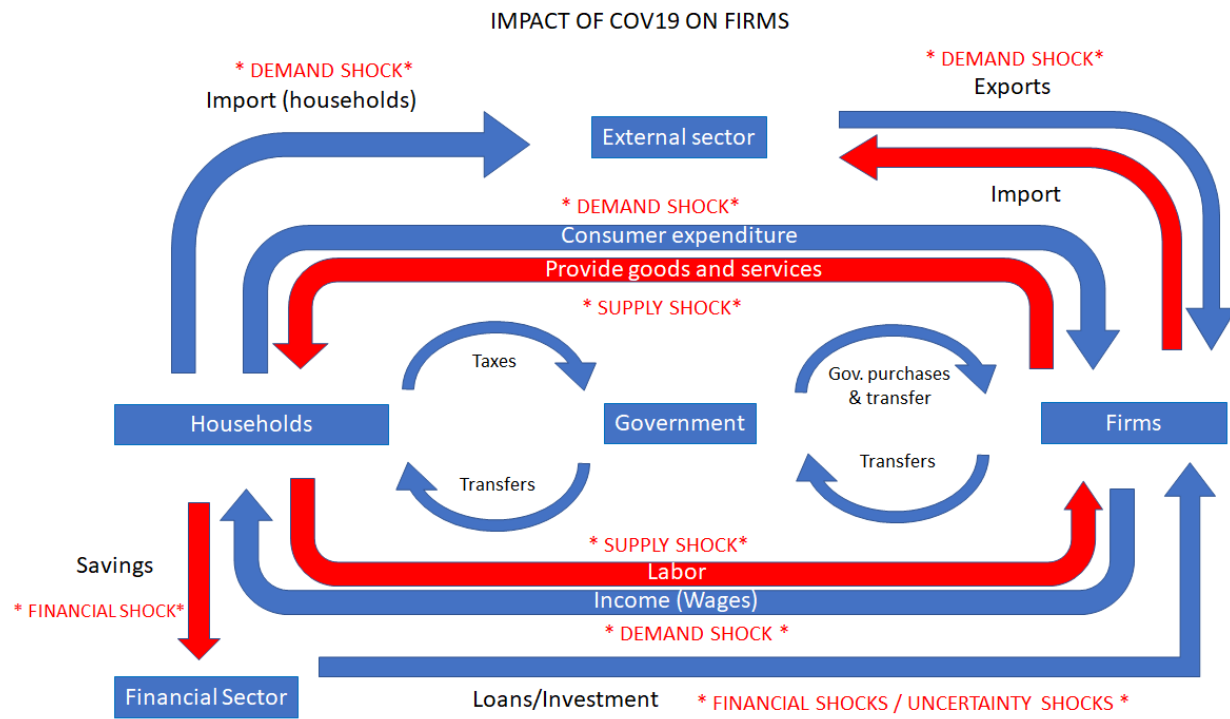
⁵⁹ Many countries have firm-level innovation surveys in place. The WB Enterprise Survey has a special module on innovation covering several countries.

⁶⁰ This is more likely to be the case when the distribution of firms is right skewed (or there is a fat right tail) and can be described by a power law probability density (or Zipf law).

⁶¹ For a discussion of the theory of the granular origins of aggregate fluctuations see the paper of Gabaix, X. (2011). “The Granular Origins of Aggregate Fluctuations.” *Econometrica*, 79(3), 733–772, and for another application to Europe see the paper by Christian H Ebeke & Kodjovi M. Eklou (2017). “The Granular Origins of Macroeconomic Fluctuations in Europe,” IMF Working Papers 17/229, International Monetary Fund.



Annex 3: COVID-19 economic impact channels



(Source: Adapted from Baldwin, 2020)