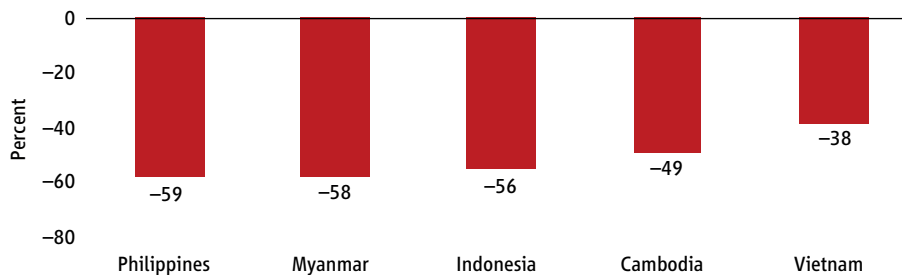


B.3. Productivity¹

How has the COVID-19 shock affected firms?

COVID-19 has led to dramatic falls in firm sales and employment. Firm sales in East Asia and the Pacific (EAP) countries were on average 38 percent to 58 percent lower in April or May 2020, compared to the same month in the previous year (Figure B.3.1).

Figure B.3.1. Drop in monthly sales (vs. prior year) reported by firms in selected EAP countries



Source: Business Pulse Surveys.

Note: The survey was conducted in May for Myanmar, June for Cambodia, Indonesia, Vietnam, and July for the Philippines. Monthly sales refer to firm sales in the last completed month (in the case of Myanmar) or the last 30 days (other countries) prior to the survey, relative to the same period in 2019. In the case of the Philippines, the change is between July and April, when Enhanced Community Quarantine (ECQ) was adopted, hence the sale drop compared to the previous year is likely even higher.

Sales and employment have fallen partly because of firms going out of business, but firms continuing in business are also closing temporarily, laying off workers, or operating at reduced capacity. While firm bankruptcies are often difficult to measure, surveys of Chinese SMEs estimated an exit rate of nearly 18 percent of firms between February and May 2020, which account for approximately 14 percent of total employment.² Even if firms continue operating, many firms are making permanent and temporary savings to their labor costs, through firing workers, granting leave, reducing number of hours worked or, cutting wages (Figure B.3.2).

Figure B.3.2. Employment adjustments (share of firms)



Source: Business Pulse Surveys.

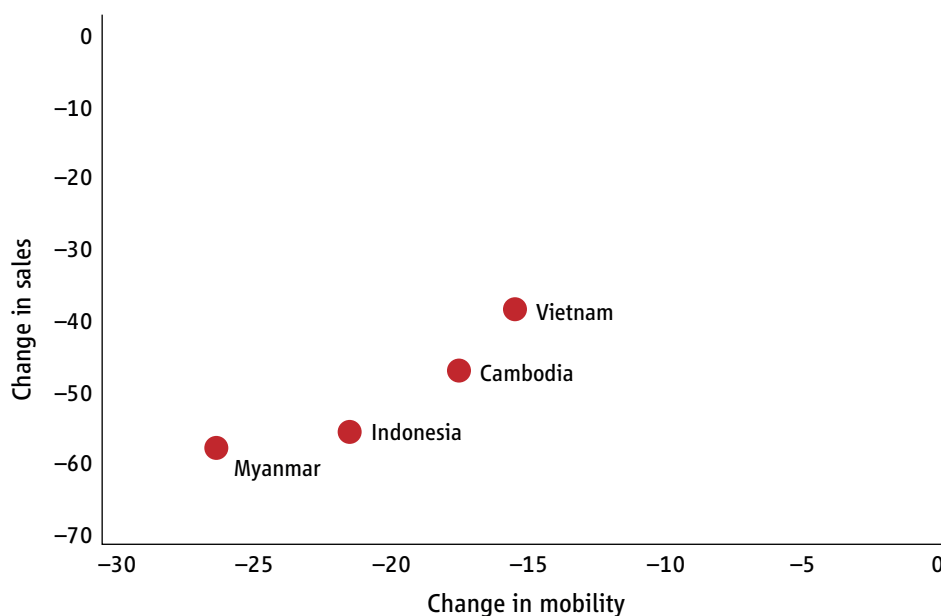
Note: Employment adjustments reflect the last 30 days prior to the survey. The survey was conducted in June for Cambodia, Indonesia, Vietnam, and July for the Philippines.

¹ This analysis was conducted to inform the October 2020 East Asia and Pacific Economic Update.

² Huang et al. (2020) and references therein as well as Zhang (2020a, 2020b) provide insights about the impact of the pandemic on SMEs in China.

The shock started as a sudden stop of local consumption and labor supply due to temporary lockdown measures and disruptions to manufacturing supply chains. Early in the pandemic, Chinese manufacturing firms were mainly affected by shortages of labor and raw materials, with knock-on disruption to global supply chains reliant on Chinese inputs (Zhang, 2020a).³ Lockdowns translated into temporary business closures and countries with more extensive reductions in mobility experienced larger falls in firm sales (Figure B.3.3). Few firms were able to implement new telecommuting arrangements in response to the lockdown.⁴ As containment measures have begun to ease, businesses are reopening—as of June 2020, 46 percent of Vietnamese firms and 23 percent of Philippines firms had reopened after closing temporarily (Business Pulse Surveys). Most businesses are now open, with 97 percent of firms open in Vietnam which has successfully contained the pandemic (Figure B.3.4).

Figure B.3.3. Change in mobility and monthly firm sales



Sources: Business Pulse Surveys and Google mobility data.

Note: The y-axis presents average change in sales in the last 30 days, and the x-axis presents average change in mobility (in retail locations, groceries, transit stations, workplaces) from February until the time of the survey. The survey was conducted in May for Myanmar, and June for Cambodia, Indonesia, and Vietnam.

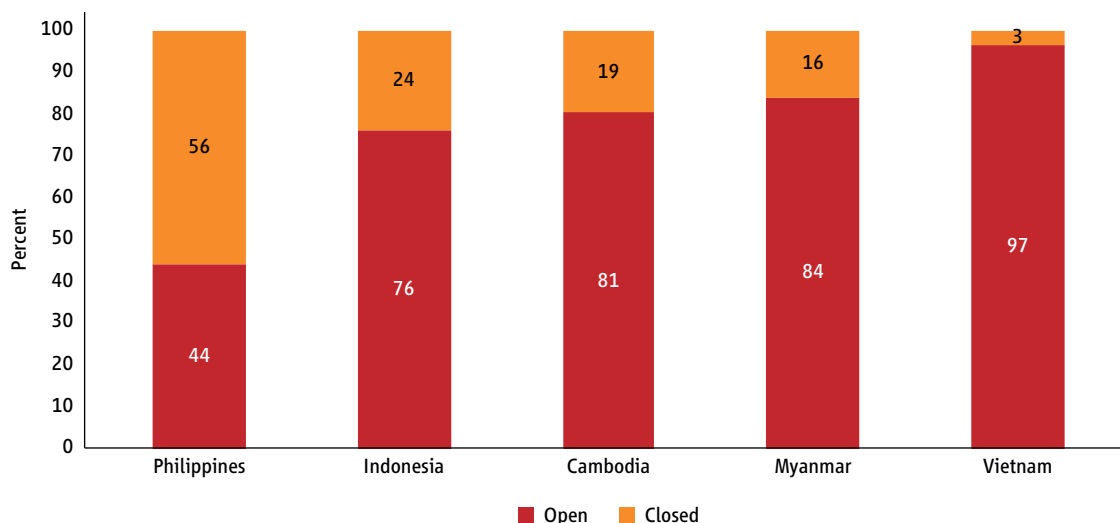
Despite easing of mobility restrictions, the crisis has evolved into a major demand shock. While many firms have reopened, domestic and foreign demand remains depressed and uneven, with many firms operating at partial capacity. In Vietnam, firm sales in June had recovered to only –43 percent of the prior year, from –53 percent during the lockdown in April (Business Pulse Surveys). Depressed demand is often the most frequently reported concern in recent firm surveys (Hassan et al., 2020; Zhang, 2020a; Business Pulse Surveys). As the health crisis continues, consumers continue to postpone purchases of non-essentials, such as tourism and garments, particularly affecting firms in those sectors.⁵ The longer lower demand persists, the more likely liquidity challenges will translate into widespread insolvencies.

³ The disruption to supply chains acutely concerns firms globally (Ding et al., 2020 and Hassan et al., 2020). These disruptions are also a concern for policymakers, as the evidence from the Great East Japan earthquake points to sizeable macroeconomic effects (Carvalho et al., 2016).

⁴ Ranging from 0 percent in Indonesia to 6 percent in Myanmar (Business Pulse Survey). Telecommuting is only feasible for a minority of occupations (e.g., managers and professionals), locations, and firms. About 15 percent of urban workers can work from home in Lao PDR while the share rises to almost 40 percent in the United States (Gottlieb et al., 2020, p. 85). Keeping constant the occupational structure and letting vary across countries the social and physical infrastructure, ILO (2020) shows that 13 percent of workers could WFH in middle-income countries, while the share would increase to 17 percent and 23 percent for middle- and high-income countries, respectively.

⁵ However, we do not observe substantial differences across EAP countries by broad manufacturing and services sectors.

Figure B.3.4. Firms' operational status



Source: Business Pulse Surveys.

Note: Operational status at the time of the survey—conducted in May for Myanmar, June for Cambodia, Indonesia, Vietnam, and July for the Philippines. Open includes partially open; hence the share of open firms might overestimate the extent of operations. Closed is likely underestimated due to sample bias.

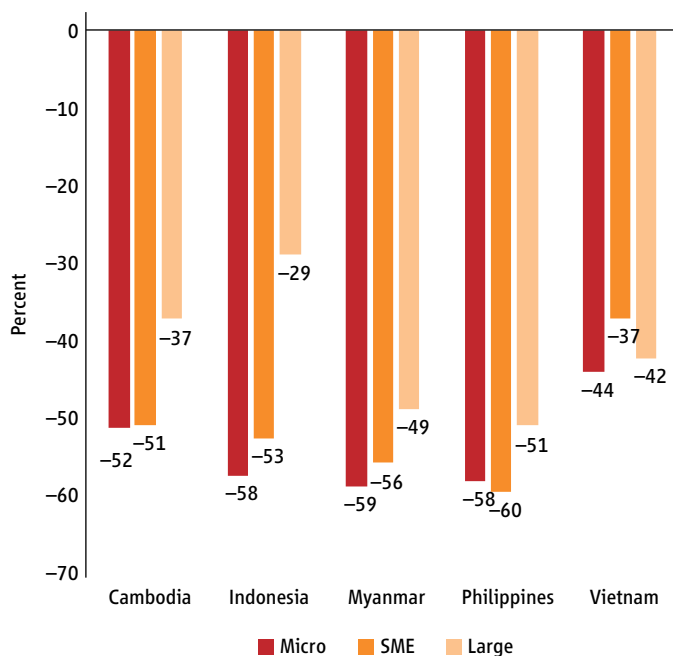
Larger firms seem to be recovering faster than SMEs—with SMEs being both more vulnerable to the crisis and less able to adapt. In China, production recovered much more quickly in large than in smaller firms (Fitch, 2020). SMEs are typically less able to weather the crisis than larger firms—since they have more limited access to finance and are disproportionately reliant on a few key customers. The monthly sales of SMEs have fallen by 7 to 23 percentage points *more* than of larger firms in EAP countries (Figure B.3.5). However, demand for essentials remains strong, and households across the EAP region are shifting new areas of spending online, for example groceries and entertainment (Yendamuri et al., 2020). SMEs are typically less able to take advantage of these changes through adopting digital business models, such as e-commerce.

What has been the policy response so far?

Governments have introduced a wide range of measures to help firms directly as well as indirectly via the financial sector or through cutting red tape. Direct assistance has come in the form of tax relief, wage or rent subsidies, and soft loans or credit guarantees, whereas indirect assistance has injected liquidity into the banking system or relaxed banking sector regulations (Figure B.3.6).⁶ Some policies such as government debt financing or issuing credit guarantees fall in between. Business climate reform, which is likely to matter for the recovery, represents less than 10 percent of all post-COVID policy actions.

⁶ The initial response has at least in part relied on existing schemes, as exemplified by the expansion of the MSME financing program by the Small Business Corporation in the Philippines. The repurposing of existing policy interventions can be easier and quicker to scale up.

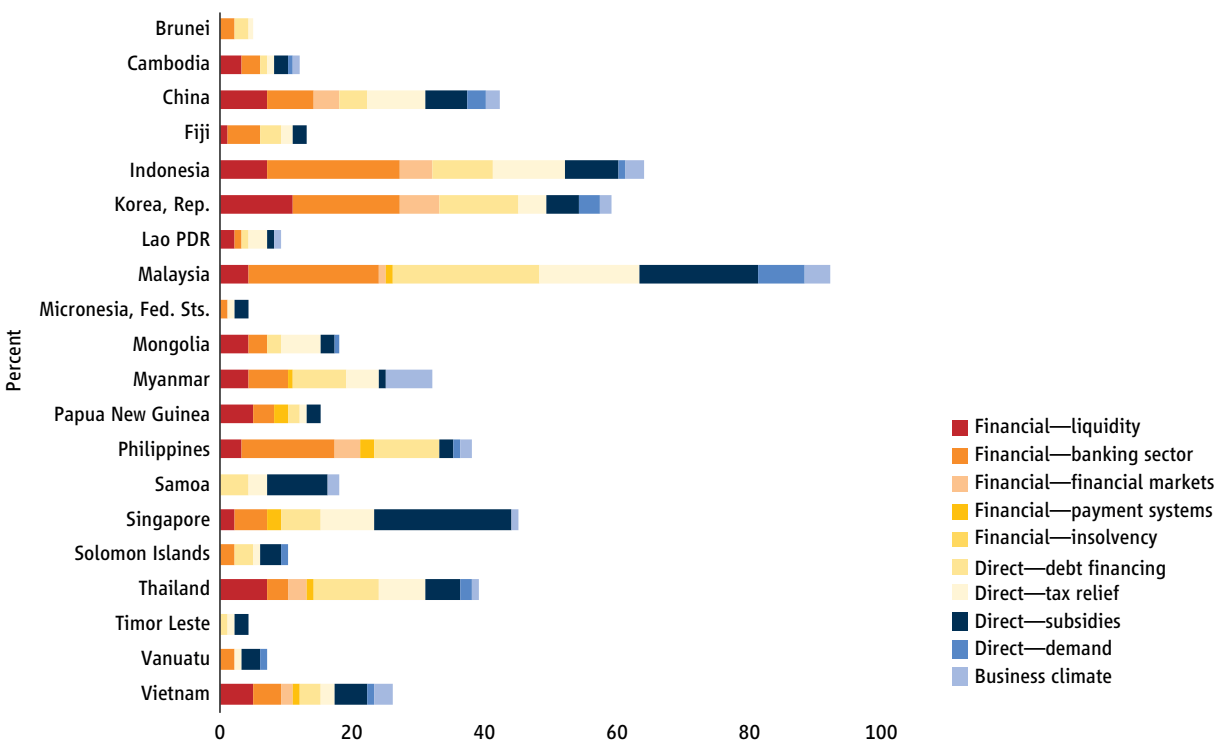
Figure B.3.5. Drop in monthly sales (vs. prior year) reported by micro, SME, and large firms in selected EAP countries



Source: Business Pulse Surveys.

Note: The survey was conducted in May for Myanmar, June for Cambodia, Indonesia, Vietnam, and July for the Philippines. Monthly sales refer to firm sales in the last completed month (in the case of Myanmar) or the last 30 days (Cambodia, Indonesia, and Vietnam) prior to the survey, relative to the same period in 2019. In the case of the Philippines, the change is between July and April, when the Enhanced Community Quarantine (ECQ) was adopted. Micro is defined as firms having less than 5 employees, SME as having 5–99 employees, large as having 100+ employees.

Figure B.3.6. Policy response in EAP



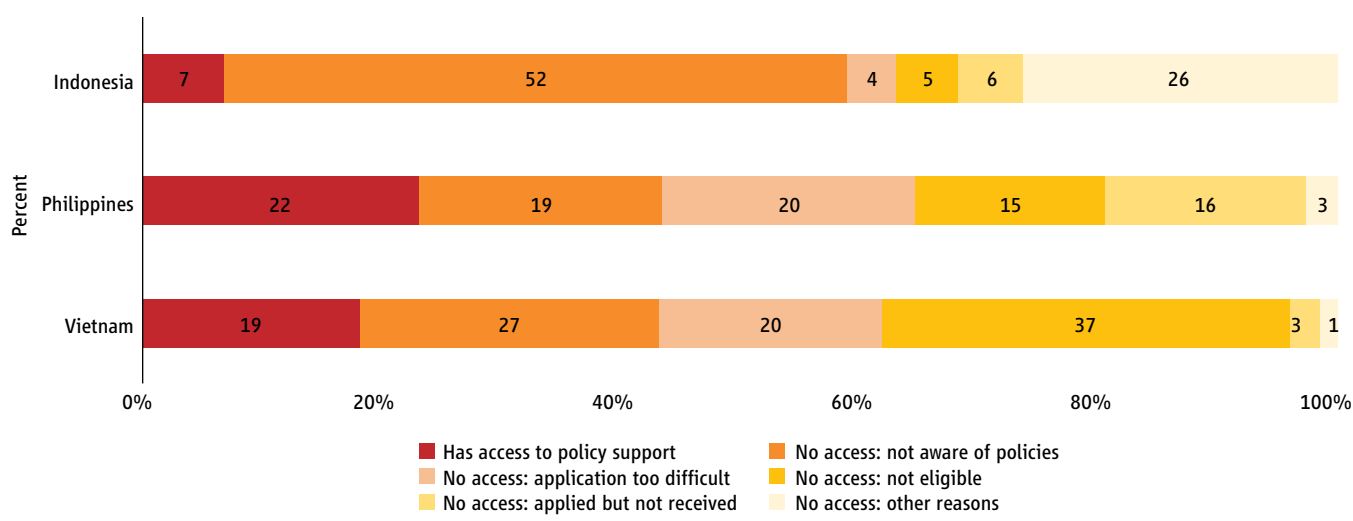
Source: FCI EAP Policy Tracker compiled by Antoine Coste and Jiyoung Song, as of 31st August 2020.

Note: Policy reforms comprise a mix of direct support, indirectly via the financial sector or through business climate reforms. Financial sector policies include injecting additional liquidity/funding, banking sector regulations (e.g., prudential requirements, payment holidays), financial market policies (e.g., funds to improve market functioning), payment systems (e.g., supporting digital payments) and insolvency reforms. Direct assistance includes debt financing (e.g., soft loans or credit guarantees), tax relief (e.g., deferrals, reduced rates), subsidies (e.g., wage or rent subsidies), demand (e.g., public investment).

Evidence from past crises suggests wage subsidies and additional capital can help smaller firms survive and recover. While the impact of COVID policies will not be known for some time, evidence from past crises can give an indication. More than half of EAP countries have some form of wage subsidy (FCI EAP Policy Tracker). Mexican wage subsidies after the global financial crisis speeded up employment recovery, especially for smaller firms (Bruhn, 2020). Around a quarter of the policies in EAP explicitly target SMEs, for instance through subsidies or new credit lines (FCI EAP Policy Tracker). Sri Lankan cash grants after the 2004 Tsunami helped micro firms survive the crisis and speeded their recovery (De Mel et al., 2013).

Support has also not reached many firms. Business Pulse Survey data show that only a small share of firms received direct government support. The share varies substantially by country, ranging from less than 10 percent in the case of Indonesia to around 20 percent in the Philippines and Vietnam (Figure B.3.7). In particular, formal financial institutions may not reach many small and medium enterprises (SMEs), and most informal and micro firms, since they are not part of the tax or financial system. Lack of awareness is also a major barrier to firms taking up available COVID support (Apedo-Amah et al. 2020). In Indonesia, the majority of firms were unaware of public support.

Figure B.3.7. A fraction of firms has received policy support



Source: Business Pulse Surveys.
 Note: The survey was conducted in June for Indonesia and Vietnam, and July for the Philippines.

What are the implications for firms and future productivity?

The crisis is likely to affect productivity growth through (i) firms going out of business, (ii) the loss of irreplaceable intangibles, and (iii) productivity-enhancing investments within firms.

First, without support, the crisis will lead to the exit of many good and bad firms. More productive and innovative firms may be better able to weather the ongoing crisis through a broader customer base, better access to finance, or adapting new business models. In such cases, the crisis may improve productivity by cleansing poor performing firms and allowing room for better firms to grow. However, all firms are vulnerable to persistently low demand, and evidence

from past crises suggests that some good and bad firms may be weeded out alike (Hallward-Driemeier and Rijkers, 2013; Foster et al., 2016). Larger firms and financially healthier firms appear to be more insulated from the crisis, but larger firms are not always more productive, particularly in services (Ding et al., 2020; Berlingieri et al., 2018).^{7, 8}

Start-ups are likely to be particularly affected—a missing generation of start-ups may scar longer-term productivity growth. Start-ups, more than SMEs in general, disproportionately create jobs and can help diffuse new technologies and business models (Crisuolo et al., 2017; Haltiwanger et al., 2013). While some start-ups have been able to rapidly adopt new business models, such as producing PPE, start-ups are typically more vulnerable to crises than SMEs as a whole (Fort et al., 2013).⁹ Fewer new start-ups are entering during the crisis—in Myanmar new business registrations dropped 70.0 percent in April compared to March, and in Vietnam there was a 5.1 percent drop in new business registrations in the first seven months of 2020, compared to the same period in 2019 (Myanmar Times, 2020; National Business Registration Portal, 2020). The crisis may scar the growth of those start-ups that survive—after the financial crisis, the growth rate of firms entering during past crisis has been persistently lower (Calvino et al., 2015; Moreira, 2017). While the absence of start-ups may not adversely impact aggregate productivity in the short-run, since these firms are small and on average less productive than larger firms, their absence may matter much more for long-run growth.

Second, the exit of good firms may mean the loss of intangible assets that matter for productivity and are difficult to rebuild. Disruptions to firms could lead to the permanent loss of important supply chain relationships or the loss of management practices that are difficult to rebuild, slowing the recovery. Similarly, job losses could mean the destruction of firm-specific worker’s skills and know-how. Unemployment could deprive the firm (if it survives) of hard-to-replace skills and reduce the worker’s future earnings—if they are unable to employ these firm-specific skills elsewhere. These so-called intangible assets comprise substantial investments that are an increasingly important part of modern business models and matter greatly for firm productivity (e.g., Bloom and Van Reenen, 2010; Haskel and Westlake, 2018).¹⁰

Third, surviving firms may face prolonged uncertainty and be saddled with debt—reducing their future productivity-enhancing investments. Many productivity-enhancing investments incur sunk costs that only pay off over the longer term, such as investment in intangibles like data and AI, worker training, developing new products, etc. Uncertainty and financial constraints can deter these investments, because they are long term and irreversible (Aghion et al., 2010; Barrero et al., 2017). During past crises, firms were less likely to undertake disruptive, radical innovation and disproportionately cut back on intangible investments (Granja and Moreira, 2019; Duval et al., 2020). The pandemic has led to enormous increases in firm uncertainty, dwarfing those recorded during the financial crisis (Baker et al., 2020; Bloom et al. 2020; Hassan et al., 2020). Firms have responded by significantly cutting expenditures on innovation, training, and general management improvements, which is likely to considerably curb future productivity growth (Baker et al., 2020).

One bright spot is that COVID has accelerated investment in digital technologies that may translate into faster productivity growth. Crises can enable the diffusion of new business models and digital technologies: for instance, e-commerce in China grew in the wake of restrictions put in place due to the 2003 SARS outbreak. In EAP, the COVID pandemic has led to many firms accelerating their use of digital platforms (Figure B.3.8). Moreover, the crisis may be catalyzing the use of digital financial services to keep financial systems functioning (e.g., facilitating reaching businesses with emergency liquidity, and households with cash transfers) and keep people safe (e.g., promoting the use

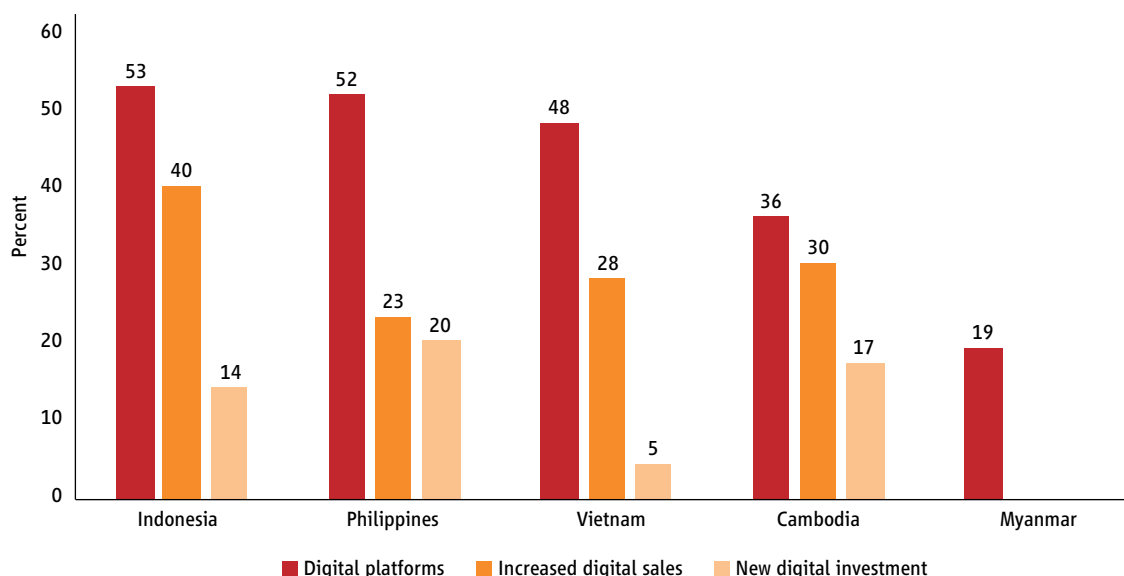
7 If larger firms are much better able to weather the crisis, combined with fewer start-ups, this may also have negative implications for the future competitive environment.

8 After the financial crisis, capital flows to larger (rather than more productive) firms magnified misallocation of capital in less developed financial markets (Gopinath et al., 2017).

9 Start-ups are often small, reliant on a few key customers, and with limited access to finance (Calvino et al., 2020).

10 In the United States and EU14 countries total annual intangible investment has been at least as big as investment in tangible assets, like plants, machinery, and equipment, since the late 2000s (Corrado et al., 2018).

Figure B.3.8. Use of digital platforms and investment in digital solutions



Source: Business Pulse Surveys.

Note: Data on increased digital sales and new digital investment are not available for Myanmar. The share of firms that increased digital sales is estimated for those reporting positive digital sales only. The survey was conducted in May for Myanmar, June for Cambodia, Indonesia, Vietnam, and July for the Philippines.

of contactless payment systems). Across 74 countries, daily downloads of fintech apps have increased 24 percent since their COVID lockdown, with a marked 65 percent increase in Asia (Fu and Mishra, 2020).

However, the digital technologies and intangibles may also widen disparities in favor of firms and locations able to make these transitions. Adoption of new digital technologies does not automatically translate into productivity growth, but typically requires complementary intangible investments in training and reorganizing the firm (Brynjolfsson and Hitt, 2000). Large and productive firms in locations with high-quality digital infrastructure are better placed to make such investments—which can widen disparities between the best firms and the rest (Autor et al., 2020; Bajgar et al., 2019).¹¹

Firm in some sectors are expected to suffer less because of the pandemic. Firms in health care and IT services may fare better as these sectors expand, while firms in hospitality services and air transportation face more challenges as sectors shrink, at least in the short run. It is not straightforward to determine the impact on productivity of this reallocation across sectors. Overall productivity changes will be driven by the differences in productivity across these sectors and their future productivity growth. However, the reallocation effects of the COVID-19 shock are likely to persist long after the pandemic recedes (Barrero et al., 2020).

How can policy best strike a balance between immediate relief, rapid recovery, and longer-term productivity growth?

Trade-offs arise in implementing support for firms during the COVID-19 crisis. Crises are bad selectors with both good and bad firms driven out. Therefore, policy support is crucial, but difficult to design. Government support faces

¹¹ These trends are likely to be accentuated if, in addition to technologies such as platforms or e-commerce, the crisis accelerates diffusion of frontier technologies reliant on big data and AI, currently accessible to a few firms (Candelon et al., 2020).

one key tradeoff: *immediate but indiscriminate versus slower but targeted implementation*. Firms highly reliant on cash flows may not survive long a shock of the magnitude and depth generated by the pandemic for long. Prompt government action is needed to avoid igniting downward spirals. But prompt action is likely to be indiscriminate, at least initially, since designing new, targeted policies takes time. The downside is that broad support may keep zombie and unproductive firms afloat along with productive firms with intangible assets that are important for the recovery. When more capital is sunk in zombie firms, the resources available for productive firms to scale up are more limited (McGowan et al., 2017).

As COVID persists, broad support may become less desirable. While indiscriminate support aimed at keeping many firms afloat can be desirable in the immediate arrival of the crisis, it may be impractical and inefficient to do so for a longer duration. Firstly, reaching a broad number of firms is typically more costly than targeted implementation, which is magnified the longer the COVID crisis persists. Secondly, the longer zombie and unproductive firms are preserved, the greater the drag on the reallocating resources to more productive uses, impeding recovery.

Therefore, policy should strive for a more efficient allocation of financial support today. Support is rarely indiscriminate. Even when it is in principle available for all firms, only some may be adequately informed, identified, or politically connected to take advantage of it. In EAP countries, a minority of firms had access to COVID support, with most either unaware or finding the application too difficult (Figure B.3.7). The characteristics of these firms that take advantage of policy are often opaque. Therefore, the challenge is to define objective and transparent criteria, to both avoid supporting unproductive firms and mitigate concerns about picking winners.

Ideally, support criteria would be based not just on past performance or current pain but on a firm possessing intangible assets that will be valuable in the future. Since many intangible assets are firm specific, they are often completely lost if the firm exits, unlike tangible assets like land or machinery that could be repurposed in other firms. Intangibles, such as skills, good management, or data, have been becoming much more important to productive firms' business models. Therefore, preserving these assets is likely to be important for the recovery.

Unfortunately, measuring intangible assets is often difficult. Data can be available for some innovation investments, but data are much scarcer on investments in branding, management skills, or IT and data. In some cases, past performance, as revealed by previous years' profits, tax revenues or trade flows, or present performance, as reflected in stock prices, may provide clues on firm potential. For example, controlling for market risk, there is as much as a 25 percent gap in cumulative return between more and less resilient firms in U.S. asset markets.^{12, 13} Further, the choice of policy instruments can be compatible with self-selection of firms with desirable characteristics. Social security deferrals in China, for example, have been found to benefit firms with a high share of skilled workers disproportionately (Chen et al. 2020). For firms with few intangible assets, their workers are better supported through social-protection measures. This includes micro and informal firms, which account for the majority of firms in EAP countries and are in any case hard to reach through the financial and tax systems.

Support can also be directly tailored to encourage new investment in intangibles and promote long-term productivity growth. The recovery depends on both the preservation of existing high-potential firms with intangible assets and future investment in new intangibles. For example, policy can specifically encourage investments in R&D or incentivize skills training through tax incentives.¹⁴

¹² Pagano et al. (2020) show that this gap is not just present in February–March 2020 period; more resilient firms outperformed others also in the six years before the crisis.

¹³ Other firm characteristics may also provide further hints. For example, young firms are more likely to adopt radical business models, and foreign-owned firms or suppliers of multinationals are likely to have more know-how than firms overall.

¹⁴ Of course, broad policy reform plays a key role too in encouraging intangible investment. This could include strengthening intellectual property rights, digital policies (e.g., data, e-commerce), education, and improving the access and quality of digital infrastructure.

There are trade-offs to direct government support or through financial institutions. On the one hand, banks are likely to have access to additional sources of information about their client firms, not available to the government, which may allow for better targeting. On the other hand, banks' incentives to lend (to less-risky, larger, and older clients) may somewhat differ from the government's desire to support productive firms (that may include, more risky firms with more radical business models or start-ups).

In any case, governments must credibly commit to terminating assistance when it is no longer needed to avoid the risk of capture by politically connected firms. Policies once enacted are often difficult to retract and beneficiaries have an incentive to lobby for continued support. For example, in Brazil, credit market interventions in response to the financial crisis continued to expand even after the economy recovered. To avoid this risk, exit strategies should be designed and committed to at the point of inception. One option is to legally link the continuation of support to certain objective macroeconomic indicators of recovery.

Broad policy reforms, while they can take time, support the entry and expansion of innovative businesses—the productive firms of tomorrow. Although the support of existing productive firms today is important, the recovery also depends on new innovative firms, and start-ups firms are particularly sensitive to the business environment (Calvino et al., 2016). Start-ups are also likely to matter more for the recovery than SMEs as a whole (Haltiwanger et al. 2013). *Strengthening venture capital and early-stage finance* market development, through tax policy, public funding, or regulatory reform can all help innovative start-ups. *Reducing red tape and streamlining regulatory systems* can facilitate firm entry and reduce the bureaucratic advantages of incumbents. *Improving insolvency resolution* can promote the exit of zombie firms, freeing resources for productive firms to scale up (Andrews et al., 2017). The introduction of specialized bankruptcy courts in selected Chinese cities has led to faster resolutions of bankruptcy cases, decreased the share of labor in zombie-intensive industries, and increased average product of capital (Li and Ponticelli, 2020). *Accelerating infrastructure investments*, such as improving access to digital infrastructure, can reduce the barriers to broader adoption of digital business models, such as e-commerce, remote working, and cloud computing. *Liberalizing services and reducing barriers to competition* are largely untapped avenues to promote more efficient resource allocation. Promoting competition in upstream sectors can disproportionately benefit the economy as a whole (Liu, 2020). But complementary action is needed to maximize the significant benefits of services' openness (Constantinescu et al., 2018). Business environment reforms are typically triggered by crises, being much harder to implement in normal times, so this represents an opportunity to get the policies right for broad-based recovery and productivity growth.

References

- Aghion, P., Angeletos, G. M., Banerjee, A., & Manova, K. (2010). Volatility and growth: Credit constraints and the composition of investment. *Journal of Monetary Economics*, 57(3), 246–265.
- Andrews, D., McGowan, M. A., & Millot, V. (2017). Confronting the zombies: Policies for productivity revival.
- Apedo-Amah, Marie Christine, Besart Avdiu, Xavier Cirera, Marcio Cruz, Elwyn Davies, Arti Grover, Leonardo Iacovone, Umüt Kilinc, Denis Medvedev, Franklin Okechukwu Maduko, Stavros Poupakis, Jesica Torres, and Trang Thu Tran. (2020). “Businesses through the COVID-19 Shock: Firm-level evidence from 49 countries.” World Bank Policy Research Paper, forthcoming.
- Autor, D., Dorn, D., Katz, L. F., Patterson, C., & Van Reenen, J. (2020). The fall of the labor share and the rise of superstar firms. *The Quarterly Journal of Economics*, 135(2), 645–709.
- Bajgar, M., Berlingieri, G., Calligaris, S., Criscuolo, C., & Timmis, J. (2019). Industry concentration in Europe and North America.
- Baker, S. R., Bloom, N., Davis, S. J., & Terry, S. J. (2020). *Covid-induced economic uncertainty* (No. w26983). National Bureau of Economic Research.
- Barrero, J. M., Bloom, N., & Davis, S. (2020). COVID-19 is also a Reallocation Shock (No. w27137). National Bureau of Economic Research.
- Berlingieri, G., Calligaris, S., & Criscuolo, C. (2018, May). The productivity-wage premium: Does size still matter in a service economy?. In *AEA Papers and Proceedings* (Vol. 108, pp. 328–33).
- Bloom, N., Bunn, P., Chen, S., Minzen, P., & Smietanka, P. (2020). The Economic Impact of Coronavirus on UK Businesses: Early Evidence from the Decision Maker Panel. *VOX CEPR Policy Portal*, 27th March.
- Bloom, N. & Van Reenen, J. (2010). Why Do Management Practices Differ across Firms and Countries? *Journal of Economic Perspectives*, 24(1).
- Bruhn, M. (2020). Can Wage Subsidies Boost Employment in the Wake of an Economic Crisis? Evidence from Mexico. *Journal of Development Studies*, 56(8).
- Brynjolfsson, E., & Hitt, L. M. (2000). Beyond computation: Information technology, organizational transformation and business performance. *Journal of Economic perspectives*, 14(4), 23–48.
- Calvino, C., Criscuolo, C., & Verlhac, R. (2020). Start-ups in the time of COVID-19: Facing the challenges, seizing the opportunities. *VoxEU Column*.
- Calvino, F., Criscuolo, C., & Menon, C. (2015). Cross-country evidence on start-up dynamics.
- Calvino, F., Criscuolo, C., & Menon, C. (2016). No country for young firms?: Start-up dynamics and national policies.
- Candelon, F., Reichert, T., Duranton, S., Di Carlo, R. C., & De Bondt, M. (2020, July 22). The Rise of the AI-Powered Company in the Postcrisis World. Retrieved September 14, 2020, from <https://www.bcg.com/en-us/publications/2020/business-applications-artificial-intelligence-post-covid>
- Carvalho, V. M., Nirei, M., Saito, Y. U., & Tahbaz-Salehi, A. (2016). Supply Chain Disruptions: Evidence from the Great East Japan Earthquake.
- Chen, J., Cheng, Z., Gong, K., Li, J. (2020). Riding Out the COVID-19 Storm: How Government Policies Affect SMEs in China. Mimeo.
- Constantinescu, C., Mattoo, A., & Ruta, M. (2018). *Trade in developing East Asia: how it has changed and why it matters*. The World Bank.
- Corrado, C., Haskel, J., Jona-Lasinio, C., Iommi, M. (2018). Intangible investment in the EU and US before and since the Great Recession and its contribution to productivity growth. *Journal of Infrastructure, Policy and Development*, 2(1).
- Criscuolo, C., Gal, P. N., & Menon, C. (2017). Do micro start-ups fuel job creation? Cross-country evidence from the DynEmp Express database. *Small Business Economics*, 48(2), 393–412.

- De Mel, S., McKenzie, D., & Woodruff, C. (2013). The demand for, and consequences of, formalization among informal firms in Sri Lanka. *American Economic Journal: Applied Economics*, 5(2), 122–50.
- Ding, W., Levine, R., Lin, C., & Xie, W. (2020). *Corporate immunity to the COVID-19 pandemic* (No. w27055). National Bureau of Economic Research.
- Duval, R., Hong, G. H., & Timmer, Y. (2020). Financial frictions and the great productivity slowdown. *The Review of Financial Studies*, 33(2), 475–503.
- Fitch, (2020). China Perspectives: An Uneven Economic Recovery from Coronavirus. Retrieved September 14, 2020, from <https://www.fitchratings.com/research/sovereigns/china-perspectives-an-uneven-economic-recovery-from-coronavirus-20-05-2020>
- Fort, T., Haltiwanger, J., Jarmin, R., & Miranda, J. (2013). How Firms Respond to Business Cycles: The Role of Firm Age and Firm Size (No. w19134). National Bureau of Economic Research.
- Foster, L., Grim, G., & Haltiwanger, J. (2016). Reallocation in the Great Recession: Cleansing or Not? *Journal of Labor Economics*, 34.
- Fu, J., & Mishra, M. (2020). *The Global Impact of COVID-19 on Fintech Adoption* (No. 20-38). Swiss Finance Institute.
- Gopinath, G., Kalemli-Özcan, Ş., Karabarbounis, L., & Villegas-Sanchez, C. (2017). Capital allocation and productivity in South Europe. *The Quarterly Journal of Economics*, 132(4), 1915–1967.
- Gottlieb, C., Grobovšek, J., & Poschke, M. (2020). Working from home across countries. *Covid Economics*, 8.
- Granja, J., & Moreira, S. (2019). Product Innovation and Credit Market Disruptions. Available at SSRN 3477726.
- Hallward-Driemeier, M., & Rijkers, B. (2013). Do Crises Catalyze Creative Destruction? Firm-level Evidence from Indonesia. *Review of Economics and Statistics*, 95(1), 1788–1810.
- Haltiwanger, J., Jarmin, R. S., & Miranda, J. (2013). Who creates jobs? Small versus large versus young. *Review of Economics and Statistics*, 95(2), 347–361.
- Haskel, J., & Westlake, S. (2018). *Capitalism without capital: The rise of the intangible economy*. Princeton University Press.
- Hassan, T. A., Hollander, S., van Lent, L., & Tahoun, A. (2020). *Firm-level exposure to epidemic diseases: Covid-19, SARS, and H1N1* (No. w26971). National Bureau of Economic Research.
- Huang, Y., Lin, C., Wang, P., & Xu, Z. (2020). Saving China from the coronavirus and economic meltdown: Experiences. *VoxEU Column*.
- ILO. (2020). Working from Home: Estimating the worldwide potential. *ILO Policy Brief: April 2020*.
- Li, B., & Ponticelli, J. (2020). *Going bankrupt in China* (No. w27501). National Bureau of Economic Research.
- Liu, E. (2020). Industrial Policies in Production Networks. *Quarterly Journal of Economics*, 134(4).
- McGowan, M. A., Andrews, D., & Millot, V. (2017). The walking dead?: Zombie firms and productivity performance in OECD countries.
- Moreira, S. (2017). Firm Dynamics, Persistent Effects of Entry Conditions, and Business Cycles.
- Myanmar Times, (2020, May 04). COVID-19 About 70 percent of online company registrations fall during this period. Retrieved September 14, 2020, from <https://myanmar.mmtimes.com/news/138858.html>
- National Business Registration Portal. (2020). Enterprise Registration Status in July and first 7 months of 2020. <https://dangkykinhdoanh.gov.vn/vn/tin-tuc/597/5162/tinh-hinh-dang-ky-doanh-nghiep-thang-7-va-7-thang-dau-nam-2020.aspx> [In Vietnamese, Accessed 2 September 2020].
- Pagano, M., Wagner, C., & Zechner, J. (2020). Disaster resilience and asset prices. *arXiv preprint arXiv:2005.08929*.
- Yendamuri, P., Keswarkaroon, D., & Lim, G. (2020, June 29). How Covid-19 Is Changing Southeast Asia's Consumers. Retrieved September 14, 2020, from <https://www.bain.com/insights/how-covid-19-is-changing-southeast-asias-consumers/>
- Zhang, X. (2020a). The Impact of COVID-19 on SMEs in China: Evidence from Two-Waves of Phone Surveys. Retrieved September 14, 2020, from <https://www.slideshare.net/ifpri/the-impact-of-covid19-on-smes-in-china>
- Zhang, X. (2020b). COVID-19's impact on China's small and medium-sized businesses. Retrieved September 14, 2020, from <https://www.ifpri.org/blog/covid-19s-impact-chinas-small-and-medium-sized-businesses>

Annex 1. BPS survey dates

<i>Country</i>	<i>Survey dates</i>	<i>Survey mode</i>	<i>Representativeness</i>
Cambodia	2nd half June, 2020	Phone	No
Myanmar	May, 2020	Phone	Formal sector, by 4 sectors, 3 sizes (S, M, L)
Indonesia	2nd half June, 2020	Phone	Formal sector, by manufacturing (medium and large), high-value services (medium and large), low value services (MSMEs and large)
Philippines	2nd week of July, 2020	Online	Unknown frame, reweighted to match population shares by employment and assets
Vietnam	2nd half of June, 2020	Phone + f2f	Formal sector, by 4 sectors, 3 sizes (S, M, L)