

Damaged by the Disaster

The Impact of COVID-19 on Firms in South Asia

Arlan Brucal

Arti Grover

Santiago Reyes Ortega



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Abstract

To assess the impact of COVID-19 on firms, the World Bank and the International Finance Corporation conducted Business Pulse Surveys in several countries, including six in the South Asia region. Analysis focusing on the South Asia region suggests that, first, firms in the South Asia region have suffered disproportionately more from the economic brunt of the pandemic. Second, even within the region, COVID-19 did not affect all firms equally. Although exporters remain resilient by some metrics, firms that are smaller, female-led firms and those in vulnerable sectors

suffered higher rates of closure. Third, while digital technologies have taken the center stage post-pandemic, the South Asia region lags in the adoption of these technologies. Finally, policy support for firms is key to building back better and resilient recovery, yet only a small share of firms can access public support. To be effective, firm support programs ought to be carefully customized and target firms based on the dominant channel through which COVID-19 affects them rather than their external attributes.

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Damaged by the Disaster: The Impact of COVID-19 on Firms in South Asia

Arlan Brucal*

Arti Grover[†]

Santiago Reyes Ortega[‡]

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*University of Exeter Business School E-mail: a.brucal@exeter.ac.uk

[†]Corresponding author; World Bank, 1818 H Street, Washington DC, USA, E-mail: agrover1@worldbank.org

[‡]World Bank, 1818 H Street, Washington DC, USA, E-mail: sreyesortega@worldbank.org

1. Introduction

The COVID-19 pandemic is having a deeper impact on South Asia. The World Economic Outlook of the IMF predicts that in 2020 the world economy will contract by 4.4%, while real GDP in India is expected to decline by 10.3%. Afghanistan, Pakistan and Sri Lanka will enter into recessions while the region as a whole is expected to contract by 8.4% (IMF, 2020). Governments in the region have introduced a number of interventions, ranging from delays in payments on taxes and debt service to increasing liquidity (World Bank, 2020b). These interventions were done amid ongoing fiscal stress and socioeconomic challenges, including social inequality and lack of opportunities for certain groups. Along with other developing economies, countries in the region face greater risk of not only reversing advances in sustainable development (Schneider et al., 2021), but also deepening existing vulnerability problems if sound policies are not in place.

This paper explores the impact of COVID-19 on South Asia using a global database of over 100,000 firms collected by the World Bank. It uses the Business Pulse Surveys (BPS) in 30 countries, and the World Bank Enterprise survey data in 21 countries.¹ This paper is organized around the following three core questions. *First*, how is COVID-19 impacting South Asian firms relative to those in other regions and countries? To this end, we examine in-depth the usual target groups of "vulnerable" firms, namely: (1) micro and small firms; (2) sectors, especially the hardest hit ones; (3) female-led firms; and (4) exporters. *Second*, how are South Asian firms adjusting to the COVID-19 related economic disruptions? We look into adjustments on employment, digitization and the propensity to pivot product-mix. *Third*, what is the role of policy in supporting South Asian firms during crisis and recovery? This paper argues that size and sector are imprecise targets for policies supporting firms, given the wide variation in the impact of the pandemic within these groups. Results underscore the possible mismatch in the perspective of the firms and policy makers, with firms' preferred instruments being attributed predominantly to the most significant channel of transmission of the shock as opposed to their external attributes. Consequently, it provides a framework for customizing firm support by looking into the channels of transmission of the shock.²

In addition to its impact on the region's economies, the COVID-19 pandemic may also aggravate the existing differences in dynamics by firm size, exacerbate gender inequality and expose the vulnerability of export industries. For instance, self-employed and micro-enterprises represent over 80% of employment in South Asia, compared to about 50% in the East Asia and Europe and Central Asia regions (Mukhtarova, 2020). In the BPS data, only 9% of South Asian firms are women-led, compared to 35% and 36% in EAP and LAC, respectively.³ Within sectors, COVID-19 paralyzed the export-oriented tourism in Nepal and caused a massive decline in Bangladesh's ready-made-garment

¹For information on BPS, see Apedo-Amah et al. (2020) and Appendix Figure A.1 for the timing of surveys in SAR. Although the survey was conducted in India along with other SAR countries, we do not divulge country specific figures for any of the outcomes.

²COVID-19 affects firms through five distinct channels: (i) reduction in demand (ii) disruption in production and supply chains (iii) unavailability of liquidity and financial services (iv) uncertainty of the extent and time horizon of the shock, (v) lock-down restrictions (Apedo-Amah et al., 2020).

³Moreover, the World Development Indicators (WDI) reveal that female labor force participation rate in South Asia remains low at 22% in 2020, compared to LAC (41%), EAP (43%), ECA (45%), and SSA (46%), and are likely to be concentrated in vulnerable sectors (Mukhtarova, 2020).

sector that primarily employs women. The situation of exporters is similar in Pakistan (World Bank, 2020b). Exports comprise nearly a fifth of the region's GDP, but the high concentration in a few labor-intensive industries makes it vulnerable to external shocks and local lock-downs. Exporters' higher productivity and better capability to adjust their operations or business models can help mitigate financial shocks and to some extent production shocks. However, it cannot help completely circumvent shocks, especially external demand shocks.

Our analysis reveals several stylized facts that allow us to understand not only the magnitude of the COVID-19 outbreak among South Asian firms, but also the margins on which these firms are adjusting and the potential complexity of policies needed to help build back better. We find that, *first*, firms in South Asia experienced disproportionately larger impact of the pandemic, in terms of business closures, decline in sales and financial fragility. Globally, firms in developing countries have reported an average reduction in sales by 49% relative to 2019 (Apedo-Amah et al., 2020), the average decline in sales among South Asian firms is nearly 63%.

Second, deviating from the rapidly expanding literature assessing firm-level impact of COVID-19 mainly on the small and micro firms (e.g., World Bank, 2020c; Dai et al., 2020), our paper finds significant heterogeneity across firms in several other groups of vulnerable firms as well. This includes not only micro and small firms but also female-led firms, exporters and certain sectors. The findings on heterogeneity in the impact by size and sector is consistent with the global results. Using this database, Apedo-Amah et al. (2020) find that more than half of micro, small, and medium firms are already in arrears or expect to fall into arrears during the coming 6 months, and that restaurants and hotels are highly fragile. Our work confirms these findings, nonetheless, underscoring that the situation in South Asia is worse. For instance, nearly 70% of micro and small firms are already in arrears or expect to fall into arrears during the coming 6 months, compared to the global average of 55%.

Third, consistent with the global findings, South Asian firms have also adjusted employment mostly on the intensive margins by reducing hours, wages, or granting (paid or unpaid) leave to workers, amid damaging effects on sales and financial stability. The difference in the proportion of firms resorting to worker layoffs and those reducing hours or wages is not significantly different from the global average.

Fourth, although, globally firms have been responding to the crisis by increasing the use of digital platforms and investing in digital solutions, South Asian firms are much less likely to increase the use of digital platforms. While 34% of businesses started to use or increased the use of digital platforms (Apedo-Amah et al., 2020), this share is merely 23% in South Asia. Similar to the global findings, large businesses have been much more effective at utilizing digital platforms than small firms: the likelihood of adoption of digital technologies by large firms was nearly double that of micro businesses. This COVID-induced trend unnecessarily posts the risk of creating new forms of marginalization or deepening the current digital divide in the region (Oldekop et al., 2020).

Fifth, only 11% of firms in South Asia report to be accessing public support programs relative to the

global average of 19%. Although smaller firms are more affected, they have the least access to public support. This is also true for other groups such as firms that are women-led and non-exporters, signifying the potential role of business networks in accessing support and dealing with the shock. Both globally and in South Asia, lack of information and awareness of public support measures seem to be the main hindrance.

Finally, as the impact of the crisis varies widely even within the same size and sector groups, these categories make imprecise targets for effective interventions. Our findings suggest that only 20% of the variation in sales change can be explained by size and sector groups. The type of shock suffered by the firm - demand shock, production or supply chain disruptions, or financial shock - explains most of this variation. We conclude by providing a framework for customizing policy support that seeks to understand the dominant shock that impacts a firm within size, sector or other external attributes widely used for targeting firms.

This remainder of the paper is structured as follows. Section 2 compares the impact of COVID-19 on the operation status, sales, financial fragility, and expectation in South Asia relative to other regions and income groups. It also reflects on the heterogeneity in the impact by size, sector, gender of owner and exporter status. Section 3 delves into the margins of adjustment undertaken by South Asian firms in response to the pandemic. Section 4 discusses the possible policy responses and provides a framework for designing appropriate policy interventions to help resilient recovery of South Asian firms. Section 5 provides the conclusion and policy implications.

2. How is COVID-19 impacting South Asian firms?

Unlike previous large shocks that weeded out good and bad firms alike (World Bank, 2011; Foster et al., 2016; World Bank, 2020c), the COVID-19 outbreak and the consequent economic collapse may not affect all firms equally. The effect may vary based on external attributes such as size, sector, and the gender of the owner but also by internal characteristics such as productivity, export-orientation and management practices that can potentially make them resilient to specific shocks brought about by the global pandemic. This section assesses the impact of the pandemic across the following dimensions: operation status and sales, financial fragility, and expectation and uncertainty.

2.1 Operating status and sales

The pandemic has already caused massive disruption among firms in the South Asia region (SAR). The top left panel of Figure 1 presents the region fixed effects generated from the Probit regressions on the probability of a firm being open (or partially open), controlling for several key factors - the number of weeks after peak, firm size, subsector, income groups, stringency index (as measured by the Oxford COVID-19 tracker), log of population, and population density.⁴ Our estimates show that only about two-thirds (66%) of the firms in SAR were operating at the time of the survey.⁵ This

⁴All estimations in this paper control for these factors unless otherwise stated. The estimated fixed effects translates to the average predicted outcome within a particular group. Although India is included in the regional averages, we do not separate out specific figures for the country. Stringency data is available at: <https://covidtracker.bsg.ox.ac.uk/>

⁵The results on operating status should be interpreted with caution because it is measured based on the firms that surveying companies were able to reach at the time of the interview.

share is significantly lower compared to other regions, such as Sub-Saharan Africa (SSA) at 72% and East Asia Pacific (EAP) at 82%. Within SAR, Nepal has the lowest probability of business remaining open (46%), followed by Afghanistan (60%) and Sri Lanka (72%).

The impact on the probability of being open is heterogeneous - micro and small firms have higher probability of closure relative to larger firms, and more so in South Asia. The bottom left panel of Figure 1 shows the estimated firm-size fixed effects or the average probability of being open by firm size. Within SAR, large firms are more likely to open (88%) compared to micro (69%), small (71%) and medium-sized firms (79%). The predicted survival rates for micro and small firms in SAR are significantly lower than the rest of surveyed firms. In contrast, we do not observe the same pattern for large firms.

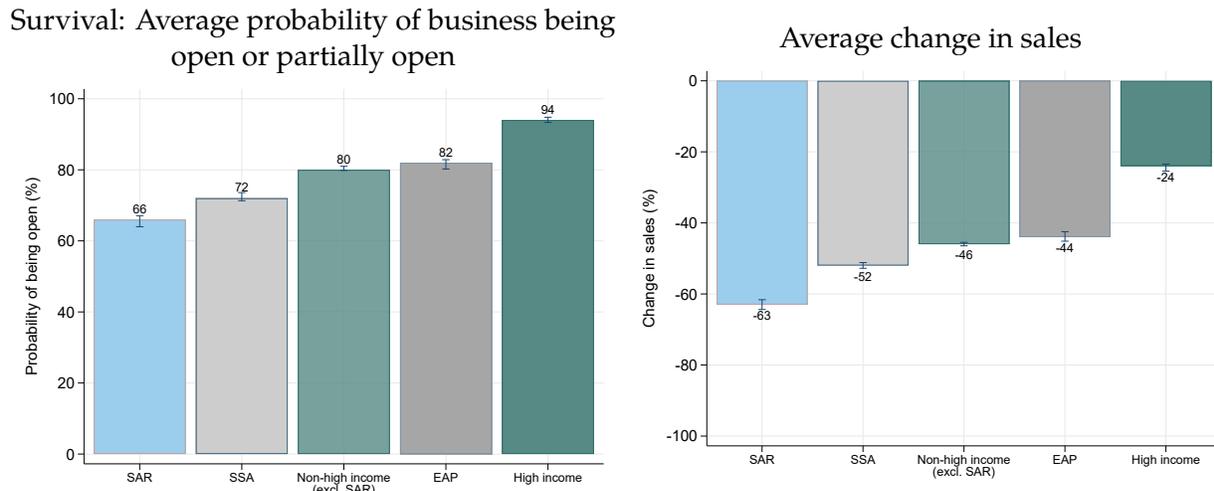
We also extend our analysis to ownership by gender, sector/subsector and export orientation. Results of probit regressions are summarized in Figure A.2 in the Appendix. In South Asia, firms led by females have a lower probability of being open relative to those owned by men-led firms (50% as opposed to 61% for men-led firms). Such differences are not apparent in the rest of the world. Comparing by sector, the probability of closures is strikingly higher at 75% in the services sector, particularly those involved in the accommodation services. By comparison, exporters in SAR have a higher probability of remaining open (74%) relative to non-exporters (62%), the difference being statistically significant. Such differences are absent globally, although when compared with the rest of the world South Asian exporters have a lower likelihood of survival. The result on the resilience of South Asian exporters is a bit surprising, given the findings elsewhere that exporters are as badly hit due to disruptions in global supply chains. This may perhaps be due to the importance of being part of business networks in an environment with poor information flows, or having access to diversified markets in smaller countries. It could also be that South Asian exporters have higher productivity or better technology and management practices relative to their non-exporting counterparts, perhaps due to learning-by-exporting, which helps them compete in international markets (Mukim, 2011).

The trend in sales follows that of business' operating status (top right panel, Figure 1). Firms in South Asia witnessed the largest decline in sales (64%), relative to those in other regions (SSA and EAP with 52% and 44%, respectively) or income groups (non-high and high-income countries have 46% and 24%, respectively). Again, South Asian firms that are micro and small suffered the largest declines (lower right panel, Figure 1). Extending these analyses to other firm dimensions in Appendix Figure A.3, we note that firms in manufacturing and accommodation sectors recorded the largest declines in sales at 70% and 81%, respectively. The severity of the impact in South Asia was slightly lower among exporters (58%) relative to non-exporters (64%). Meanwhile, there are no significant differences between female and male-led firms, consistent with the global averages.

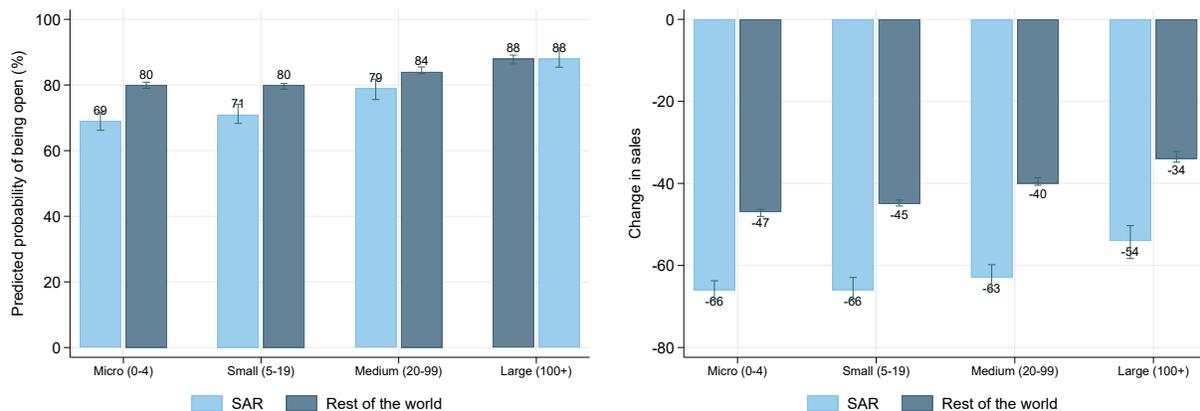
While cross-country differences in sales change in South Asia may be predominantly explained by size (right panel, Figure 2) and sector composition of firms (Appendix Figure A.3), these groupings explain much less of the within-country variation. For instance, Pakistani firms in the accommodation services interviewed within the same week register a change in sales ranging

from -100% to +50%. More generally, our analysis of the BPS data suggests that within country-size-subsector variation of change in sales is larger than the between-groups variation (left panel, Figure 2). Limiting the comparison to firms within South Asia only does not change this conclusion, implying that the shock has a heterogeneous effect on firms within the same size and sector groups (World Bank, 2020c).

Figure 1: Impact of COVID-19 on firms' operating status and sales



Panel (a): Regional/by income-group comparison

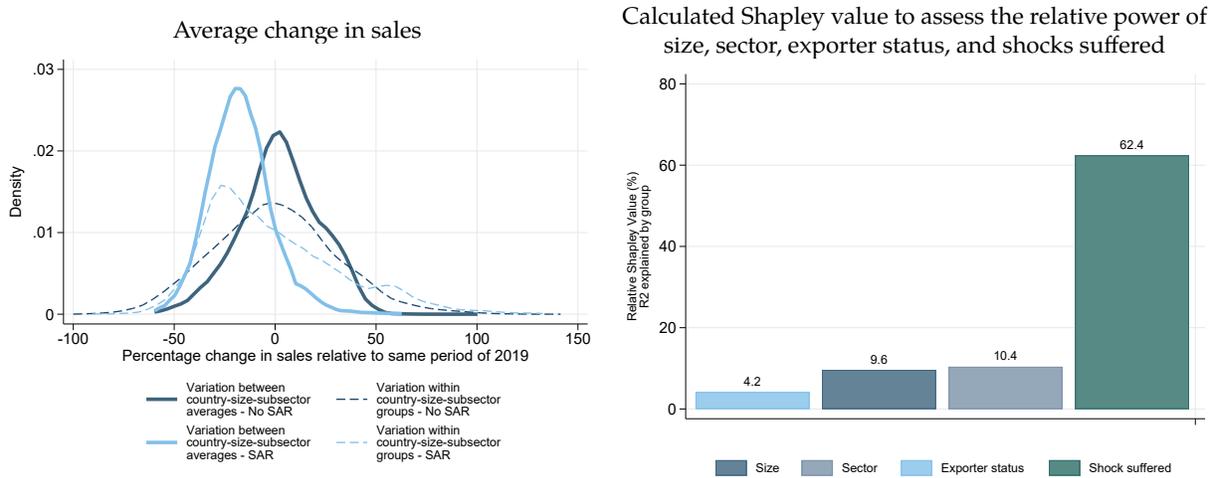


Panel (b): Comparison by firm size

The observed variation within size-sector groupings can be associated with the transmission channel of COVID-19, that is, the type of shocks suffered by firms. Unreported analysis suggests that COVID-induced demand shocks have the largest effect on South Asian firms relative to shocks pertaining to disruption in production chains and finance. This is in contrast to the rest of the world where disruptions in supply chains and finance shocks had a large and comparable impact relative to demand shocks. Globally, two-thirds of the within-country change in sales can be attributed to the nature of shock firms experienced, while size and sector explain only 20% (right panel, Figure 2).⁶ This implies that firm size and sector are imprecise targets for designing firm support programs.

⁶Shapley values are computed to assess the relative power of size, sector, exporter status, and shocks suffered in explaining the change in sales for firms in SAR.

Figure 2: Explaining variation in the change in sales among firms.



Note: Change in sales is measured by the difference between the current sales and that of the same period in 2019.

We will revisit this finding in Section 4 of the paper.

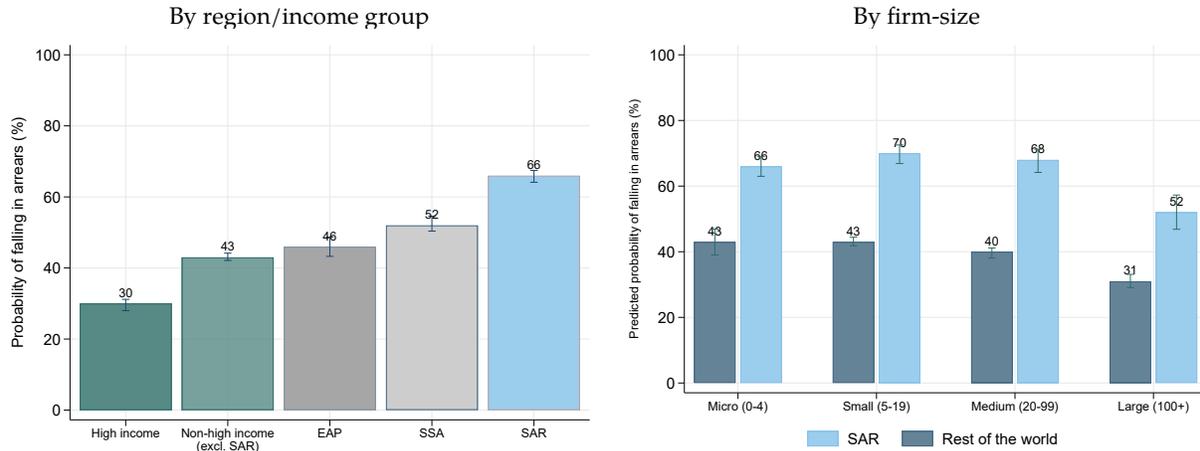
2.2 Financial fragility

With COVID-19, liquidity pressures can escalate and may lead to solvency issues. This can be alarming as financial markets in South Asia are seen as ill-prepared to deal with the repercussions of the pandemic, with many banks having high shares of non-performing loans and low capital buffers (World Bank, 2020b). BPS results show that nearly two-thirds of the South Asian firms are likely to fall into arrears (Figure 3, left panel a), which is significantly higher than that in SSA (52%), and EAP (46%).

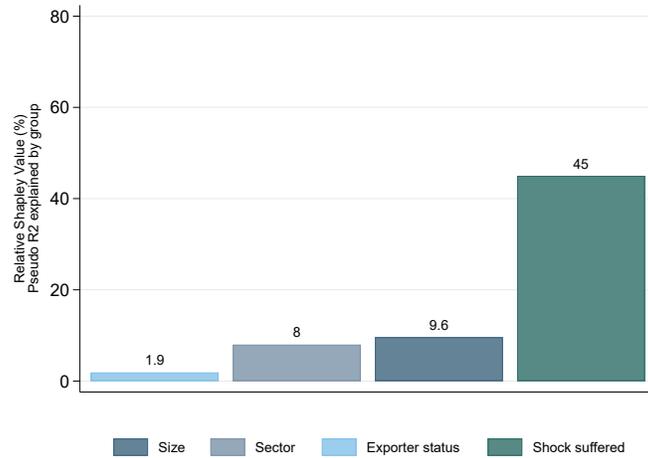
There is significant heterogeneity by firm characteristics. Within the firm-size groups, micro and small firms in SAR tend to face more liquidity challenges. The average probability of falling into arrears for micro and small firms in South Asia is close to 70%, which is significantly higher than that for large firms (52%). Compared to the rest of the world, South Asian firms are more financially fragile across all size groups (Figure 3, right panel a). We extend this analysis to other firm attributes in Appendix Figure A.4. Within sector groups, accommodation services are found to be most fragile, especially in South Asia. This relatively high level of financial fragility among smaller firms and those in vulnerable sectors can partly explain why they are less likely to continue their operation during the COVID-19 outbreak. South Asian exporters are slightly less financially fragile when compared with non-exporters. The probability of falling in arrears being 59% for exporters and 67% for non-exporters. Such difference by exporter status is not observed in the rest of the world. Consistent with global average elsewhere, we do not find significant difference in financial fragility between female- and male-led firms in South Asia.

While size and sector composition explain the cross-country differences in financial fragility, what explains the within-country differences? Using the Shapley decomposition of the probability of falling into arrears within countries, we observe that a significantly large proportion of the within-

Figure 3: Financial fragility



Panel (a): Probability of falling into arrears



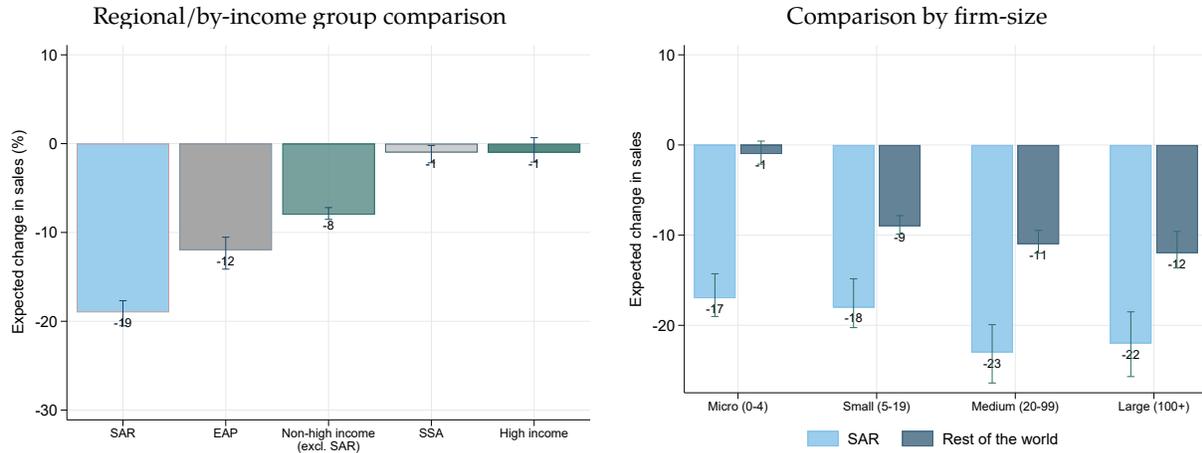
Panel (b): Decomposing the factors that explain financial fragility

country variation can be attributed to the type of shock firms suffered rather than firm size, sector or exporter status (Figure 3, panel b). Size and sector explain merely 18% of this variation in financial fragility relative to the shock that firms observe, which explains about 45%. This observation is consistent with the established literature on the heterogeneity in the performance of firms facing a crisis even within the same country, size and sector (World Bank, 2020c).

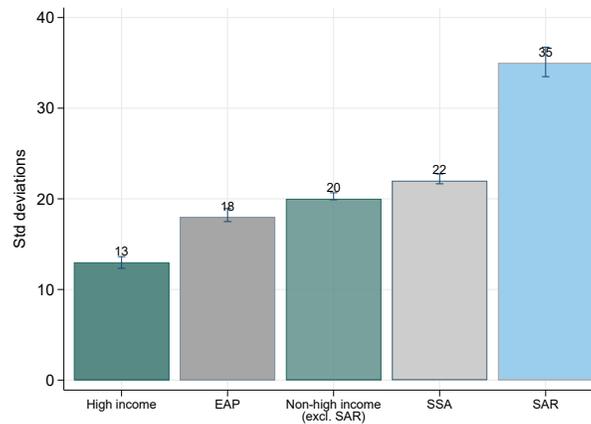
2.3 Expectation and uncertainty

Firms' expectation and uncertainty matter for their future investments and strategic decisions. To quantify firms' expectations generated by COVID-19 outbreak, the World Bank's BPS collects information on firms' expected changes in sales for the next 6 months relative to the same period in the previous year. South Asian firms have a very pessimistic future outlook characterized by expectation of significantly larger average decline in sales compared to firms in other regions and income groups (Figure 4, left panel a). On the average, South Asian firms expect a 19% decline in sales, which is significantly higher than that predicted in EAP (-12%) and in SSA (-1%).

Figure 4: Sales expectation and uncertainty in the next 6 months



Panel (a): Expected change in sales



Panel (b): Measure of uncertainty in sales

In general, medium and large firms have a more pessimistic outlook relative to smaller ones (Figure 4, right panel a). This finding holds both in the global context and in South Asia. It is striking, however, that the difference in the share of firms with negative outlook is strikingly significant when we compare South Asian firms, particularly micro-enterprises, with those in other regions. This is in line with the previous findings that micro firms in South Asia were the most negatively affected which impacts their future expectations of sales.

We also examined expectations based on sector, the gender of the owner, and export orientation, as illustrated in Appendix Figure A.5. Firms in the manufacturing sector have the most pessimistic outlook on sales change in the next 6 months. South Asian manufacturing firms expect a 25% decline in sales, as opposed to 16% for those in agriculture and other services, and 14% in retail. Relative to other firms, South Asian exporters are more pessimistic about future sales, even though their realized reduction in sales is relatively lower.

We measure uncertainty by calculating the standard deviation of the expectation on sales growth. The measure builds upon the work of Altig et al. (2020), although we use only the regular scenario and the time horizon is 6 months instead of a year. Results show that South Asian firms are less

certain about the future, as evidenced by the considerable wide dispersion of their expectation. In particular, the expected change in sales in SAR deviates from the average by 36%, which is higher than that in SSA (22%) and EAP (18%) (Figure 4, panel b). Given that SAR is among the worst-hit regions, pessimistic expectation and high uncertainty are not surprising.

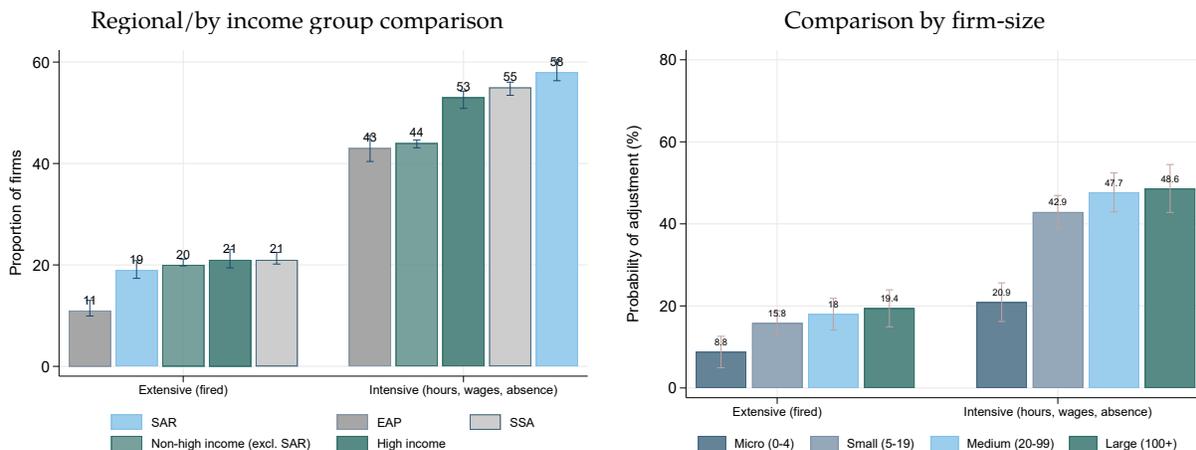
3. How are South Asian firms adjusting to the COVID-19 related economic disruptions?

In this section, we discuss the margins of adjustment on employment and changes in operations models, including digitization, in response to COVID-19.

3.1 Employment adjustment

Even with the damaging effect on sales and financial stability, a majority of South Asian firms, surprisingly, have not *yet* resorted to massive layoffs (extensive margin). More than half of firms in SAR offered reduced hours and wages or furlough (intensive margin) to cope with the crisis, compared to 19% who resorted to worker layoffs (Figure 5, left panel).⁷ The larger adjustment on the intensive margins across firm size categories is apparent in Figure 5 (right panel). This pattern holds across all firm dimensions - sectors, gender of owner and exporter status - as illustrated in the Appendix Figure A.6. While seemingly laudable, the small scale of lay-offs does not imply that jobs in SAR are not insecure. In fact this could perhaps be due to rigid labor regulations or the low share of permanent employees. Moreover, it is unclear how long can South Asian firms sustain this type of adjustment. Without appropriate policy support, the increasing insolvency issues and massive decline in demand may result in related jobs being permanently lost.

Figure 5: Adjustment in employment at extensive and intensive margin



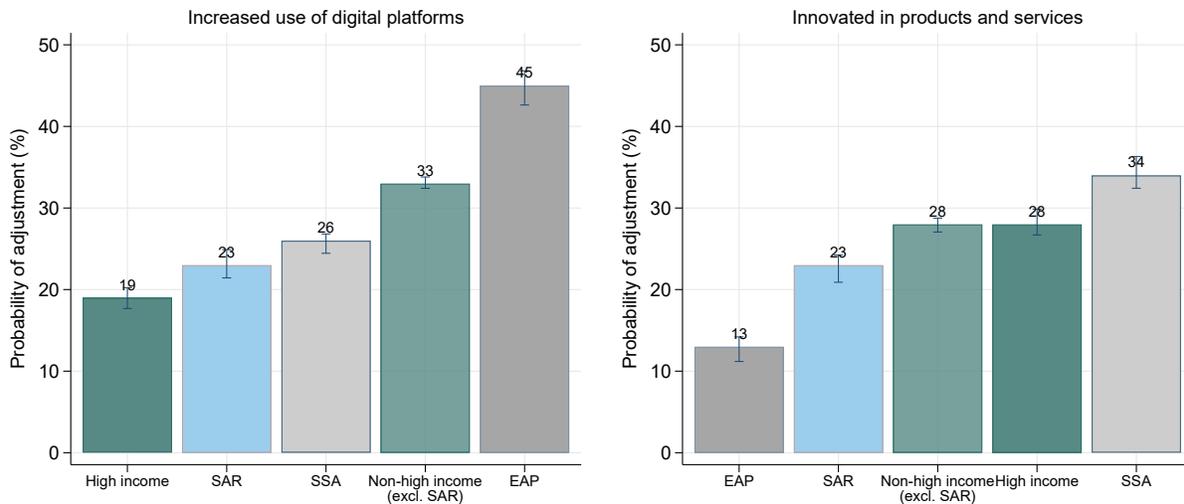
3.2 Adjustments in operations model

Digital technology offers an unprecedented opportunity to weather the damage caused by the COVID-19 disaster. Efforts to develop, deploy, and sustain IT systems during “normal” times are paying off in the pandemic (Konstenbaum and Dener, 2020), which can enable some businesses

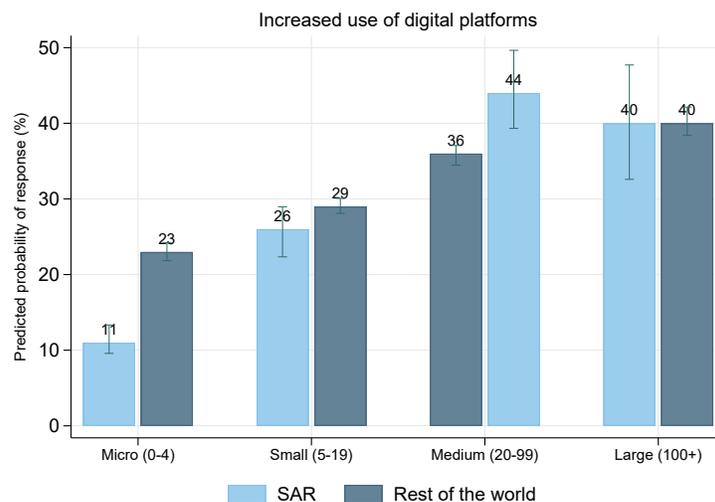
⁷To furlough means to “lay off or suspend temporarily”, usually without pay.

to adapt quickly to the changing environment and, eventually, improve productivity in the longer term. However, South Asian firms lag behind the rest of the world, with only about a quarter of firms reporting an expansion in the use of digital technologies. This is significantly low compared to the state of digitalization in other non-high income countries (33%) and EAP (45%) (Figure 6, panel a).⁸ It is interesting that the share in high-income countries is low at only 19%. This may be due to the fact that the question solicited response on the *increase* in use of digital platform, rather than the level.

Figure 6: Adapting through digitization and adjustment of operations models



Panel (a): Regional/by income group comparison



Panel (b): Comparison by firm-size

In order to qualify the findings for South Asia, we examine the change in the use of digital technologies by firm attributes. If, for instance, the low shares were driven mostly by larger firms, then this could be worrying as it will reflect a poor state of advanced digitalization in the region. Figure 6

⁸India could not be included in this chart because a comparable question was not asked in the survey.

(panel b) suggests that this is not the case and that large firms in South Asia compare well on expansion in the use of digital platforms relative to the rest of the world. Results show that the low share of firms expanding digitalization is driven mostly by micro firms. Only 11% of these firms reported an increase in the use of digital platforms, lower than that of large firms in the region (40%) and that of similar firms elsewhere (23%). This suggests that in South Asia there is a huge inequality by firm size in terms of access to information, networks or resources that could help them digitalize and adapt to the COVID-19 crisis.

Extending this analysis to other firm dimensions in Appendix Figure A.7, we note that firms in accommodation services are particularly lagging behind in increasing the use of digital platforms, while South Asian exporters quickly embraced digitalization relative to non-exporters. On average, South Asian exporters are more likely to expand the use of digital platforms by 35% relative to 19% in other firms, bringing them closer to the global average. Such differences between exporters and non-exporters is not significant in rest of the world. Firms around the world are also adjusting by responding to the demand changes in the post-COVID-19 world. Several firms worldwide have re-purposed or innovated to pivot product-mix, such as textile firms producing masks, hotels becoming quarantine centers, and distilleries creating disinfecting alcohol and so on. South Asian firms lag behind the rest of the world in pivoting product-mix to meet the new demand created by the crisis situation (Figure 6, right panel a).

It is tempting to attribute the above findings to a lack of financial resources as the primal deterrent to digitalization. However, multiple factors can influence its expansion. *First*, while firms generally recognize the benefits of using digital platforms, smaller firms face information frictions on the usefulness of the platform for their purpose, as evident in Figure 6 (panel b). *Second*, the decision to adopt digitalization in smaller firms resides on the owner-manager; and thus, on the latter's knowledge, skills, interest and time available time for digital tools. By comparison, better managed firms, even after controlling for firm size, can be expected to pivot product-mix, adopt digital means for making remote work arrangements and so on (Grover and Karplus, 2020). Thus, firm capabilities become even more important as they relate to the heterogeneity of firms within the same country, size, or sector groups. Policies and government interventions to aid recovery from the pandemic ought to exploit available instruments for developing such capabilities.

4. Building Back Better: What is the role of policy in supporting South Asian firms during crisis and recovery?

Traditional broad-based macroeconomic tools—stimulating aggregate demand or providing liquidity to businesses – are witnessing diminished capacity to restore employment during the COVID-19 pandemic (Chetty et al., 2020). Direct policy support for firms is, therefore, key to building back better and resilient recovery. Responses to past crisis provide empirical evidence to support this assertion. For instance, firms that received grants in the aftermath of the December 2004 tsunami recovered profit levels substantially faster than those that did not (De Mel et al., 2012). Firms that were offered wage subsidies conditional on retaining workers in Mexico post the global financial crisis outperformed those that did not receive such benefits (Bruhn, 2020). China's payroll tax

mitigation and deferral of social insurance contributions in the context of the current crisis bolstered the ability of firms to weather the economic downturn during COVID-19 (Cui et al., 2020; Chen et al., 2020).

By contrast, some policies such as the United States \$2.2 trillion economic stimulus package called the Coronavirus Aid, Relief, and Economic Security (CARES) Act, in response to the economic fallout of the COVID-19 pandemic has been less effective in alleviating the cash constraints or improving outcomes of those they intend to assist.⁹ What makes some programs effective while others less so? This section uses the BPS data to draw insights on the design of firm support programs, by alluding to the results on access to public programs and the potential mismatch between preferred instruments of support relative to that actually received by firms.

4.1 Rationale for supporting firms

Apart from the obvious rationale of saving millions of jobs that are at the brink of being permanently lost, supporting firms during the pandemic is essential for several reasons (Jones et al., 2020). *First*, there are efficiency gains via network externality from preserving existing relationships among numerous inter-connected entities in the economy. Preserving such organizational capital can also indirectly benefit upstream suppliers and downstream firms. *Second*, the severity of the shock can endanger otherwise productive and viable firms. These firms deserve to be protected for both efficiency and fairness reasons. *Third*, given the changes in demand and supply structure, adjusting to the "new normal" will necessitate public intervention to ensure coordinated reorganization and transformation of key industries. *Finally*, in the absence of government intervention, financial frictions will limit the amount of credit available to the small but viable borrowers and likely limit their adjustment in response to the crisis.

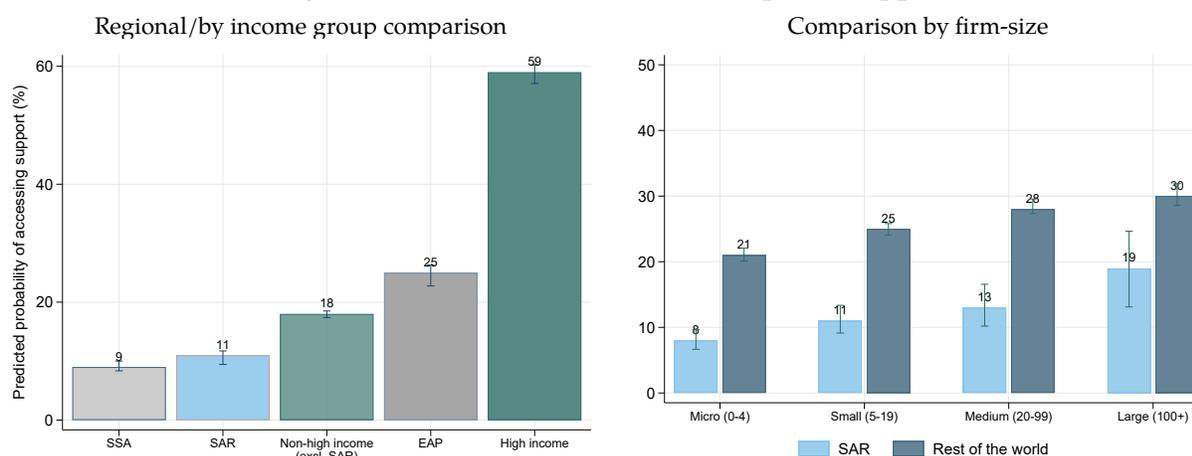
Nevertheless, caution in providing government support is warranted because unanticipated shocks "cleanse" the pool of inefficient firms. The objective of preserving existing economic relationships may impede the creation of new, potentially superior ones, that is, Schumpeterian creative destruction (Schumpeter, 1942; Crespo Cuaresma et al., 2008). Government support also comes with the risk of propping up zombie firms - those that earn just enough money to sustain operation and service debt but are unable to invest and grow (McGowan et al., 2017). Given the difficulty of identifying and targeting the efficient and viable firms, especially during the crisis and in countries where institutional capabilities are weak, the risk of diverting resources away from otherwise-healthy firms can be high. Poorly designed policies may lead to misallocation of resources and overall a negative net effect. Lastly, government support programs are likely to impose disproportionately high transaction cost on both the part of the government and firms, especially the smallest firms, which could drive the latter away from availing the programs.

⁹Funds disbursed through the CARES Act's Paycheck protection program (PPP) did not flow to areas more adversely affected by the economic effects of the pandemic, as measured by the declines in hours worked or business shutdowns, but most likely to less hard hit businesses and locations (Granja et al., 2020).

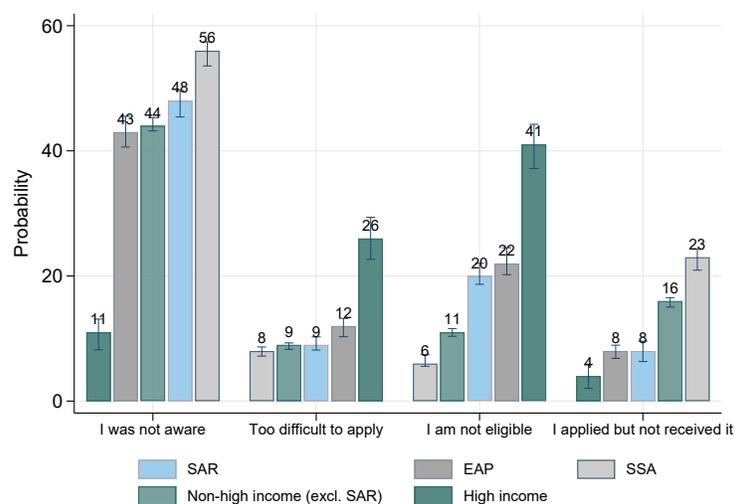
4.2 Access to public support

Despite efforts of South Asian governments to support firms and their respective workers, access to support programs is very limited, similar to what has been observed in other poor countries (Cirera et al., 2020). Analysis of the BPS data suggests that relative to other regions, South Asian firms are less likely to access firm support programs. Across the sample, only 11% of firms in SAR are likely to have access to public programs, much lower when compared to 25% in EAP and 59% in high-income countries (Figure 7, left panel a). Unreported estimates suggest that in all South Asian countries except Sri Lanka, less than 11% of firms are likely to have received public support. Nearly a third of the firms have access in Sri Lanka compared to 0.7% and 3.7% in Afghanistan and Nepal, respectively. Lack of awareness explains the gaps in access, especially for firms in South Asia and Sub-Saharan Africa (Figure 7, panel b).

Figure 7: South Asian firms' access to public support.



Panel (a): Average probabilities of receiving public support



Panel (b): Reasons why firms do not receive public support

There are significant variations in public support access across firm attributes. For example, micro and small firms are left out of public support programs. Only 8% of the surveyed micro-enterprises

reported to have received public support, compared to 19% for large firms. Relative to firms in the same size groups, South Asian firms have consistently lower predicted probability of accessing public support when compared with other regions or income groups, irrespective of size. The difference is particularly high for micro-enterprises, suggesting greater limitations in terms of access to support programs for micro and smaller firms in the region (Figure 7, right panel a). Appendix Figure A.8 extends the analysis to cover other firm dimensions. Results show that exporters in South Asia have slightly better coverage at 20%, compared to only 11% for non-exporters. This might be related to the former's better access to information which comes as being part of a broader network. This might also be the reason why female-led firms in South Asia are slightly worse off when it comes to accessing public support programs. On average, the probability of accessing support by female-led firms is 6 percentage-point lower in South Asia (13% for male led firms) and is statistically significant. There are no such significant differences in the rest of the world.

4.3 Targeting and firm support instruments

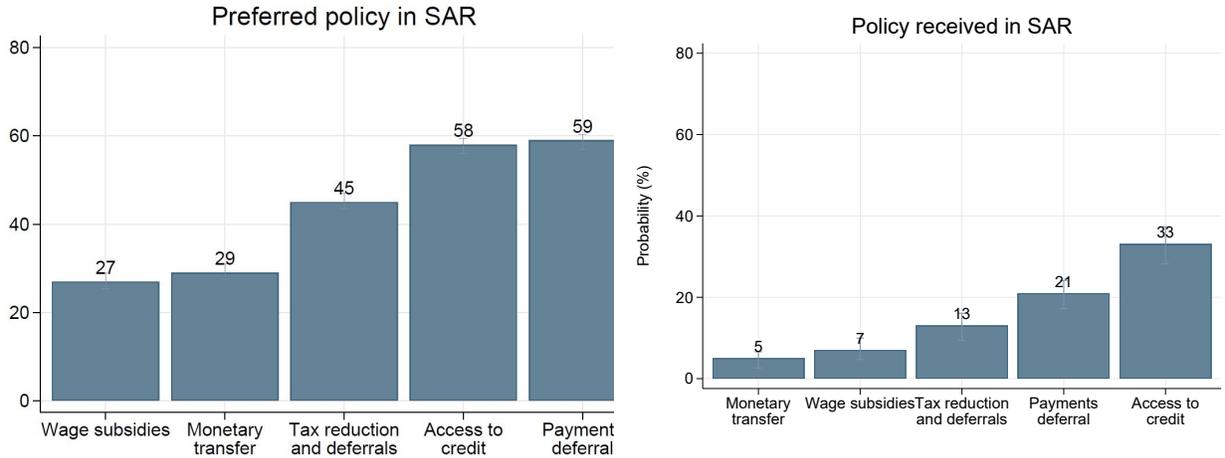
During the outbreak phase, policy makers were focused on reducing layoffs and avoiding firm closures and bankruptcies, such that programs were targeted towards vulnerable firms based on observable characteristics such as firm size (e.g. small firms in the United States CARES Act's Paycheck protection program) and sectors (e.g. lock-down or demand hit sectors such as tourism which has been the popular target of several programs in South Asia, World Bank (2020a)). This was perhaps the need of the hour in the early stage of the pandemic when the objective was to quickly support firms and avoid the mass hysteria of business closures. Into the recovery phase, however, targeting ought to be in support of the most affected but also the viable ones.¹⁰ The heterogeneous impact of the pandemic on firm sales within the same size and sector groupings and that they explain only 20% of the within country variation in sales (Figure 2) make them imprecise criteria for targeting support. By comparison, the nature of shocks suffered explains 62% of the within country variation in change in sales and 45% of the variation in financial fragility and offers a direction to look into when supporting firms.

The BPS asks for the top three preferred support policy choices for firms and the sort of support received, if there was any. Access to credit, payment deferral and tax reduction are the most preferred policy choices by firms in South Asia and these are also the most widely received (Figure 8, panel a). The wide gap in the extent of support received noted in Figure 7 (left panel a) is also evident here. Moreover, although it appears that South Asian governments were able to match policies with what firms actually desire, it is unclear whether this seemingly matched policy support is optimal or just incidental. Using Shapley decomposition for two of the policies - access to credit and payment deferrals - in Figure 8, we present the key factors that explain policy choices (left, panel b) and targeting (right, panel b). While policy preference for payment deferral and access to credit is mainly explained by the type of shock experienced as opposed to the usual targeting criterion - size and sector of the firm, policy makers offer support mainly based on sector and to a certain extent size and exporter status. Nearly 22% of a firm's choice on access to credit is explained by the

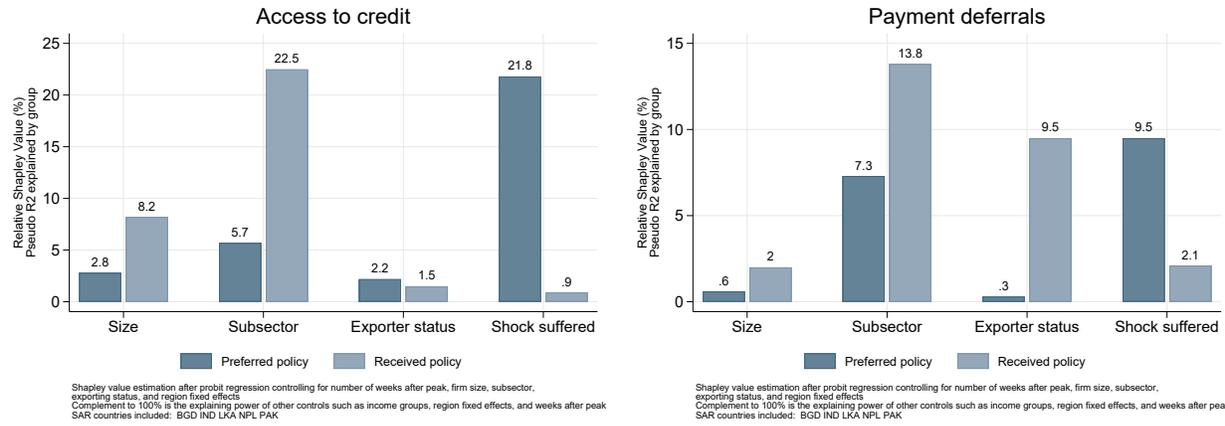
¹⁰Cruz et al. (2020) distinguish between two phases of the current crisis with distinct characteristics: Phase I - Outbreak and Phase II - Recovery.

shock received by the firm, however, less than 1% of the variation in firms receiving access to credit support is explained by shocks. Access to credit received by firms is explained largely by their sector and size.

Figure 8: Policy support and mis-targeting



Panel (a): Top three preferred and received policies



Panel (b): Explaining policy preferred vis-a-vis policy received

The above results underscore the possible mismatch in the perspective of the firms and policy makers. While the instrument preferred by firms is driven by the dominant channel of transmission of the shock, policy makers adopt a more pragmatic approach and target firms based on external observable attributes. The design of an effective firm support program ought to recognize the relative sensitivity of firms to the different types of shocks. For example, micro firms are particularly hit by demand shocks and support to alleviate constraints connecting with markets (new ones or expansion) could be most effective (Figure 9). Such differences in the types of shocks affecting firms are ubiquitous by other dimensions as well - sector, exporter status and the gender of the owner - and program design should be customized to account for such nuances. Our analysis is aligned with the recent work by Gourinchas et al. (2020) who argue that narrowly targeted interventions can have much larger effects for a relatively modest fiscal cost. By comparison, blanket interventions can be quite wasteful because it may be granted to firms that do not need it.

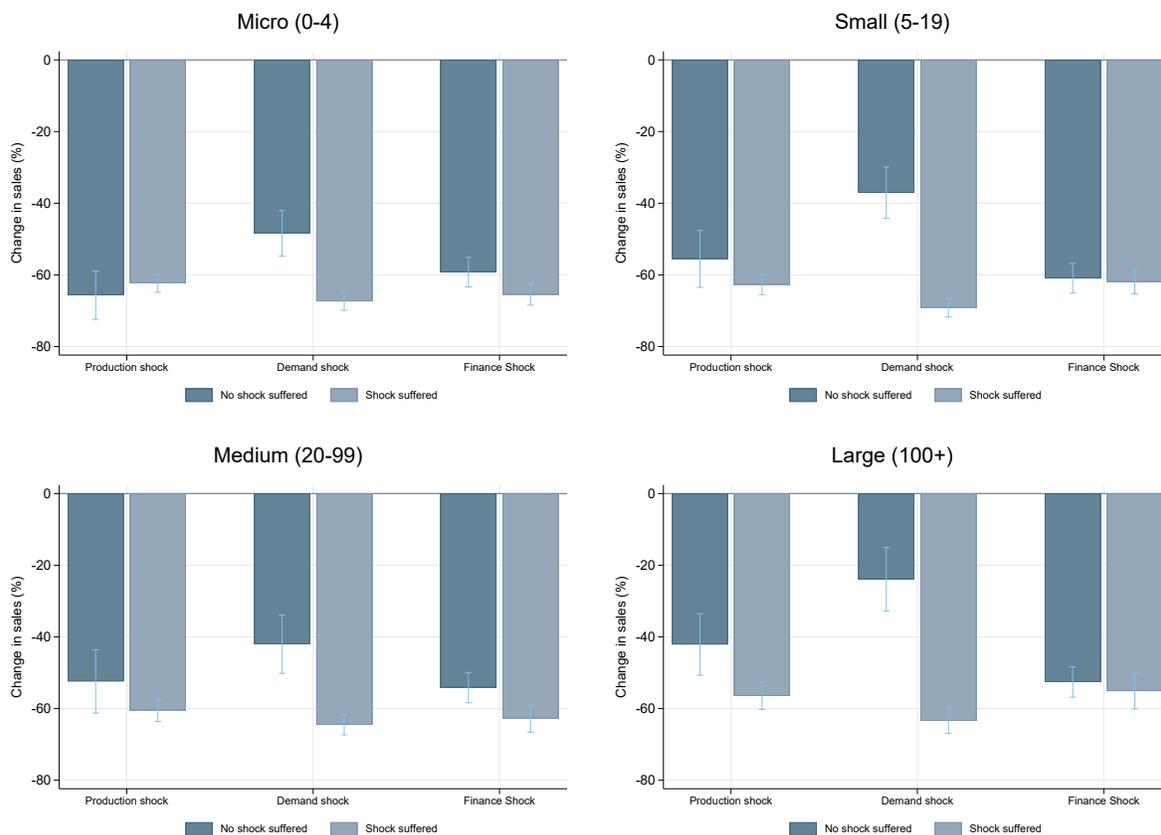


Figure 9: Change in sales by types of shock

4.4 Impact of access to programs

Support programs matter for a firm’s outlook towards the future, investment decisions and financial fragility.¹¹ Our analysis of the BPS data suggests that increased access to public support programs is weakly positively associated with firm’s expectations of future sales. This highlights the considerably low access to firm support among South Asian firms and the potential for such intervention to influence their behavior (Figure 10, left panel).

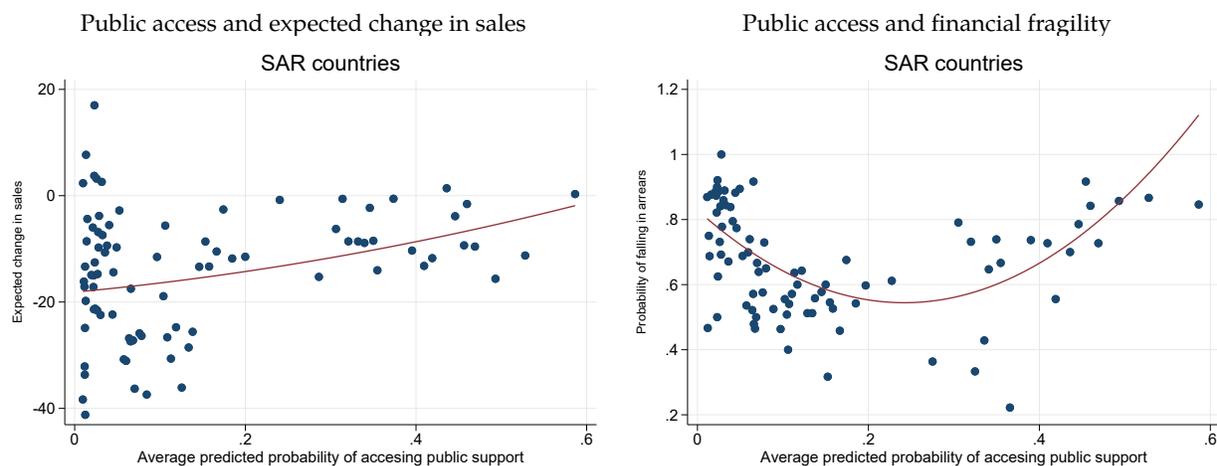
Access to public support is also associated with a decline in the probability of falling into arrears for firms that had initially low access. By contrast, financial fragility cannot be addressed at higher levels of policy access (Figure 10, right panel).¹² This finding can be an indication of difficulties in targeting firms that need the most help and are otherwise viable. Some firms that had high access to public support by virtue of their size or belonging to the hardest-hit sector (e.g., large firms in accommodation and food services) may also have *a priori* high financial fragility that cannot be addressed by support through instruments relating to access to finance when the underlying root of their distress is depressed demand. In fact, prior evidence suggests that as additional liquidity

¹¹ It is probably too early to detect the effect of public support on liquidity, costs, and survival. Notwithstanding, Bennedsen et al. (2020) find a strong relationship between support on labor aid and reporting lower layoffs and more furlough among Danish firms. They do not find similar results for fiscal aid.

¹² Although the chart shows a quadratic relationship, the estimates could be biased at the upper end due to the low number of higher support access bins.

reaches companies in the form of debt, it tends to increase their indebtedness and default risk (Myers (1997); Hennessy et al. (2007)).¹³ Thus, matching support instrument with the dominant channel of transmission of the shock for the firm is critical in making firm support effective.

Figure 10: Relationship between access to public support and key firm-level outcomes



5. Conclusion and policy recommendations

Firms in South Asia had a disproportionately larger impact of the pandemic. Evidence from Business Pulse Surveys conducted by the World Bank in collaboration with the IFC in South Asian countries suggests that only two-thirds of the businesses are currently open in the region compared to 80% in other non-high income countries. The average revenues among these businesses have declined by 64% relative to a 46% decline in other non-high income countries. Results also point to the elevated financial fragility among South Asian firms and the dwindling confidence about their future during the crisis. BPS results show that nearly two-thirds of the South Asian firms are likely to fall into arrears compared to 43% in other non-high-income countries. South Asian firms also have a more pessimistic outlook such that they expect their sales to decline by 19% relative to the expectation of an 8% decline in other non-high income countries.

Within the region, COVID-19 did not affect all firms equally. Micro and small firms have generally suffered more in terms of business closures and revenue drops. While female-led firms suffered with respect to business closures, exporters remained resilient to firm closures, impact on sales and financial fragility. This may be related to firm's ability to adjust their operations model. Compared to a global average of 34%, only 23% of the firms in South Asia adjusted to COVID-induced shocks by increasing the use of digital platforms. Micro and small firms, and non-exporters have considerably lagged behind in this regard. It may also coincide with access to public support programs which remained low for the most affected groups, including female-led firms, perhaps due to lack of organized business networks which can potentially alleviate information gaps. The fact that micro, small and non-exporting firms represent over 80% of the region's workers suggests that the pandemic

¹³In the sample, 72% of the large firms in the accommodation and food services sector have a higher probability of falling into arrears. These are also the firms that are likely to receive public support.

can aggravate the region's existing vulnerabilities and inequalities.

Analysis of the BPS data shows that policy support can be effective in changing the firm's outlook towards future and in lowering financial fragility, especially for firms with lower level of public support access. To this end, our analysis also underscores the importance of effective and well-designed policy measures to help build back better for resilient recovery. *First*, the low access to public support among South Asian firms, particularly for smaller and non-exporting firms, highlights the information gaps and the importance of networks and inter-organizational capital in times of crisis. South Asian governments can play a significant role in promoting linkages between smaller and more organized larger companies to overcome information gaps and allow for productivity spillovers via business networks. *Second*, targeting of support in the form of external attributes such as firm size and sector categorization is neither precise nor desirable, especially in the presence of large heterogeneity within these groups. Policy makers should consider a range of instruments that customize support based on the dominant channel of transmission of shock within the size and sector groups. Clearly, supply-side disruptions should be met with a substantially different support program than that appropriate for demand or finance-related shocks. A deeper understanding of the various ways in which COVID-19 affects firms will be key to developing effective interventions.

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Appendices

A.1. Methodology

A.1.1 Description of the survey and the data set

The World Bank Group (WBG) has developed a brief firm survey instrument to collect data measuring the impact of the COVID-19 pandemic on the private sector. The questionnaire includes the following dimensions: operations of the business, sales, liquidity and insolvency, labor adjustments, firms' responses, expectations and uncertainty about the future, and preferred mechanisms of public support.

In most countries interviews were conducted over the phone, but in a few countries such as Colombia or Turkey, the questionnaire was administered online. In 31 of these countries, a fresh sample of businesses was collected and the survey was implemented in collaboration with private sector associations, statistical agencies, and other government agencies (mainly Ministries of Finance and Economy). Data for the remaining 20 countries were collected as a follow-up of the World Bank Enterprise Survey, using a questionnaire that excluded some questions from the standard version. The two instruments, the standard pulse survey and the Enterprise Survey follow-up, were implemented in Togo. In Bangladesh, the standard pulse survey was implemented on different samples and at different times of the shock. The survey instrument differed across countries but in most cases the Enterprise Survey COVID-19 follow-up excludes some questions on the adjustment to employment and the channels affecting the operations of the business, the module on expectations, and most questions on the adoption of technology as a response to the crisis.

The sampling frame in most countries where the pulse survey was not a follow-up of the Enterprise Survey was based on censuses from Statistics Agencies, Ministries of Finance or Economy, or business listings from Business Associations, and typically only included registered businesses. In the case of the Enterprise Survey, by design the implementation covers only formal firms. Only Cambodia, Gabon, Ghana, Pakistan, the Philippines, Senegal, South Africa, Sudan, and Tunisia include informal firms in their sample.

A.1.2 Data harmonization and cleaning

The analysis excludes observations of businesses contacted but that reported their status as permanently closed at the time of the interview. We also exclude businesses in Education and Health services.

The implementation of the survey in some countries presented the respondent with a different menu of options for the status of the operations of the business and the adjustments to their labor force on the intensive and the extensive margin. We group open and partially open businesses into one

category; and temporarily closed by mandate and choice into a second one. Similarly, we group plants that granted leave without pay and with pay into one group.

Change in sales is only available for businesses open or partially open, or that closed less than 4 weeks prior to the time of the survey (temporarily or permanently). We set change in sales -100 for businesses that have been temporarily closed for more than four weeks at the time of the interview.

For comparison purposes, size and sector in each country is obtained from the pulse survey data, even if in some countries these variables are available from the sampling frame. In some countries where the survey was a follow-up from the Enterprise Survey, size excludes part-time workers. To compute the percentage change in employment, we subtract workers laid off from workers hired, but we exclude observations with measurement error in the question on workers hired (number identical or higher than the size of the firm).

We trim the top 1% in the number of workers hired and in the percentage change in sales relative to the same period of last year. We also trim the top and bottom 2% in the predicted changes to sales in the three scenarios (pessimistic, regular, optimistic). To study expectations and uncertainty, we only use subjective probability distributions where the probabilities for the three scenarios total 100.

A.1.3 Estimation strategy

Given some of the heterogeneity related to the differences in country samples, implementation strategy, and timing of the surveys, we introduce different controls in the analysis. To control for differences in the composition of the sample, we include in the analysis dummies for size and sub-sector (10 groups), in addition to country fixed-effects. The timing of implementation of the first wave of the pulse survey differed across countries—collection time averaged around 4 weeks per country and spanned from mid-April through the end of September. The survey captures businesses at different stages of the COVID-19 shock in each country and to correct for these differences in the timing of the survey, we also include dummies for the number of weeks before or after the peak of the COVID-19 shock, which we proxy using Google mobility data around transit stations. For each country, we identify the date when mobility reached the trough and then count the number of weeks between the date of the interview and the trough. For countries where Google mobility data are not available, we predict mobility using the stringency of the lockdown restrictions provided in the Oxford COVID-19 Government Response Tracker. Finally, to control for differences in the number of observations in each sample, we weight our results using the inverse of the number of observations in each country, that is, each country has the same weight in our summary statistics.¹⁴

For all results presented in this paper, we also control for region fixed effects. Due to missing values within gender of the owner and exporting status, they are only included in the estimations where the variable of interest is one of them. Graphs in this paper show the margins results of the variable

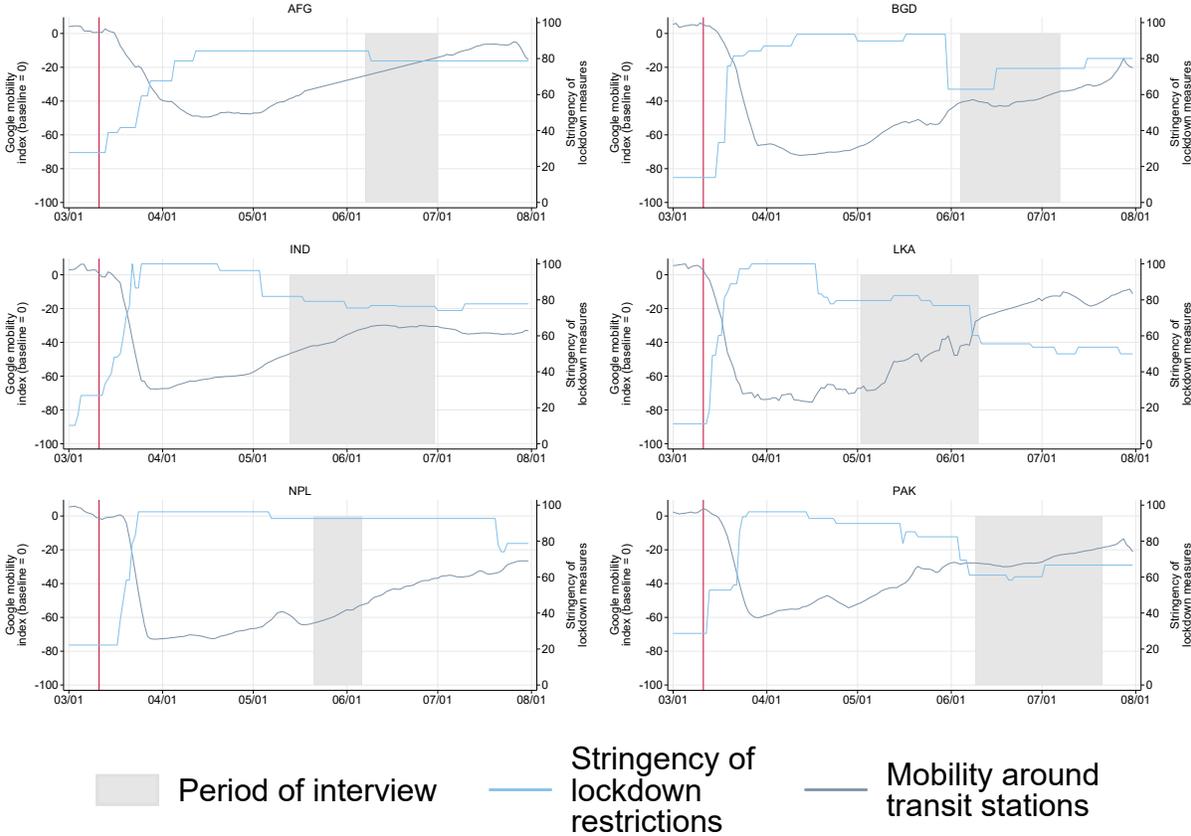
¹⁴In some countries, sampling weights are available in order to produce nationally representative results at the country level, but for comparison purposes, we do not include these weights in the analysis and only weight observations by the inverse of the number of businesses in each sample.

of interest, predicted at means.

Shapley value calculations use the "shapley2" command in Stata and follows the literature on decomposition effects. The Shapley-Owen value aims to represent the proportion of the R-squared (Pseudo R-squared) that is explained by different group of variables in a OLS (probit) regression. The methodology comes from game theory, where the Shapley value is a way to distribute the gains of a game relative to the contribution of each player. In the decomposition case, the Shapley value adds the weighted marginal contribution of each group of variables to the R-squared across all possible model permutations using the different groups of variables defined. For our estimations we use the following groups: size, sector, exporting status, shock received, timing of the survey, and region fixed effects. We do not report the contribution of the region fixed effects or the timing of the survey, but it can be calculated as the complement of the sum of the reported coefficients.

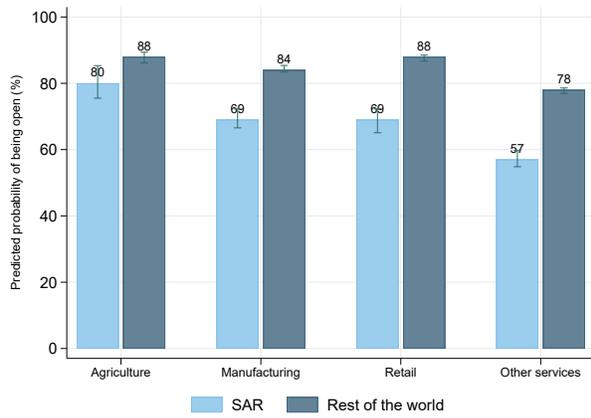
B.2. Appendix Figures

Figure A.1: Survey Implementation and Google mobility trends around transit stations.

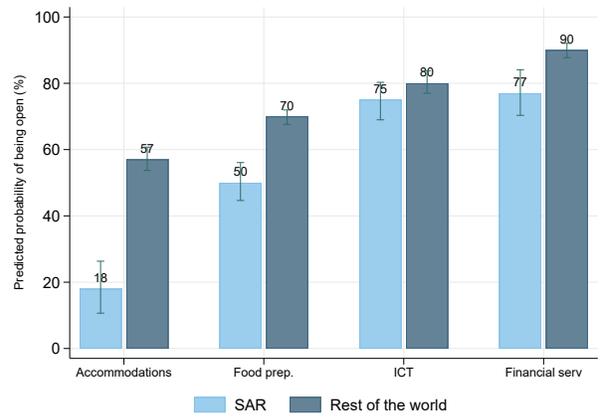


This figure shows how BPS was implemented at varying points of mobility and lock-down. Gray area represents the time of the survey implementation.

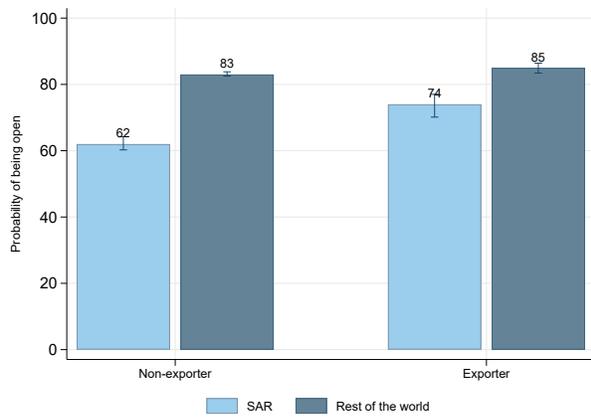
Figure A.2: Probability of remaining open.
By Sector



By Subsector (services)



By Exporter Status



By Gender of Owner

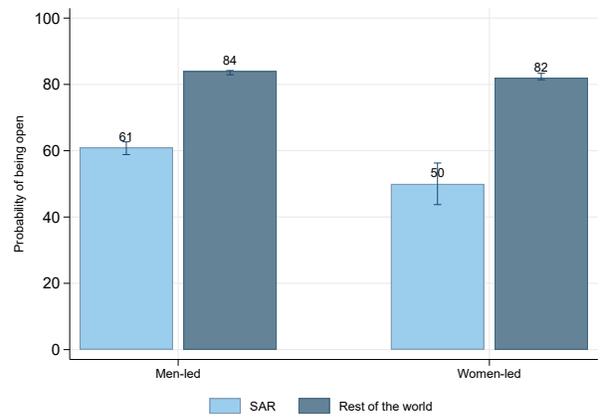


Figure A.3: Estimated decline in sales.

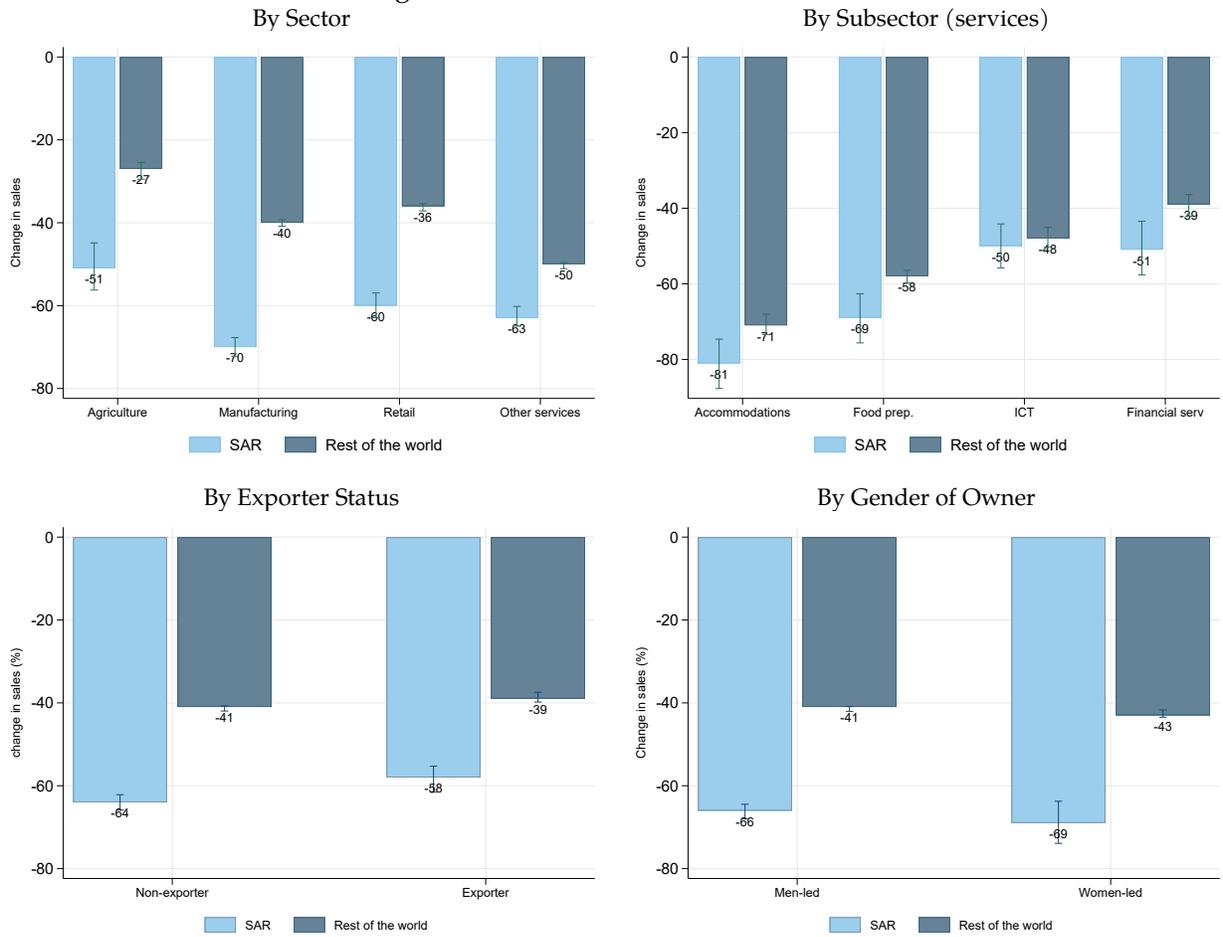
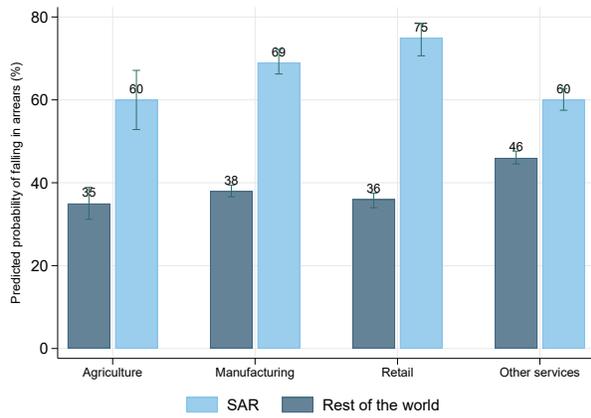
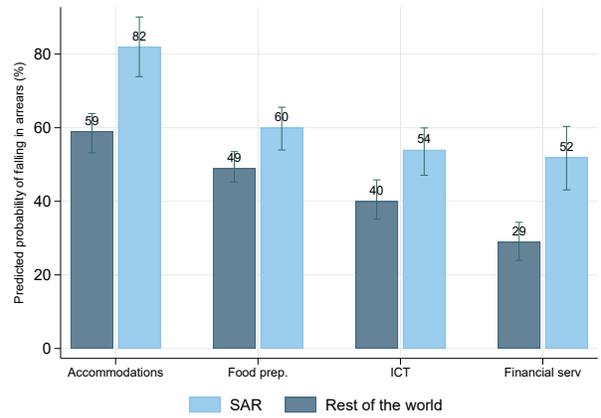


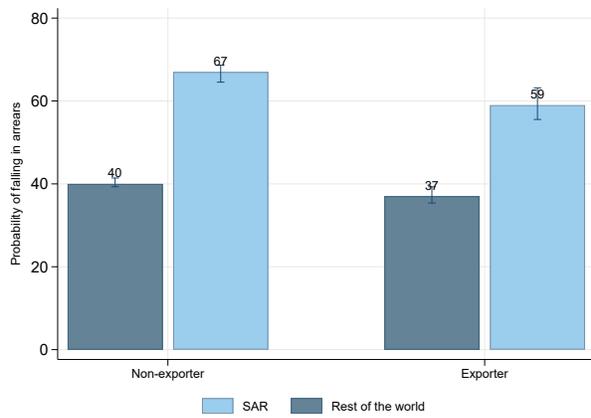
Figure A.4: Probability of falling into arrears.
By Sector



By Subsector (services)



By Exporter Status



By Gender of Owner

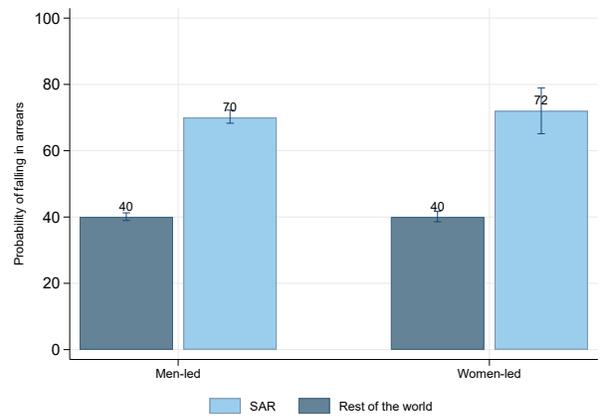
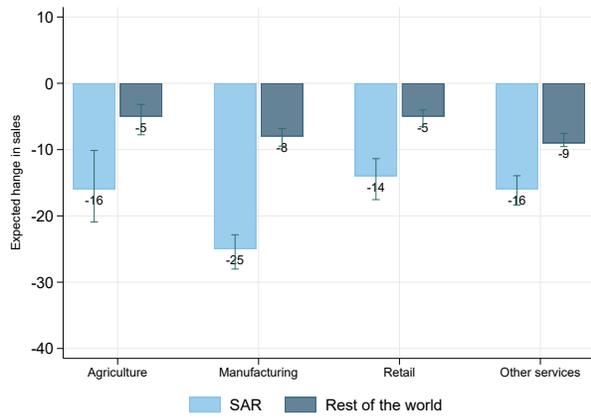
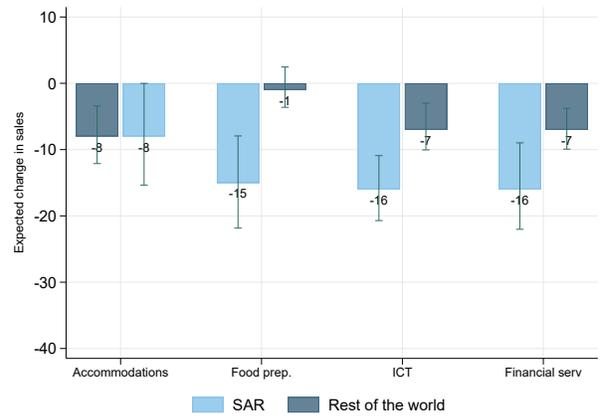


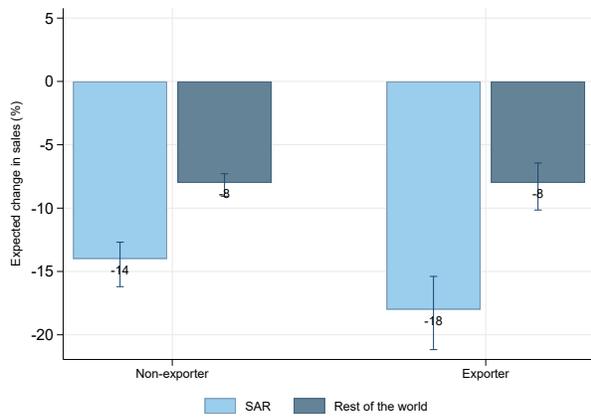
Figure A.5: (Predicted) expected decline in sales.
By Sector



By Subsector (services)



By Exporter Status



By Gender of Owner

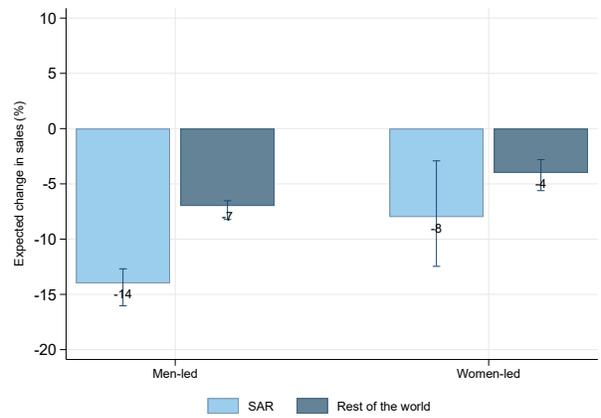


Figure A.6: Adjustment in Employment.

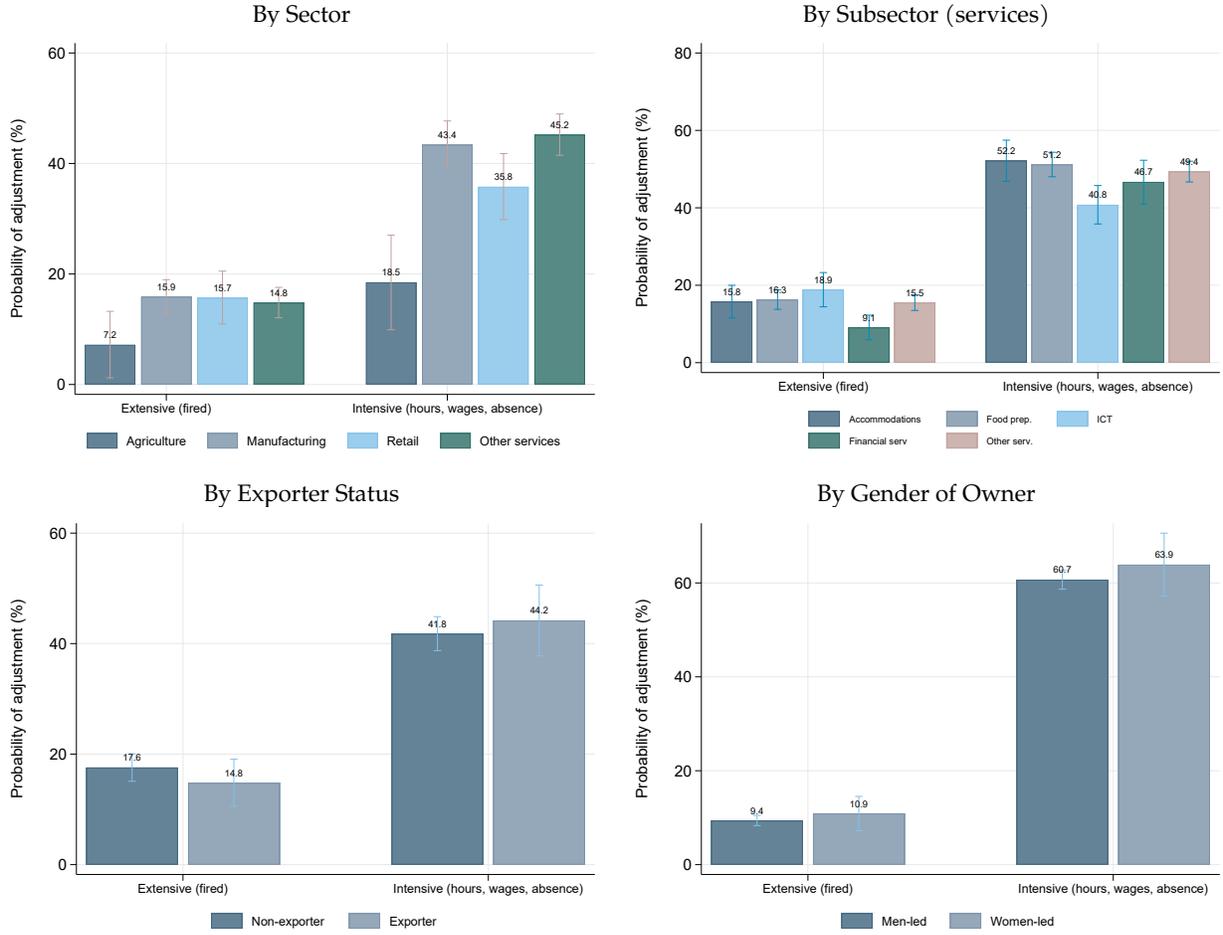


Figure A.7: Probability of increasing the use of digital platforms.
By sector

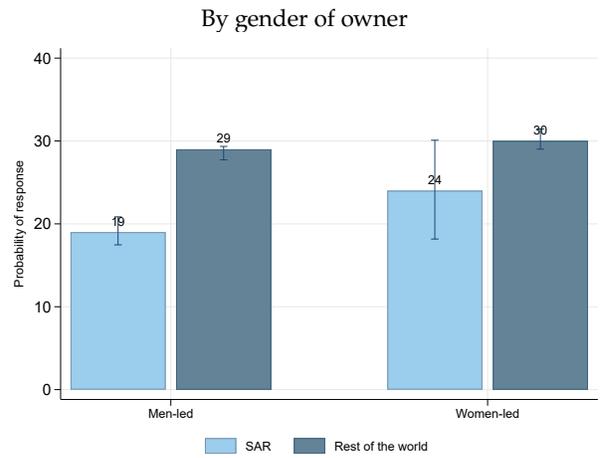
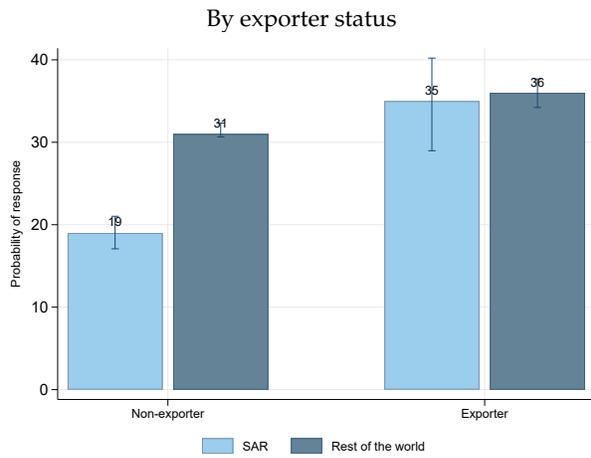
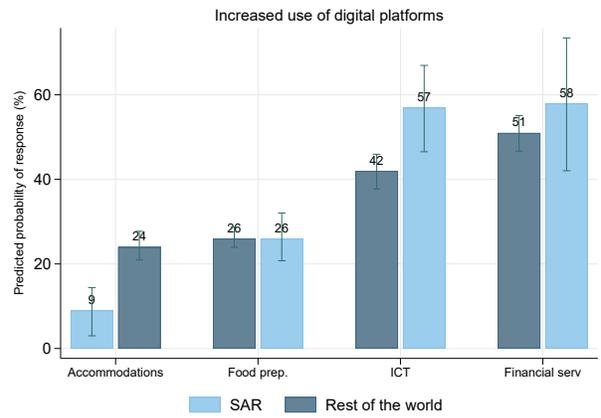
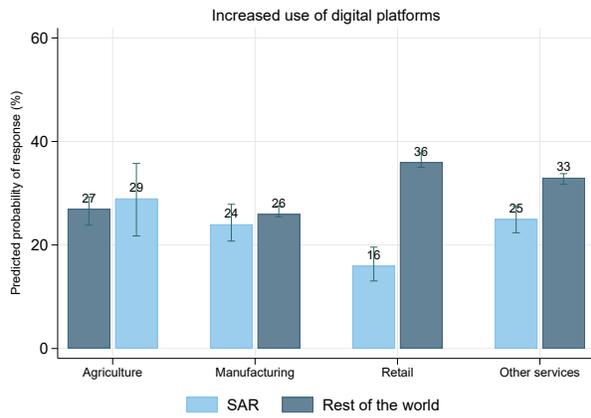
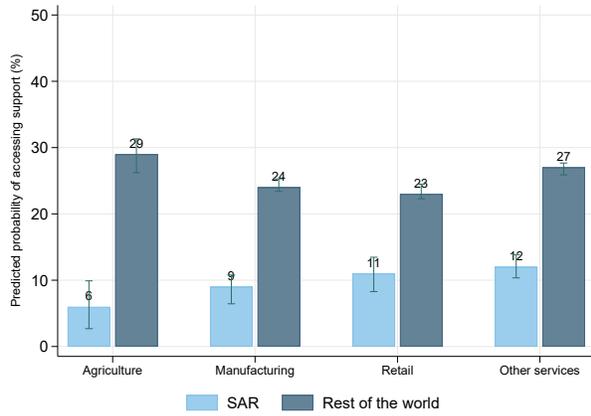
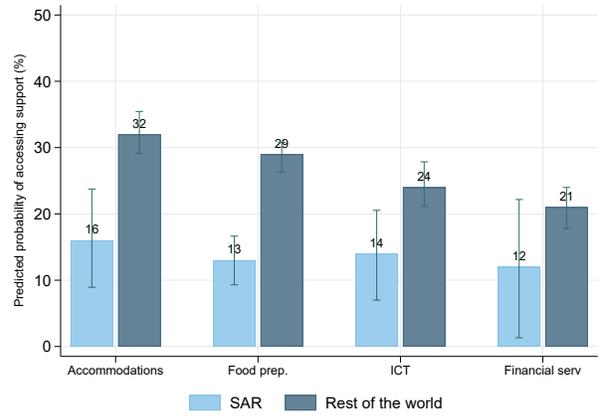


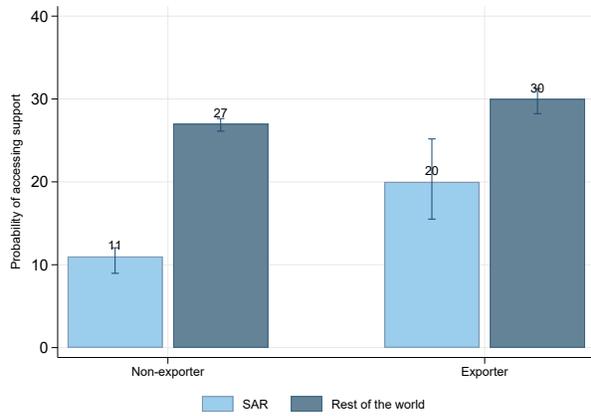
Figure A.8: Probability of accessing public support.
By Sector



By Subsector (services)



By Exporter Status



By Gender of Owner

