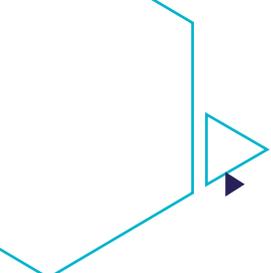


# Morocco COVID-19 Country Case Study



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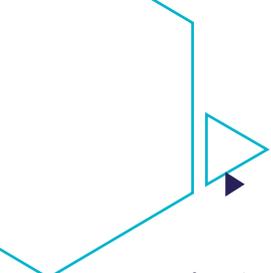
## Key Messages

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- ▶ Morocco undertook relatively stringent lockdown and closure measures in response to the COVID-19 pandemic, consistently more stringent than the rest of the North Africa region and the world.
  - ▶ Although, at times, cases and deaths were below regional and global averages, large waves occurred in late 2020 and then with the delta variant in mid-2021. A substantial vaccination campaign will hopefully help reduce cases going forward.
  - ▶ Morocco's recession in 2020 was more severe than the world economy and Middle East and North Africa contractions, in part due to stringent closures, but also due to the country's exposure to global value chains and tourism, as well as drought.
  - ▶ After recovering somewhat in February and April 2021, relative to November 2020, labour market indicators worsened again in June 2021.
  - ▶ The substantial recovery in employment rates reversed in June 2021 and unemployment rates went back up, especially for women.
  - ▶ A higher proportion of women who were employed in February 2020 were likely to be either unemployed or out of the labour force in June 2021, compared to either April or February 2021, but less than November 2020.
  - ▶ The deterioration in labour market conditions in June 2021 is likely related to seasonality in the agricultural sector, where days worked by family workers as well as other inputs declined substantially relative to February and April 2021.
  - ▶ With regards to changes in household income, April 2021 was worse than either February 2021 or June 2021, and even worse than November 2020 at the height of the pandemic.
  - ▶ Farmers and other self-employed individuals experienced the largest declines in incomes, followed by informal wage workers.
  - ▶ Outside agriculture, micro, small and medium businesses struggled the first quarter of 2021, with some recovery in the second quarter.
  - ▶ All enterprise size categories reported more closures and a larger fraction reported decreases in revenue in the first quarter than the second quarter of 2021.
  - ▶ Nevertheless, 90 per cent of micro enterprises and 82 per cent of small and medium enterprises reported decreased revenues in the second quarter of 2021 compared to the same period in 2019.
  - ▶ A higher proportion of enterprises of all sizes complained of loss of demand and difficulty in accessing inputs in the second quarter than in the first quarter.



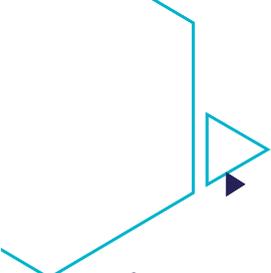
- ▶ A higher fraction of enterprises over time reported adjusting their business model to reduce physical contact with customers, with micro enterprises mostly using phones and small and medium enterprises using phones, web/app-based applications, and social media.
- ▶ The vast majority of micro firms and two-thirds of small and medium firms were not able to access any government support policies.
- ▶ The most common form of government support enterprises were able to access was business loans. Some small and medium firms also benefitted from salary subsidies.
- ▶ Access to government support for firms was greater in the first quarter than in the second quarter of 2021.
- ▶ The share of households reporting food insecurity increased substantially in April and June 2021, with declines in household income and increased prices driving food insecurity.
- ▶ A minority of households received some form of government assistance during the COVID-19 pandemic, but the reach of this assistance was highest in November 2020 and declined steadily since then.
- ▶ Household assistance was relatively well targeted to the households in the poorest income quartile, who were more than four times more likely to receive assistance in June 2021 than households in higher quartiles. Moreover, rates of assistance declined more gradually for this group than for other groups, suggesting that assistance was better targeted over time.
- ▶ Although children were almost universally back in school from February 2021 onwards, married women with children under six or with school-aged children were more likely to report increases in time spent caring for children compared to pre-pandemic levels, especially in April and June 2021.
- ▶ As time went on, a smaller proportion of people reported being worried about getting infected, but the proportion of those who were very worried increased from April to June 2021, although still less than what it was in February 2021.
- ▶ The proportion of those taking precautions such as social distancing, masking and handwashing is reportedly quite high (more than 85 per cent), but it fell gradually over time as levels of worry declined.
- ▶ The proportion of people reporting low wellbeing shot up from April to June 2021, despite having fallen in the previous period.



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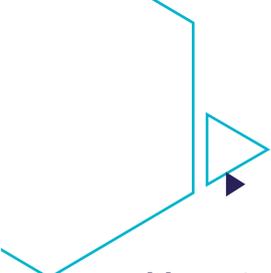
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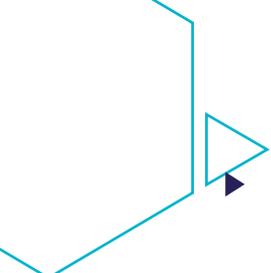
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# 1. Introduction

We examine in this report how Moroccan households and firms were affected by the COVID-19 pandemic through June 2021. The analysis is based on a series of rapid phone surveys conducted by the Economic Research Forum over that period, including four waves of surveys targeting a nationally representative sample of individuals and households (including household microenterprises) and two waves of surveys targeting a nationally representative sample of small and medium firms (who had 6 to 199 workers as of February 2020). Both types of surveys were designed as panel surveys to better capture change over time. When either individuals or firms could not be reached in a subsequent wave, a refresher sample was used to make up for this attrition.<sup>1</sup>

Our findings indicate that labour market outcomes were recovering since the peak of the pandemic in Fall 2020, but this gradual improvement had reversed by June 2021. This reversal appears to be related in part to seasonality in the agricultural sector in mid-2021.<sup>2</sup> In fact, data from farmers shows a substantial decline in on-farm labour and other inputs during that period, which likely affects not only labour demand within farm households, but also for informal wage workers working outside fixed establishments. Given the concentration of employed women in the agricultural sector in Morocco, women's labour market outcomes were more adversely affected in the June 2021 period than men's.

Data from non-farm household enterprises as well as small and medium enterprises shows that conditions in the first quarter of 2021 were worse than in the second quarter of 2021. First quarter 2021 corresponds to a tightening of restrictions in response to a resurgence of the pandemic in the previous fall; a tightening that lasted through March 2021. A larger fraction of enterprises across size categories reported being affected by closures and decreased income in the first quarter of 2021.

Enterprises and households reacted to the disruptions caused by the pandemic in various ways. Over time, enterprises were able to adjust their business models to reduce physical contact with their clients. Micro enterprises relied more on phone communications, but small and medium enterprises increasingly relied on phones as well as web and app-based methods and social media to reach their customers. Households experienced increasing rates of food insecurity due to rising prices and falling incomes. They initially coped by drawing down savings and then increasingly relied on help from family and friends within and outside Morocco, and in some cases on selling assets.

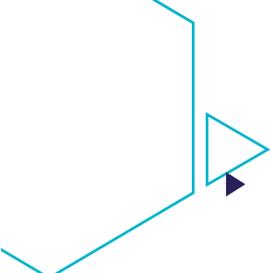
Access to government support programs remained limited for both households and firms. Over 90 per cent of micro firms and two-thirds of small and medium firms received no government support whatsoever. Among those that received support, the most common forms of support were business loans and salary subsidies, but by the second quarter some small and medium firms began benefiting from reduced or delayed taxes and delayed social insurance payments. Among households, the proportion benefiting from assistance fell from 25 per cent in November 2020 to 13 per cent in June 2021, but assistance appeared to be increasingly well targeted toward the lowest income households, who also experienced reductions in access but at a slower rate than average.

Although children were back for in person schooling in the 2020-21 academic year, the childcare burden increased for both mothers with school age children as well as those with children under six years of age in April and June 2021. This may have contributed to the decline in participation rates among women in June. A smaller proportion of respondents reported being worried about contracting COVID-19 over time, but a higher proportion reported being very worried in the June 2021 wave of the survey relative to the previous April 2021 wave. Similarly, there was a sharp rise in the proportion reporting low levels of subjective wellbeing based on the WHO-5 scale between April and June 2021, to some of the highest levels observed since the start of the pandemic.

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<sup>1</sup> See the data section and Appendix 1 for more information about the sampling and weighting to make sure the sample is representative in each wave.

<sup>2</sup> Seasonality is visible in the labor force participation and employment rates (as well as share of employment in agriculture) over 2018 and 2019, although primarily in terms of lower rates in the third quarter (Haut-Commissariat au Plan, 2019a, 2019b, 2019c, 2019d). As our data were collected in June and July of 2021 this may be the point in the agricultural season where labor demand is low.



## 2. Country context

Morocco adopted a very stringent lockdown regime relative to other parts of the developing world in response to COVID-19 outbreak, as we show below. The lockdown may have helped initially limit the spread of the virus but could not be maintained for very long due to its high social and economic costs. Loosening the lockdown was followed by a major resurgence of the pandemic in the summer and fall of 2020, which was eventually brought under control following further lockdown measures. These measures and a relatively successful early vaccination campaign worked to limit the spread of the virus until the advent of the delta variant that resulted in an even larger resurgence in cases and deaths in mid-2021 than the previous fall's peak.

Morocco's economy suffered a severe blow due to the lockdown and other disruptions caused by the pandemic. After having grown at an annual rate of 2.5 per cent in 2019, Morocco's GDP shrank by 6.3 per cent in 2020 (Haut-Commissariat au Plan, 2021; Krafft, Assaad, & Marouani, 2021). The most severely affected sectors were "hotels and restaurants", which contracted by almost 91 per cent in the second quarter of the year relative to the same quarter a year earlier, and "transport", which shrank by 60 per cent in the same time period (Haut-Commissariat au Plan, 2021). Morocco's contraction was larger than the average for the Middle East and North Africa (MENA) and world economy as a whole (World Bank, 2021). As well as its reliance on tourism, Morocco was particularly exposed to global value chains, including a manufacturing sector and exports to Europe that were affected by severe recessions there (World Bank, 2021). There was a slight recovery in GDP in the third and fourth quarters of 2020, but most sectors' growth remained negative relative to the same quarters in the previous year (Haut-Commissariat au Plan, 2021; Krafft, Assaad, & Marouani, 2021).

The government of Morocco adopted a series of economic support policies to alleviate the effects of the crisis on firms and individuals. Early in the pandemic it created a special response fund equal to about 3 per cent of GDP (World Bank, 2021) and undertook a number of measures to ease the burden on firms by postponing tax payments, social insurance contributions and loan instalments (World Bank, 2020a, 2020b, 2021). It also eased monetary policies and bank reserve

requirements and established new credit facilities for firms and expanded existing ones to the tune of about 11 per cent of GDP (World Bank, 2020a). Individuals also received economic support in the form of soft loans to self-employed workers with year-long grace periods, suspension of loan and mortgage repayments, and delays in income tax payments (IMF, 2021).

Social support programs included assistance to formally employed workers who incurred income losses due to the lockdown through the social security system (Abouzzohour, 2020). Assistance to informally employed workers was channelled to workers whose households were registered with RAMED, the subsidized health care program for poor and vulnerable families (IMF, 2021). For those not registered in this program, an online platform was created to facilitate their registration for the assistance program. However, much of these assistance programs were limited to the period between April and June 2020 (IMF, 2021).

## ▶ 2.1 COVID-19 case trends and health response

The first case of coronavirus was confirmed in Morocco on March 2nd, 2020. Less than two weeks later, following the declaration of the new virus as a global pandemic, the government adopted a highly restrictive set of measures to contain the spread of the virus (Kasraoui, 2020). As shown in Table 1, the government shut down all education activities, suspended international flights and ferry crossings and closed public venues like coffee shops, restaurants, hammams, gyms, clubs and mosques. By March 20th, the country had entered in a state of health emergency: all residents were banned from going out to public spaces unless they filled out an “exceptional movement permit” and had it signed by local authorities to go to work, buy groceries or receive medical care. Exceptional permission was granted to people working in essential sectors such as supermarkets, pharmacies, banks, gas stations, medical clinics and telecommunications. A curfew from 6:00 PM to 6:00 AM was also declared. Those who defied the state of emergency risked a sentence ranging from one to three months in prison and paying a fine ranging from Moroccan Dirham (MAD) 300 to 1,300.<sup>3</sup> In April 2020 wearing face masks became mandatory in public spaces and workplaces, and the government expanded efforts to widen and diversify screening tests for COVID-19 (Kasraoui, 2020).

▶ **Table 1.** Timeline of government closure responses to COVID-19

	Closure measures <sup>4</sup>
Late March to April 2020	<ul style="list-style-type: none"> <li>Required school closings at all levels</li> <li>Required closing for all-but-essential workplaces</li> <li>Required cancelling of public events</li> <li>Restrictions on gatherings of more than 10 people</li> <li>Required closing of public transport</li> </ul>
May-June 2020	<ul style="list-style-type: none"> <li>Workplace restrictions loosened to requiring closing for some sectors in early June</li> <li>Closing of public transport entirely lifted in early June</li> <li>Stay-at-home orders completely lifted in late June</li> </ul>
July-September 2020	<ul style="list-style-type: none"> <li>School closings loosened to require closings of some categories of schools only in late September</li> <li>Stay-at-home requirements with exceptions reinstated in early August</li> <li>Restrictions on international travel loosened to banning arrival from some regions in mid-September</li> </ul>

<sup>3</sup>The average exchange rate in April 2020 was 10 MAD to one USD.

<sup>4</sup>Policy stance remains unchanged from period to period unless otherwise noted.

Closure measures <sup>4</sup>	
May-June 2020	Workplace restrictions loosened to requiring closing for some sectors in early June Closing of public transport entirely lifted in early June Stay-at-home orders completely lifted in late June Restrictions on gatherings of more than 10 people Required closing of public transport
July-September 2020	School closings loosened to require closings of some categories of schools only in late September Stay-at-home requirements with exceptions reinstated in early August Restrictions on international travel loosened to banning arrival from some regions in mid-September
October-December 2020	School closings loosened to recommended closings or altered operations in early October Workplace closing reinstated for some sectors in early November Restrictions on gatherings of 10 people or less reinstated in late December Recommended closing of public transport reintroduced in late October Internal movement restrictions relaxed to recommending no travel between cities in late October
January-March 2021	Vaccination campaign launched late January
April-June 2021	School closings tightened to require closing of some categories of schools in early June Restrictions on public events loosened to recommend closing in early June Restrictions on gatherings loosened to allow gathering except for gatherings of 1,000 people or more in early June Restrictions on public transport tightened to require closing in early June Bans on arrivals from certain regions were loosened to requiring quarantines for arrivals from high-risk regions in late June

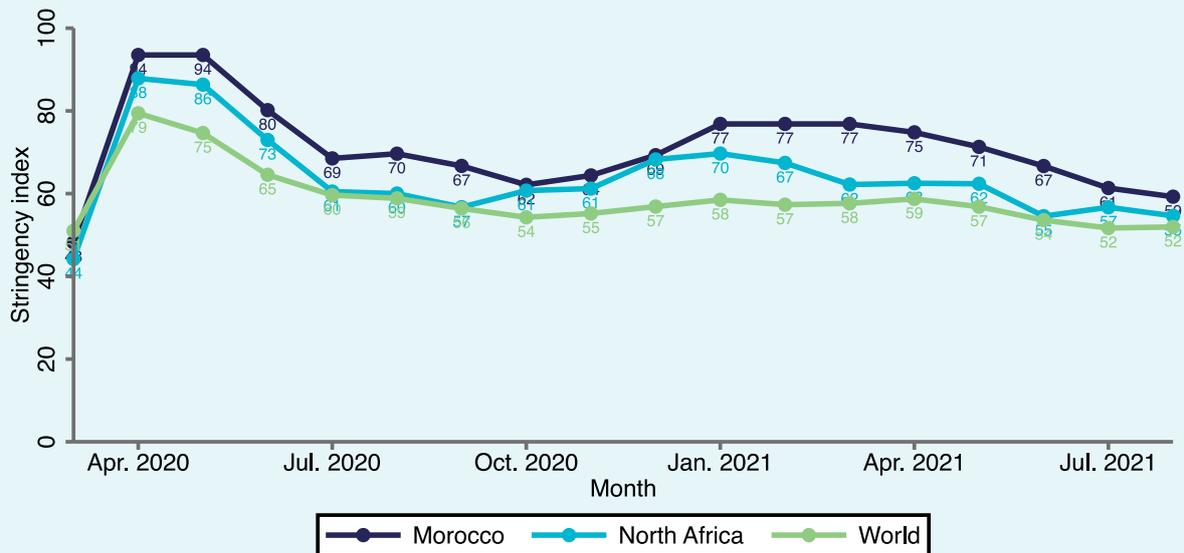
Source: IAdapted from Hale, Angrist, Goldszmidt, et al., (2021)

As shown in Figure 1, by early April 2020 Morocco had a stringency index of 93.5 out of a possible total of 100, putting Morocco well above the North African average of 86 to 88 and the world average of 75 to 79 during the same period.<sup>5</sup> Morocco maintained that level of stringency through early June 2020. This level of stringency puts Morocco at the 90th percentile among the countries of the world during the mid-March to end of May period.<sup>6</sup>

<sup>5</sup>The stringency index is a measure of the strictness of lockdown policies developed by the COVID-19 government response tracker project of the Blavatnik School of Government, Oxford University. See Hale, Angrist, Goldszmidt, et al., (2021).

<sup>6</sup>Authors' calculations based on data from Hale, Angrist, Goldszmidt, et al., (2021).

► **Figure 1:** Evolution of stringency index for closure measures in Morocco, North Africa and the world, March 2020 to August 2021

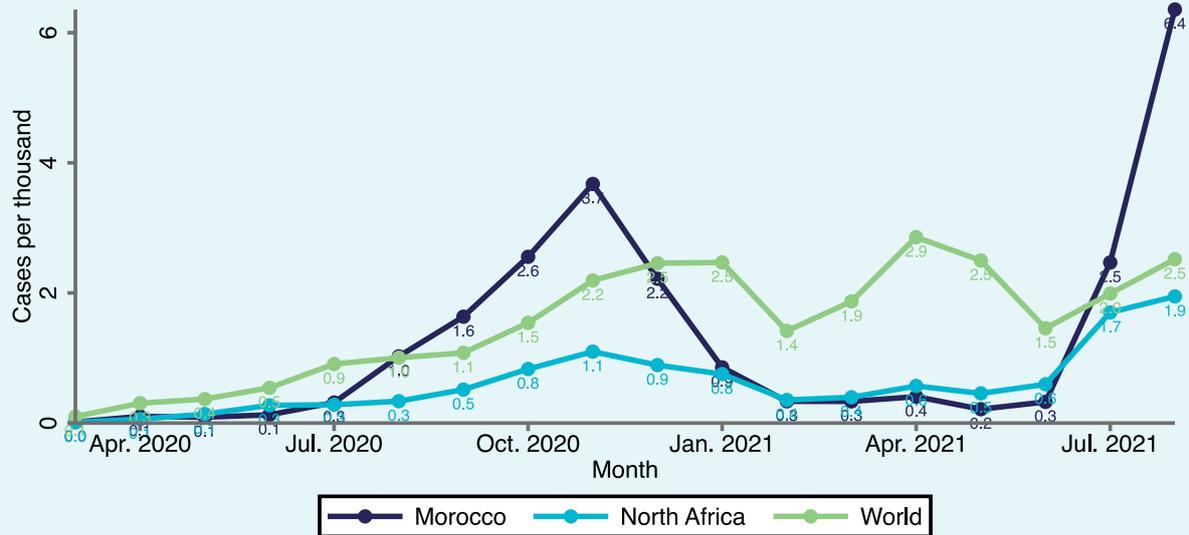


Source: Authors' calculations based on data from Hale, Angrist, Goldszmidt, et al. (2021).

Technology was central to Morocco's public health response. The General Directorate of National Security (DGSN) launched a mobile application that allowed police officers to track the movements of Moroccan citizens and residents to ensure their compliance with the state of emergency (Kasraoui, 2020). In addition, the Ministry of Health launched a COVID-19 tracking application called "Wiqaytna" to allow health units to track those who have come in contact with COVID-19 patients in the three weeks prior to testing positive and notify them (Kasraoui, 2020).

At the outset of the pandemic there was relatively successful containment of the virus. The number of new cases per month, at 0.1 per thousand in April 2020, was well below the world average of 0.3 per thousand, and remained at 0.1 per thousand in May 2020 as cases rose globally (Figure 2). The government proceeded to ease lockdowns in June 2020, starting with regions with a lower incidence of cases on June 11<sup>th</sup>, lifting workplace restrictions and the closure of public transport by early June, and lifting the stay-at-home orders countrywide by June 24<sup>th</sup> 2020 (World Bank, 2020 and Table 1). The July to September 2020 period saw a loosening of the strict closure of all schools and some restrictions on international travel, but a reinstatement of a stay-at-home requirement with exceptions. This resulted in a slight drop in the stringency index to an average of 67 by the end of September 2020, keeping Morocco somewhat above the regional and world averages, which were both at around 57.

► **Figure 2:** COVID-19 new cases per thousand per month in Morocco, North Africa and the world, March 2020 to August 2021



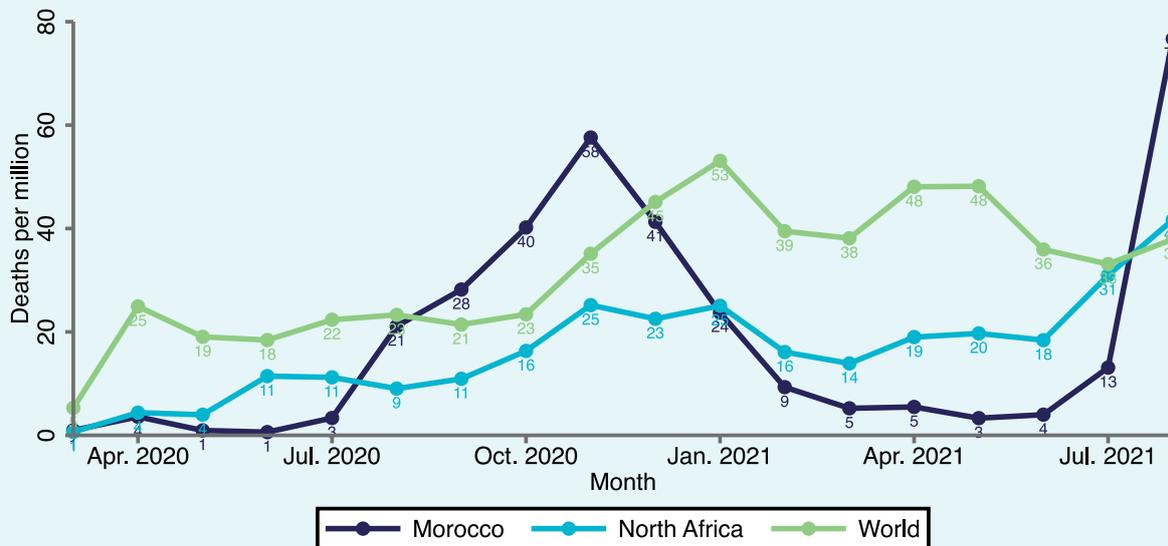
Source: Authors' calculation based on data from Ritchie et al. (2021).

Unfortunately, along with the loosening of restrictions came a resurgence of the pandemic. New cases per month went from 0.1 per thousand in June 2020 to a high of 3.7 per thousand in November 2020 (Figure 2). This resurgence in cases led in turn to a resurgence in deaths related to COVID from 1 per million in June 2020 to a high of 58 per million in November 2020 (Figure 3). This resurgence in cases and deaths put Morocco well above its North African peers and the world average with regards to the severity of the pandemic during the late summer and fall of 2020.

Although the resurgence induced the government to reimpose some social distancing measures, such as restrictions on internal mobility, a partial lockdown and night-time curfews in regions with the highest incidence of cases, these restrictions were mostly limited to the regions with the highest caseloads (World Bank, 2020c). The October to December 2020 period saw a mixture of looser and tighter measures, including a loosening of school closings at the beginning of the new school year in October and a loosening of restrictions on internal movements, but a tightening of workplace closing in some sectors, new restrictions on gatherings of any size, and recommended closings of some public transport (Table 1). The net result was an increase in the stringency index from a low of 62 in October 2020 to a high of 77 in January 2021 (Figure 1).

The new set of restrictions appears to have helped curb the spread of the virus, with the number of cases per month falling from their peak of 3.7 per thousand in November 2020 to a low of 0.3 per thousand in February 2021 (Figure 2). This low level was successfully maintained until a renewed resurgence in July and August 2021. The new restrictive measures introduced in November and December 2020 were maintained throughout the January to March 2021 quarter, keeping the stringency index at the relatively elevated level of 77 throughout this period (Figure 1).

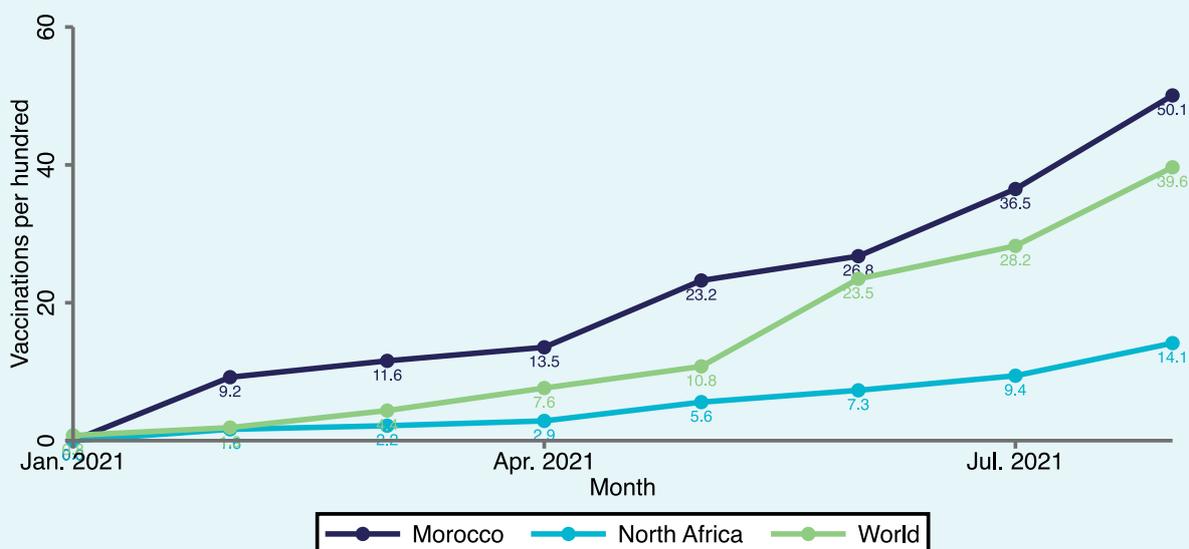
► **Figure 3:** COVID-19 new deaths per million per month in Morocco, North Africa and the world, March 2020 to August 2021



Source: Authors' calculation based on data from Ritchie et al. (2021).

After the Pfizer-BioNTech team announced the results of their clinical trials in November 2020, King Mohamed VI instituted a nation-wide vaccination plan, banking on the country's ability to secure early access to vaccine supplies through its participation in clinical trials (Middle East Business Intelligence, 2021). Indeed, as shown in Figure 4, Morocco achieved a substantial rise in vaccination rates by March 2021, not only putting it ahead of its North African counterparts, but also well ahead of the world average. By successfully vaccinating close to 50 per cent of its population by August 2021, the country has achieved the highest vaccination rate in North Africa and in Africa as a whole (Middle East Business Intelligence, 2021).

► **Figure 4:** Cumulative number of vaccinations per hundred in Morocco, North Africa and the world, January 2021 to August 2021



Note: Algeria was excluded from the North Africa average due to lack of data

Source: Authors' calculation based on data from Ritchie et al. (2021)

Besides a continued increase in the vaccination rate, the period from April to June 2021 also saw a mix of tightening and loosening of restrictions, which tilted in the direction of loosening. School closings were tightened slightly, as were restrictions on public transport, but restrictions on public events and public gatherings were loosened as were international travel bans (Table 1). The net effect was to reduce the average stringency index from 77 in March 2021 to 67 in June 2021 (Figure 1). The loosening trend continued through August 2021 despite the dramatic resurgence associated with the delta variant that occurred in July and August.

It is useful to keep in mind that the first wave of the COVID-19 MENA Monitor (CMM) survey analysed below was carried out from October to December 2020 and thus captures the end of the period of looser restrictions, a resurging pandemic, and the beginning of the period of relative tightening. The second wave of the CMM, carried out in January and February 2021, captures the peak of the newly restrictive environment that was accompanied by a substantial improvement in the course of the pandemic. The third and fourth waves carried out in April 2021 and in June 2021 are in periods of relative stability in the course of the pandemic, rising vaccination rates, and a gradual loosening of restrictions.

## ► 2.2 Economic and social protection responses

At the onset of the COVID-19 pandemic, King Mohammed VI ordered the creation of the Special Fund for the Management and Response to COVID-19. This special fund received a 10 billion MAD (0.9 per cent of GDP) contribution from the central government along with voluntary contributions from different public and private entities (Kasraoui, 2020; World Bank, 2020c). By June 19th 2020, the fund had reached MAD 33 billion (3 per cent of GDP) (Paul-Delvaux, Crépon, Devoto, et al., 2020). This level of fiscal response was similar to that of MENA, on average (2.7 per cent of GDP) and higher than countries such as Egypt (1.2 per cent of GDP) but was responding to a relatively more challenging economic environment (Organisation for Economic Co-operation and Development (OECD), 2020). The response was substantially less than the global response of 10.2 per cent of GDP (Organisation for Economic Co-operation and Development (OECD), 2021).

The special fund aimed to upgrade medical facilities and support businesses and households impacted by the pandemic (IMF, 2021). The government also created an economic monitoring committee led by the Ministry of Finance, named the Comité de Veille Economique (CVE), with the purpose of mitigating the effect of the pandemic on the economy (Kasraoui, 2020). Moreover, the Finance and Economic Development Committee at the House of Representatives approved a bill allowing the government to exceed the ceiling for external borrowing for the 2020 fiscal year to fulfil the country's foreign exchange needs. The government also drew on resources made available by the IMF's Precautionary and Liquidity Line (about US\$3 billion). This withdrawal aimed at maintaining an adequate level of official reserves to mitigate pressures on the balance of payments (World Bank, 2020c; IMF, 2021). Furthermore, the government suspended customs duties on staple foods until June 15, 2020 in order to secure the adequacy of food supplies (Kasraoui, 2020).

In a bid to ease pressure on firms, the General Directorate of Taxes (DGI) granted Moroccan companies with an annual turnover up to MAD 20 million (\$2 million) the right to defer tax declarations and payments until September 2020 (Paul-Delvaux, Crépon, Devoto, et al., 2020; World Bank, 2020c). Firms with an annual turnover above 20 million MAD were allowed to request deferral of tax payments. Moreover, small and medium enterprises (SMEs) and licensed professionals were allowed to postpone repayment of loan and leasing contracts until the end of June 2020 without late payment penalties (Paul-Delvaux, Crépon, Devoto, et al., 2020; World Bank, 2020c).

The government allowed firms with fewer than 500 employees that experienced a reduction in revenues of more than 50 per cent to defer social contribution payments due between March and June 2020 to September 2021 (Paul-Delvaux, Crépon, Devoto, et al., 2020). In the meantime, the government ensured that workers could still benefit from social services associated with these payments. The cost of this measure is estimated at MAD 4.4 billion (0.4 per cent of GDP). In addition, the government granted tax exemptions to employers who would compensate their employees for loss of income to the limit of 50 per cent of their original salary (Paul-Delvaux, Crépon, Devoto, et al., 2020).

On the monetary front, the central bank reduced its policy rate by 75 basis points (bps) to 1.5 per cent since March 2020 and widened the dirham's fluctuation band to +/-5 per cent (from +/- 2.5 per cent) (World Bank, 2020c; IMF, 2021). To respond to growing demand for liquidity support and stimulate credit, the central bank expanded the range of collateral accepted for repurchase agreements and credit guarantees to include public and private debt instruments, increased and lengthened the term of refinancing operations to support credit to SMEs, and provided foreign exchange swaps to domestic banks. In addition, the central bank allowed banks to reduce their liquidity coverage ratio below 100 per cent, lowered reserve requirements from two per cent to zero per cent and reduced the capital conservation buffer by 0.5 percentage points (World Bank, 2020c; IMF, 2021).

In addition, the government secured access to credit through several loan programs guaranteed by the Caisse Centrale de Garantie (CCG)<sup>7</sup>. As early as March 2020, the government launched the Damane Oxygene program to support firms in financing working capital requirements that cannot be postponed (salaries, rents, etc.). The program provided loans to firms at subsidized interest rates with 80 per cent to 95 per cent guaranteed depending on firm size. Loans were due to be repaid by December 2020. Around 50,000 firms have benefitted from this program, for a total outstanding amount of 1.6 per cent of GDP (Paul-Delvaux, Crépon, Devoto, et al., 2020; IMF, 2021). In May 2020, the government launched two new guarantee programs, the Damane Relance Très Petite Entreprises (TPE) for micro-enterprises with revenues below MAD 10 million and the Damane Relance program for all other firms. The new loans also have an 80 to 95 per cent sovereign guarantee depending on the firm's size and are designed to finance working capital needs (IMF, 2021). In addition, they have seven years maturity and a two-year grace period. By mid-April 2021, 25,000 firms had benefitted from the Damane Relance program with loans equal to 3.3 per cent of GDP. In addition, the government guaranteed loans to public departments and state-owned enterprises exclusively to ensure ti

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<sup>7</sup>A public government sponsored enterprise with the mission to support private sector through loan guarantees.

In August 2020, the National Pact for Economic Recovery and Employment was signed between the Moroccan government, the General Confederation of Moroccan Enterprises, and the Banking Association to outline the post-COVID recovery plan. This pact mobilizes 120 billion MAD (11 per cent of GDP) in the form of credit guarantees to firms and the rest is allocated to the newly founded Strategic Investment Fund. The Fund, created with an initial endowment of MAD 45 billion, aims to support public-private investment partnerships in infrastructure, export-oriented industries, agriculture, real estate, and tourism, while supporting the network of SMEs (Paul-Delvaux, Crépon, Devoto, et al., 2020; IMF, 2021).

The Moroccan government also adopted various economic measures to support workers. It provided loans up to MAD 15,000 to self-employed individuals with a repayment period of three years and a grace period of one year (IMF, 2021). Other measures included the deferral of personal income tax filing to the end of June 2020, and tax payment to the end of September 2020, and the suspension of loan repayments up to the end of June 2020. According to the Moroccan banking association, Groupement Professionnel des Banques du Maroc (GPBM), towards the end of April 2020, they had received 416 loan suspension requests worth MAD 33 billion from both firms and individuals, 95 per cent of which were approved. The government also cancelled capitalized interest on mortgage and consumer loan repayments until end of June 2020 which benefited 400,000 individuals (Paul-Delvaux, Crépon, Devoto, et al., 2020).

On the social support side, the government introduced two assistance programs targeting workers who lost their income due to the suspension of non-essential commercial activities. Formal employees registered with the National Social Security Fund or Caisse Nationale de Sécurité Sociale (CNSS), were eligible to receive a monthly stipend allowance of MAD 2,000 from the CNSS (Kasraoui, 2020). In the period from mid-March to end of June 2020, around 780,000 employees benefited from this stipend resulting in a total cost of the program of MAD 6.3 billion (0.6 per cent of GDP) (Paul-Delvaux, Crépon, Devoto, et al., 2020). To target informal workers not registered with the CNSS, the government relied on the RAMED registry, the subsidized medical assistance plan for the poor and vulnerable. Given that a large share of informal workers were not registered with RAMED, Morocco's Ministry of Economy launched an online platform to facilitate the registration of non-RAMED informal workers for financial aid (Kasraoui, 2020). The program was called Tadamon and it granted households of two individuals a monthly allowance of MAD 800, those with three to four individuals a monthly allowance of MAD 1,000 and households with more than four individuals a monthly allowance of MAD 1,200. The program reached 5.5 million households for a total cost of MAD 15.3 billion (1.3 per cent of GDP) between April and end of June 2020 (Mansouri, Rodé, Sevillano, et al., 2020; Paul-Delvaux, Crépon, Devoto, et al., 2020).

Based on a survey conducted by the Haut-Commissariat au Plan (HCP, Morocco's national statistics office) in June 2020, 22.4 per cent of the active population, equivalent to 6 million individuals, had benefited from government or employer assistance (Haut Commissariat au Plan, 2020a). Among those, 87 per cent (around 5.2 million) benefited from the Tadamon/RAMED assistance dedicated for informal workers, 12 per cent benefited from public assistance to workers registered with the CNSS and 1 per cent benefited from employer assistance. The HCP estimates that, as of June 2020, the public assistance compensated on average 35 per cent of the income loss caused by the pandemic. For the poorest quintile, artisans and skilled workers, the HCP estimates that public assistance compensated them for almost the total loss of income they incurred (Haut Commissariat au Plan, 2020a).

In April 2020, HCP estimated that 60 per cent of households with a member who lost a job were not able to benefit from the public assistance. Among those, 59 per cent (equivalent to 21 per cent of Moroccan households) confirmed having registered with the Tadamon/RAMED assistance program but did not receive assistance (Haut Commissariat au Plan, 2020b). Moreover, it is estimated that 30 per cent of the workers registered with the CNSS whose work was suspended were not eligible for the CNSS public assistance. This is due to the exclusion of some sectors like the food and agriculture sector and the requirement that workers be registered with the CNSS in February 2020. However, many workers, like workers in the agriculture and construction sectors, are generally registered with the CNSS for less than six months in the year due to the seasonal and irregular nature of their work and would, therefore, not have necessarily been registered in February 2020 (International Labour Office, 2021).

## ▶ 2.3 Pre-existing labour market challenges

While Morocco had witnessed a period of fairly strong growth over the 20 years preceding the pandemic, this growth did not generate enough jobs to absorb the growing working age population. The steady growth was mainly driven by an increase in labour productivity. The gains in labour productivity occurred primarily within sectors rather than through sectoral reallocation. Accordingly, the reallocation of inputs from less productive sectors to more productive sectors, essential for generating more and better jobs, has been slow (Lopez-Acevedo, Betcherman, Khellaf, & Molini, 2021).

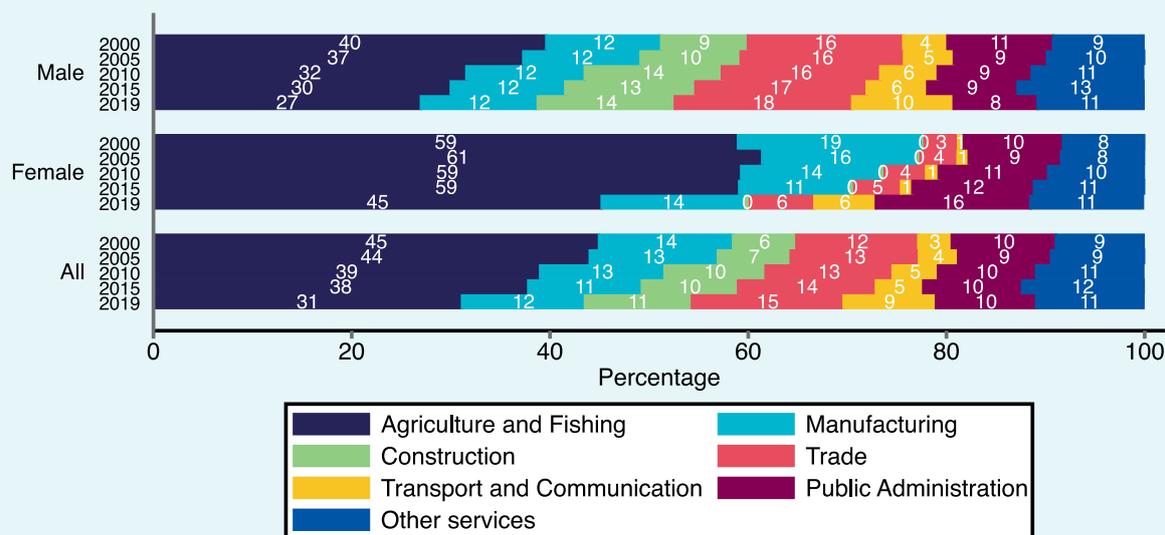
Structural change in employment has also been somewhat slower than other middle-income countries. As shown in Figure 5, the share of employment in agriculture fell from 45 per cent in 2000 to 31 per cent in 2019; a decline of 31 per cent compared to an average decline of 37 per cent in middle-income countries.<sup>8</sup> Agriculture has continued to be a dominant sector for women, with nearly sixty per cent of female employment being concentrated in it until 2015. This appears to have changed substantially in recent years, with the share of agriculture falling to 45 per cent of female employment by 2019, with the difference being primarily taken up by the expansion of the employment share of transport and communication and public administration.

Similarly, the share of employment in industry in Morocco (the sum of manufacturing and construction in Figure 5) increased more slowly than the average for middle income countries, going from 20 to 23 per cent during the same period; a relative change of 16 per cent compared to the 19 per cent average for middle income countries. Moreover, this growth was primarily due to a substantial increase in the share of construction from 6 to 11 per cent and an actual decline in the share of manufacturing from 14 to 12 per cent, exhibiting the same pattern of premature de-industrialization observed in other parts of North Africa (ILO & ERF, 2021). Finally, the share of employment in services (the sum of trade, transport and communication, public administration, and other services in Figure 5) in Morocco also increased more slowly than average for middle income countries, going from 34 to 45 per cent; a relative change of 32 per cent, compared to a 41 per cent average in middle income countries. Again, this increase reflects a substantial increase in the share of transport and communication, which tripled over the 2000-2019 period, and in the share of trade, but a relative stability in the share of public administration and other services.

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<sup>8</sup>These figures for middle income countries are based on ILO modelled estimates as reported by the World Bank's World Development Indicators (World Bank, 2016).

► **Figure 5:** The distribution of employment by economic activity and sex (percentage), ages 15-64, 2000-2019



Source: National Employment Survey (correspondence with Haut Commissariat du Plan)

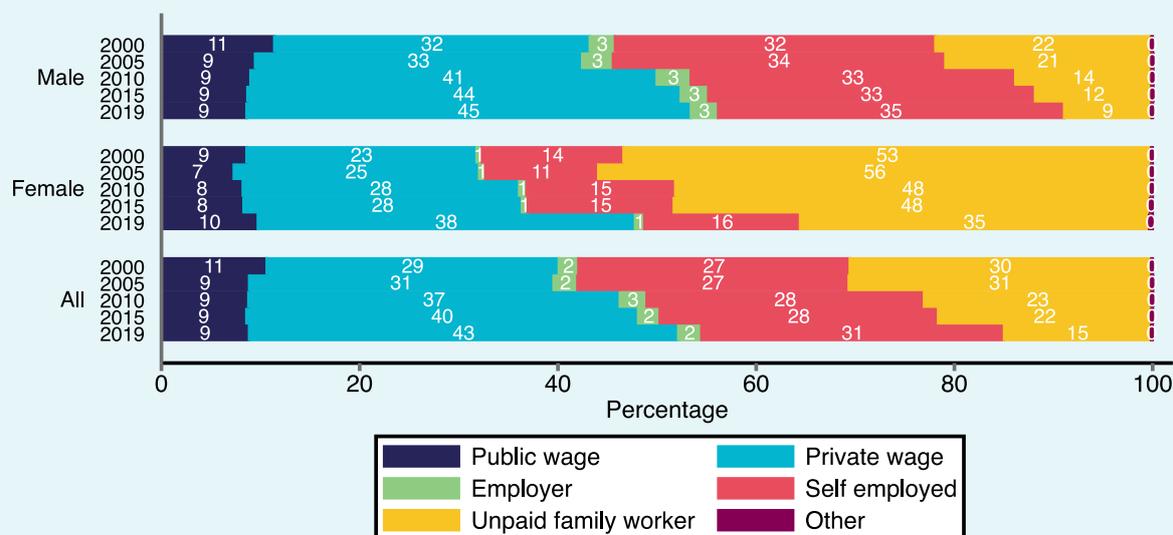
Besides relatively slow rates of structural change, Morocco has also experienced declining labour force participation rates. According to national estimates, overall labour force participation rates for the population aged 15-64 declined from 55 per cent in 2000 to 48 per cent in 2019, with the male rate dropping from 82 to 76 per cent, and the female rate dropping even more from 30 per cent to 23 per cent in the same period.<sup>9</sup> Employment-to-population ratios (EPRs) have also dropped steadily from 2000 to 2019, with women experiencing a bigger drop than men. Overall, the EPR for the population 15-64 went from 48 per cent in 2000 to 44 per cent in 2019; male EPRs went from 71 to 67 per cent in the same period, and female EPRs went from 26 to 20 per cent. With both participation and employment rates declining, unemployment rates also declined from 15 per cent in 2000 to 11 per cent in 2005 and then remained fairly steady at that level through 2019. In fact, male unemployment rates decreased from 10 per cent in 2015 to 8 per cent in 2019, and female rates increased from 11 per cent to 14 per cent in the same period, resulting in the observed stability of overall rates.

The declining participation rates and increasing unemployment rates among women suggests that women, who make the larger share of the inactive population, face many barriers to entry into the job market. Falling female participation rates may be a sign of discouragement as women, especially young women, stop searching for work and are increasingly counted as inactive. As for the unemployed, they are predominantly young, highly educated and living in urban areas. In 2019, 36 per cent of the unemployed were young men with high levels of education living in urban areas. Together with their female counterparts they accounted for 60 per cent of the unemployed (Lopez-Acevedo, Betcherman, Khellaf, & Molini, 2021).

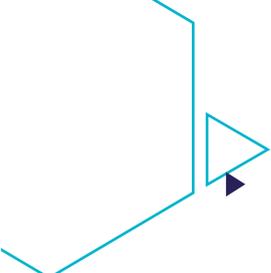
<sup>9</sup>These estimates are from Morocco's national employment survey as conveyed in a private communication from HCP.

The structure of employment in Morocco had been dominated by non-wage forms of employment, reflecting the predominance of family enterprises and farms. As shown in Figure 6, 59 per cent of employment in 2000 was made up of non-wage employment. This share had declined to 52 per cent by 2019, reflecting primarily the decline in the share of unpaid family workers. Public sector employment is much less important in Morocco than its North African counterparts, constituting about 9 per cent of total employment in 2015, compared to 40 per cent in Algeria, 24 per cent in Egypt, and 23 per cent in Tunisia in the same year (ILO & ERF, 2021). The share of public sector employment has remained relatively stable, but that of private wage employment (both formal and informal) has expanded substantially from 29 per cent in 2000 to 43 per cent in 2019. This mostly reflects an expansion of private wage employment among men in the period from 2010 to 2015 and a substantial expansion among women from 2015 to 2019. This is precisely the period that corresponds to the decline of the importance of agricultural employment for women.

► **Figure 6:** Employment status by year and sex (percentage), employed individuals aged 15-64, 2000-2019



Source: National Employment Survey (correspondence with Haut Commissariat du Plan)



## 3. Data

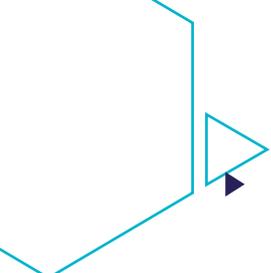
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This study relies on data from the COVID-19 MENA Monitor, a series of phone surveys targeting individuals with mobile phones aged 18-64. The COVID-19 MENA Monitor also included a firm survey targeting private sector firms with 6-199 workers prior to the start of the pandemic (in February 2020). See the appendices for further details on telephone coverage in Morocco, sampling, response rates, attrition, and weighting. All analyses presented in this study incorporate the sample weights. Data are publicly available from the Economic Research Forum at [www.erfdataportal.com](http://www.erfdataportal.com) (OAMDI, 2021a, 2021b).

The descriptive analyses in this study draw on both retrospective data (asking about characteristics in February 2020 or 2019, prior to the pandemic) and contemporaneous data, asking about current or recent status (e.g., work in the seven days preceding the survey). Questions also ask for comparisons between current statuses and pre-pandemic statuses (e.g., how much income has changed over time). The household survey for the COVID-19 MENA Monitor included modules specifically for wage workers, farmers, household non-farm enterprises, and women, as well as questions asked of all respondents about themselves or their households. The household enterprise module is used in this study to provide data on microenterprises with 1-5 workers, which is compared with outcomes from the firm survey.

### Dates for the COVID-19 MENA monitor fielding were as follows:

- ▶ Households: November 2020 wave: October 15 to December 23, 2020
- ▶ Households: February 2021 wave: January 18 to February 27, 2021
- ▶ Households: April 2021 wave: March 11 to April 24, 2021
- ▶ Households: June 2021 wave: May 24 to July 28, 2021
- ▶ Firms: Q1 2021 wave: February 5 to March 4, 2021
- ▶ Firms: Q2 2021 wave: May 26 to July 16, 2021



## 4. Results

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We organize our results thematically, first presenting labour market outcomes overall and for wage workers, then turning to the experiences of farmers, micro, small and medium enterprises (MSMEs), household shocks and coping, education and care work, and lastly health behaviours and wellbeing.

### ▶ 4.1 Labour market outcomes

Pre-existing labour market patterns are an important part of understanding the impacts of the pandemic. Figure 7 shows labour market statuses in February 2020 of the population 18 to 64 that owns a mobile phone, just prior to the pandemic. Overall, the most common status was out of the labour force (30 per cent), followed by being an employer/self-employed (16 per cent), unemployed (13 per cent of the population, not an unemployment rate), or in informal private wage work outside establishments (12 per cent).<sup>10</sup>

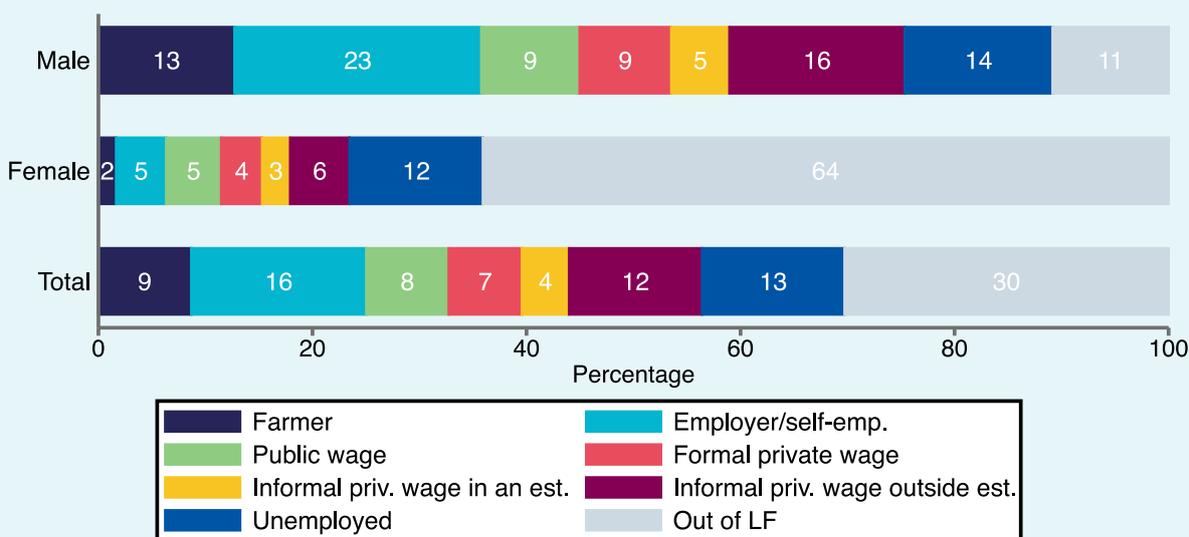
Over half (64 per cent) of women were out of the labour force and another 12 per cent of women were unemployed. Men were much more likely to be employed, with 11 per cent of men out of the labour force and 14 per cent unemployed.<sup>11</sup> About a quarter of men (23 per cent) were employers/self-employed, 16 per cent were informal private sector wage workers outside establishments, 13 per cent were farmers, nine per cent each were public wage and formal private wage workers, and only five per cent were informal private wage workers in establishments. The predominance of self-employment, informal wage work outside establishments, and farming is important for understanding the impact of COVID-19 on the Moroccan labour market.

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<sup>10</sup>The population out of the labor force in this sample (30 per cent) is lower than in the population 15-64 discussed above (52 per cent in 2019) because the selected nature of the sample of those who own mobile phones. As shown in Appendix 3, women in Morocco are much less likely to own phones than men. Less educated individuals and older individuals, especially if female, are less likely to own mobile phones than their educated and younger counterparts.

<sup>11</sup> Again, this compares to 77 per cent of women and 24 per cent of men out of the labor force in the population 15-64 in 2019, showing that our mobile phone sample is more likely to be economically active than the population as a whole.

► **Figure 7:** Labour market status in February 2020 (percentage), by sex



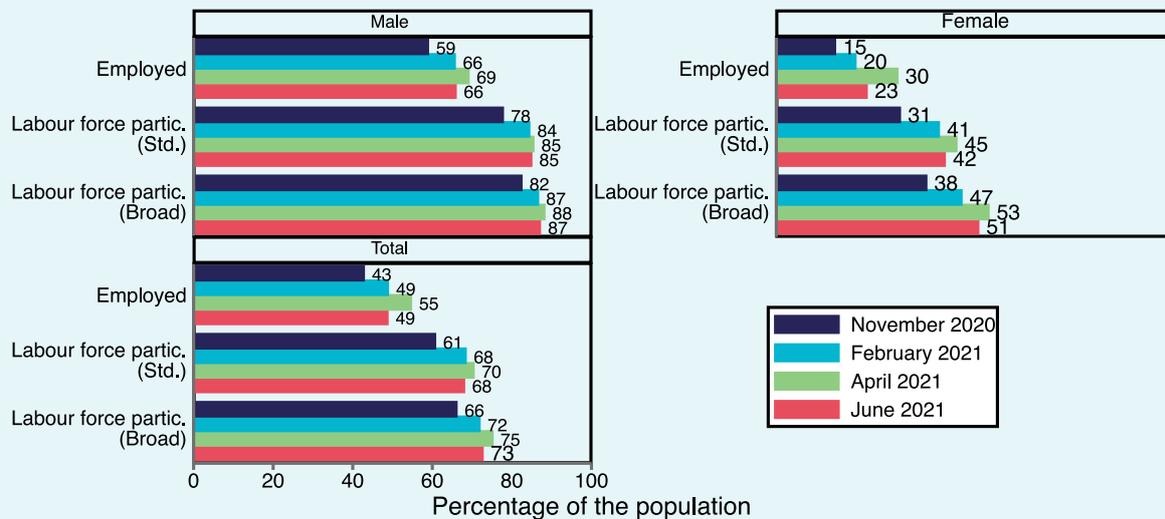
Source: Authors' calculations based on Morocco COVID-19 MENA Monitor November 2020

Figure 8 shows employment-to-population ratios and labour force participation rates during the COVID-19 pandemic. We distinguish between the standard definition of unemployment (and thus the labour force, which is the employed and the unemployed), which requires search within the four weeks preceding the survey, and the broad definition, which merely requires wanting to work, being available for it, and not working (not even an hour in the preceding week).

Labour force participation and employment rates were increasing from November 2020 through February 2021 to April 2021 before dropping again in June 2021. For example, employment rates rose from 43 per cent in November 2020 to 55 per cent in April 2021 before dropping to 49 per cent in June 2021 (to the same level as February 2021). Both men and women's employment and labour force participation rates (standard and broad) followed the same trend, although women had lower employment rates and lower rates of labour force participation, as was the case pre-pandemic. For instance, in June 2021 66 per cent of men were employed and only 23 per cent of women.<sup>12</sup> The drop in June 2021, particularly for women, may be due in part to seasonality in agriculture, where women are disproportionately employed. In 2018 and 2019, employment and labour force participation tended to decline in the third quarter relative to other quarters (Haut-Commissariat au Plan, 2019a, 2019b, 2019c, 2019d). Other research has also documented that seasonality and cyclicity particularly affect rural women in Morocco (Verme, Gadiry Barry, Guennouni, & Taamouti, 2016).

<sup>12</sup>Again, these rates are not directly comparable to the pre-pandemic rates provided in section 2.3 because of the selectivity of the mobile phone owning sample, especially for women.

► **Figure 8:** Labour force participation rates (standard and broad) and employment-to-population ratio (percentages), by sex and wave

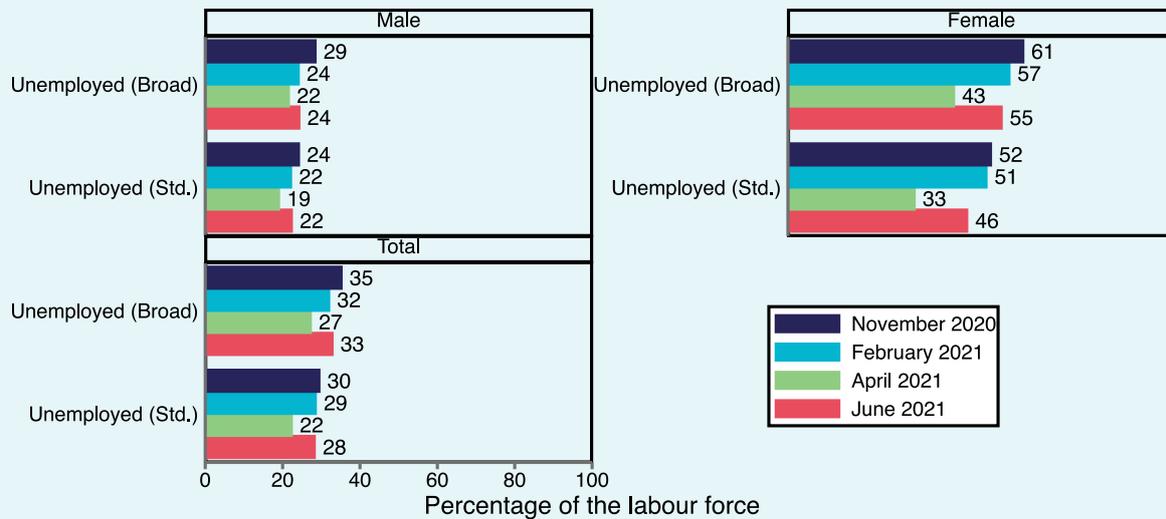


Source: Authors' calculations based on Morocco COVID-19 MENA Monitor November 2020, February 2021, April 2021, and June 2021 waves

Unemployment rates in Morocco went down from November 2020 to April 2021, before rising again in June 2021, according to Figure 9. While the standard unemployment rate rose in June 2021 to 28 per cent, it did not reach the standard unemployment rate in November 2020 of 30 per cent.<sup>13</sup> The broad unemployment rate in November 2020 was 35 per cent and in June 2021 it was 33 per cent, a fairly consistent five percentage points higher than the standard unemployment rate. As was the case pre-pandemic, women had higher unemployment rates than men. For instance, by the standard definition women's unemployment was 52 per cent in November 2020 compared to 24 per cent for men.

<sup>13</sup>These figures are higher than those officially reported for the population as a whole. According to the national employment survey, the overall unemployment rate for the Moroccan population aged 15-64 was 12 per cent in 2020; the male unemployment rate was 11 per cent and the female rate 17 per cent (HCP, private communication). Thus, the sample of mobile phone owners, especially female mobile phone owners, is not only more likely to be in the labor force than the population as a whole, but also more likely to be unemployed.

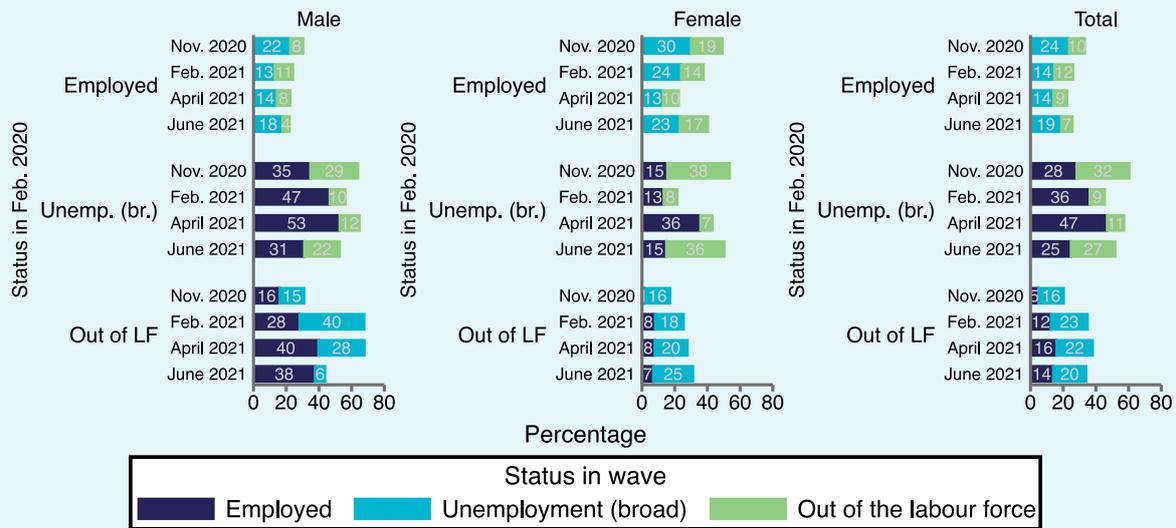
► **Figure 9:** Unemployment rates (standard and broad) (percentage of the labour force), by sex and wave



Source: Authors' calculations based on Morocco COVID-19 MENA Monitor November 2020, February 2021, April 2021, and June 2021 waves

Figure 10 shows the changes in labour market status among those that were employed, unemployed, and out of the labour force before COVID-19 outbreak in February 2020. Among those who were employed in February 2020, in November 2020 a quarter (24 per cent) were unemployed (using the broad definition) and 10 per cent out of the labour force, with women more likely to be unemployed or out of the labour force than men. The situation improved in February and April 2021 (e.g., only 14 per cent of those who were employed in February 2020 were unemployed) but worsened in June 2021 (19 per cent of those who were employed in February 2020 were unemployed). As of June 2021, 36 per cent of women unemployed in February 2020 left the labour force while 15 per cent found jobs. In contrast, among men unemployed in February 2020, 22 per cent left the labour force while 31 per cent found jobs as of June 2021. Notably, there were substantial declines in employment for men and women who were unemployed in February 2020. Among those who were out of the labour force prior to the pandemic, an increasing share found employment in November 2020 (5 per cent) through April 2021 (16 per cent) before falling in June 2021 (14 per cent). More commonly, especially for women, individuals who were out of the labour force in February 2020 were unemployed (16-25 per cent across waves).

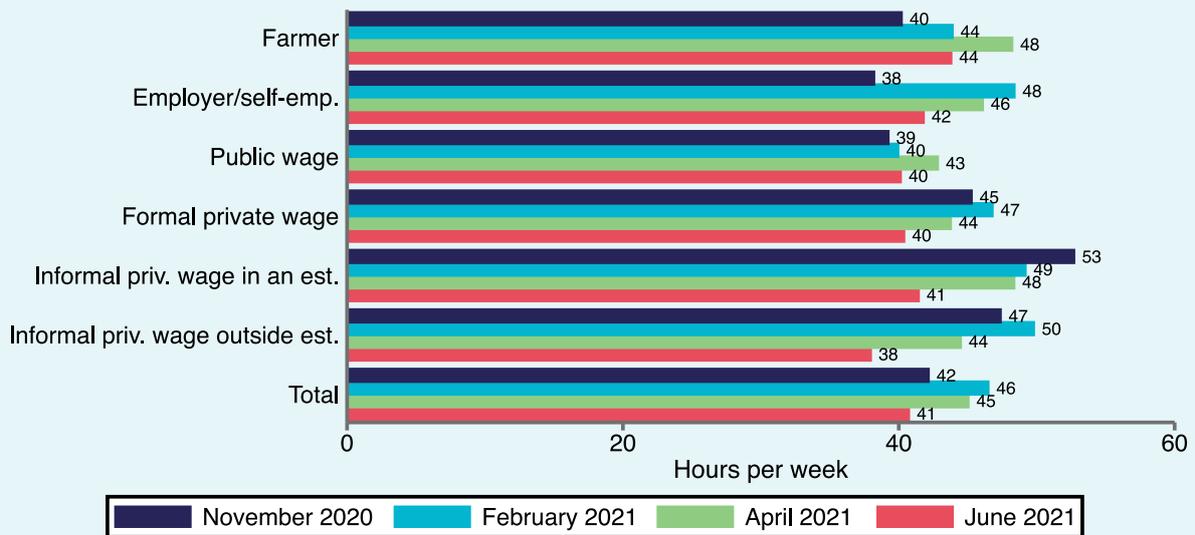
► **Figure 10:** Changes in labour market status each wave, by status in February 2020, sex and wave (percentage of February 2020 status)



Source: Authors' calculations based on Morocco COVID-19 MENA Monitor November 2020, February 2021, April 2021, and June 2021 waves

Trends in average hours of work, for workers, generally followed the trends in the labour market overall (Figure 11). Average hours rose from 42 per week in November 2020 to 46 per week in February 2021 and 45 per week in April 2021, before falling to 41 per week in June 2021. While most labour market statuses followed the overall trend, informal private wage workers in an establishment worked more hours earlier in the pandemic, with 53 hours worked per week in November 2020 and 41 hours worked in June 2021. Informal wage workers outside establishments also saw a sharp decline in hours from 50 per week in February 2021 to 38 hours per week in June 2021, which may be related to seasonality particularly in agricultural work.

► **Figure 11:** Average (mean) hours of employment per week, by status in February 2020 and wave

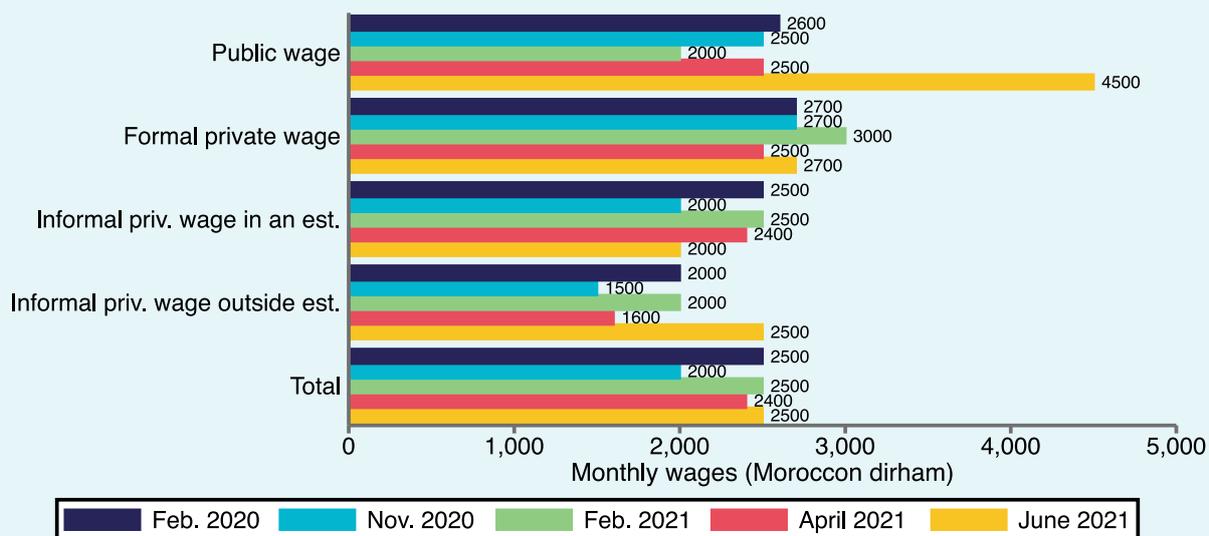


Source: Authors' calculations based on Morocco COVID-19 MENA Monitor November 2020, February 2021, April 2021, and June 2021 waves

Note: Statistics based on individuals employed in that wave.

Among those who remained as wage workers, wages stayed fairly consistent from February 2020 to June 2021, according to Figure 12. The average monthly wage for all workers was 2,500 dirhams in both February 2020 and in June 2021. Wages were lower in November 2020, with a median of 2,000 dirhams per month. As expected, public sector and formal private sector wage workers earned more than informal workers, with informal private sector wage workers outside establishments earning the least in most waves.

► **Figure 12:** Median monthly wages (Moroccan dirham), by status in February 2020 and wave

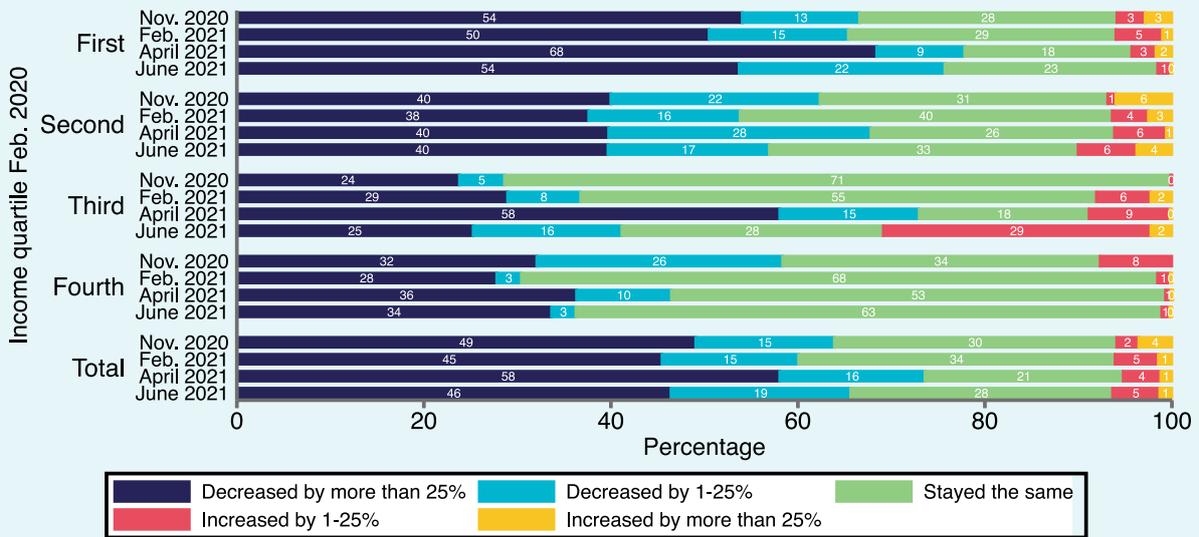


Source: Authors' calculations based on Morocco COVID-19 MENA Monitor November 2020, February 2021, April 2021, and June 2021 waves

Note: Statistics for Nov. 2020 onwards based on wage workers in that wave.

Figure 13 shows that, compared to February 2020, overall household incomes were most likely to decrease, usually by more than 25 per cent, and very few increased, although a fifth to a third remained the same. However, households in higher quartiles of income pre-pandemic were less likely to have drops in household income. For instance, while in November 2020 more than half (54 per cent) of households who were in the poorest (first) quartile of income pre-pandemic experienced decreases of income of more than 25 per cent, only 24 per cent of households in the third quartile and 32 per cent of households in the fourth quartile experienced these steep decreases in November 2020. Income losses also appear to be fairly durable; although there have been some fluctuations, there has not been a trend towards recovery back towards pre-pandemic levels.

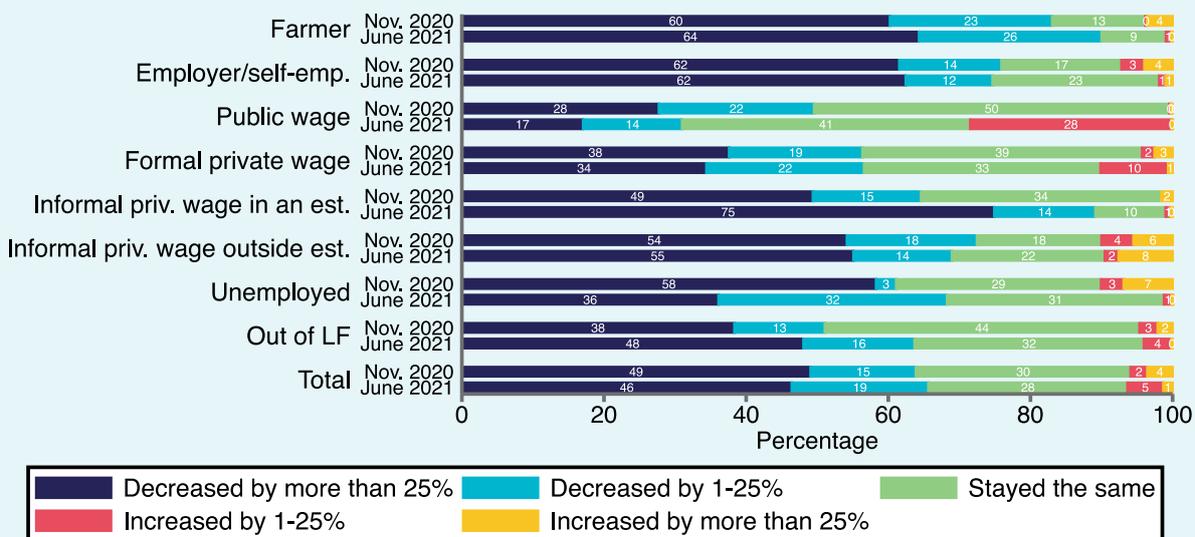
► **Figure 13:** Changes in household income from February 2020 to wave (percentage of households), by income quartile in February 2020 and wave



Source: Authors' calculations based on Morocco COVID-19 MENA Monitor November 2020, February 2021, April 2021, and June 2021 waves

Income losses were closely tied to labour market status (Figure 14). Moroccans who were public wage workers had the smallest decreases in household income (31 per cent as of June 2021) and the most increases in household income (28 per cent as of June 2021). Moroccans who worked as informal private wage workers in an establishment had the largest decreases in household income. In June 2021, 75 per cent of informal private wage workers in an establishment had a decrease in household income of more than 25 per cent. Informal wage workers, farmers, and the self-employed/employers particularly struggled during the pandemic, experiencing the largest income losses.

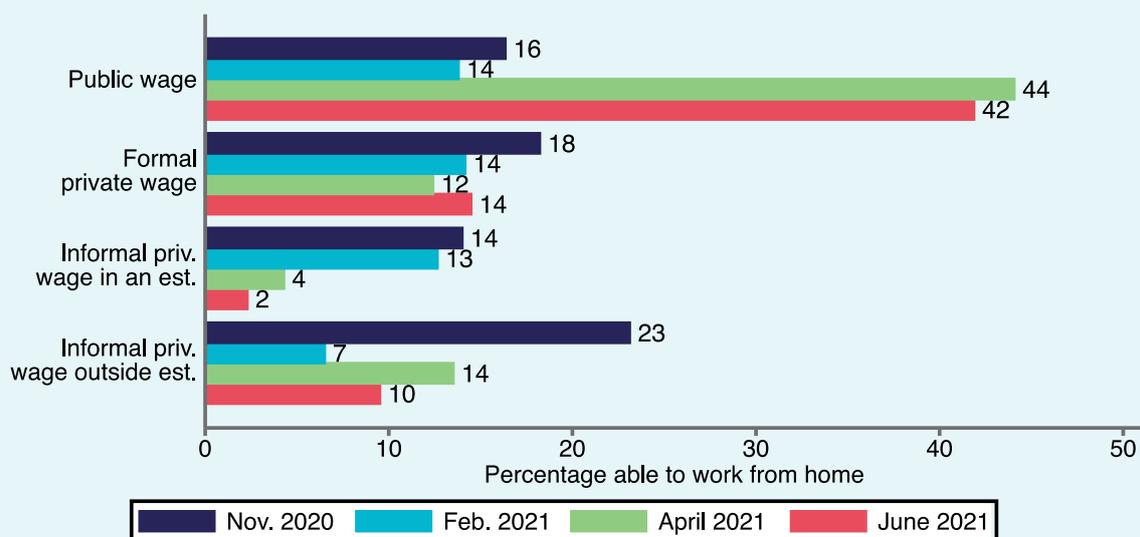
► **Figure 14:** Changes in household income from February 2020 to wave (percentage of households), by February 2020 labour market status and wave



Source: Authors' calculations based on Morocco COVID-19 MENA Monitor November 2020 and June 2021 waves

The vast majority of wage workers in Morocco were unable to work from home, according to Figure 15. Public sector wage workers were most likely to be able to work from home, with nearly half (42 per cent) able to work from home in June 2021. Informal private sector wage workers in an establishment were least likely to be able to work from home, with only 2 per cent able to do so in June 2021. Formal private sector wage workers had a slightly higher rate, 14 per cent in June 2021 along with informal private sector wage workers outside establishments, 10 per cent in June 2021. Among those not able to work from home, the primary reason was it was not allowed or not possible to do their job from home (more than 90 per cent across waves).

► **Figure 15:** Percentage of wage workers able to work from home, by wave-specific labour market status and wave



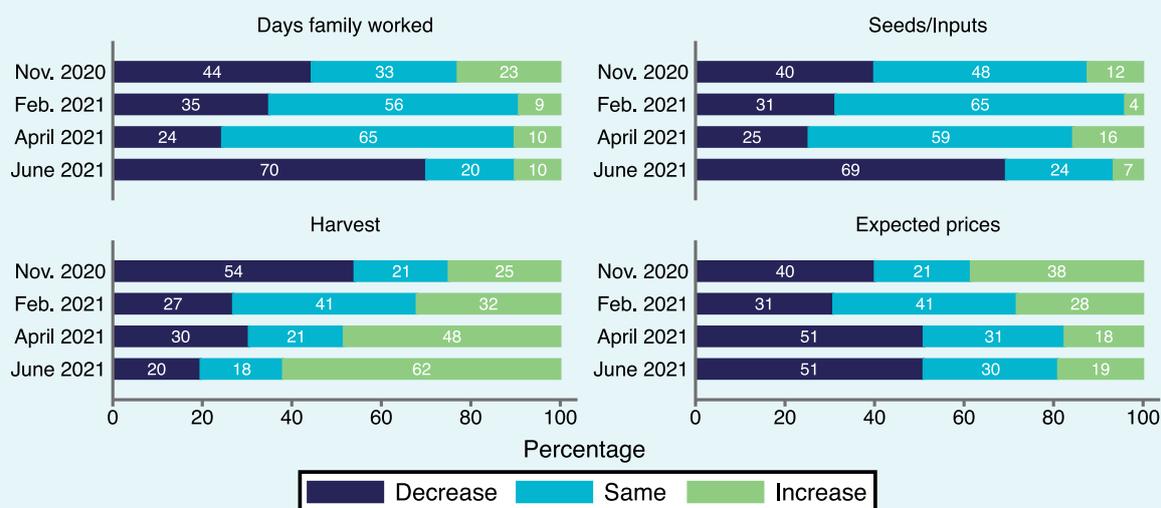
Source: Authors' calculations based on Morocco COVID-19 MENA Monitor November 2020, February 2021, April 2021, and June 2021 waves

Note: If observation is base wave for individual, Feb. 2020 and contemporaneous wage work type assumed to be the same

## ► 4.2 Farmers

As we saw in Figure 14, farmers experienced large decreases in income during the pandemic, and Figure 16 illustrates how farmers struggled. Although there were improvements in in labour and other inputs from November 2020 to April 2020, Moroccan farmers experienced a decrease in family work on farms (70 per cent) and seeds/input (69 per cent) simultaneously in the June 2021 season while having an increased harvest (62 per cent, a major improvement over the 54 per cent decrease in November 2020). However, expected prices decreased over time, with 51 per cent expected or experiencing lower prices for their harvest in April and June 2021. The low prices (expected) for harvest do not bode well for recovery of farmers' income or wellbeing.

► **Figure 16:** Farmers' experiences compared to the 2019 season (percentages), by wave

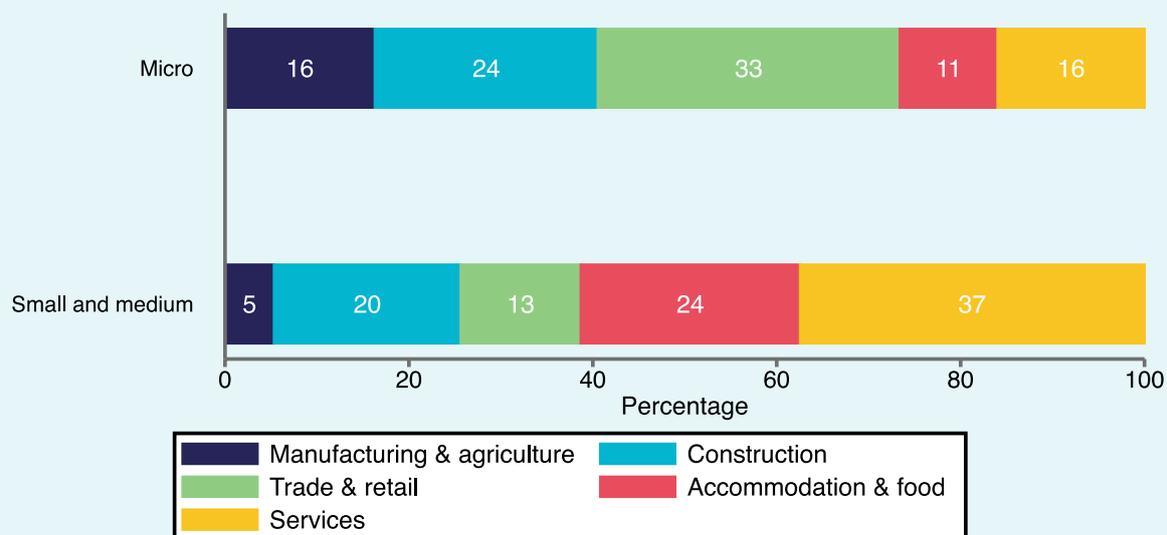


Source: Authors' calculations based on Morocco COVID-19 MENA Monitor November 2020, February 2021, April 2021, and June 2021 waves  
 Note: If observation is base wave for individual, Feb. 2020 farmer, otherwise contemporaneously farmer.

### ► 4.3 Micro, small, and medium enterprises

In this section we draw on the household enterprise data from the household survey for microenterprises (1-5 workers) and the firms survey for small and medium enterprises (6-199 workers). Figure 17 presents the distribution of industries during February 2020, comparing micro and small and medium firms. The most common types of microenterprises were trade and retail (33 per cent, compared to 13 per cent for small and medium), followed by construction (24 per cent, 20 per cent for small and medium). Manufacturing and agriculture firms were more common for micro (16 per cent) than small and medium (5 per cent) firms as well. Small and medium firms were commonly services (37 per cent versus 16 per cent for micro firms) or accommodation and food (24 per cent versus 11 per cent for micro firms). This composition of firms must be kept in mind to understand how the pandemic affected firms.

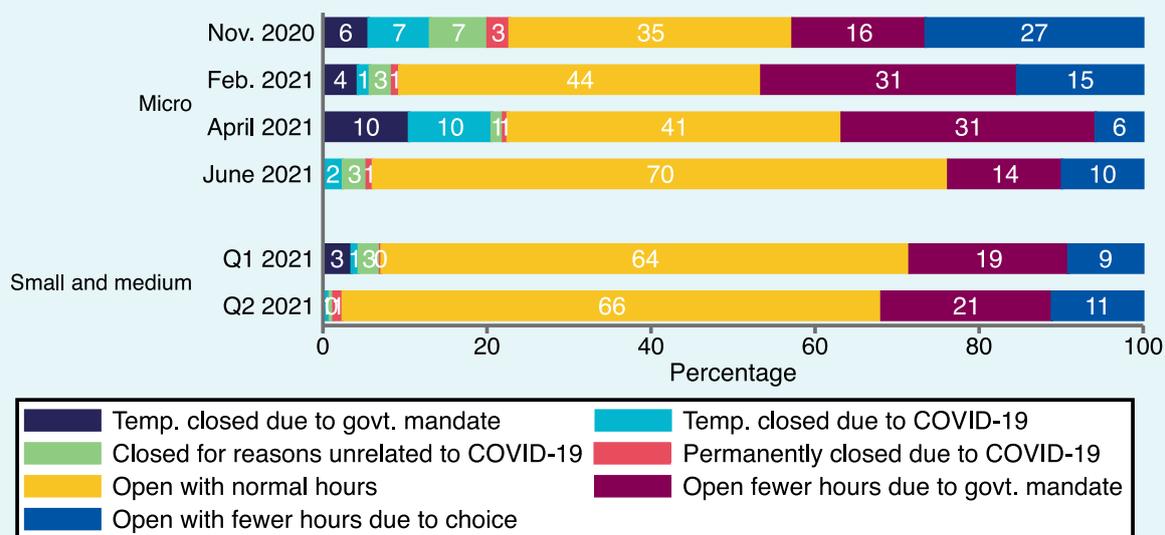
► **Figure 17:** Industries in February 2020 (percentage), by firm size



Source: Authors' calculations based on Morocco COVID-19 MENA Monitor November 2020 and Q1 2021 waves

Figure 18 shows the operational status of enterprises. Although initially they had reduced hours and closures, micro enterprises increasingly started to open with normal hours with every wave from November 2020 (35 per cent) to June 2021 (70 per cent). Small and medium enterprises were already more likely to be operating with normal hours in Q1 of 2021 (64 per cent) but this improved only a little in Q2 of 2021 (66 per cent). Many micro, small and medium enterprises in June 2021 remained open fewer hours both due to government mandates (21 per cent for small and medium enterprises and 14 per cent for microenterprises) and by choice (10-11 per cent across sizes), likely reflecting weak demand for goods and services.

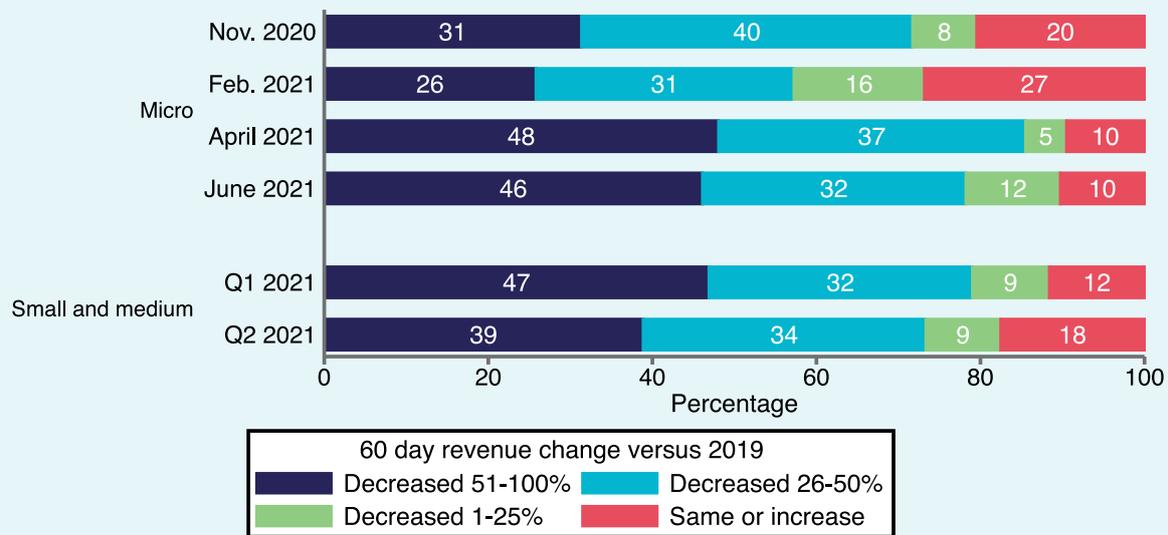
► **Figure 18:** Operational status of enterprises (percentage), by size and wave



Source: Authors' calculations based on Morocco COVID-19 MENA Monitor November 2020, February 2021, April 2021, June 2021, Q1 2021, and Q2 2021 waves

Closures, reduced hours, and reduced demand have contributed to lower revenues in the 60 days preceding the survey compared to the same season in 2019. Of the microenterprises in Morocco 48 to 46 per cent experienced a 51-100 per cent decrease in revenues in April 2021 and June 2021 (worse than in preceding waves). A similar share of small and medium enterprises had large decreases in revenue (47 per cent with decreases of 51-100 per cent) in Q1 2021, although this dropped to 39 per cent in Q2. Very few microenterprises had the same or increased revenue (10 per cent) and few small and medium enterprises (18 per cent) even in the latest wave.

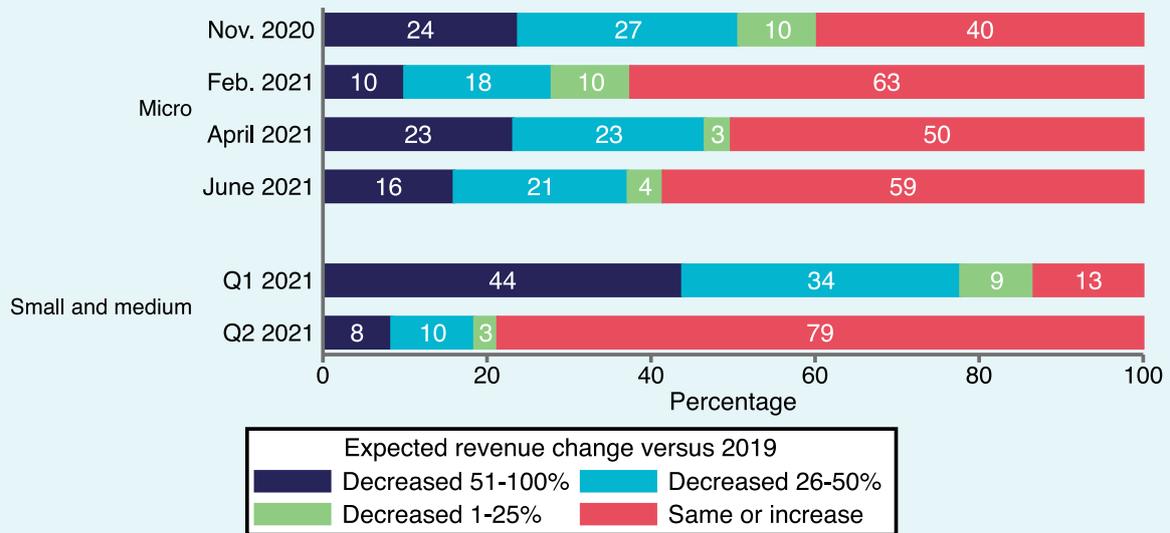
► **Figure 19:** Revenue changes of enterprises, past 60 days compared to same season in 2019 (percentage), by size and wave



Source: Authors' calculations based on Morocco COVID-19 MENA Monitor November 2020, February 2021, April 2021, June 2021, Q1 2021, and Q2 2021 waves

From November 2020 to June 2021, 40 to 63 per cent of micro enterprises expected to have the same annual revenue or a higher annual revenue than in 2019, according to Figure 20. Small and medium enterprises expected to have a decreased annual revenue compared to 2019 in Q1 of 2021, with 44 per cent of these enterprises expecting a decrease of 51 per cent to 100 per cent. However, in Q2 of 2021, 79 per cent of small and medium enterprises expected to have the same or increased annual revenue compared to 2019. Although these expectations are hopeful for improvements relative to revenues to date, expectations that revenues will remain depressed, particularly in microenterprises, may affect investment and employment decisions.

► **Figure 20:** Expected annual revenue changes of enterprises, compared to 2019 (percentage), by size and wave

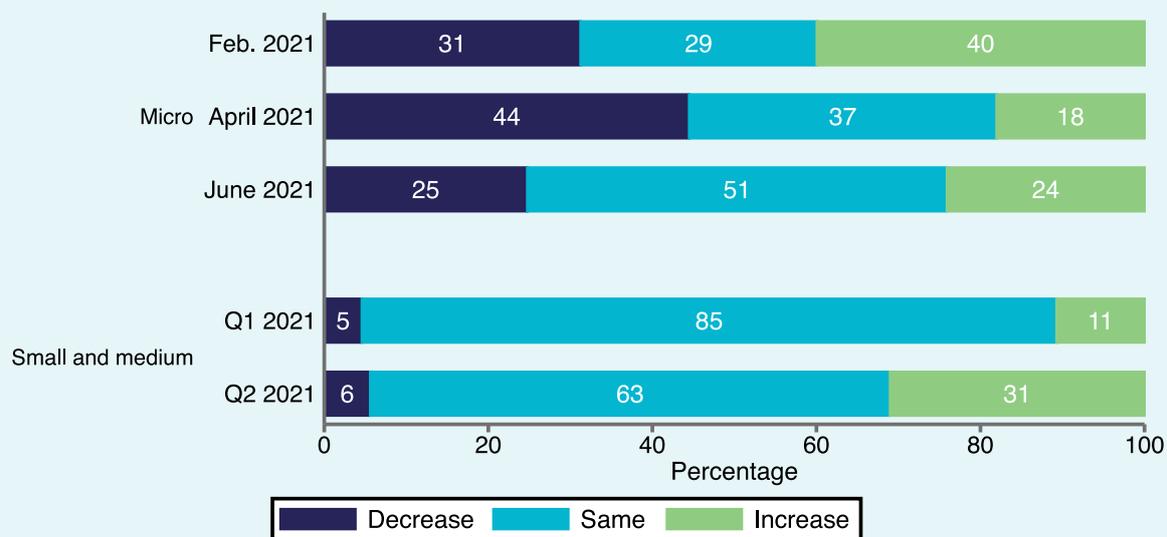


Source: Authors' calculations based on Morocco COVID-19 MENA Monitor November 2020, February 2021, April 2021, June 2021, Q1 2021, and Q2 2021 waves

Note: Q1 2021 asked about 2020 year, all others refer to year at fielding.

Figure 21 shows that there have been some shifts over time in hiring among micro, small, and medium firms. Microenterprises were more variable over time and stable on net in June 2021, with 25 per cent decreasing employment and 24 per cent increasing employment. Small and medium enterprises kept employment largely the same compared to February 2020, but increased employment rose from 11 per cent in Q1 to 31 per cent in Q2 of 2021. Hopefully this will improve labour market outcomes in the medium to long-term.

► **Figure 21:** Employment changes of enterprises, compared to February 2020 (percentage), by size and wave

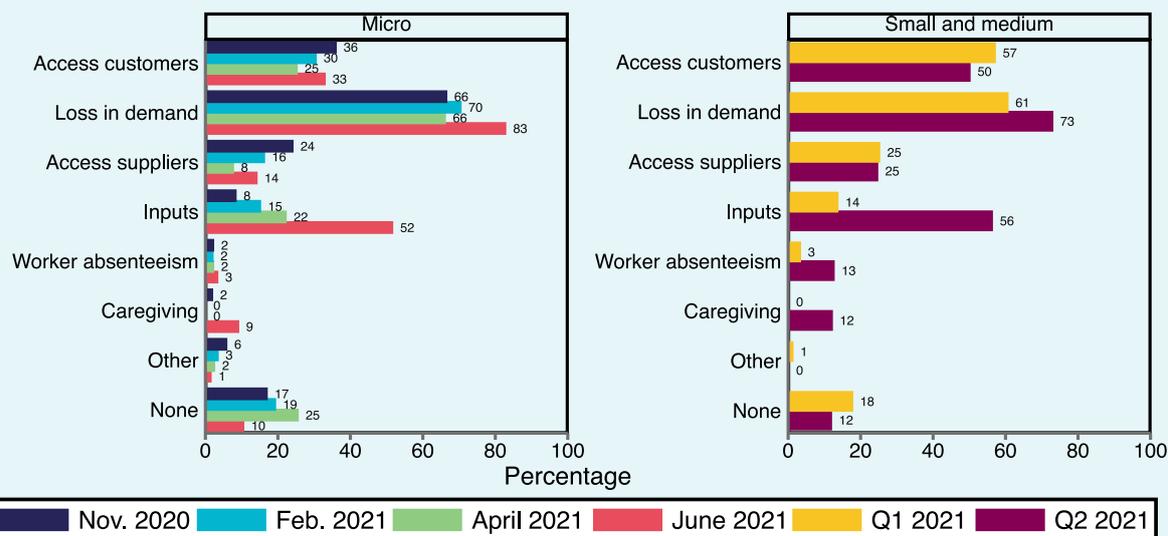


Source: Authors' calculations based on Morocco COVID-19 MENA Monitor November 2020, February 2021, April 2021, June 2021, Q1 2021, and Q2 2021 waves

Note: contemporaneous employment for household enterprises only collected in panel data (thus Nov. 2020 not available).

The biggest difficulty that micro enterprises faced in the 60 days preceding the survey was a loss in demand (61 to 83 per cent across size and time), according to Figure 22. Micro, small, and medium enterprises also had difficulties accessing customers (25-57 per cent across size and time, more so in small and medium enterprises). Additionally, in June 2021 (micro enterprises, 52 per cent) or Q2 2021 (small and medium enterprises, 56 per cent), enterprises had difficulties getting inputs. Very few enterprises (10-25 per cent across size and time) were facing no recent difficulties.

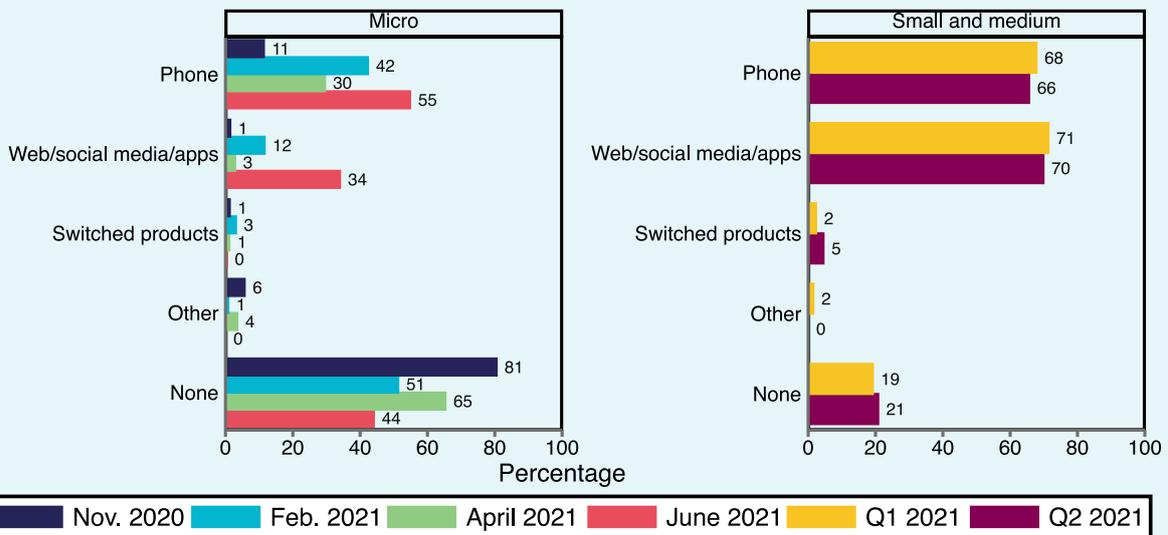
► **Figure 22:** Difficulties facing enterprises in the past 60 days (percentage), by size and wave



Source: Authors' calculations based on Morocco COVID-19 MENA Monitor November 2020, February 2021, April 2021, June 2021, Q1 2021, and Q2 2021 waves

Figure 23 shows that microenterprises were less likely to adjust their business models than small and medium enterprises, although the share adjusting increased over time in microenterprises and remained relatively constant for small and medium enterprises. The most common adjustment for microenterprises was increased use of phones (55 per cent in June 2021, compared to 66 per cent for small and medium enterprises in Q2 2021). Web/social media/apps were reported by up to 34 per cent of micro enterprises in June 2021 but were more common among small and medium enterprises (70 per cent in Q2 2021). Switching products and other adjustments to the business model were uncommon.

► **Figure 23:** Employment changes of enterprises, compared to February 2020 (percentage), by size and wave

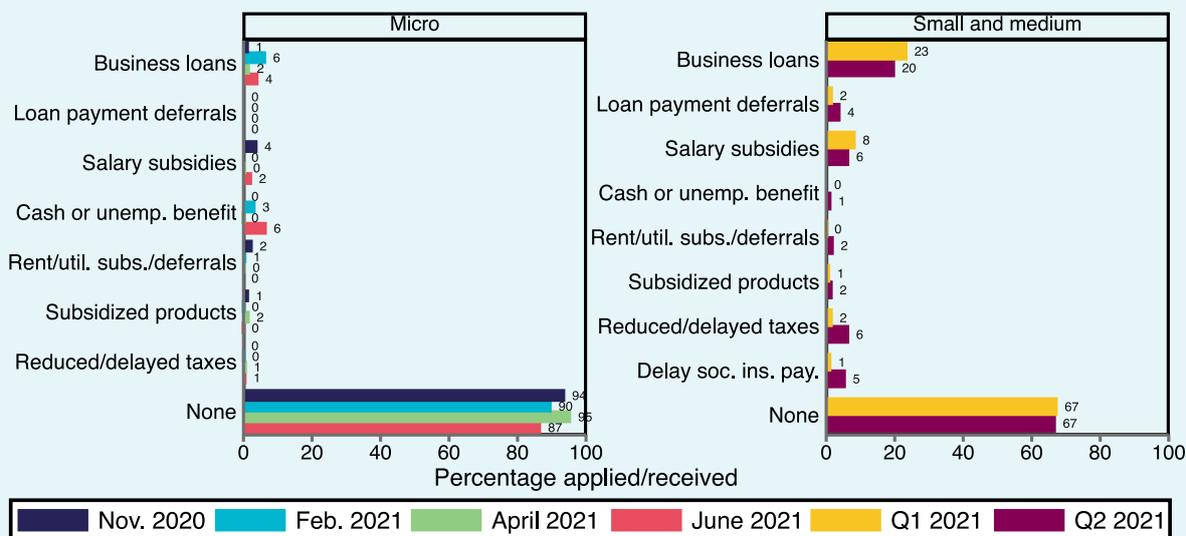


Source: Authors' calculations based on Morocco COVID-19 MENA Monitor November 2020, February 2021, April 2021, June 2021, Q1 2021, and Q2 2021 waves

Note: Multiple responses possible

Most microenterprises (87-94 per cent) did not receive or apply to government programs from November 2020 to June 2021, according to Figure 24. In Q1 and Q2 2021, small and medium enterprises tended to not receive or apply for government programs (67 per cent), however, many small and medium enterprises received or applied for business loans (20-23 per cent). A small but increasing share also applied for loan payment deferrals, reduced or delayed taxes, and delayed social insurance payments. The share with salary subsidies actually dropped slightly over time from Q1 (8 per cent) to Q2 (6 per cent).

► **Figure 24:** Government programs received or applied for (percentage), by size and wave

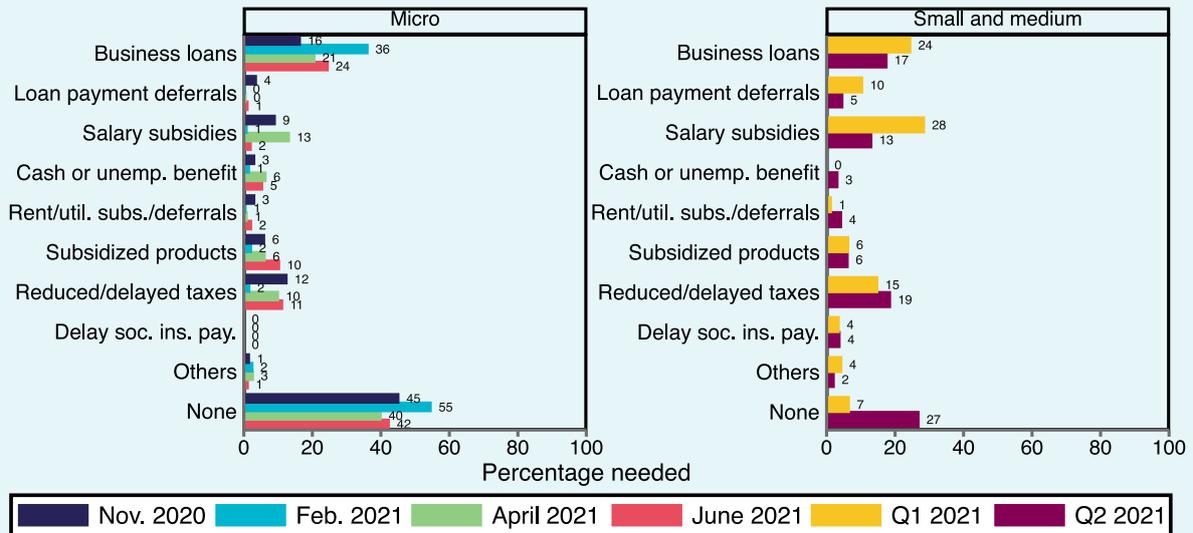


Source: Authors' calculations based on Morocco COVID-19 MENA Monitor November 2020, February 2021, April 2021, June 2021, Q1 2021, and Q2 2021 waves

Note: "Others" not asked about applied/received. Multiple responses possible for applied received, only one response for policy most needed.

Although few microenterprises and only a third of small and medium enterprises were receiving government assistance (Figure 24), the majority, particularly of small and medium enterprises, reported they still needed government assistance (Figure 25). Two-fifths to half of microenterprises stated they do not need government assistance, compared to 7 per cent of small and medium enterprises in Q1 2021 and 27 per cent in Q2 2021. Thus, some improvements may be happening among small and medium firms but there is not a clear trend among microenterprises. The most needed policies were business loans (16-36 per cent across size and time), but there were clearly a variety of other policy needs, including particularly salary subsidies, reduced and delayed taxes, and subsidized products.

► **Figure 25:** Government programs most needed (percentage), by size and wave



Source: Authors' calculations based on Morocco COVID-19 MENA Monitor November 2020, February 2021, April 2021, June 2021, Q1 2021, and Q2 2021 waves

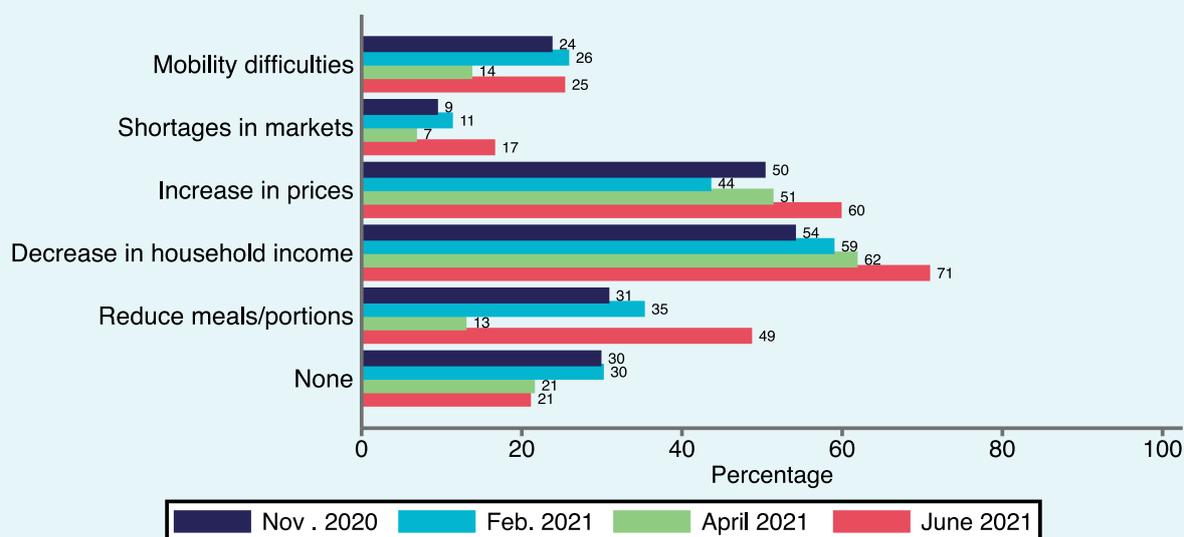
Note: "Others" not asked about applied/received. Multiple responses possible for applied/received, only one response for policy most needed.

## ▶ 4.4 Shocks and coping

The COVID-19 pandemic and associated economic, social, and policy shifts created a number of shocks to the lives and livelihoods of Moroccans. This section explores how households coped with the shocks, including food insecurity, coping strategies, and social assistance. Experiences of household food insecurity were high and, concerning, rising over time (Figure 26).

For instance, there were 71 per cent of households facing food insecurity due to a decrease in household income in June 2021 compared to 54 per cent in November 2020 and 60 per cent of households confronting an increase in food prices in June 2021 compared to 50 per cent in November 2020. Particularly concerning is that by June 2021 half (49 per cent) of households were reducing meals and portions, facing lasting health and human capital consequences.

▶ **Figure 26:** Household food insecurity (percentage of households), by wave

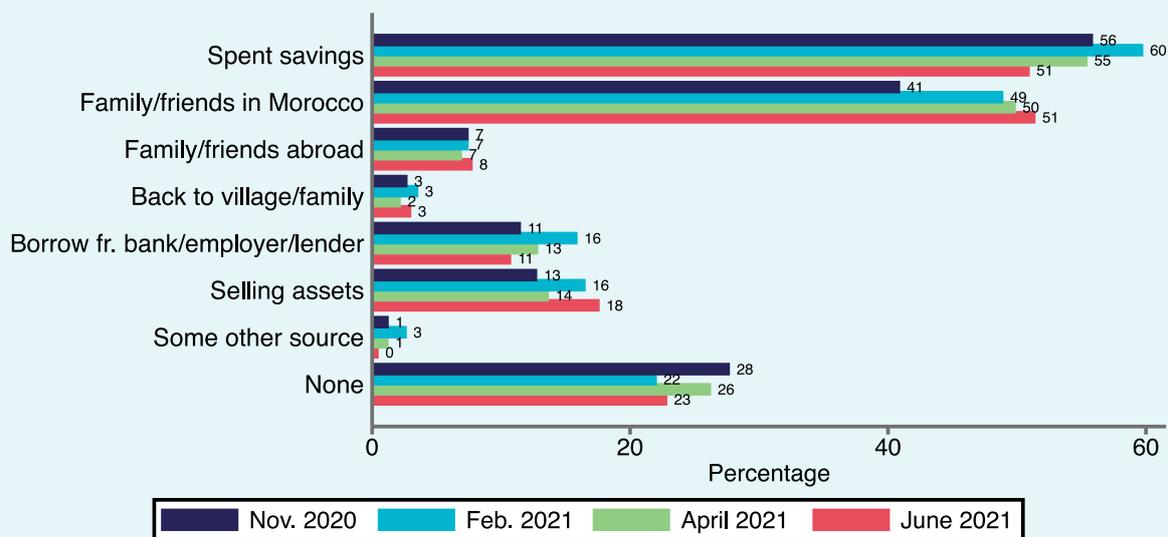


Source: Authors' calculations based on Morocco COVID-19 MENA Monitor November 2020, February 2021, April 2021, and June 2021 waves

Note: Food security questions asked: "In the past 7 days, have you or any household member experienced any of the following?" "Mobility difficulties" is based on the question "Difficulties in going to food markets due to mobility restrictions imposed by government/closures." "Shortages in markets" is based on the question "Unable to buy the amount of food we usually buy because of shortages of food in markets." "Increase in prices" is based on the question "Unable to buy the amount of food we usually buy because the price of food increased." "Decrease in household income" is based on the question "Unable to buy the amount of food we usually buy because our household income has dropped" and "Reduce meals/portions" is based on the question "Had to reduce the number of meals and/or the portion of each meal we would usually eat."

The shocks of the pandemic and its economic fallout have been buffered by a variety of coping strategies. Most Moroccan households coped with the pandemic by spending their savings (51-60 per cent) or relying on friends and family in Morocco (41-51 per cent). Selling assets was less common (13-18 per cent) and some households relied on banks, employers or lenders (11-13 per cent) or family/friends abroad (7-8 per cent). Only 22-28 per cent of households did not have to resort to any coping strategies. Particularly concerning is that strategies such as spending savings, selling assets, and even relying on social networks may become less viable as time goes on and resources are depleted.

► **Figure 27:** Average (mean) hours of employment per week, by status in February 2020 and wave

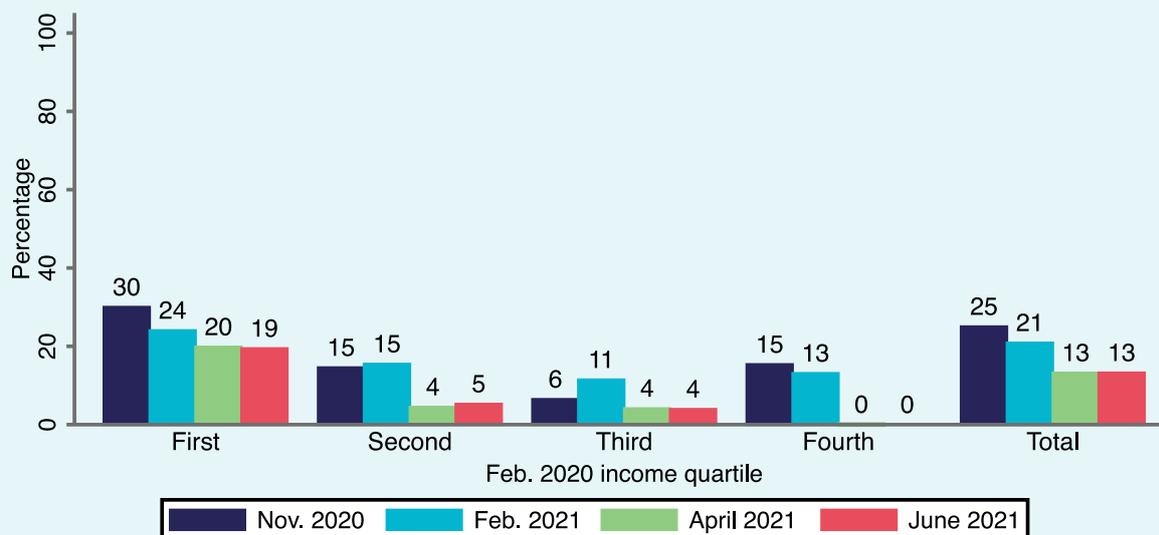


Source: Authors' calculations based on Morocco COVID-19 MENA Monitor November 2020, February 2021, April 2021, and June 2021 waves

Note: Coping strategies are cumulative over time.

Government assistance, both long-standing programs and emergency assistance programs, can help households cope with the pandemic. Despite the ongoing challenges, households received less government assistance over time, with 25 per cent of households receiving government aid in November 2020 and 13 per cent receiving government aid in April and June 2021 (Figure 28). Although households who were in the poorest quartile pre-pandemic were the most likely to receive assistance (19-30 per cent), other quartiles received assistance particularly in November 2020 and February 2021 (6-15 per cent) and less so in April and June 2021 (0-5 per cent). Since emergency assistance programs were targeted primarily to 2020, it appears that emergency assistance was not as well-targeted as longer-standing programs.

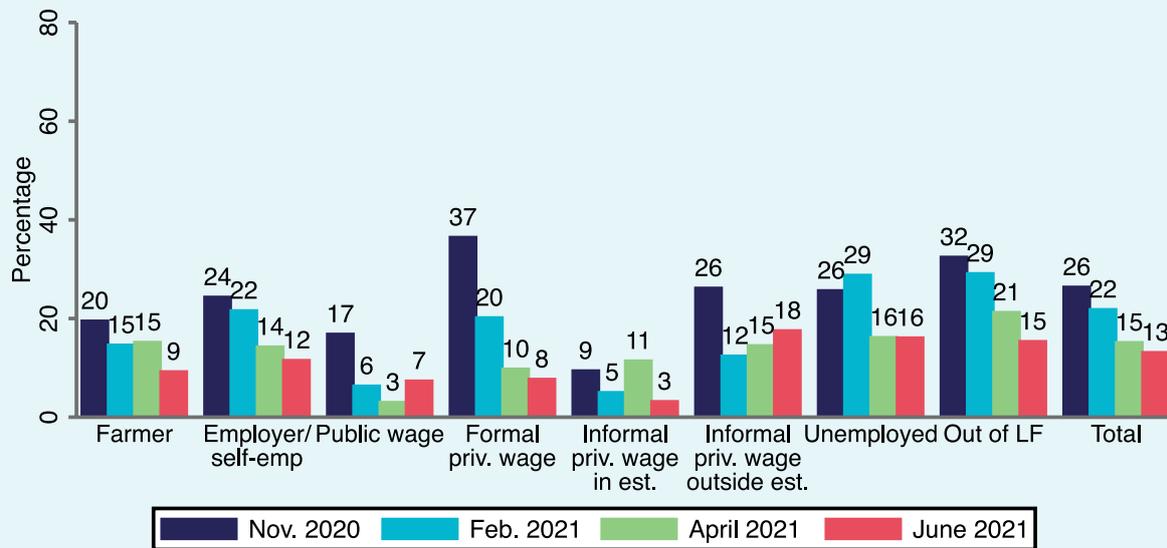
► **Figure 28:** Receiving government assistance (percentage of households), by February 2020 income quartile and wave



Source: Authors' calculations based on Morocco COVID-19 MENA Monitor November 2020, February 2021, April 2021, and June 2021 waves

Figure 29 explores how receipt of government assistance varied by labour market status. Initially in November 2020 formal private wage workers were the most likely to receive assistance, followed by those out of the labour force and the unemployed. Informal wage workers, farmers, and employers who faced the greatest income challenges were less likely to receive assistance, along with public sector wage workers (whose jobs were relatively protected). Decreases in assistance over time generally affected all labour market statuses.

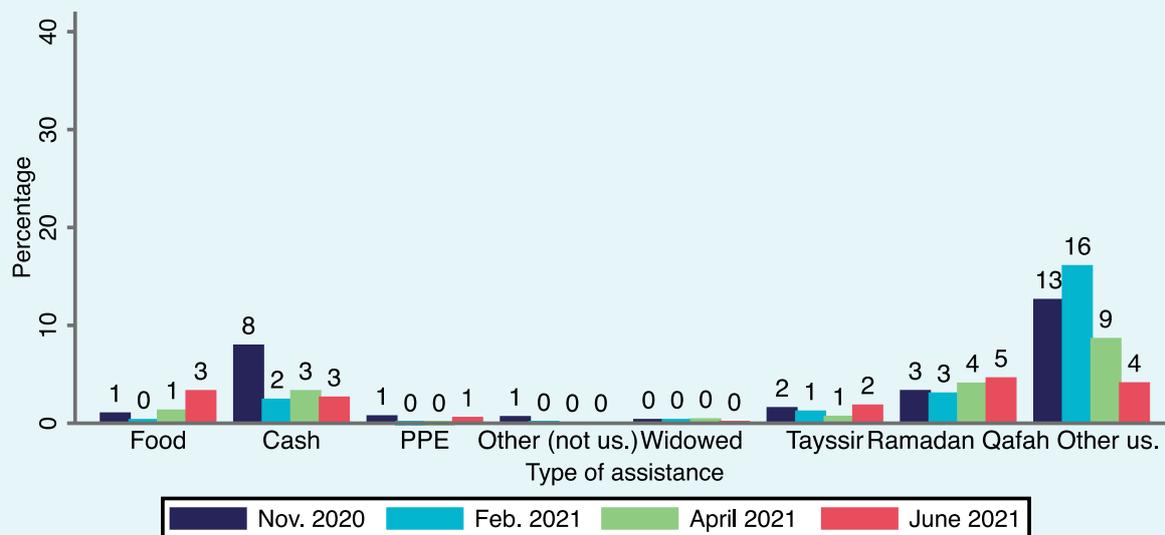
► **Figure 29:** Receiving government assistance (percentage), by labour market status in February 2020 and wave



Source: Authors' calculations based on Morocco COVID-19 MENA Monitor November 2020, February 2021, April 2021, and June 2021 waves

Figure 30 explores the sources of assistance for Moroccans. Moroccans received the most government assistance from other usual sources, primarily through targeting based on the RAMED medical assistance plan. There were more Moroccans receiving Ramadan Qafah in June 2021 than previous waves and it is the highest percentage of June 2021 at 5 per cent. Most Moroccans who received cash (8 per cent) received it in November 2020.

► **Figure 30:** Receiving specific government assistance (percentage of households), by wave

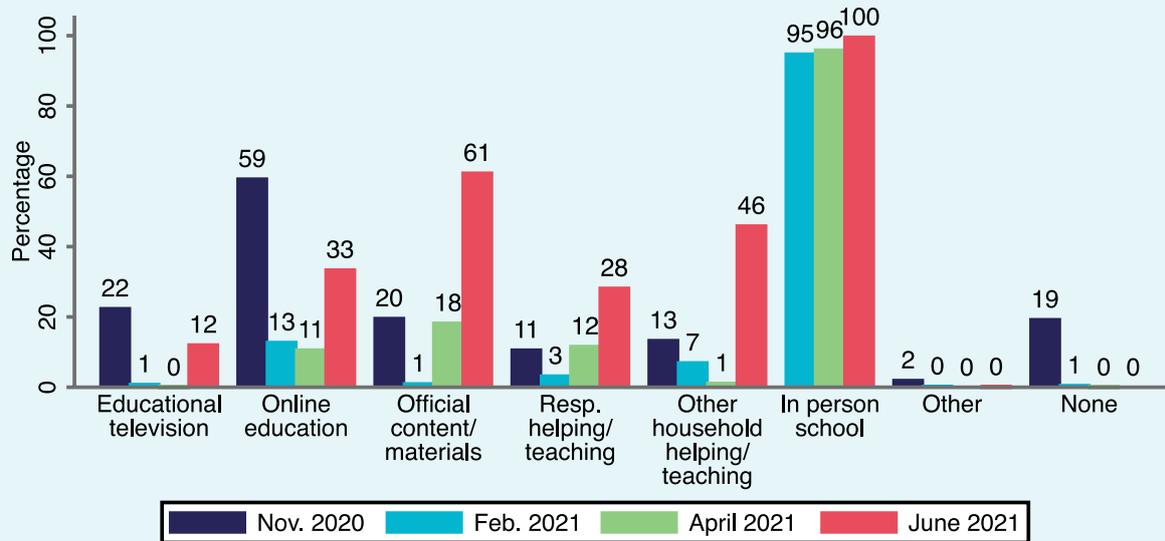


Source: Authors' calculations based on Morocco COVID-19 MENA Monitor November 2020, February 2021, April 2021, and June 2021 waves

## ► 4.5 Education and care work

The COVID-19 pandemic initially shut down schools, limiting in-person schooling, but closures were gradually loosened so that in person education became feasible again in the 2020-2021 academic year. Families therefore used a variety of educational strategies (Figure 31). The November 2020 responses show education during the lockdown, when schools were shut. During that time 19 per cent of enrolled children were doing no educational activities. By 2021 almost all children attended in-person school, but also continued to engage in educational television, official content, and having assistance from other household members. In early June 2021, school closings were tightened again, explaining the rise in non-school modalities of education.

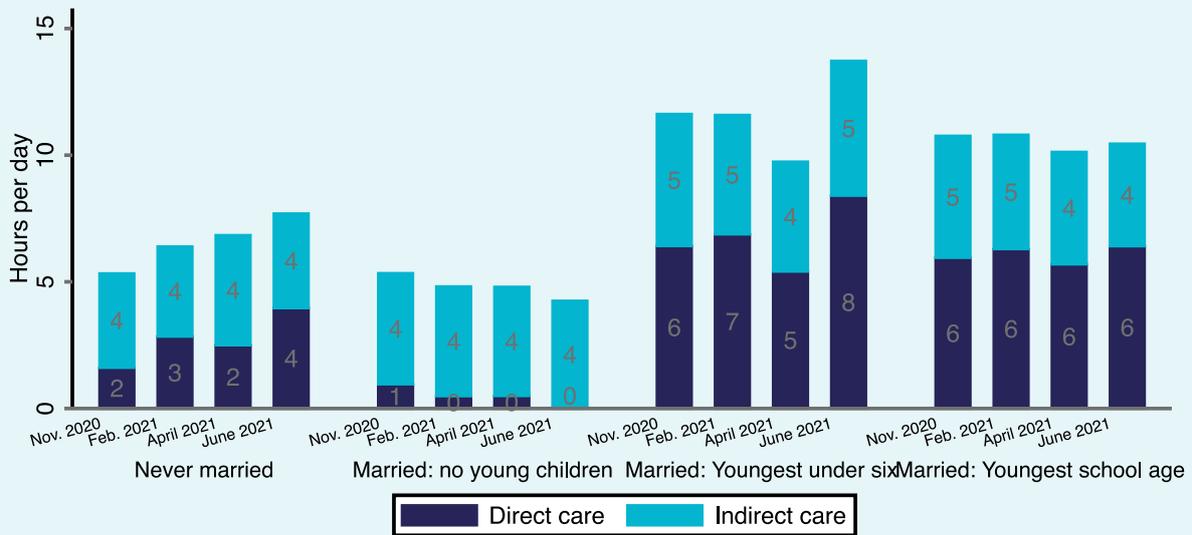
► **Figure 31:** Educational activities of children (percentage of households), by wave



Source: Authors' calculations based on Morocco COVID-19 MENA Monitor November 2020, February 2021, April 2021, and June 2021 waves  
 Note: Multiple responses possible. November 2020 responses refer to during the lockdown in spring 2020.

According to Figure 32, married Moroccan women with their youngest child under the age of six spent the most time on child care, spending 5-8 hours on direct care and 4-5 hours on indirect care. Married women with their youngest child in school spent 6 hours on direct care and 4-5 hours on indirect care (housework). Women with no young children and women who were never married spent the least amount of time caring for children, with women with no young children spending 4 hours of indirect care and 0-1 hours of direct care. Direct care work increased in June 2021 for women with their youngest child under age six. This may reflect the renewed closure of schools and nurseries that were introduced in early June.

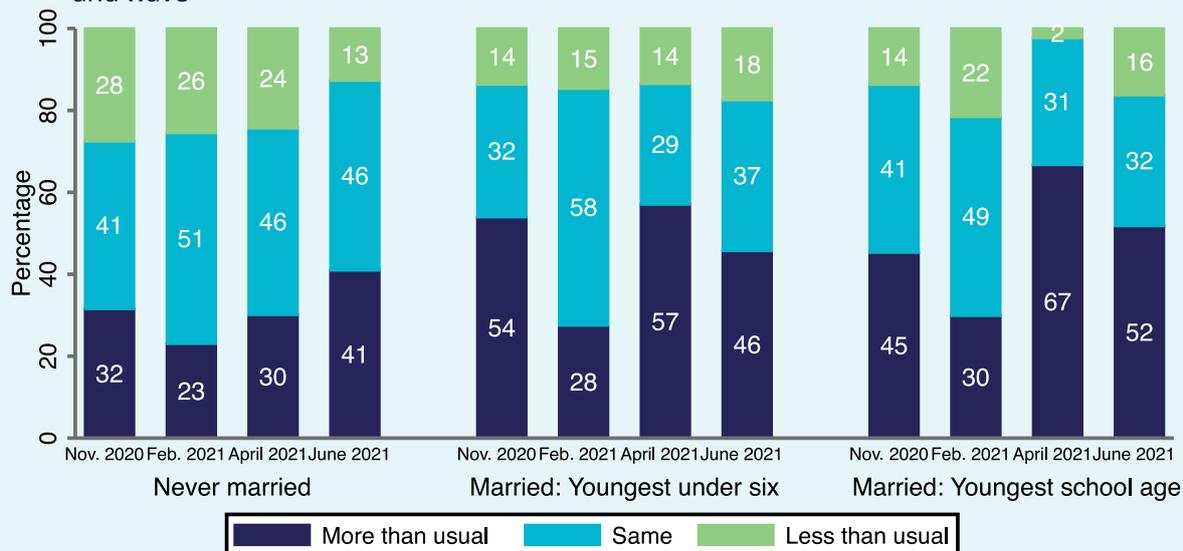
► **Figure 32:** Average hours of direct and indirect care work per day, by family composition and wave, women



Source: Authors' calculations based on Morocco COVID-19 MENA Monitor November 2020, February 2021, April 2021, and June 2021 waves

Figure 33 shows respondents' perceptions of time spent on care for children in the week preceding the survey compared to February 2020 (prior to the pandemic). Married women with their youngest children under six or in school tended to spend more time on their children compared to the time they spent on their children in February 2020. The share reporting more time spent on child care was particularly high in April 2021 (57 per cent of married women with their youngest under the age of six and 67 per cent of married women with their youngest school-aged).

► **Figure 33:** Percentage of wage workers able to work from home, by wave-specific labour market status and wave

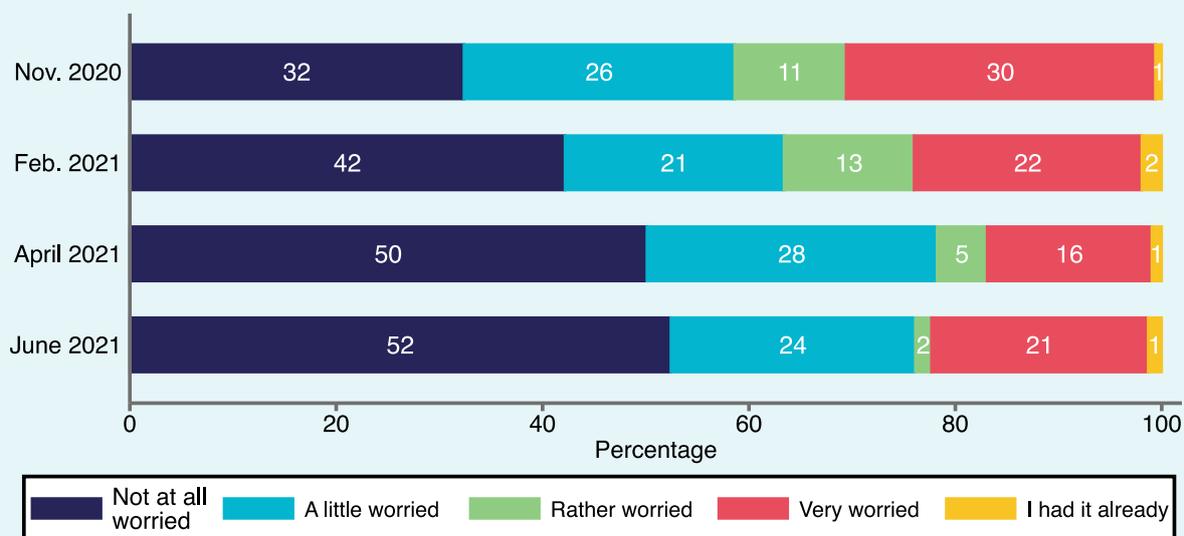


Source: Authors' calculations based on Morocco COVID-19 MENA Monitor November 2020, February 2021, April 2021, and June 2021 waves

## ► 4.6 Health

The COVID-19 pandemic is an ongoing public health challenge, but health behaviours can help reduce the risk of infection. Figure 34 shows how worried respondents were about infection with COVID-19. Over time, Moroccans started to worry less about being infected by COVID-19. In November 2020, 32 per cent of Moroccans were not at all worried about being infected by COVID-19 and in June 2021, 52 per cent of Moroccans were not at all worried about being infected by COVID-19.

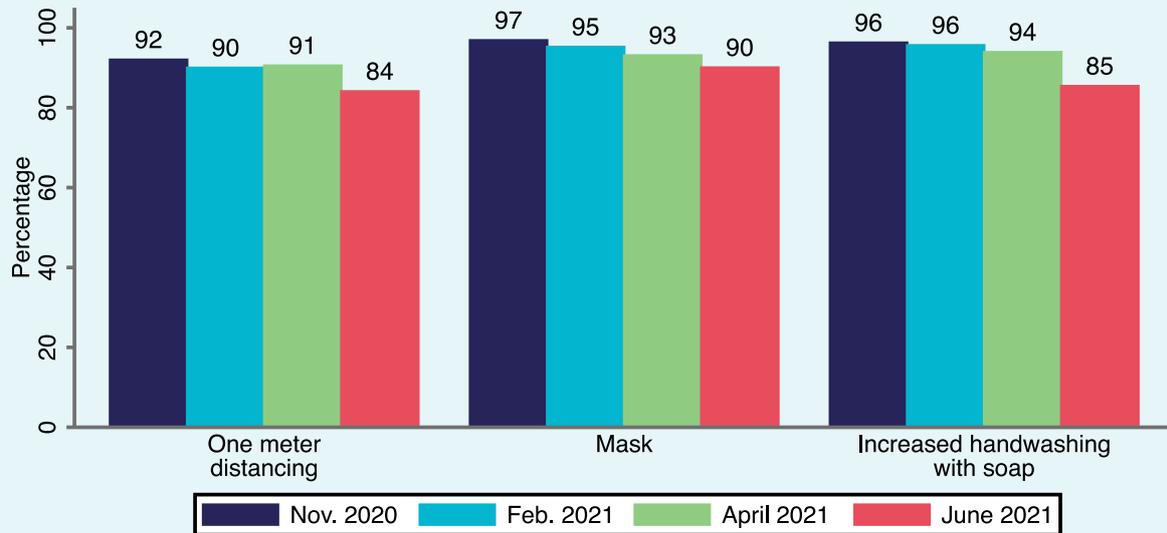
► **Figure 34:** Average hours of direct and indirect care work per day, by family composition and wave, women



Source: Authors' calculations based on Morocco COVID-19 MENA Monitor November 2020, February 2021, April 2021, and June 2021 waves

The survey asked about three key health behaviours for combating COVID-19 (Figure 35): one-meter distancing, wearing masks, and increased handwashing with soap. Over time, fewer Moroccans were engaging in these health behaviours. Although Moroccans are participating in these behaviours more infrequently, over 80 per cent of Moroccans report they were still following these precautions.

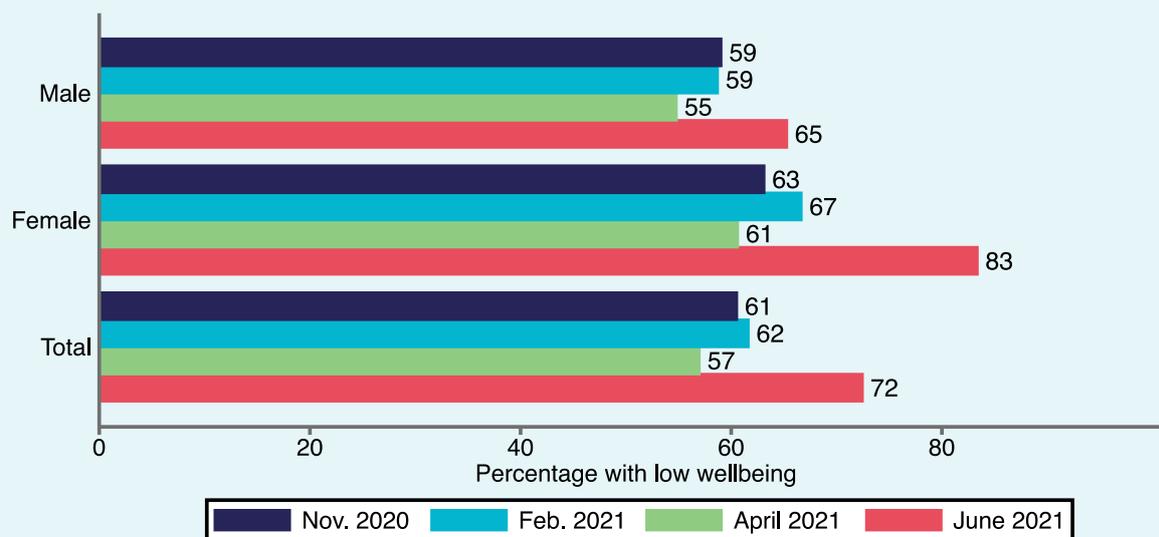
► **Figure 35:** Receiving government assistance (percentage), by labour market status in February 2020 and wave



Source: Authors' calculations based on Morocco COVID-19 MENA Monitor November 2020, February 2021, April 2021, and June 2021 waves

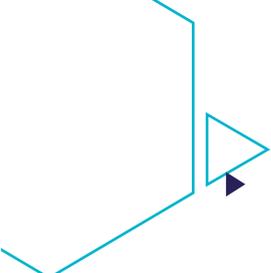
The pandemic and associated health and economic shocks have presented a substantial challenge in terms of wellbeing. Figure 36 displays a measure of low subjective wellbeing based on the WHO-5 scale (Topp, Østergaard, Søndergaard, & Bech, 2015). Respondents reported high rates of low wellbeing. Moroccans had the lowest rate of wellbeing in June 2021, with 72 per cent having low wellbeing, and the highest rate of wellbeing in April 2021, when 57 per cent of Moroccans had low wellbeing. Women had a lower wellbeing than men, as 83 per cent of women and 65 per cent of men had low wellbeing June 2021.

► **Figure 36:** Rates of low wellbeing (percentage), by sex and wave



Source: Authors' calculations based on Morocco COVID-19 MENA Monitor November 2020, February 2021, April 2021, and June 2021 waves

Note: Based on the WHO-5 scale and a cut-off of <50 as the score for low wellbeing.



## 5. Conclusions

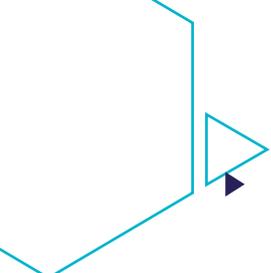
We reviewed in this report how individuals, households and firms were affected by the COVID-19 pandemic through July 2021 by analysing four waves of a household survey spanning this period and two waves of firm surveys spanning the first and second quarters of 2021. The first wave of the household survey in November 2020 corresponded to the peak of the pandemic in Morocco, when case numbers and deaths skyrocketed. It also followed a period of gradually loosening restrictions after the severe lockdown Morocco adopted early in the pandemic. The second wave of the survey in February 2021 corresponded to a period of declining spread and followed a second wave of tightening restrictions. This is also the period that corresponds to the first wave of the firms' survey. The third wave of the household survey in April 2021 saw continued moderation in the virulence of the pandemic and a continuation of relatively restrictive policy regimes. The fourth wave of the household survey in June 2021 and the second wave of the firms' survey corresponds to a period of continued moderation in the spread of the virus and several months of loosening restrictions. The resurgence of the pandemic in Morocco associated with the spread of the delta variant that occurred in July and August 2021 is mostly beyond the scope of our data.

While we find that labour market outcomes have worsened in June 2021 relative to February and April 2021, we attribute this worsening to seasonal factors in Moroccan agriculture. With the high concentration of female employment in Morocco in agriculture (see Figure 5), women's labour market outcomes are particularly affected during that period. Outside of agriculture, the re-introduction of restrictions at the end of 2020 seems to have affected businesses of all sizes quite negatively in the first quarter of 2021, but some appear to have recovered by the second quarter. Although mostly open normal hours by the second quarter, businesses still faced challenges associated with loss in demand and difficulty accessing inputs.

Although businesses were experiencing some recovery in the second quarter, the pandemic was still exacting a heavy toll on households, with the proportion reporting food insecurity rising in April and June 2021 and the proportion reporting low levels of mental wellbeing shooting up in June 2021. Households took a number of measures to cope with the hardships they were experiencing; initially drawing down savings and subsequently receiving assistance from relatives and friends inside and outside Morocco and, in some cases, selling assets.

Few businesses or households were able to benefit from government safety nets and the proportion accessing these benefits declined over time. Among the one-third of small and medium enterprises that accessed government programs, the majority received business loans, and a few received salary subsidies. These two types of interventions declined though from the first to the second quarter of 2021, while other types of intervention increased such as loan payment deferrals, reduction or delays in taxes and delays in social insurance payments. Only a small fraction of about 10 per cent of micro firms received assistance.

Among households, the proportion benefiting from safety net programs declined from about a quarter in November 2020 to 13 per cent in April and June 2021. However, the assistance appeared to be increasingly targeted toward the poorest quintile of households. While the proportion of these poorest households receiving assistance declined from 30 per cent in November 2020 to 19 per cent in June 2021, the declining trend among them was less pronounced than among households in higher income categories. While assistance was initially focused on formal private sector workers in November 2020, it had shifted to more vulnerable groups, such as informal private wage workers outside establishments, the unemployed, and those outside the labour force by June 2021.



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## 6. Appendix 1: Sampling and weights: household survey

The sample universe for the household survey was mobile phone users aged 18-64. Random digit dialling, within the range of valid numbers, was used, with up to three attempts if a phone number was not picked up/answered, was disconnected or busy, or picked up but could not complete the interview at that time. Samples were stratified by country-specific market shares of mobile operators.

For follow-up waves, previous wave respondents were recontacted if they consented to follow-up in the previous wave. Up to three attempts were used, including contacting second and family/friend numbers, if provided in the previous wave, on the third call. If the individual could not be reached or refused, a refresher individual was added to the sample in their place, randomly selected as with base wave respondents.

### 6.1 Initial weights

This section discusses the initial, base wave weights, and a subsequent section discusses panel weights and then refresher and combined weights.

Inverse probability weighting was undertaken to reduce bias along a number of observable dimensions. Weights were created on three levels: Individual, household, and household member. Weights had the following inputs:

- ▶ Telephone operators and their market shares, provided by the data collection firm
- ▶ Number of phones by operator for individuals (individual weight) and household members (household weight and household member weight)
- ▶ Representative data with comparable demographic and household characteristics to weight for non-response

Denote individuals as  $i$  (ranging from 1 to  $N$ ) and households as  $h$  (ranging from 1 to  $N$ ). Denote the number of phones from a particular operator,  $o$ , as  $t_o$  (operators ranging from 1 to  $M$ ). Denote as  $T_o$  the total number of phones there should have been in the sample from  $o$ , given the total number of phones observed and market shares, as  $T_o$ .

We then generated initial market-share individual weights as:

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We then generated initial market-share individual weights as:

$$w_i = 1 / \sum_o^M [(\sum_i^N t_o(i)) / T_o] * t_o(i)$$

With these individual weights, we then pooled the phone surveys with representative in-person surveys and used a probit model weighted with survey weights (for the representative survey) and  $w_i$  (for the COVID-19 monitor data) to estimate the probability an individual with particular characteristics was in the phone survey data. The predicted probability from that model,  $p_i$ , was used to generate individual weights for the COVID-19 monitor data as:

$$w'_i = w_i * (1 - p_i) / p_i$$

We likewise generated initial market-share household weights as:

$$w_h = 1 / \sum_o^M [(\sum_h^N t_o(h)) / T_o] * t_o(h)$$

Which accounts for the number of phones in the household, across all members, and thus for a higher probability of sampling a household with more members or more phones. The predicted probability from the individual level model was combined with the market-share household weight to generate a household weight as:

$$w'_h = w_h * (1 - p_i) / p_i$$

Household member weights were calculated by multiplying household weights by household size. Household and individual weights (but not member weights, for internal consistency) were all winsorized at the 99th percentile to ensure that no outlier weight drove statistics. Weights were then normalized by dividing by the mean weight.

The representative in-person national survey sample used to generate weights was the Morocco Household and Youth Survey (MHYS) 2009-10 (World Bank, 2010). This was selected as the most recent publicly available data with individual phone ownership and relevant demographic and labour market characteristics. Specifically, models included:

- ▶ Sex
- ▶ Age group
- ▶ Education level
- ▶ Household size (categorically)
- ▶ Labour market status in Feb. 2020
- ▶ Region
- ▶ Urban versus rural
- ▶ Interactions between region and urban
- ▶ Marital status
- ▶ Presence of kids 0-5
- ▶ Presence of kids in school
- ▶ Interaction of covariates and sex
- ▶ Interaction of covariates and urban

## ▶ 6.2 Panel weights

All respondents who consented to follow up in the prior wave were contacted in an attempt to include them in the subsequent wave. We compute a response adjustment factor,  $r$ , to weight the households and individuals retained in the panel from one wave to the next, based on the predicted probability of attrition,  $Pr(A)$ , from a probit model with attrition as the binary outcome, as follows:

$$r = \frac{1}{1 - Pr(A)}$$

This response adjustment factor multiplies the preceding wave household, household member, and individual weights for panel households that were retained, in order that they can represent the preceding (and ultimately base) wave universe.

The panel attrition models use a few base wave variables in addition to those used for initial weighting. Specific additional variables are:

- ▶ Telephone operator
- ▶ Household income (categorically) in Feb. 2020
- ▶ Base wave labour market status (employed, unemployed (search required), out of labour force)
- ▶ Interactions with sex for categorical income and base wave labour market status

## ▶ 6.3 Refresher and combined weights

The refresher weights are created in an identical fashion to the base wave, initial weights, but for the refresher samples within the subsequent waves of the panel. For subsequent waves (waves after the base wave), cross-sectional weights combine the panel and refresher data. Weights are normalized to one within each of the panel and refresher samples and then combined into a single, representative cross-sectional weight.

## 7. Appendix 2: Attrition and non-response: household survey

This appendix describes non-response and attrition between waves for the household survey. Attrition could occur between waves if respondents did not consent to follow-up, or if they were unreachable, refused, or did not successfully complete the subsequent wave. Table A2 shows responses and response rates for Morocco. In terms of panel follow up:

- ▶ 43.0 per cent (863 of 2,007) of Nov. 2020 respondents in Morocco were successfully tracked to Feb. 2021
- ▶ 51.5 per cent (1,032 of 2,002) of Feb. 2021 respondents in Morocco were successfully tracked to April 2021
- ▶ 51.6 per cent (1,086 of 2,105) of April 2021 respondents in Morocco were successfully tracked to June 2021

▶ **Table A2.** Responses and response rates for households, by wave

	Morocco (Nov. 2020)	Morocco Panel (Feb. 2021)	Morocco Refresher (Feb. 2021)	Morocco Panel (April 2021)	Morocco Refresher (April 2021)	Morocco Panel (June 2021)	Morocco Refresher (June 2021)
Phone disconnected/busy	9	8	19	8	23	6	10
Not in service	67	25	57	13	40	1	34
Did not answer	4	4	9	14	13	13	4
Picked up and refused	4	11	6	10	11	22	39
Incomplete, and refused	3	4	2	3	6	6	3
Incomplete, return call	0	0	0	0	0	0	0
Complete	12	48	7	53	7	52	9
Not Eligible	1	0	1	0	1	0	0
<b>Total</b>	100	100	100	100	100	100	100
<b>Response rate</b>	50	71	29	66	20	56	16

Source: Authors' calculations based on Morocco COVID-19 MENA Monitor November 2020, February 2021, April 2021, and June 2021 waves

Note: Responses are for individuals who consented to follow-up in the previous wave. Not shown are: 190 Morocco November 2020 respondents who did not consent to follow-up; 46 Morocco February 2021 respondents who did not consent to follow-up; 20 Morocco April 2021 respondents who did not consent to follow-up.

## 8. Appendix 3: Mobile coverage for individuals

This appendix uses the Morocco Household and Youth Survey (MHYS) 2009-10 to estimate the rates of mobile phone ownership according to various demographic, social and economic characteristics in an effort to determine how selective the universe of mobile phone owners aged 18-64 is relative to the Moroccan population as a whole. The MHYS consists of two separate questionnaires: a Household Questionnaire and a Youth Questionnaire. The MHYS has a nationally representative sample of 2,000 households. The data collected focuses on demographic and educational characteristics, economic activities, migration, and social program participation. We use the information from the household roster in the household questionnaire to assess the rate of mobile phone ownership for various groups in the population.

As shown in Table A3, the percentage of women not owning mobile phones is about 2.5 times that of men (56 per cent vs. 22 per cent). A similar pattern is observed in both rural and urban areas; however, the percentage not owning mobile phones is higher for women in rural areas (78 per cent). Across marital statuses, married men have higher phone ownership than single men. The proportion not owning mobile phones is highest for married women followed by widowed women, and lowest for single women. Men in the age range of 25 to 59 years have quite uniform and relatively high ownership rates of mobile phones. For women, comparatively high mobile phone ownership is found among those aged 20 to 39. However, the rates of not owning phones are still 3-4 times those of men in the same age range. Education has a strong association with phone ownership. As the education level increases, mobile phone ownership increases substantially. The percentage not owning mobiles varies the most by education for women, with 68 per cent of those with less than basic not owning phones compared to only 5 per cent of those with university and higher degrees. Across labour market statuses, phone ownership is highest for public sector workers and formal private wage workers and lowest for those out of labour force. For females working in formal private sector wage work, phone ownership is quite high, and it is lowest for family enterprise workers in the agriculture sector, 70 per cent of whom do not own mobile phones.

► **Table A3.** Percentage of individuals who do not own mobile phones by sex and selected characteristics

	Male	Female	Total
<b>Urban/Rural</b>			
Urban	18.0	41.4	29.9
Rural	27.5	78.2	53.1
<b>Marital status</b>			
Single	26.5	44.2	34.0
Married	17.3	62.9	41.7
Divorced		47.5	43.3
Widowed		52.9	52.9

	Male	Female	Total
<b>Age Group</b>			
15-19	45.1	60.2	52.1
20-24	27.2	52.4	40.5
25-29	16.3	49.8	32.2
30-34	12.2	49.8	32.0
35-39	14.8	49.1	32.1
40-44	15.9	58.9	40.2
45-49	17.2	61.7	40.4
50-54	21.4	59.5	41.0
55-59	23.9	62.1	41.9
60-64	30.6	72.6	50.0
<b>Educational Attainment</b>			
Less than basic	25.8	68.0	49.8
Basic	19.6	33.4	25.0
Secondary & postsecondary	7.2	13.2	9.9
University & above	1.2	5.0	3.0

## Labour Market Status

Public sector worker	5.5	16.0	7.7
Formal private wage worker	8.1	5.5	7.5
Informal private wage worker	17.9	23.0	18.7
Employer	16.1		16.8
Family enterprise worker: non-agriculture	12.2	15.7	12.5
Family enterprise worker: agriculture	25.8	69.6	32.4
Unemployed	26.4	25.9	26.2
Out of the labour force	34.3	61.0	55.1
Out of manpower basis			
<b>Total</b>	<b>21.8</b>	<b>55.8</b>	<b>39.0</b>

Source: Authors' calculations based on Morocco Household and Youth Survey (MHYS) 2009-10

Note: Universe is made up of population 18-64 years of age. Family enterprise worker: either self-employed or unpaid family worker; Unemployed: person is not working, is desiring to work and available for work (does not require active search); Out of the Labour Force: someone of working age and who is not employed and not unemployed based on the definition above; Out of Manpower Basis: permanently disabled. Blank cells had fewer than 30 observations and were suppressed.

## 9. Appendix 4: Sampling and weights: firms survey

The sample universe for the firm survey was firms that had 6-199 workers pre-COVID-19. Stratified random samples were used to ensure adequate sample size in key strata. A target of 500 firms per country was set. The sampling strategy was incorporated into the weights.

Up to three attempts were made to ensure response if a phone number was not picked up/answered, was disconnected or busy, or picked up but could not complete the interview at that time. After the third failed attempt, a firm was treated as a non-response and a random firm from the same stratum was used as an alternate.

### ▶ 9.1 Sampling frames

The sampling frame was the Morocco Yellow Pages (no efficient digital copy was available; a physical copy was used). Characteristics of this sample frame included:

- ▶ Data organized geographically, not categorically
- ▶ Three geographic strata were used: (1) Casa-Rabat, (2) North, (3) South
- ▶ The page ranges for the strata were provided. A random page within a stratum was selected, and then a random firm on that page (without replacement).
- ▶ The number of firms on the page was recorded and incorporated into the inverse probability weights.
- ▶ Restricted to firms with 6-199 workers in February 2020 based on an eligibility question during the phone interview.

### ▶ 9.2 Initial weights

Inverse probability weighting was undertaken to account for the sampling strategy and non-response. Weights had the following inputs for each country:

- ▶ Total number,  $T_s$ , of firms in the stratum,  $s$ , in the sampling frame ( $T_s$ )
- ▶ Number,  $N_s$ , of firms in the stratum,  $s$ , successfully completed in the sample ( $N_s$ )
- ▶ Share of firms successfully contacted in the stratum that were eligible ( $e_s$ )
- ▶ The number of firms on the randomly selected page,  $N_p$

The baseline wave weight for a firm,  $f$ , in stratum  $s$  is calculated as:

$$w_{f,sp} = T_s * e_s * N_p / N_s$$

We adjust the total number of firms in the sampling frame to account for the fact that not all firms were eligible by multiplying the sample frame number of firms in the strata,  $T_s$ , by the fraction eligible among contacted firms,  $e_s$ . Weights are then normalized to have a mean of one.

The resulting weight is the same for all firms that are in the same stratum.

## ▶ 9.3 Panel weights

All firms who consented to follow up in the prior wave were contacted in an attempt to include them in the subsequent wave. A total of 25.2 per cent (126 of 500) of Q1 2021 firms in Morocco were successfully followed to Q2 2021.

We compute a response adjustment factor,  $r$ , to weight firms retained in the panel from one wave to the next, based on the predicted probability of attrition,  $\text{Pr}(A)$ , from a probit model with attrition as the binary outcome, as follows:

$$r = \frac{1}{1 - \text{Pr}(A)}$$

This response adjustment factor multiplies the preceding wave weights for firms that were retained, in order that they can represent the preceding (and ultimately base) wave universe.

The panel attrition models use a few base wave variables in addition to the strata used for initial weighting. Specific additional variables are:

- ▶ Operating status in base wave (open normal, open reduced hours, closed)
- ▶ Revenue change (categorically) since February 2020
- ▶ Industry as reported in the survey data (five categories)
- ▶ Size as reported in the survey data at the time of the wave (four categories)

## ▶ 9.4 Refresher and combined weights

The refresher weights are created in an identical fashion to the base wave, initial weights, but for the refresher samples within the subsequent waves of the panel. For subsequent waves (waves after the base wave), cross-sectional weights combine the panel and refresher data. Weights are normalized to one within each of the panel and refresher samples and then combined into a single, representative cross-sectional weight

## 10. Appendix 5: Attrition and non-response: firms survey

Table A4 includes responses and response rates. For the panel, response rates are among those who consented to follow-up. Phones that were not in service, disconnected/busy (after multiple calls) and firms who were not eligible are excluded from the response rate calculations. The responses are based on the final result, which may have been on the first, second, or third attempt.

► **Table A4.** Responses and response rates for firms, by wave

Response	Morocco Wave 1	Morocco Wave 2	
		Refresher	Morocco Wave 2 – Panel
Phone disconnected/busy	2	8	6
Not in service	41	15	2
Did not answer	10	11	24
Picked up and refused	8	35	32
Incomplete, and refused	3	1	6
Incomplete, return call	0	0	4
Complete	17	19	26
Not Eligible	20	11	0
<b>Total</b>	<b>100</b>	<b>100</b>	<b>100</b>
<b>Response rate</b>	<b>45</b>	<b>29</b>	<b>28</b>

Source: Authors' calculations based on Morocco COVID-19 MENA Monitor Q1 2021 and Q2 2021 waves.

Note: Responses are for firms who consented to follow-up in the previous wave. Not shown are: 12 Q1 2021 firms who did not consent to follow-up.



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