Youth labour market resilience during the COVID-19 crisis in three middle-income countries

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▶ Foreword

Young people have been especially hard hit by the COVID-19 crisis. The fallout has hampered their participation in education and in labour markets. Many governments have reacted by providing individual support, most of which has not reached the informal and less protected workers, where youth are likely to be overrepresented. In these circumstances, many young people have had to rely on their individual capabilities and resources to adapt and react to these difficult times.

This paper explores why some young people have been more resilient than others during this public health crisis. It relies on data from the unique Young Lives Study, based at the University of Oxford, which has followed the life trajectories of a generation of children – who are now young adults – for the past two decades. This generation of youth entered the labour market at the onset of the COVID-19 crisis. The analysis in this paper focuses on three middle-income countries – India, Peru and Viet Nam – and highlights common patterns of individual responses to the crisis. The authors found that due to the particular characteristics of the COVID-19 crisis (with the demand- and supply-side restrictions), individuals' pre-pandemic labour market characteristics (such as their economic status as an employee or own-account worker or the economic sector in which they worked) tended to correlate with the varying measures of work resilience. Generally, their education and skills characteristics had much less significant roles.

Most workers have had a rough time over these past two years. But youth deserve a fighting chance to find decent work opportunities. We hope that with this analysis, the paper helps policymakers arrive at innovative ways to support youth, especially in developing countries.

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▶ 1. Introduction

COVID-19 struck in 2019 and has continued its global spread to date. As of 6 December 2021, there were nearly 263 million confirmed cases of COVID-19 globally and 5.2 million deaths (WHO 2021). Various policy responses to curb the spread of infections, such as mobility restrictions and national lockdowns, have resulted in unprecedented levels of job loss and uncertainty. According to the International Labour Organization (ILO) (2021b), global employment losses in 2020 amounted to 114 million jobs relative to 2019, driven by a shift into inactivity more than into unemployment. If reduction in global working hours were considered (assuming a 48-hour working week), this would be equivalent to 255 million full-time equivalent jobs, or an 8.8 per cent loss in global working hours relative to the fourth quarter of 2019.

The COVID-19 crisis has been particularly severe for youth across three dimensions (ILO 2021a): (i) disruptions to education, training and work-based learning; (ii) increased difficulties for young jobseekers and new labour market entrants; and (iii) job and income losses, along with deteriorating quality of employment. Recovery in youth employment started quickly in several countries in the third quarter of 2020 as initial lockdown measures were eased. But available data suggest that the recovery has been fragile and uncertain. For these reasons, there is a risk of long-term scarring effects in this generation of youth (the "lockdown generation") that could endanger their future labour market and personal lifetime prospects.

Over the past two decades, the Young Lives study, based at the University of Oxford, has followed two cohorts of children (approximately 12,000 children in total in four countries) from infancy to adulthood to study the cause and consequences of poverty and inequality over the life course. The Young Lives evidence has shown significant improvements in the overall living standards of young people in Ethiopia, India, Peru and Viet Nam, despite the impact of persistent inequalities undermining educational outcomes and the chances of finding a decent job as young adults. The socioeconomic impacts of the COVID-19 crisis could halt progress made but could also reverse life chances and entrench existing inequalities for many young people (Cueto et al. 2021). Recent findings emerging from the Listening to Young Lives: COVID-19 Phone Survey suggest that relative gains in multidimensional well-being that the study had observed between 2001 and 2016 had largely disappeared in 2020 (Favara et al. 2021).

Not all the young persons in the study have been affected similarly. While some of them – probably the majority – seem to have been heavily affected, others have managed to preserve or recover their jobs and incomes more easily. In other words, some have shown more resilience to COVID-19 and related labour market restrictions. There is still limited empirical evidence on the heterogeneous effects of the pandemic on youth employment, especially in developing countries, where informality is a prominent feature of labour markets and the lack of longitudinal data is an additional obstacle to track employment trajectories.

This paper contributes towards filling that knowledge gap by examining factors predicting young people's labour market resilience during the COVID-19 pandemic. For the empirical analysis, we used data from three middle-income countries (India, Peru and Viet Nam) that were collected as part of the Young Lives study. We exploited the information collected at different times during the life course and combined it with recent data collected through a highly innovative phone survey that has followed the Young Lives respondents since the COVID-19 outbreak, through the crisis to date. The aims of the paper are twofold: one, constructing measures of resilience in the labour

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market by taking advantage of the availability of longitudinal data; and two, investigating the protective factors and (individual and context-related) characteristics that predict employment resilience during major health and economic downturns.

The analysis is presented in seven sections: Section 2 summarizes the related literature on work resilience and its predictors. Section 3 describes the Young Lives data and experience in three of the study countries. Section 4 describes the sample used for the empirical analysis. Section 5 discusses alternative definitions of resilience. Section 6 introduces the methodological approach and discusses the main results. And Section 7 summarizes the most prominent findings.

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▶ 2. Related literature

According to the ILO (2017), the term "resilience" means "the ability of a system, community or society exposed to hazards to resist, absorb, accommodate, adapt to, transform and recover from the effects of a hazard in a timely and efficient manner, including through the preservation and restoration of its essential basic structures and functions through risk management".[5] These hazards typically arise under exceptional circumstances and economic downturns that affect countries and individuals.

A major strand of the economic literature looks at resilience in labour markets through a macroeconomic lens. For example, Bigos et al. (2013) defined resilience as "the capacity of labour markets to absorb external shocks and mitigate their impact for employment levels, specifically for vulnerable groups". The Organisation for Economic Co-operation and Development (2012) highlighted the role of policies and institutions as determinants of resilience. Hijzen et al. (2017) analysed the Great Recession of 2008–09 and concluded that macroeconomic policies are highly effective in limiting employment declines during economic downturns and preventing cyclical increases in unemployment from becoming structural. When it comes to the employment relationship, Auer and Cazes (2000) argued that "rather than an optimal degree of labour market flexibility, it is an optimal combination of stability and flexibility that has to be sought".

A complementary angle to investigate labour market resilience is the individual. Even if labour markets are resilient in the aggregate, there is still a great deal of heterogeneity among individuals. This paper adopts that perspective. In the case of the effects of the COVID-19 crisis, research from the past couple of years sheds light on some of the individual and context-related factors associated with the ability of workers to either preserve or recover their jobs and incomes during and after a period of economic downturn.

The remainder of this section provides a short summary of the protective factors identified in the existing (and most recent) literature.

Skills and qualifications. Assuming the existence of cross-productivity and complementarity across different sets of skills (Cunha et al. 2010), one could expect to find a correlation between education, skills (broadly defined) and employment resilience. Cutler et al. (2015) showed that a "certain" level of education has a protective role for cohorts born in "bad times" (defined by higher unemployment rates), although they found that having tertiary education does not always translate to a lower probability of job and income loss during a crisis. Balde et al. (2020) found similar results in Mali and Senegal. Skilled and better-qualified workers might be better at minimizing income and health losses. For example, the Global Business Coalition for Education (2020) argued that workers with better job-related skills, including problem-solving, decision-making and the ability to connect with local support, have been more resilient during the COVID-19 crisis. Furthermore, skilled workers might hold a more secure position in the labour market, or they may have greater job mobility and more flexibility (and capacity) to transition to teleworking if needed. Some literature also considers resilience as a new skill that can be learned (GBCE 2020).

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[5] ILO Recommendation No. 205 on Employment and Decent Work for Peace and Resilience was adopted by the International Labour Conference, taking into account the complex and evolving nature of contemporary crises as well as the experience gained by the ILO and the international community in crisis responses. It focuses on recovery and reconstruction in post-conflict and disaster situations but also on addressing root causes of fragility and taking preventive measures for building resilience.

Labour market experience. Labour market experience may be an important determinant to labour market resilience. For workers of a given age, the age at which they started their first job may be important – starting younger allows the longer accumulation of experience. However, workers who started working at an early age might end up having fewer opportunities in the labour market. Or they may be less qualified and less likely to access skilled occupations and formal jobs, especially in developing countries where informality is predominant. Chacaltana, Bonnet and Leung (2021) emphasized the role of the youth labour market structure on informality rates: It is common for youth in lower- or lower-middle-income countries who enter the labour market before age 18 to start as unpaid family workers or as employees in small businesses where informality is high.

Gender and the childcare burden. Studies have shown that women workers have been worse affected than men by the COVID-19 crisis. According to the ILO (2021b), the employment loss globally was 5 per cent for women while it was only 3.9 per cent for men in 2020. Women have been more likely than men to become economically inactive during the crisis. There are several reasons for these gendered differences. One, women may be overrepresented in sectors and jobs worst hit by the pandemic-related restrictions (hospitality, social care work and non-standard precarious forms of employment). Two, school closures associated with COVID-19 restrictions impose a greater burden for women with children. The expectation is that the crisis has exacerbated pre-pandemic inequalities (ILO 2021b); for example, further increasing female inactivity and informality among female workers in India (Walter 2020) or pushing female workers into low-quality employment and increasing their time spent in unpaid household work in Viet Nam. Women in Viet Nam faced a severe reduction in working hours during the second quarter of 2020 as well as a larger drop in labour force participation than men (ILO 2021c). In Peru, women's total economic participation rate fell from 62.2 per cent in the first quarter of 2020 to 36.1 per cent in the second quarter, while for men it went from 78.3 per cent to 54.7 per cent (ILO 2020). Additionally, the unemployment rate for women in Peru increased by a smaller proportion than for men, which may be due to women being more likely than men to leave the workforce when faced with job loss.

Economic sectors. COVID-19 and the lockdown measures (and post-lockdown recovery strategies) have been unequally affecting economic sectors. The definition of what have been considered "essential" sectors or activities and what activities were due to reopen first has had huge repercussions and created sector differences (in job losses or work stoppages), typically affecting workers in the industrial and service sectors more than those employed in agriculture (Khamis et al. 2021). Balde et al. (2020) showed that in sub-Saharan Africa (Burkina Faso, Mali and Senegal), informal workers and workers in "high-risk sectors" had been hardest hit by the pandemic. In Peru, Chacaltana, Perez and Quispe (2021) found that the impossibility to reallocate workers between sectors (because some were closed due to sanitary restrictions) contributed to the temporary decrease in informality during the lockdown period hiding increasing unemployment and inactivity.

Household wealth. Having access to more economic resources, savings, networks and better internet coverage, wealthier households have coped far better during the pandemic than households who are more disadvantaged. Using data from household surveys in Latin America and the Caribbean, Bottan, Hoffmann and Vera-Cossio (2020) found that households earning incomes below the national monthly minimum wage for January 2020 were more likely to have a household member who had lost their job and/or had closed a business. The authors argued that this may have been due to the high levels of informality in these regions limiting the ability of at-risk households to maintain their income source.
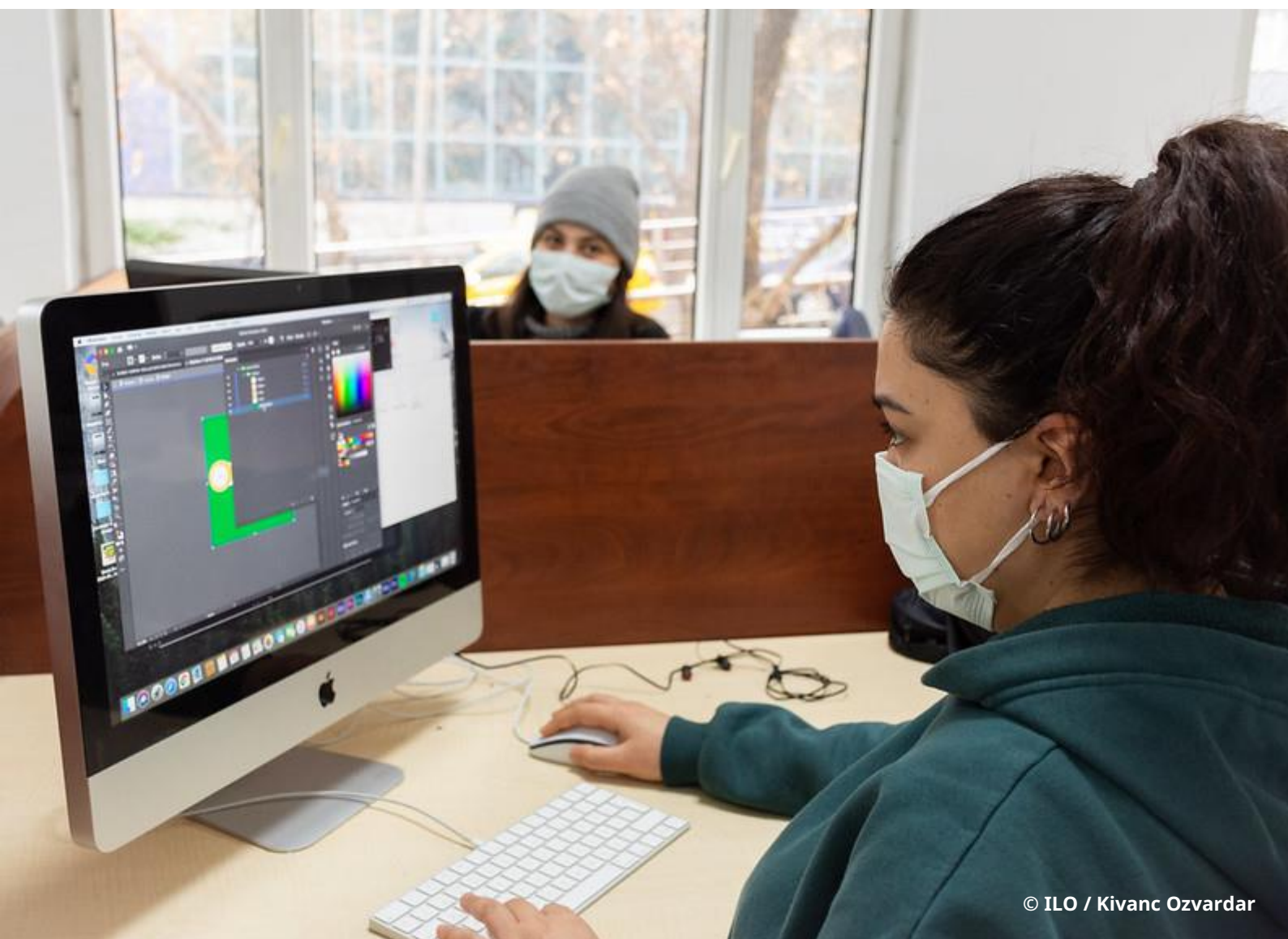
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Access to support programmes. The pandemic has also affected individuals differently depending on whether supporting programmes were available to them. In most cases, this would depend on the type of job and working condition. For those in formal wage jobs, with the capacity to telework or access unemployment insurance, for example, institutional arrangements seem to have worked more rapidly. On the contrary, for those in self-employment or in the informal economy, support measures have been scarcer due to the difficulty to identify and reach these populations.

▶ 3. The Young Lives data and experiences in the COVID-19 crisis

The Young Lives study has tracked two cohorts of children (a younger cohort born in 2001–02 and an older cohort born in 1994–95) since 2001 in four low- and middle-income countries: Ethiopia, India (Telangana and Andhra Pradesh states), Peru and Viet Nam. The initial 2001 sample included about 2,000 younger cohort children aged approximately 1 year old in the first survey and around 1,000 older cohort children who were 7–8 years old in each country. The original sample design oversampled children living in poor families and communities.[6] Although not nationally representative, studies by Escobal and Flores (2008), Outes-Leon and Sanchez (2008), Nguyen (2008) and Kumra (2009) showed that the Young Lives data still cover a broad range of characteristics and attributes of each national population.

The Young Lives respondents have been visited in-person on five occasions, approximately every three years, most recently in 2016. The attrition rates have been low when compared with other longitudinal studies in developing countries (Sánchez and Escobal 2020).

The COVID-19 outbreak began when the Young Lives fieldwork was about to start for the sixth round of (in-person) data collection. In recognition of the health crisis, the fieldwork was postponed. Instead, a multi-part phone survey was implemented, aimed at assessing the impacts of the COVID-19 crisis and associated policy responses on the study participants.

The Listening to Young Lives at Work: 2020 COVID-19 Phone Survey consisted of three phone calls with each of the two cohorts. The first call took place between June and July 2020 (call 1), a few months after the COVID-19 outbreak. The second call took place between August and October 2020 (call 2). And the third call took place between November and December 2020 (call 3). The younger cohort and older cohort were aged approximately 18–19 years and 25–26 years, respectively.

In this paper, we focus on three of the four Young Lives countries (India, Peru and Viet Nam). We chose to exclude Ethiopia because of the lower response rates to the phone survey in the Tigray region due to the conflict there that started in November 2020 and because most of the sample was working in agriculture, the sector least affected by the restrictive measures and the economic downturn. For the three countries, we used data from both the younger and older cohorts.

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[6] In each country, 50 children were selected from each of 20 sentinel sites. The concept of a sentinel site comes from health surveillance studies and is a form of purposive sampling, where the site, or cluster, is deemed to represent a certain type of population and is expected to show typical trends affecting those particular people or areas. The selection of the sentinel sites varied across countries. In Viet Nam, four sentinel sites in each of the selected provinces (Phu Yen, Ben Tre, Lao Cai, Hung Yen and Da Nang) were chosen by the provincial governments. In India, the sentinel sites were sampled from four districts in Andhra Pradesh, five districts in Telangana and one site from the urban slums of Hyderabad. The sentinel sites in India and Viet Nam were semi-purposively sampled to represent each country's socioeconomic and geographic diversity, with a pro-poor bias. Peru instead adopted random sampling of sentinel sites. The districts were ranked according to such factors as infant mortality, housing, schooling and infrastructure. Excluding the top 5 per cent, the districts were divided into equal population groups, ordered by a poverty index, and each district had a probability of being selected proportional to its population size. The resulting sentinel sites cover rural, urban and peri-urban areas and each of the coastal, mountain and Amazon zones.

3. The Young Lives data and experiences in the COVID-19 crisis

The three study countries were subjected to different experiences of the pandemic, both with regard to the number of COVID-19 cases and in their government's policy responses. Figure 1 reports the cumulative cases per million in India, Peru and Viet Nam throughout 2020. Peru is among the countries with the highest number of cases, while Viet Nam is among the lowest.

▶ **Figure 1. COVID-19 cases per million population in India, Peru and Viet Nam**
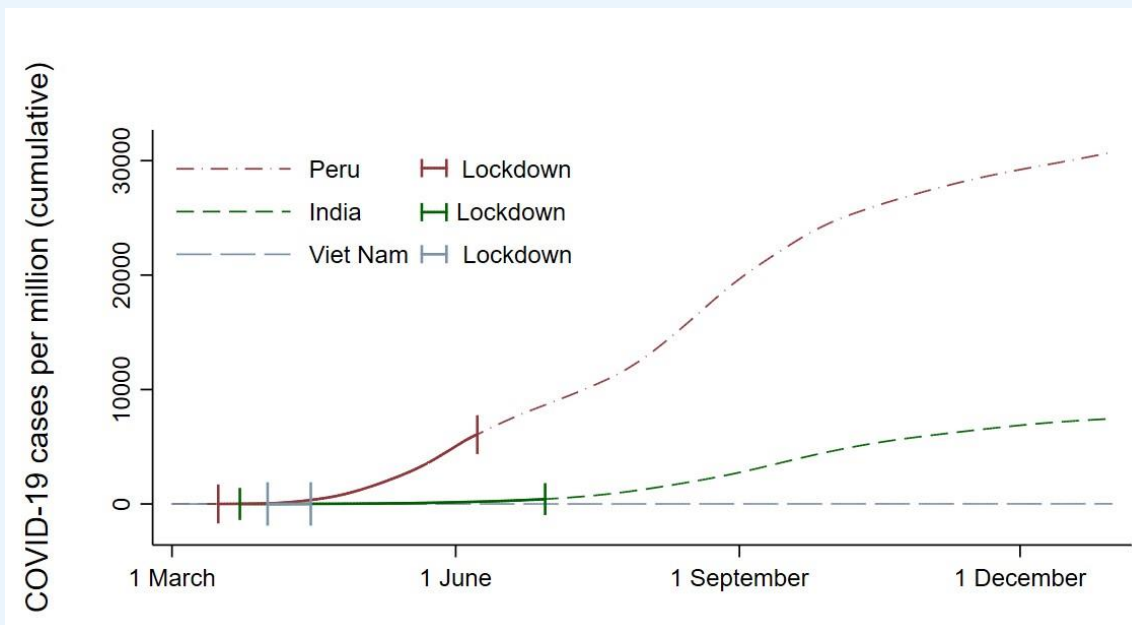
Source: Scott et al. 2021, using data from https://ourworldindata.org.

All three countries imposed some kind of restrictions to mobility to contain the coronavirus spread, although with different intensities. The periods of the lockdowns are also shown in the same figure. In the case of India, a national lockdown was imposed from 22 March in Telangana and from 25 March in Andhra Pradesh. The initial 21-day lockdowns continued to be extended, with easing happening only in June 2020. In the case of Peru, a national lockdown started on 15 March 2020 and lasted until 1 July, when they moved to a geographical targeted lockdown scheme until September. In contrast to Peru and India, Viet Nam only implemented a relatively short 15-day national lockdown in April (Nguyen, Cao and Nghiem 2021). These different intensities in the restrictions imposed implies different individual responses in the labour market as well.

The Young Lives data have been used to assess the impact of the pandemic and associated lockdown measures on young people's ability to work.

▶ 4. Data and sample

As noted, our analysis draws on the data collected through the three-call phone survey administrated as part of the Young Lives study and described in section 3. The key information for the analysis presented in this report comes from the August–October 2020 call (call 2), the richest one in terms of information collected.

To begin with, we assessed the extent and nature of sample attrition when comparing the call 2 sample to the sample of the last face-to-face survey round, round 5 in 2016. Table A2 in the Annex reflects a comparison of the two samples across a number of observable characteristics to check for potential attrition biases.[7] The overall attrition rates across the three countries are low: 10 per cent for the older cohort and 9.6 per cent for the younger cohort. Importantly, there are no statistically significant differences in observable characteristics for either the younger cohort or older cohort when comparing the 2016 sample and the 2020 sample in any country.

4.1 Employment status: Definitions

Our focus is the impact of the pandemic and associated lockdowns on persons among both cohorts who were working when the crisis struck. The second and third phone calls collected detailed information on the respondents' employment status in the week before they were interviewed, as well as retrospective questions relating to the period before the pandemic, the national lockdown period and the period between August–October 2020 (call 2) and November–December 2020 (call 3). Using this information, we constructed a five-wave panel that includes the pre-pandemic period (wave 1), the lockdown period (wave 2), and three post-lockdown periods: August–October 2020 (wave 3), the period between call 2 and call 3 (wave 4) and November–December 2020 (wave 5).

The reference period varies across waves. In wave 1 (pre-pandemic), we asked about employment in the months immediately preceding the COVID-19 outbreak (December 2019 to February 2020 in India, January to February 2020 in Peru and Viet Nam). In wave 2, the reference period is defined by the national lockdown (March–June for Peru and India, April for Viet Nam). Respondents were asked whether they had been able to work either at their place of work or remotely during the lockdown period and if they worked the same number of hours as in the pre-pandemic period. In both waves 3 and 5, the reference period relates to the week before the interview, whereas in wave 4, the reference period is defined by the time interval between call 2 and call 3.

The employment status is defined based on whether the respondent had worked for at least one hour during the reference period, in paid or unpaid activities,[8] in their own business, for a household member or for someone else or had a job but could not work during the reference period.[9] The relevant dates for the five-wave panel and the different reference periods used for defining the employment status are summarized in figure 2.

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[7] A description of all the variables used in this report is provided in table A1 in the Annex.

[8] Notably, paid activities are those for which the respondent receives any form of payment, either in cash or in-kind, both in cash and in-kind or in the form of debt relief or pocket money.

[9] Housewives, students, housemaids or individuals taking care of other household members (such as children, people living with a disability or who are ill or elderly) were not considered as employed.

4. Data and sample

▶ **Figure 2. Time line of employment information available in the Young Lives COVID-19 phone survey**

Wave 1

Pre-COVID-19

Dec.–Feb. (PE, VN); Jan.–Feb. (IN)

Wave 3

(Aug.–Oct. 2020; previous week)

Wave 5

(Nov.–Dec. 2020; previous week)

Wave 2

Lockdown

Mar.–June 2020 (PE, IN) April 2020 (VN)

Wave 4

Employment between call 2 and call 3

Note: Waves 1–3 are based on information collected in call 2 (August–October 2020). Waves 4 and 5 are based on information collected in call 3 (November–December 2020). The data points in green refer to the respondents' employment status the week between call 2 and 3 interviews. Data points in white refer to data collected based on respondents' recollection. Wave 2 data were collected only for those who reported to have been employed in the previous 12 months and refer to their ability to work during the lockdown period. IN=India; PE=Peru; VN=Viet Nam.

In addition to employment status, information about the main activity (defined as the most important paid or unpaid activity in terms of time devoted to it) were available for waves 1, 3 and 5. In these waves, information was collected on the type of main activity, economic sectors, earnings and types of payments, as defined in table A1 in the Annex.

We distinguished between wage workers and own-account workers. Own-account workers were those reporting to be self-employed or who owned a business or a farm or who worked for a household member on an own-account basis. Wage-employed workers were those who worked for a private company or enterprise or cooperative, for other private individuals or households (excluding own household), the public sector or government or a rural public works programme. Those who worked only as unpaid family workers were not included.

The information on the economic sector of the main activity was used to identify those working in contact-intensive sectors most likely to have been affected by the lockdown restrictions (henceforth, vulnerable sectors).[10]

Additionally, wave 3 collected more detailed information about each respondent's main activity in the seven days prior to the call, such as the duration spent in the main activity (number of months worked in the previous 12 months) and, notably, information on total earnings from all activities. This is information we use later in the analysis.

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[10] In India, this includes wholesale and retail trade and repair of motor vehicles and motorcycles, accommodation and food service activities and other services activities. In Peru, this includes construction, accommodation and food service activities, transportation and storage. In Viet Nam, this includes wholesale and retail trade and repair of motor vehicles and motorcycles, accommodation and food service activities and construction.

4.2 Sample definition and characteristics

The sample used in the empirical analysis was restricted to the younger and older cohort survey respondents who were employed before the outbreak of the pandemic and who did not enrol in education at any point during the period covered by the five waves (December 2019–December 2020). The final sample comprises 742 respondents in India, 593 in Peru and 1,169 in Viet Nam.

A comparison of the main characteristics of those were employed against those who were not during the pre-pandemic period and hence excluded by this analysis is reported in table 1. Pre-pandemic, 33 per cent of the India sample, 49 per cent of the Peru sample and 62 per cent of the Viet Nam sample were employed, with the male proportions larger than the female proportions in all countries and in rural areas, compared with urban areas. In each country, the proportion of workers in the older cohort was much larger than in the younger cohort. The majority of those who were working prior to the pandemic were in wage-employed work (typically paid work) and working in less-contact-intensive sectors.

▶ **Table 1. Background characteristics, by pre-pandemic employment status in the three countries (percentage)**

	India		Peru		Viet Nam	
	Employed pre-pandemic	Not Employed	Employed pre-pandemic	Not Employed	Employed pre-pandemic	Not Employed
Row percentages	33	77	49	51	62	48
Male	43	57	59	41	68	32
Female	22	78	40	60	57	43
Urban	27	73	47	53	54	46
Rural	35	65	64	37	69	31
Younger cohort	19	81	39	61	47	53
Older cohort	60	40	80	20	89	11
Column percentages						
Self-employed	33	-	28	-	22	-
Wage-employed	67		72		78	
In vulnerable sector pre-pandemic	21	-	18	-	26	-
Not vulnerable sector	79		82		74	
Observations	742	1 523	593	605	1 169	704

Note: Each set of observations for employed and not employed were restricted to non-missing information for basic demographic characteristics. The definition of "employed" refers to all those who reported to have worked prior to onset of the COVID-19 pandemic, such as worked at least an hour in January–February in Peru or December–February in India and Viet Nam. The sample for those employed pre-pandemic was also restricted to those who did not enrol in education at any point during the waves. Urban and rural locations were specified during call 2 (August–October 2020). Vulnerable sectors were defined by country as sectors that were vulnerable to the lockdown measures. In India, this was wholesale and retail trade and repair of motor vehicles and motorcycles, accommodation and food service activities and other services activities. In Peru, this was construction, accommodation and food service activities, transportation and storage. In Viet Nam, this was wholesale and retail trade and repair of motor vehicles and motorcycles, accommodation and food service activities and construction.

4. Data and sample

Figure 3 describes the employment status of the pre-pandemic workers' changes over time. The lockdown restrictions imposed were followed by a significant drop in employment levels in all countries, with the impact the biggest in Peru. In August to October after the lockdown, there was a recovery in employment, although never back to pre-pandemic levels. Overall, these results suggest that for many persons, the loss in employment was temporary. Not all of those who returned to employment were necessarily in the same job, however – an issue discussed in the next section.

Notably, any observed recovery in overall employment might be due to either a return to work of those who lost their job during the lockdown or to "new workers", or persons who joined the labour market. By restricting the sample to those who were working pre-pandemic, we narrowed the definition of employment recovery to those who were able to bounce back and re-join the labour market post-lockdown and those who were resilient to the imposed restrictions and able to continue working during the crisis.

▶ **Figure 3. Proportion of young workers employed in India, Peru and Viet Nam in each period**
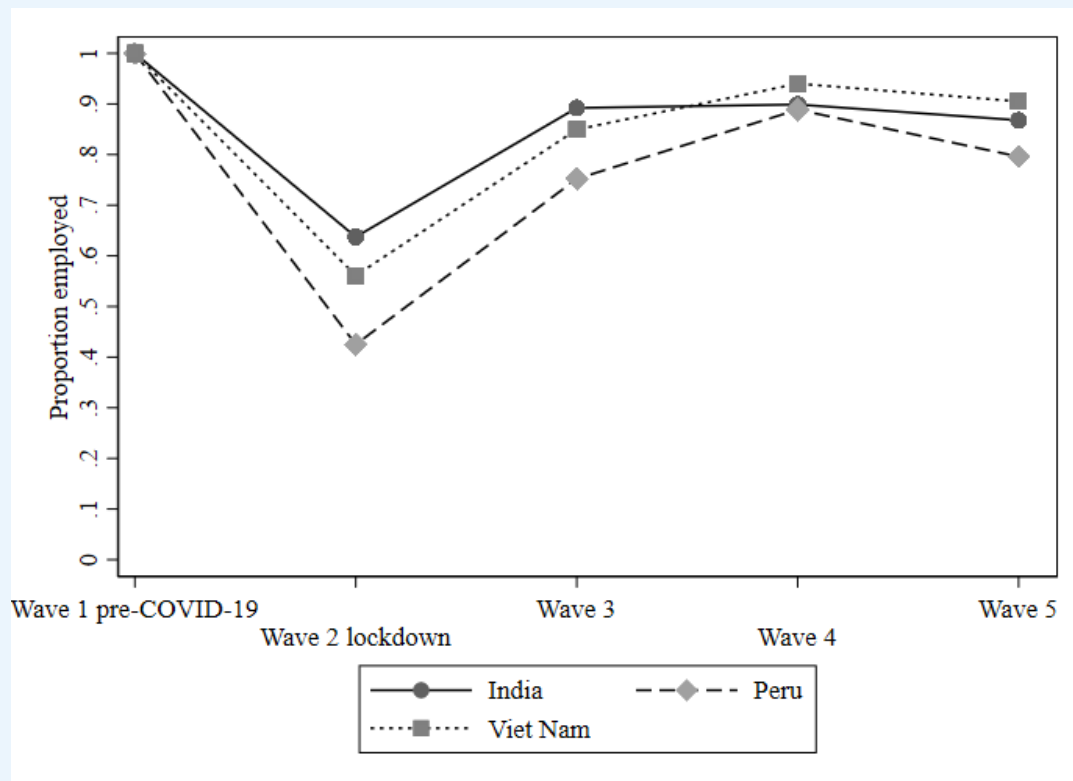
Note: Employed as a percentage of the sample with non-missing demographic information. The definition of "employed" refers to all those who reported to have worked prior to the COVID-19 crisis; specifically, that they worked at least an hour in January or February in Peru or in December to February in India and Viet Nam. The sample for those employed pre-pandemic was also restricted to those who did not enrol in education at any point during the waves. As defined in figure 1, wave 1 refers to December–February in Peru and Viet Nam and January–February in India. Wave 2 refers to the lockdown period in March–June 2020 in Peru and India and April 2020 in Viet Nam. Wave 3 is call 2, referring to the previous week in August–October 2020. Wave 4 is the period between call 2 and call 3. Wave 5 refers to employment in the previous week recorded in call 3, in November–December 2020.

▶ 5. Defining and profiling resilience in the Young Lives study

This section elaborates the concept of work resilience used in the analysis and investigates what characteristics made workers more resilient to the crisis – or more able to face and mitigate the effect of the generalized drop in employment as a consequence of the restrictive measures post-outbreak and the subsequent economic downturn.

5.1 Defining work resilience

The definition of resilience adopted in this paper resembles the ILO definition of resilience: the capacity to "resist, absorb, accommodate, adapt to, transform and recover from the effects of a hazard in a timely and efficient manner" (ILO 2017). Focusing on the Young Lives respondents who were employed before the lockdown struck, we operationalize this definition by exploiting the availability of repeated measures of employment status and earnings over time: pre-COVID-19 (wave 1), during lockdown (wave 2) and post-lockdown (wave 3), as described in section 3.1. For the sake of simplicity, we limited the analysis to the first post-lockdown period only (wave 3) to define three (non-exhaustive) "major" subgroups based on (i) changes in their employment status and (ii) changes in earnings, activity and employer over the three periods:

i.   those who were continuously employed throughout the three periods;
ii. those who lost employment during the lockdown but recovered after lockdown;
iii. those who lost employment during the lockdown and did not recover.

Within the first two groups, we further distinguished based on the working activity and the earnings realized prior to the lockdown and afterward. Some respondents might have maintained the same working activity and earning levels over time, while others might have had to change or lose their activity or might have ended up realizing higher or lower earnings. Based on these further distinctions, we define resilience as:

i.   work resilience: the ability of an individual to either maintain their employment status throughout the crisis, such as during the lockdown (wave 2) and post-lockdown (wave 3) or to recover post-lockdown if they lost their job during the lockdown.
ii. work and income resilience: the ability of an individual to adapt to the crisis in an efficient manner, measured here through changes in the individual's earnings. The respondent was work- and income-resilient if they managed to remain in the same pre-pandemic activity during lockdown and post-lockdown or had a different activity since the pre-pandemic period with greater or equal earnings by post-lockdown.

These two measures are bivariate indicators of resilience (yes/no). However, note that in both cases we distinguished those who "preserved" their employment and those who "restored" their previous employment from those who were affected (who could not preserve nor restore their employment situation). This further distinction enables a more refined concept of "work recovery resilience", which is discussed further in the next section.

According to our definition, 75 per cent of the respondents in Peru were work-resilient, while 85 per cent of the respondents in Viet Nam and 89 per cent in India were work-resilient (table 2). Fewer respondents were work- and income-resilient: slightly more than half in India and Peru and 75 per cent in Viet Nam. Based on the work-recovery definition, a majority of respondents were employed

continuously in India (60 per cent) and Viet Nam (52 per cent) but not in Peru (39 per cent). In each country, around one third of respondents lost their job in the lockdown period but recovered.

▶ **Table 2. Sample and percentage of group definitions of resilience**

	India		Peru		Viet Nam	
	N	%	N	%	N	%
Work-resilient						
1 = Continuously working or recovered after lockdown	662	89	446	75	993	85
0 = Lost their job at some point	80	11	147	25	176	15
Work- and income-resilient						
1 = Continuously working or recovered after lockdown and in same activity or ≥ earnings	430	58	309	52	875	75
0 = Lost job without recovery or lost job and recovered but in a different activity with lower earnings	312	42	284	48	294	25
Work recovery-resilient						
0 = Lost their job and did not work in waves 2 and 3 or lost job in wave 3 (affected)	80	11	147	25	176	15
1 = Lost their job in wave 2 and recovered (restored)	219	30	216	36	383	33
2 = Continuously worked (preserved)	443	60	230	39	610	52
Total observations	742		593		1 169	

5.2 Descriptive statistics: A profile of the resilient workers

Tables 3 and 4 report the average characteristics of the work-resilient and the work- and income-resilient respondents when compared with the others. The same statistics are reported for the resilient, as defined by the multinomial group variable in table A3 in the Annex.

In all countries, the percentage of those who were work-resilient was lower among women than men. But this was not the case for work and income resilience, where the gender difference was not statistically significant. Work resilience was higher in rural areas in Peru and Viet Nam. In India, work and income resilience was higher in urban areas. Fewer in the younger cohort were work-resilient and work- and income-resilient in all countries, although the differences were not always statistically significant.[11] Those who were self-employed before the pandemic were more work-resilient and work- and income-resilient in all countries, whereas those working in sectors classified as vulnerable sectors were less work- and income-resilient in Peru and Viet Nam but surprisingly more resilient in India.

In each country, those who were work-resilient had more years of work experience, and the same was the case for work and income resilience in Peru.

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[11] In India, the proportion of respondents who were work-resilient was statistically the same in the younger cohort and in the older cohort.

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Education level mostly did not differ significantly between the resilient and non-resilient. Respondents with higher levels of self-esteem were more work- and income-resilient in India and Peru. The same applied to those with better math test scores in India and Viet Nam. Skills, however, were less consistently associated with simple work resilience.

In Viet Nam, respondents in the highest asset tercile were less resilient in both work resilience and work and income resilience terms. The majority of them were more work- and income-resilient. In India, those in the highest asset tercile were more work- and income-resilient while those in the lowest asset tercile were less resilient.

Interestingly, the proportion of resilient workers was lower among those who lived in households with children in the three countries, which might be related to the increase of household and caring responsibility during the lockdown and due to school closures.

5. Defining and profiling resilience in the Young Lives study

▶ **Table 3. Average background characteristics, by work resilience in India, Peru and Viet Nam**

	India			Peru			Viet Nam		
	Other	Work-resilient	t-test	Other	Work-resilient	t-test	Other	Work-resilient	t-test
Proportions who are									
Female	46.25	31.87	0.010	58.50	35.87	0.000	56.82	45.92	0.008
Living in urban area	28.75	24.32	0.387	87.76	75.78	0.002	46.59	34.34	0.002
From younger cohort	43.75	39.43	0.456	70.75	55.38	0.001	53.98	47.23	0.099
Self-employed before COVID-19	17.50	34.44	0.002	16.33	32.51	0.000	16.48	22.46	0.076
In vulnerable employment sector before COVID-19	27.50	20.24	0.133	19.73	17.71	0.584	34.66	24.27	0.004
Average characteristics									
Years of education	11.58	10.87	0.055	11.44	11.50	0.695	11.01	10.93	0.684
Years of work experience	4.43	5.39	0.077	3.44	4.66	0.001	4.91	5.78	0.027
Skills									
Self-esteem index (z-score)	-0.06	-0.04	0.690	0.09	-0.01	0.077	-0.08	0.01	0.036
Self-efficacy index (z-score)	-0.10	-0.05	0.451	0.10	0.01	0.088	-0.04	-0.01	0.610
Raw score in math test	10.10	11.11	0.219	12.63	13.53	0.103	12.28	12.21	0.871
Vulnerable people in the household	27.50	38.07	0.064	20.41	23.99	0.372	25.57	22.86	0.434
Distribution by characteristics									
Ethnicity, caste, language									
Backward Caste	36.25	48.34	0.041						
Scheduled Caste	33.75	21.60	0.015						
Scheduled Tribe	17.50	14.95	0.550						
Majority Kinh							88.07	82.88	0.086
Other	12.50	15.11	0.536				11.93	17.12	0.086
Mother's first language is Spanish				70.07	67.04	0.497			
Wealth index (2016)									
Bottom tercile	41.25	43.05	0.759	27.89	36.77	0.050	34.09	41.99	0.049
Middle tercile	38.75	32.63	0.273	43.54	37.22	0.173	27.27	35.35	0.037
Top tercile	20.00	24.32	0.392	28.57	26.01	0.543	38.64	22.66	0.000
Observations	80	662		147	446		176	993	

Note: Refer to table A1 in the annex for definition of variables.

5. Defining and profiling resilience in the Young Lives study

▶ **Table 4. Background characteristics, by work and income resilience in India, Peru and**

	India			Peru			Viet Nam		
	Other	Work and income resilient	t-test	Other	Work and income resilient	t-test	Other	Work and income resilient	t-test
Proportions who are									
Female	32.05	34.42	0.500	44.72	38.51	0.126	47.96	47.43	0.875
Living in urban area	15.38	31.63	0.000	79.58	77.99	0.638	38.44	35.43	0.354
From younger cohort	48.08	33.95	0.000	68.66	50.49	0.000	54.42	46.17	0.014
Self-employed before COVID-19	16.67	44.19	0.000	14.79	41.10	0.000	14.63	23.89	0.001
In vulnerable employment sector before COVID-19	16.35	24.42	0.008	23.24	13.59	0.002	33.67	23.20	0.000
Average values									
Years of education	10.51	11.27	0.001	11.39	11.57	0.193	10.83	10.98	0.362
Years of work experience	5.10	5.42	0.348	3.68	4.98	0.000	5.16	5.81	0.041
Non-cognitive and cognitive skills									
Self-esteem index (z-score)	-0.08	-0.01	0.055	0.02	0.02	0.966	-0.05	0.01	0.071
Self-efficacy index (z-score)	-0.11	-0.02	0.039	0.05	0.02	0.482	-0.04	-0.01	0.335
Raw score in math test	9.13	12.36	0.000	12.62	13.94	0.006	11.86	12.34	0.197
Vulnerable people in the household	39.42	35.12	0.231	23.94	22.33	0.642	26.53	22.17	0.126
Distribution									
Ethnicity, caste, language									
Backward Caste	41.35	51.16	0.008						
Scheduled Caste	27.56	19.53	0.010						
Scheduled Tribe	23.08	9.53	0.000						
Majority Kinh							79.59	85.03	0.029
Other	8.01	19.77	0.000				20.41	14.97	0.029
Mother's first language is Spanish				69.01	66.67	0.542			
Wealth index (2016)									
Bottom tercile	52.56	35.81	0.000	36.27	33.01	0.406	42.18	40.34	0.580
Middle tercile	31.41	34.65	0.356	39.79	37.86	0.632	27.21	36.46	0.004
Top tercile	16.03	29.53	0.000	23.94	29.13	0.154	30.61	23.20	0.011
Total observations	312	430		284	309		294	875	

Note: Refer to table A1 in the annex for definition of variables.

▶ 6. Empirical strategy and results

6.1 Empirical strategy

The empirical approach used to estimate the main predictors of resilience, as specified in model (1):

$$R_{ic} = \alpha_i + \beta_1 X_i + \beta_2 HH_i + \beta_3 Skills_i + \beta_4 Educ_i + \beta_4 Work_i + \delta Cluster_i + \epsilon \qquad (1)$$

where R_{ic} is a binary variable equal to 1 if the individual i living in cluster c is work-resilient (or work- and income-resilient) and 0 otherwise. The equation (1) is estimated separately by country using a probit model and estimates the probability of being resilient, given a number of basic demographic characteristics, C_i (sex, ethnicity or, in the case of Peru, a dummy to indicate whether mother's native language is Spanish); household-level characteristics H_i (tertiles of wealth index measured in 2016,[12] as a proxy for socioeconomic status, whether the household lives in an urban area and whether children are in the household); a vector of individual skills $Skills_i$, including both cognitive skills (numeracy skills) and socioemotional competencies (self-esteem and self-efficacy); $Educ_i$, including both the highest qualification completed (none to primary, secondary, post-secondary or tertiary school and university or postgraduate); $Work_i$ denoting the individual's work experience (in years)[13] and whether they were self-employed or a wage worker prior to the pandemic. Finally, this specification controls for the cluster fixed effects to account for differences in infrastructure, markets and services and for eventual geographical or sector differences in the COVID-19 response within the same cluster.

6.2 What predicts work resilience?

We present our estimates (average marginal effects) for the probit model for work resilience as specified in equation 1, with and without the cluster fixed effects, for the three countries separately.

Work resilience: Comparing Young Lives respondents affected versus those not affected

Table 5 shows the marginal effects (calculated for respondents who lost jobs and could not recover) of the probit regression for work resilience. Recall that resilience includes both preservation or restoration of jobs.

The most transversal result is that women were significantly less likely to be work-resilient in all three countries, even in the most conservative specification, including cluster indicators. Women were 8 percentage points less likely to be resilient in India and Viet Nam and about 20 percentage points less so in Peru. This might be related to women bearing increasing household

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[12] The wealth index is a measure constructed and publicly archived by the Young Lives study, which is a simple average of housing quality, consumer durables and access to services.

[13] Years of work experience was measured retrospectively using information from round 4 (2012) and round 5 (2016). In prior rounds, respondents who were engaged in work at the time of interview were asked how long they had been in their current activity. This measure was used to approximate the number of years of work experience the respondent had, using information between 2012 and August–October 2020.

responsibilities following the lockdown and school closures (Favara et al. 2020; Le Thuc et al. 2020; Sánchez et al. 2020).

On the contrary, those who were working as own-account workers before the pandemic were significantly more work-resilient in India (+8 percentage points) and Peru (+18 percentage points). Either they were less likely to have been affected by lockdown restrictions or they returned to work more rapidly. This effect was also positive although not significant in Viet Nam (where the lockdown period was much shorter).

Those working in sectors classified as vulnerable to the effects of the lockdown were 4 percentage points less resilient in India and Viet Nam, though this was only significant at the 10 per cent level. Also, **those living in urban areas were less resilient in India and Peru**. In Peru, once the cluster fixed effects were added, the results were no longer significant. In Viet Nam, the effect turned positive, meaning that workers living in urban areas were more resilient to the effect of the lockdown restrictions. These results probably link to the sector-based approaches used in each country in defining the lockdown restrictions and in particular to the magnitude and nature of the restrictions for the agriculture sector and whether these restrictions allowed for sector shifts in employment between urban and rural areas.

The workers in the younger cohort were much less resilient than the older cohort workers in Peru (-15 percentage points) and in Viet Nam (-6 percentage points). This might reflect the nature of the work and the more fragile working conditions for the younger workers than the older workers, or it might also relate to shorter work experiences, given that the respondents' age highly correlated to the working experience. This result is highly relevant because it implies that younger workers may bear the cost of the pandemic for a longer period in their lifespans.

Overall, we found a weak relationship between education, skills and work resilience. Cognitive and non-cognitive skills were mostly not associated with work resilience except for a positive correlation with numeracy and work resilience in India and between self-esteem and work resilience in Viet Nam. In India and Peru, the association between self-esteem and work resilience was weak. Regarding education, a seemingly counterintuitive finding emerged in the case of India, where less-educated workers were more work-resilient than more-educated peers. This result may merely indicate that the more educated (and likely wealthier) respondents in India were willing to move into inactivity or unemployment while waiting for the crisis to pass. Education did not seem to correlate with work resilience in Peru and Viet Nam.

6. Empirical strategy and results

▶ **Table 5. Probit marginal effects of being work-resilient in all three countries**

	India		Peru		Viet Nam	
	Without clusters	**With clusters**	**Without clusters**	**With clusters**	**Without clusters**	**With clusters**
Probability of being work resilient						
Female	-0.083***	-0.084***	-0.189***	-0.207***	-0.060***	-0.079***
	(0.022)	(0.029)	(0.036)	(0.055)	(0.021)	(0.012)
Younger cohort	-0.012	-0.006	-0.151**	-0.145**	-0.036	-0.062*
	(0.033)	(0.039)	(0.061)	(0.070)	(0.032)	(0.033)
Scheduled Caste (for India only)	-0.052**	-0.042*				
	(0.026)	(0.024)				
Scheduled Tribe (for India only)	-0.051*	-0.060				
	(0.030)	(0.046)				
Other ethnicity	-0.002	-0.007			0.027	0.046
	(0.032)	(0.041)			(0.034)	(0.030)
Mother's native language (for Peru)			0.016	0.003		
			(0.040)	(0.110)		
Years of work experience	0.000	0.001	0.005	0.007	0.002	0.002
	(0.003)	(0.004)	(0.006)	(0.005)	(0.003)	(0.003)
Self-employed before COVID-19	0.077***	0.081***	0.163***	0.182***	0.028	0.028
	(0.025)	(0.026)	(0.043)	(0.048)	(0.039)	(0.039)
Vulnerable employment sector before COVID-19	-0.041*	-0.037	-0.036	-0.050	-0.036*	-0.036*
	(0.024)	(0.030)	(0.046)	(0.060)	(0.020)	(0.020)
Vulnerable household members	0.040*	0.042*	0.066	0.091*	-0.028*	-0.028*
	(0.022)	(0.022)	(0.042)	(0.054)	(0.016)	(0.016)
Self-esteem index (z-score)	0.016	0.005	-0.017	-0.016	0.042*	0.039**
	(0.020)	(0.016)	(0.040)	(0.033)	(0.022)	(0.018)
Self-efficacy index (z-score)	0.007	0.011	-0.029	-0.019	-0.004	-0.002
	(0.021)	(0.013)	(0.042)	(0.066)	(0.023)	(0.019)
Raw maths score	0.006**	0.007**	0.002	0.002	0.001	0.000
	(0.002)	(0.003)	(0.004)	(0.004)	(0.002)	(0.001)
Years of education	-0.015***	-0.018***	-0.005	-0.002	0.000	-0.001
	(0.005)	(0.005)	(0.013)	(0.019)	(0.005)	(0.005)
Lives in urban area	-0.030	-0.058***	-0.125**	-0.123	-0.041*	0.041**
	(0.028)	(0.017)	(0.053)	(0.087)	(0.022)	(0.018)
Bottom wealth index	-0.004	-0.027	0.066	0.030	0.083***	0.020

6. Empirical strategy and results

	India		Peru		Viet Nam	
	Without clusters	**With clusters**	**Without clusters**	**With clusters**	**Without clusters**	**With clusters**
	(0.033)	(0.035)	(0.053)	(0.051)	(0.026)	(0.033)
Middle wealth index	-0.037	-0.047	-0.010	-0.033	0.091***	0.040
	(0.029)	(0.030)	(0.044)	(0.043)	(0.026)	(0.026)
Education and skills	Y	Y	Y	Y	Y	Y
Household characteristics	Y	Y	Y	Y	Y	Y
Pre-COVID-19 labour market indicators	Y	Y	Y	Y	Y	Y
Cluster indicators	N	Y	N	Y	N	Y
Observations	742	689	593	568	1 169	1 136

Note: *p < 0.05, **p < 0.01, ***p < 0.001. Standard errors are reported in parentheses. Mother's native language is used instead of ethnicity in Peru. All estimates controlled for years of education, cognitive and non-cognitive skills, household characteristics and pre-COVID-19 labour market indicators. Refer to table A1 in the annex for definition of variables.

Work resilience: Comparing Young Lives respondents who preserved their jobs versus those who restored their jobs

We now take into account that resilient workers can be subdivided between those who worked throughout the analysed period (preserved their jobs) from those who lost their job and recovered (restored their jobs), as discussed in section 5.1. We estimated a multinomial probit model, and table 6 indicates the estimated marginal effects.[14]

Some of the evidence that emerged from the work resilience analysis was confirmed, but this disaggregation added important insights on the determinants of resilience. For example, **in all three countries, women were more likely to have lost their job and not recovered**, which is consistent with our previous results. **But in India (only), they were also more likely to have preserved their job**.

Similar additional insights were found among workers who were self-employed prior to the pandemic. The multinomial analysis confirmed that **those who were self-employed prior to the pandemic were more work-resilient** for two reasons: **They were less likely to have lost their job and not recovered** (in India and Peru) **and they were significantly more likely to have preserved their job** (in Peru and Viet Nam).

As per the pre-pandemic economic sector, **working in vulnerable sectors reduced the probability of job preservation but increased the probability of job restoration**. The multinomial results confirmed that respondents working in vulnerable sectors in each country prior to the pandemic were less likely to remain continuously working, but they were more likely to have lost their job and recovered.

Similarly, **respondents in urban areas were more likely to be in the group that lost their jobs and did not recover in Peru and Viet Nam; in India, consistently, they had a lower probability of preserving their job**. Workers in rural areas therefore were more work-resilient partly because

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[14] In table A4 in the Annex, we present the results of a test of irrelevant alternatives that show that this breakdown is relevant and significant for our sample.

agriculture was considered an essential activity in many countries and thus lockdown restrictions were not applied.

Younger workers were less likely to have preserved their job throughout the analysed pandemic period (in Viet Nam) or to have recovered it (in Peru) **than the older workers**.

In the case of educational variables, the multinomial results essentially confirmed that **education weakly predicts resilience, although the role of cognitive and non-cognitive skills appears to be more prominent for job preservation and job restoration**.[15] Higher numeracy scores significantly increased the probability of preserving jobs in Peru and Viet Nam but reduced the probability of losing jobs and not recovering in India. Similarly, self-esteem increased the probability of preserving jobs and decreased the probability of losing and not recovering in Viet Nam.

All these results thus far seem to form a picture in which work resilience is guided more by the need to work than by capacities. And there is the possibility that an adjustment might have occurred in the quality of jobs dimension, which we analyse in detail in the next section.

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[15] As for the probit results, the multinomial probit confirmed that years of education increase the probability of losing a job and not recovering and reducing the probability of restoration in case of job loss in India.

▶ **Table 6. Marginal effects of the multinomial probit of resilience**

	India			Peru			Viet Nam		
	(1) Lost job and did not recover	**(2)** Lost job and recovered	**(3)** Continuously working	**(1)** Lost job and did not recover	**(2)** Lost job and recovered	**(3)** Continuously working	**(1)** Lost job and did not recover	**(2)** Lost job and recovered	**(3)** Continuously working
Female	0.087***	-0.205***	0.118***	0.196***	-0.179***	-0.017	0.061***	-0.010	-0.051
	(0.02)	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)	(0.02)	(0.03)	(0.03)
Younger cohort	0.009	-0.026	0.017	0.158**	-0.140**	-0.018	0.037	0.132***	-0.169***
	(0.03)	(0.05)	(0.06)	(0.06)	(0.07)	(0.07)	(0.03)	(0.05)	(0.05)
Scheduled Caste (for India only)	0.056**	0.016	-0.072						
	(0.03)	(0.04)	(0.05)						
Scheduled Tribe (for India only)	0.059*	-0.152***	0.093						
	(0.03)	(0.06)	(0.06)						
Other ethnicity	0.004	0.019	-0.022				-0.024	-0.074*	0.098**
	(0.03)	(0.05)	(0.06)				(0.03)	(0.04)	(0.05)
Mother's native language (for Peru)				-0.018	0.052	-0.034			
				(0.04)	(0.05)	(0.05)			
Years of work experience	-0.001	-0.003	0.003	-0.005	-0.009	0.014*	-0.003	0.010**	-0.007
	(0.00)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.00)	(0.00)	(0.00)
Self-esteem index (z-score)	-0.018	0.042	-0.024	0.020	0.035	-0.054	-0.044*	-0.029	0.072**
	(0.02)	(0.04)	(0.04)	(0.04)	(0.05)	(0.05)	(0.02)	(0.03)	(0.03)
Self-efficacy index (z-score)	-0.005	0.029	-0.024	0.027	-0.041	0.014	0.005	0.028	-0.033
	(0.02)	(0.03)	(0.04)	(0.04)	(0.05)	(0.05)	(0.02)	(0.03)	(0.04)

	India			Peru			Viet Nam		
	(1) Lost job and did not recover	**(2)** Lost job and recovered	**(3)** Continuously working	**(1)** Lost job and did not recover	**(2)** Lost job and recovered	**(3)** Continuously working	**(1)** Lost job and did not recover	**(2)** Lost job and recovered	**(3)** Continuously working
Raw math score	-0.006**	-0.000	0.006	-0.002	-0.008	0.010**	-0.001	-0.005	0.005*
	(0.00)	(0.00)	(0.00)	(0.00)	(0.01)	(0.01)	(0.00)	(0.00)	(0.00)
Years of education	0.016***	-0.014*	-0.002	0.007	0.011	-0.018	-0.000	0.009	-0.009
	(0.00)	(0.01)	(0.01)	(0.01)	(0.02)	(0.02)	(0.01)	(0.01)	(0.01)
Lives in urban area	0.032	0.052	-0.084*	0.131**	-0.050	-0.081	0.043*	-0.017	-0.026
	(0.03)	(0.04)	(0.05)	(0.05)	(0.06)	(0.06)	(0.02)	(0.03)	(0.03)
Bottom wealth index	0.034	-0.000	-0.034	0.069	-0.050	-0.019	-0.007	0.013	-0.006
	(0.03)	(0.04)	(0.04)	(0.05)	(0.06)	(0.06)	(0.03)	(0.03)	(0.04)
Middle wealth index	-0.001	-0.022	0.022	0.058	-0.091	0.033	0.085***	-0.016	-0.069
	(0.03)	(0.05)	(0.06)	(0.05)	(0.06)	(0.06)	(0.03)	(0.04)	(0.04)
Vulnerable household members	-0.042*	-0.021	0.063	-0.064	0.138***	-0.074	0.043	-0.020	-0.023
	(0.02)	(0.04)	(0.04)	(0.04)	(0.05)	(0.05)	(0.03)	(0.04)	(0.04)
Self-employed before COVID-19	-0.080***	0.015	0.065	-0.163***	-0.092*	0.255***	-0.032	-0.131***	0.164***
	(0.03)	(0.04)	(0.04)	(0.04)	(0.05)	(0.05)	(0.03)	(0.04)	(0.04)
Vulnerable employment sector before COVID-19	0.044*	0.102**	-0.146***	0.064	0.248***	-0.312***	0.062***	0.167***	-0.230***
	(0.02)	(0.04)	(0.05)	(0.05)	(0.05)	(0.06)	(0.02)	(0.03)	(0.04)
Total observations	742	742	742	593	593	593	1 169	1 169	1 169

Note: *p < 0.05, **p < 0.01, ***p < 0.001. Standard errors are reported in parentheses. Marginal effect reported. Mother's native language was used instead of ethnicity in Peru. All estimates controlled for years of education, cognitive and non-cognitive skills, household characteristics and pre-COVID-19 labour market indicators and the cluster fixed effects. Refer to table A1 in Annex for definition of variables.

6.3 What predicts work and income resilience?

As mentioned, there is the possibility that workers could have moved to lower-paid occupations or jobs or accepted lower earnings in an attempt to preserve or recover their jobs, thus adjusting the quality of their work to remain employed. In this section, we turn to a stricter definition of resilience to know if those jobs that were preserved or restored were of similar quality, such as similarly paid jobs.

In the stricter vein, we define work- and income-resilient as those workers who managed to preserve or restore their jobs and similar incomes. By definition, workers who were able to keep working throughout the analysed period or were able to recover their job after the lockdown but had to accept lower income fall into the group of those who were affected by the pandemic and subsequent lockdown restrictions. Analogously to the case of work resilience in figure 3, figure 4 depicts the proportion of work- and income-resilient workers in each period in the three countries. Note that while we display information until wave 5 for consistency with figure 3, our definition of work and income resilience used in the regression estimates are until wave 3. As expected, the fall in the proportion of work- and income-resilient (such as the proportion of those who could preserve or restore their jobs and incomes) fell drastically during the lockdown period and recovered afterward. The fall due to the lockdown restrictions was deeper than for work resilience, and the recovery after the lockdown seems slower. As with work resilience, Peru was the most affected country, and Viet Nam was the least affected.

▶ **Figure 4. Proportion of work- and income-resilient workers in India, Peru and Viet Nam in each period**
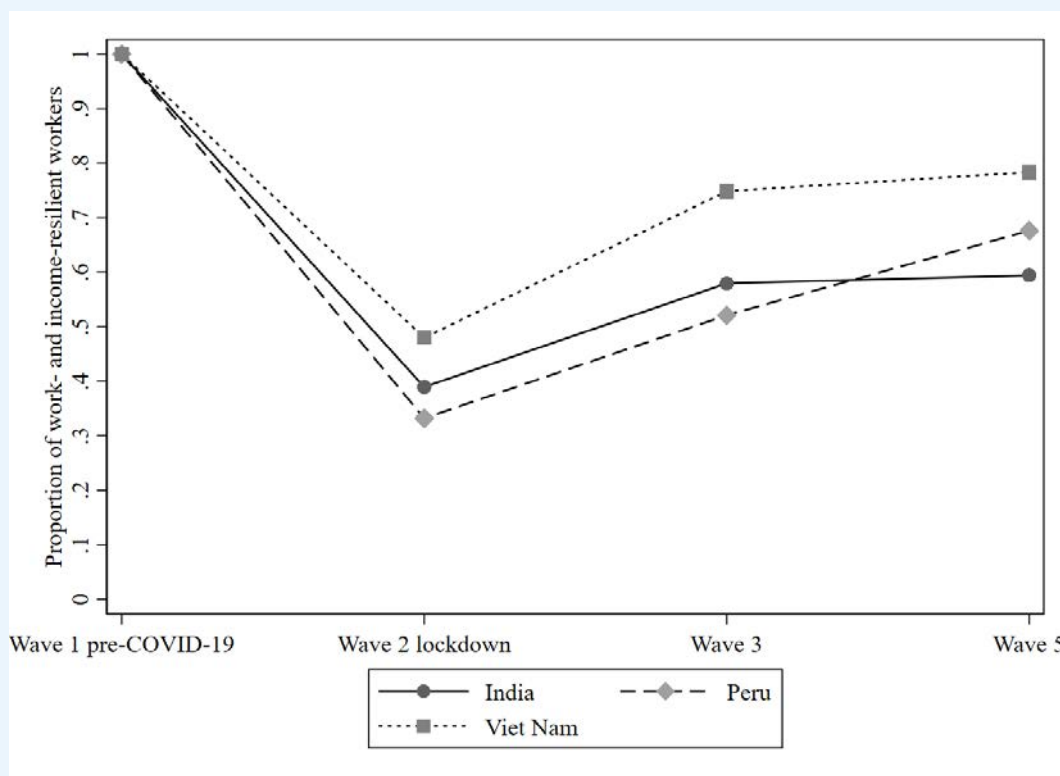
Note: The information in wave 4 did not provide detailed information about earnings and was thus excluded. Information for wave 5 was included in the figure for consistency. Work and income resilience was defined as either continuously working in all periods or recovered from a job loss with the same activity or different activity with the same or higher earnings as the previous activity. Hence, those who recovered from a job loss but with lower earnings were considered not resilient.

Table 7 shows the marginal effects (calculated with respect to those who lost jobs or lowered their income and could not recover nor restore after the lockdown) of the probit regression for work and income resilience. Most of the results for work resilience were confirmed for work and income resilience, too. Several findings are worth highlighting.

One, **the higher work resilience among male workers than female workers hid the worsening working conditions for the male workers, who were more inclined to maintain their job at the cost of lowering their earnings**. In fact, the gender gap in work and income resilience was statistically significant in Peru only (a 13-percentage point difference), where the probability of being work- and income-resilient was lower among female workers than male workers. That we did not find gender difference in work and income resilience in the other countries, coupled with the previous findings on work resilience (male workers were more likely to preserve or restore their employment status after lockdown), implies that men kept their employment status at the cost of adjusting their income downward.

Two, **there was a notable strong positive association of work and income resilience with pre-pandemic self-employment**. The correlation was positive and significant in all three countries, including Viet Nam. In other words, those working as own-account workers prior to the pandemic were better able to maintain the same (or higher) level of income (in addition to their job) than wage earners, possibly increasing their working hours, by combining multiple paid jobs or because they were less affected by the lockdown restrictions.

Three, **those working in contact-intensive sectors pre-pandemic were highly penalized in terms of both work and income in Peru and Viet Nam**. This result is similar to what was found for work resilience. Strangely, the opposite was true in India, where workers in vulnerable sectors were more work- and income-resilient, similar to what was found for work resilience. As suggested, this might relate to sector restrictions and how they affected the three countries differently.

Four, it appears that **living in an urban area increased the probability of being work- and income-resilient**. This probably relates to the more diversified labour markets in cities that allow for more job-to-job transitions and labour market re-compositions.

Five, as with work resilience, **younger workers were less work- and income-resilient than older workers**. Work and income resilience was lower in the younger cohort in Peru and (-19 percentage points) and Viet Nam (-8 percentage points).

And six, **the number of years of education completed and both cognitive and non-cognitive skills were weak predictors of work and income resilience**.

▶ **Table 7. Probit marginal estimates of work and income resilience**

	India		Peru		Viet Nam	
	Without clusters	**With clusters**	**Without clusters**	**With clusters**	**Without clusters**	**With clusters**
Probability of being work resilient						
Female	-0.009	0.003	-0.107**	-0.127*	-0.004	-0.027
	(0.044)	(0.078)	(0.045)	(0.075)	(0.026)	(0.018)
Younger cohort	-0.053	-0.004	-0.198***	-0.191*	-0.053	-0.076*
	(0.063)	(0.069)	(0.076)	(0.100)	(0.042)	(0.042)
Scheduled Caste (for India only)	-0.057	-0.018				
	(0.049)	(0.046)				
Scheduled Tribe (for India only)	-0.197***	-0.201***				
	(0.059)	(0.073)				
Other ethnicity	0.099	0.096			-0.094**	-0.033
	(0.067)	(0.065)			(0.039)	(0.042)
Mother's native language (for Peru)			-0.019	-0.061		
			(0.050)	(0.089)		
Years of work experience	-0.005	-0.002	0.007	0.006	0.001	0.000
	(0.006)	(0.006)	(0.008)	(0.010)	(0.004)	(0.005)
Self-employed before COVID-19	0.411***	0.425***	0.391***	0.426***	0.138***	0.152**
	(0.048)	(0.054)	(0.053)	(0.070)	(0.035)	(0.074)
Vulnerable employment sector before COVID-19	0.105**	0.119***	-0.198***	-0.202***	-0.093***	-0.075***
	(0.050)	(0.045)	(0.058)	(0.049)	(0.028)	(0.022)
Vulnerable household members	-0.030	-0.013	-0.023	-0.017	-0.061*	-0.032
	(0.042)	(0.041)	(0.051)	(0.046)	(0.032)	(0.028)
Self-esteem index (z-score)	0.027	0.024	0.033	0.045	0.040	0.036
	(0.043)	(0.033)	(0.050)	(0.048)	(0.028)	(0.023)
Self-efficacy index (z-score)	-0.019	-0.023	-0.044	-0.044	0.002	-0.003
	(0.040)	(0.044)	(0.052)	(0.048)	(0.030)	(0.031)
Raw maths score	0.018***	0.021***	0.004	0.005	0.002	0.001
	(0.004)	(0.003)	(0.005)	(0.006)	(0.003)	(0.002)
Years of education	-0.009	-0.012*	-0.010	-0.006	-0.000	-0.001
	(0.008)	(0.006)	(0.016)	(0.018)	(0.007)	(0.006)
Lives in urban area	0.194***	0.104**	-0.003	-0.012	-0.011	0.047***
	(0.054)	(0.044)	(0.061)	(0.089)	(0.029)	(0.012)

	India		Peru		Viet Nam	
	Without clusters	**With clusters**	**Without clusters**	**With clusters**	**Without clusters**	**With clusters**
Bottom wealth index	-0.022	-0.035	-0.044	-0.047	0.078**	0.002
	(0.059)	(0.049)	(0.065)	(0.053)	(0.035)	(0.027)
Middle wealth index	-0.020	-0.037	-0.054	-0.075**	0.110***	0.050*
	(0.057)	(0.057)	(0.056)	(0.033)	(0.034)	(0.026)
Education	Y	Y	Y	Y	Y	Y
Household characteristics	Y	Y	Y	Y	Y	Y
Pre-COVID-19 labour market indicators	Y	Y	Y	Y	Y	Y
Cluster indicators	N	Y	N	Y	N	Y
Observations	742	742	593	593	1 169	1 169

Note: *$p < 0.05$, **$p < 0.01$, ***$p < 0.001$. Standard errors are reported in parentheses. Full tables for each Young Lives country are reported in tables A5 to A8 in the Annex. The mother's native language was used instead of ethnicity in Peru. All estimates controlled for years of education, cognitive and non-cognitive skills, household characteristics and pre-COVID-19 labour market indicators.

▶ 7. Conclusions

Young people have been one of the hardest-hit groups by the consequences of the COVID-19 pandemic and related restrictions. They not only have lost their actual jobs and/or labour opportunities but they have lost hours of education and/or proper training, especially in developing countries. Both effects threaten their future labour market and personal lifetime prospects. Some young people have been more affected; but some of them have been more resilient – more able to preserve their jobs and/or to recover more rapidly.

In this paper, we explore the predictors of youths' work resilience to the COVID-19 impacts. For the empirical analysis, we used data from the Young Lives study, which is a longitudinal study following two cohorts in India, Peru and Viet Nam (and Ethiopia, which was excluded from this analysis) since 2001 and through the crisis, at least through 2020. In these three countries, there were periods of restricted mobility following the COVID-19 outbreak, although very brief in Viet Nam and much more acute in India and Peru.

Empirically, we tested two definitions of resilience: work resilience and work and income resilience. Our results indicate that youth work resilience to the COVID-19 impacts seems to have been more driven by needs than by capacity and that young workers have been able to keep their job at the cost of accepting a worse-paid job (or lower earnings) and possibly worse working conditions. Exemplifying this are the own-account workers prior to the lockdowns, who were more likely to preserve their job during the pandemic (although less likely to recover it if they lost it). Given that informality is higher among own-account workers than among wage workers, these results are consistent with the fact that adjustment via quality, or via increased informality, is a common feature of labour markets in developing countries.

These results are also consistent with other findings, such as working in a vulnerable sector prior to the pandemic increased the probabilities of restoring the initial situation after being affected. This persisted even in our stricter definition of work and income resilience, when we only controlled for deviations in income but not by level of income prior to the pandemic.

Our results also undoubtedly show that the crisis has had a greater effect on women in the three countries analysed, which reflects their lower work resilience. These results, however, are not as strong for work and income resilience, possibly hiding the reality that the pandemic has reinforced traditional gender roles and increased pressure on men as the primary breadwinner in the household, making them more inclined to accept lower earnings if it means keeping their job.

The most direct policy implication therefore relates to the need to restore the capacities of labour markets to generate good jobs. In the case of youth, it highlights the role of sound employment policies to equalize access to those new opportunities.

Another policy implication relates to interventions aiming at protecting the most vulnerable segment of the labour force. This includes young workers and, more specifically, those working as own-account workers in sectors suffering the most from the coronavirus-containment restrictions.

A final implication relates to the discussion on resilience as a capacity that can be learned. Our findings suggest a weak association between work (and income) resilience and years of education and skills. The association unveiled might be strongly (downward) biased due to endogenous selection into specific work activities highly correlated with the education level and skill sets of young people. More research is needed in this direction to better understand what is the role of

formal education or training programmes and to what extent increasing foundational skills might increase resilience among the youngest workers.

These results closely link to the particular characteristics of the COVID-19 crisis. In the past when there was a shock, labour markets generally tended to adjust among other mechanisms via re-composition of labour. We used to see individuals changing jobs within or between economic sectors, and education or skills had a more important role in that process. In the COVID-19 crisis, however, that re-composition possibility has been severely restricted by the lockdowns. In most cases, it has been limited in the early stages of the recovery period covered by this study due to some sectors, especially those requiring human contact, still imposing some restrictions.

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▶ Annex

▶ **Table A1. Definition of all variables used**

Variables	Definition
Binary or categorical variables	
Female	A dummy variable, taking value 1 if the respondent is female and 0 if male.
Urban	A dummy variable, taking value 1 if the respondent lives in an urban area and 0 if in a rural area in August or October 2020.
Language is majority language	A dummy variable, taking value 1 if the respondent's first language is the majority language (Telugu in India, Spanish in Peru and Vietnamese in Viet Nam) and zero otherwise.
Parental education	Parental education is the highest level of education completed by any of the two parents, defined by each country. Completed primary is defined as: ▪ India: No education up until Grade 6, adult literacy or other education ▪ Peru: No education up until below Grade 6, adult literacy or other education ▪ Viet Nam: No education up until below Grade 5. More than primary education is defined as: ▪ India: Grade 7 and above or higher education ▪ Peru: Grades 6–11 or higher education ▪ Viet Nam: Grades 6–12 or higher education.
Wealth index in 2016	Measured in round 5 (2016). Wealth index is a composite measure of household socioeconomic welfare that is constructed from three indices; housing quality, access to services and ownership of consumer durables (Briones 2017). The average wealth index produces a value between 0 and 1, where a higher wealth index indicates higher socioeconomic status. This continuous index is then broken down to three terciles: bottom, middle and top wealth terciles.
Younger cohort	A dummy variable, taking value 1 if the respondent is in the younger cohort (born in 2000–01) and 0 if the respondent is in the older cohort (born in 1994–95).
Vulnerable household members	A dummy variable, taking value 1 if the respondent's household has children, older people or ill, disabled or other household members who require special care.
Continuous variables	
Self-esteem index	The self-esteem index constitutes the individuals' judgement of their own self-value or self-worth. The index is made up of eight items and is standardized.
Self-efficacy index	The self-efficacy index measures one's belief in their capabilities to produce, given attainments, and to cope with adversity. The index consists of ten items and is standardized.

Variables	Definition
Raw math score	Numeracy skills are measured at age 15 for the younger cohort and at age 19 for the older cohort. Numeracy skills are assessed using mathematic tests not designed to be grade-appropriate but incorporates questions at widely differing levels of difficulty. At the basic level, the tests included questions assessing basic number identification and quantity discrimination. At the intermediate level are questions on calculation and measurement. At the advanced level, questions relate to problem-solving embedded in hypothetical contexts that simulate real-life situations. The test was administered to all children, regardless if they were attending school or not. The mathematics raw score is a sum score of these questions.
Years of education	Years of education defined according to the current education level the respondent is studying in, or the highest completed level of education, if the former information is missing.
Child's height at age 15	The calculated difference between the observed height and the height recommended by the World Health Organization, standardized for their age and cohort.
Child's age in months in 2016	Respondent's age calculated in months in 2016.

Labour market characteristics

Type of main activity	The types of main activity are broken down into: ▪ self-employed (food crops) ▪ self-employed (non-food, including horticulture, sericulture and floriculture) ▪ self-employed (aquaculture) ▪ self-employed (livestock) ▪ wage employment (agriculture) ▪ annual farm worker ▪ other (allied) agriculture ▪ self-employed (manufacturing) ▪ self-employed (services) ▪ self-employed (business) ▪ self-employed (other non-agriculture) ▪ wage employed (unsalaried or irregular; non-agriculture) ▪ regular salaried employment ▪ begging ▪ other non-agriculture.
Economic sectors	Economic sectors include the following: ▪ agriculture, forestry and fishing ▪ mining and quarrying ▪ manufacturing ▪ electricity, gas, steam and air conditioning supply ▪ water supply; sewerage, waste management and remediation activities ▪ construction ▪ wholesale and retail trade; repair of motor vehicles and motorcycles ▪ transportation and storage ▪ accommodation and food service activities ▪ information and communication ▪ financial and insurance activities ▪ real estate activities ▪ professional, scientific and technical activities ▪ administrative and support service activities ▪ public administration and defence; compulsory social security

Variables	Definition
	▪ education ▪ human health and social work activities ▪ arts, entertainment and recreation ▪ other service activities ▪ activities of households as employers; undifferentiated goods- and service-producing activities of households for own use ▪ activities of extraterritorial organizations and bodies ▪ not known ▪ not applicable ▪ refused to answer
Earnings	Earnings are reported as net earnings per reference period, where the reference period is derived from each respondent's report to "What period of time does this payment usually cover?" All earnings are reported in local currency units. Net earnings include the sum of all wages or salaries, tips, gratuities, bonuses and the value of any in-kind payment after deducting taxes and any other work-related payments). If the respondent owns their business, profits or self-determined wage assigned to respondent from this activity is considered, net of production costs. If in-cash or in-kind payment is non-existent, the corresponding payment is zero.
Types of payments	Respondents who are employed are required to report if they are unpaid workers or paid works (in cash, in-kind, both, debt relief, pocket money or other).
Years of work experience	Years of work experience is measured retrospectively using information from round 4 (2012) and round 5 (2016). In prior rounds, respondents who were engaged in work at the time of interview were asked for how long they had been in their current activity. This measure is used to approximate the number of years of work experience the respondent has had, using information between 2012 until August–October 2020.
Self-employed before the COVID-19 pandemic	Respondents are considered self-employed before the COVID-19 pandemic if they worked for a household member or worked on their own-account or self-employed (own business or farm) before the pandemic, measured in call 1.
Vulnerable employment sector before the COVID-19 pandemic	Indicator variable equal to 1 if (before the pandemic) the respondent was working in one of the three economic activities that were worst affected by job losses during the national lockdown (considering only economic activities that employed 5 per cent or more of our restricted sample). In India, these sectors were: (i) wholesale and retail trade and repair of motor vehicles and motorcycles; (ii) accommodation and food service activities; and (iii) Other services activities. In Peru, these sectors were: (i) construction; (ii) accommodation and food service activities; and (iii) transportation and storage. In Viet Nam, vulnerable sectors were: (i) wholesale and retail trade and repair of motor vehicles and motorcycles; (ii) accommodation and food service activities; and (iii) construction.

▶ **Table A2. Comparison of demographic characteristics of the 2016 (round 5) sample and the August–October 2020 (call 2) sample**

	India			Peru			Viet Nam		
	2016 sample	2020 sample	P-value	2016 sample	2020 sample	P-value	2016 sample	2020 sample	P-value
Older cohort									
Female	51	51	0.943	47	45	0.482	51	51	0.967
Urban	32	30	0.409	87	88	0.588	41	40	0.94
Language is majority language	85	85	0.793	88	89	0.522	88	89	0.469
Parental education level									
Completed primary	28	28	0.790	59	59	0.978	65	66	0.431
More than primary education	34	32	0.612	16	17	0.693	5	5	0.781
Child's age in months in 2016	264	264	0.999	263	263	0.89	267	267	0.633
Wealth index in 2016	1	1	0.696	1	1	0.339	1	1	0.55
Child's height at age 15	153	153	0.814	154	155	0.596	155	155	0.917
Observations	922	886		608	482		910	828	
Younger cohort									
Female	46	46	0.994	50	50	0.676	49	50	0.343
Urban	29	29	0.645	74	76	0.311	22	21	0.431
Language is majority language	81	81	0.971	84	85	0.743	86	88	0.216
Parental education level									
Completed primary	28	29	0.939	56	56	0.661	63	64	0.585
More than primary education	44	43	0.894	21	22	0.278	6	6	0.865
Child's age in months in 2016	180	180	0.909	179	179	0.773	182	182	0.609
Wealth index in 2016	1	1	0.829	1	1	0.088	1	1	0.490
Child's height at age 15	104	104	0.814	104	104	0.292	105	105	0.584
Observations	1 900	1 868		1 860	1 591		1 938	1 691	

Note: The 2016 sample refers to round 5 respondents; 2020 sample refers to the call 2 respondents. All characteristics are either time invariant or measured in round 5, unless differently specified. All variables are defined as described in table A1.

▶ **Table A3. Average characteristics of young people, by multivariate groups of resilience (work and income resilience)**

	India			Peru			Viet Nam		
	Lost job and did not work or lost job after lockdown	Recovered from job loss	Continuously working	Lost job and did not work or lost job after lockdown	Recovered from job loss	Continuously working	Lost job and did not work or lost job after lockdown	Recovered from job loss	Continuously working
Proportions who are:									
Female	46.25	19.18	38.15	58.50	30.56	40.87	56.82	46.48	45.57
Living in urban area	28.75	31.96	20.54	87.76	76.39	75.22	46.59	36.81	32.79
From younger cohort	43.75	40.64	38.83	70.75	56.94	53.91	53.98	53.00	43.61
Self-employed before COVID-19 pandemic	17.50	29.68	36.79	16.33	24.07	40.43	16.48	15.14	27.05
In vulnerable employment sector before COVID-19 pandemic	27.50	29.22	15.80	19.73	28.24	7.83	34.66	34.99	17.54
Average characteristics:									
Years of education	11.58	10.86	10.88	11.44	11.49	11.51	11.01	10.97	10.91
Years of work experience	4.53	5.34	5.56	3.87	5.07	5.27	5.65	5.86	6.51
Skills									
Self-esteem index (z-score)	-0.06	0.01	-0.06	0.09	0.01	-0.02	-0.08	-0.01	0.02
Self-efficacy index (z-score)	-0.10	0.00	-0.08	0.10	0.01	0.01	-0.04	-0.01	-0.02
Raw score in math test	10.10	11.13	11.09	12.63	13.05	13.99	12.28	12.09	12.29
Vulnerable people in the household	27.50	33.79	40.18	20.41	27.78	20.43	25.57	20.63	24.26

	India			Peru			Viet Nam		
	Lost job and did not work or lost job after lockdown	Recovered from job loss	Continuously working	Lost job and did not work or lost job after lockdown	Recovered from job loss	Continuously working	Lost job and did not work or lost job after lockdown	Recovered from job loss	Continuously working
Distribution by characteristics									
Ethnicity, caste, language									
Backward Caste	36.25	48.40	48.31				88.07	86.68	80.49
Scheduled Caste	33.75	25.11	19.86				0.00	0.00	0.00
Scheduled Tribe	17.50	8.68	18.06				0.00	0.00	0.00
Majority Kinh							11.93	13.32	19.51
Other	12.50	17.81	13.77						
Mother's first language is Spanish				70.07	69.91	64.35			
Wealth index (2016)									
Bottom tercile	41.25	40.18	44.47	27.89	37.04	36.52	34.09	39.43	43.61
Middle tercile	38.75	34.70	31.60	43.54	39.81	34.78	27.27	36.55	34.59
Top tercile	20.00	25.11	23.93	28.57	23.15	28.70	38.64	24.02	21.80

▶ **Table A4. Wald tests for combining alternatives**

	India			Peru			Viet Nam		
	Chi-square	df	P>chi-square	Chi-square	df	P>chi-square	Chi-square	Df	P>chi-square
Work recovery resilience									
Affected versus restored	56.251	36	0.017	71.027	34	0.000	72.995	34	0.000
Affected versus preserved	50.926	36	0.051	79.408	34	0.000	118.354	34	0.000
Restored versus preserved	87.81	36	0.000	76.413	34	0.000	110.73	34	0.000

Note: The null hypothesis is that all coefficients (except intercepts) associated with a given pair of alternatives are 0 (all alternatives can be combined). All estimates were run using multinomial logit models without robust standard errors.

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