

# The Global COVID-19 Student Survey: First wave results<sup>1</sup>

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*University students have been particularly affected by the COVID-19 pandemic. We present results from the first wave of the Global COVID-19 Student Survey, which was administered at 28 universities in the United States, Spain, Australia, Sweden, Austria, Italy, and Mexico between April*

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*and October 2020. The survey addresses contemporaneous outcomes and future expectations regarding three fundamental aspects of students' lives in the pandemic: the labor market, education, and health. We document the differential responses of students as a function of their country of residence, parental income, gender, and for the US their race.*

The COVID-19 pandemic has affected virtually every aspect of life in most countries. Education at all levels has been particularly disrupted, with formal instruction either ceasing or moving online, often for months at a time. In the spring of 2020, most university administrators faced difficult decisions regarding whether to move students out of university accommodations and whether and how to move instruction online, with concerns about student experience and whether students might abandon their university altogether. Students confronted health and well-being concerns, uncertainty regarding their immediate educational future, as well as parental job loss or loss of income, and their own future labor market prospects.

A extensive literature has emerged that documents the changes brought about by the pandemic. For current students and recent graduates, the consequences of the sudden transition to remote instruction (Blaskó et al., 2021) and remote work (Barrero et al., 2021) are likely to persist (and not be understood) for many years. Research from the United States also shows the pandemic altered student expectations for their careers and earnings (e.g., Aucejo et al., 2020), as well as their relative valuations of the college experience (e.g., Aucejo et al., 2021). The economic shutdowns and social-distancing protocols of pandemic life have also had disproportionate effects on women (e.g., Alon et al., 2021; Albanesi and Kim, 2021). The COVID-19 pandemic has refocused and magnified racial/ethnic inequality in the United States (e.g., Polyakova et al., 2021; Wrigley-Field, 2020) and in Europe (e.g., Razai et al., 2021; Shaaban et al., 2020). Recent papers have also documented the pandemic's effect on student stress and wellbeing (e.g., Aucejo et al., 2020; Rodríguez-Planas, 2020; Browning et al., 2021; Logel et al., 2021).

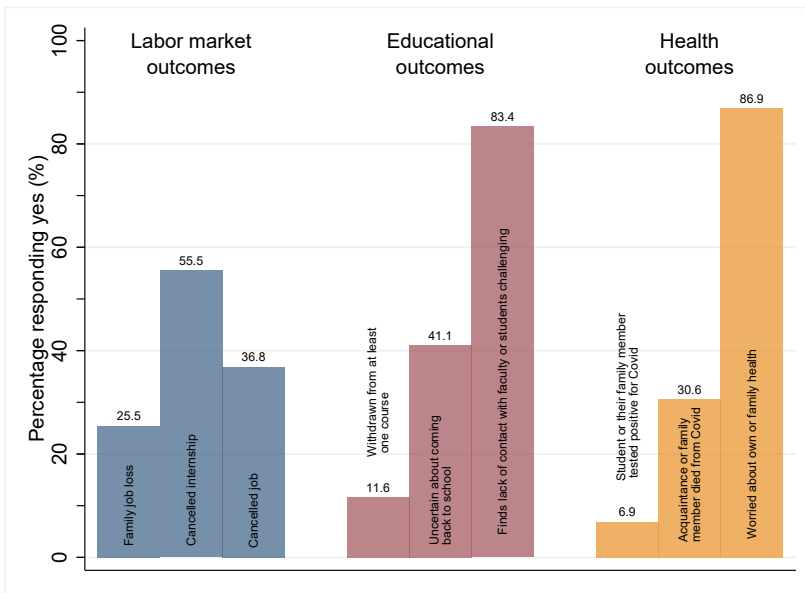
To measure college students' reactions to the various crises presented by the COVID-19 pandemic, we created the Global COVID-19 Student Survey (subsequently GC19SS). The goal of the GC19SS was to capture, on a global scale, how students were coping with the unprecedented (in their lifetimes) disruptions. By necessity working within a short time frame, the survey was written, IRB permission obtained, and the survey fielded at 28 large, mostly public, universities in the United States, Australia, Austria, Italy, Mexico, Spain, and Sweden beginning in late April 2020. This paper reports the basic first-wave results of the GC19SS.

The survey addresses three fundamental aspects of students' lives in the pandemic: their current and future academic situation, their current health and well-being (including that of their families), and their perceptions about their future labor market preferences and success. Labor market questions refer to job loss, students' labor market activity, preferences for positive job characteristics and willingness to accept negative ones, and earnings expectations at ages 30 and 45. Questions on educational outcomes concern contemporaneous learning, time allocation to class work, and future schooling plans. Health-related questions gather information on COVID-19 incidence and mental health issues related to the pandemic.

Figure 1 provides a broad summary of the survey's findings on labor market, educational, and health outcomes. The main message of Figure 1 is that COVID-19 has deeply

affected a generation of university students across the globe. Pooling all respondents together, Figure 1 shows that 26% of students had a family member experience job loss, 56% of those who had internship plans for the summer of 2020 had them cancelled, and 37% of those who had a job offer had it cancelled. With respect to education, 12% of students withdrew from at least one course, 41% were uncertain about coming back to school in the fall of 2020, and 83% expressed that the lack of contact with faculty or other students was challenging. At a time when testing was still not widespread, 7% students experienced a positive test for COVID-19 either personally or in their family, 31% had a family member or acquaintance die from COVID-19, and 87% were worried about their health or that of their family members.

Figure 1: Labor, educational, and health consequences of COVID-19 pandemic



The first three bars of this figure summarize labor market outcomes, the next three bars summarize educational outcomes, and the last three bars summarize health outcomes. Sample sizes differ by question. They are 28263, 12026, 1015, 36415, 29687, 34552, 28263, 26859, 32053 for bars one to nine, respectively. When it comes to the labor market outcomes both internship and job cancellations (bars two and three) are conditional on having been offered a job or planning an internship.

In the remainder of the paper, we present more detailed results on the three broad areas of labor market, education, and health outcomes. For each outcome, we document heterogeneous responses according to students' country of residence, parental income, gender, and, for US respondents, race/ethnicity. In our view, a key strength of the GC19SS is the ability to document the experiences of university students—and how they differ across types of students—in a manner that is consistent and comparable across countries and institutions.

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# 1 Data

## 1.1 Survey instrument and data collection

The survey instrument for the first wave of the GC19SS was developed in late March and early April of 2020 by a small subset of the research team. The goals in designing the instrument were to gauge the impact of the developing pandemic on students academic experience and well-being, their expectations about the future job market and how those had been affected by the pandemic, and a set of demographic and preference questions. One of the guiding principles in designing the survey, to the extent possible, was to use questions that had been used previously or concurrently in other surveys, particularly the US Census (for demographic information), the International Survey on Coronavirus (Fetzer et al., 2020), and the the Global Preference Survey (Falk et al., 2018). This allows comparability of responses in the GC19SS to other surveys and data sources. To facilitate follow-ups, students were asked to provide an email address. IRB approval for the survey instrument was received from the NBER on 17 April 2020. An example of the US version of the survey instrument is included as Appendix B.

The survey was first designed in English to be appropriate for the United States, and then was translated for use in other countries. Questions were adapted to be appropriate for the context in each country. For example, questions regarding employer-provided health insurance are not relevant in some countries such as Sweden. Questions that refer to income levels (both family income and prospective income at ages 30 and 45 for the survey respondents) were designed to be comparable across countries, using as reference the same quantiles from each country's income distribution. Education categories were adopted from standard surveys in each country rather than trying to shoehorn responses into categories relevant for the US

Research partners were successfully solicited at (mostly) large public universities in the United States, Spain, Australia, Austria, Sweden, Italy, and Mexico.<sup>1</sup> Universities either ceded human subjects authority to the NBER or subjected the survey to IRB/ethics board review. In addition, approval to use student email addresses was received at each university in the survey.

The GC19SS is administered using the Qualtrics platform. Students were contacted through email in all cases, either directly through Qualtrics (when universities provided us with a list of email addresses) or by receiving an email from the university's administration with a link to the survey. In most cases, reminder emails were sent to students at various intervals after the initial solicitation. Response rates varied by university, but were usually close to 10-12 percent. Typically, just less than half of those who responded provided email addresses for subsequent follow-up. All identifying information was removed from the data before analysis.

<sup>1</sup>Our IRB agreement prevents us from identifying at which universities the survey was administered. This was an intentional choice designed to increase the likelihood that administrators would approve the survey at their university.

## 1.2 Sample

Our sample includes data from 7 countries and 28 universities. We gathered information for 14 schools in the US, 5 schools in Spain, 3 schools in Australia, 2 schools in Sweden and Austria, and 1 school in both Italy and Mexico. Our full sample size contains 39,172 unique students but not all their responses are complete. Throughout the analysis we utilize maximum available samples for each question of interest, and we report these in figures' notes.

In the full sample, 54 percent of students come from the US, followed by Spain at 17 percent, Australia at 13 percent, and Italy at 11 percent. The remaining countries contribute less than 2 percent of the full sample each due to their smaller educational markets. We observe 25 percent of males, 54 percent of females, and 22 percent of students who do not report their gender. Similarly, in the US, we miss racial information for about 28 percent of respondents. As noted below these missing data issues are due to positioning of the demographic questions in the survey document. Excluding these missing values, which we do whenever we split the sample by either gender or race and ethnicity in the US, results in a sample with 69 percent of females and 31 percent males. This is not surprising given that in all countries considered in these survey females are over-represented among college enrollees. For example, this ratio is approximately 60 to 40 in the US and 58 to 42 in Australia and Sweden. In the US sample, the racial-ethnic percentages are 50 percent White, 5 percent Black, 7 percent Asian, and 10 percent Hispanic. Irrespective of the exact characteristics our conclusions remain very similar if we re-weight the results with racial and gender composition of all students enrolled in universities considered in our study. Finally, income information is not reported by about 12 percent of students in our sample.

## 2 Empirical approach

We document the findings of GC19SS across three broad topics: those related to the labor market (contemporaneous outcomes and future prospects), education, and health. For each of these sets of outcomes, we document heterogeneous student responses, stratifying the data along four dimensions: country, parental income, gender, and, for US respondents, their race/ethnicity.

**Results by country.** We report results from the survey separately for each of the seven countries in the sample: Australia, Austria, Italy, Mexico, Spain, Sweden, and the United States. Asking comparable questions to undergraduate students across countries is a strength of GC19SS and sheds light on how the pandemic affected university students in different parts of the world. When comparing results across countries, however, it should be kept in mind that Mexico respondents are students from a single elite institution who are likely not representative of the broader population of Mexican undergraduate students. For most countries our sample includes multiple universities: three in Australia, two in Austria, five in Spain, two in Sweden, and fourteen in the United States. For Italy, our sample also only includes

one university but, contrary to the Mexican case, this is a large public institution.

*Parental income differences.* We document results by students' socioeconomic backgrounds by asking about respondents' parental income in a comparable way across countries, using common percentiles of each country's household income distribution. We group students by the quintiles of the household income distribution to which their parents' belong. These analyses complement, from an international perspective, existing evidence showing how the pandemic has disproportionately negatively affected workers and households with lower incomes (e.g. Chetty et al., 2020).

*Gender differences.* Across most institutions in our sample, women are a majority of undergraduates, and existing evidence suggests asymmetric impacts of the pandemic on men and women (Alon et al., 2020).<sup>2</sup> We believe this makes understanding disparate impacts of the pandemic by gender on the population of undergraduate students particularly important. We note that the survey instrument asked about gender towards the the end, which in turn resulted in missing gender information for 22% of respondents. Our analyses by gender are thus carried out on the remaining 78% of the sample.<sup>3</sup>

*Racial differences in the US.* Lastly, we separately examine respondents from US institutions and document heterogeneous results by race/ethnicity for Whites, Blacks, Asians, and Hispanics. Several reports indicate that racial minorities have been most severely affected in the US (e.g., Couch et al., 2020; Hardy and Logan, 2020). Our analyses by race/ethnicity for US respondents contribute to understanding the degree to which these disparities extend to the population of undergraduate students. Similarly as with gender, due to its location within the survey, we note that race is missing for 28% of respondents so our analyses by race are carried out on the remaining 72% of US respondents.<sup>4</sup>

We use graphs to report the majority of our results, showing differences in mean responses by group, for each of the four above-mentioned dimensions of heterogeneity we consider. Additionally, for differences across parental income, gender, and race/ethnicity, we estimate different versions of the following linear regression:

$$y_i = \Gamma_{g(i)} + X_i' \beta + \Phi_{u(i)} + \varepsilon_i, \quad (1)$$

<sup>2</sup>Overrepresentation of women among university students is consistent with national and international statistics (e.g., UNESCO, 2012). Nonetheless, in all universities considered here, female students were more likely to participate in and finish the survey. This female-favorable gap ranged across institutions from 2.5 to 28 percentage points. We computed results presented in all figures and tables re-weighting for the share of women at a particular institutions which yielded almost identical results. For brevity we do not present the re-weighted results, but they are available upon request.

<sup>3</sup>When we re-weight the sample to be representative of actual gender composition of the university, we assign weight of one to students who did not respond to the question concerning their gender.

<sup>4</sup>The Pearson correlation between missing race/ethnicity and missing gender in the United States is 0.84.

where  $y_i$  is an outcome of interest of student  $i$ ,  $\Gamma_{g(i)}$  are categorical dummies for each of the relevant dimensions of heterogeneity  $g$  (i.e., parental income quintile, gender, or race/ethnicity),  $X_i$  are student baseline covariates (gender, field of study, and university year), and  $\Phi_{u(i)}$  are university fixed effects.

We estimate versions of (1) which sequentially include i) only  $\Gamma_{g(i)}$ ; ii)  $\Gamma_{g(i)}$  and  $X_i$ ; and iii)  $\Gamma_{g(i)}$ ,  $X_i$ , and  $\Phi_{u(i)}$ . The first specification simply tests for the statistical significance of the raw mean differences across parental income, gender, and race/ethnicity that we present graphically. The second specification checks whether such differences remain when holding constant basic demographics and student characteristics. The third specification further asks whether such differences arise when comparing students within the same university. The last specification, which includes university fixed effects, implicitly controls for country fixed effects, and, since the survey was fielded at slightly different time at different institutions, timing of the survey.

We focus our main results on showing unconditional means which we report graphically in the main text. Additionally, we present tables of estimates based on equation (1) in Appendix A. As it turns out, most of the differences we emphasize across parental income, gender, and race/ethnicity remain when controlling for student covariates and university fixed effects. In the main text, each figure showing unconditional means references its corresponding regression table.

### 3 Results

In this section, we report GC19SS findings on three broad set of students' outcomes related to the labor market, education, and health.

#### 3.1 Labor market outcomes

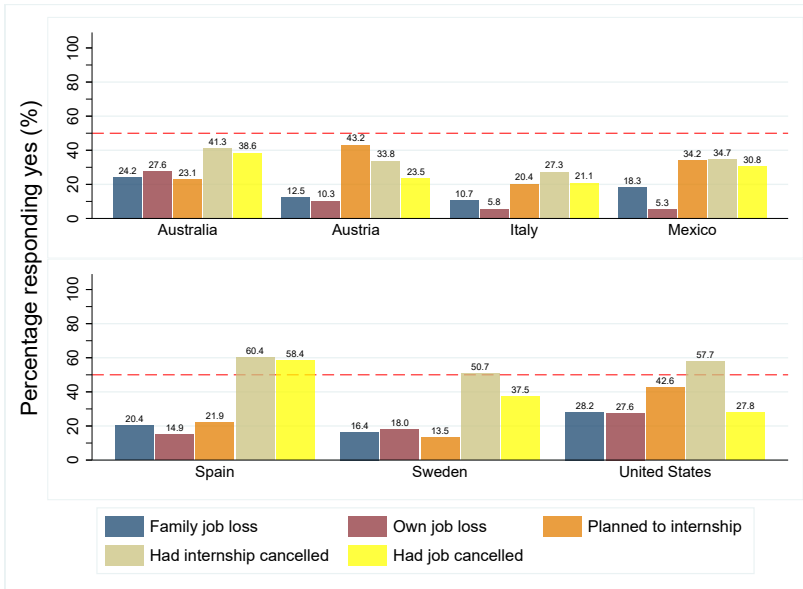
We analyze multiple outcomes related to the labor market: job loss, students' labor market activity, future career considerations, willingness to accept negative job characteristics after graduation, and earnings expectations at ages 30 and 45.

##### 3.1.1 Job loss

We document the intensity of job loss experienced by university students showing the rates of job loss of an immediate family member, own job loss, canceled internships, and canceled job offers.

**Results by country.** Figure 2 shows how job loss intensity varied across countries. The US had the highest rate of family job loss, with 28% of respondents having one or more immediate family members lose their job. This number was equal to 11% in Italy, 13% in Austria, 16% in Sweden, 18% in Mexico, 20% in Spain, and 24% in Australia. US and Australian students were also the most likely to report having lost an existing job themselves (28% in both countries). By contrast, only 5% and 6% of Mexico and Italy respondents, respectively,

Figure 2: Job loss measures, by country



Note: This figure presents mean values of responses to the following five questions: (1) One or more of my immediate family members (parents, siblings, partner) has lost their job (navy bars); (2) I have lost a job (maroon bars); (3) Before COVID-19 pandemic, were you planning on doing an internship at any time between May 2020 and August 2020 (orange bars); (4) My internship got cancelled (khaki bars); (5) Conditional on having a job offer was it withdrawn or cancelled (yellow bars). The responses are stratified by country. Top panel presents results for Australia, Austria, Italy, and Mexico while bottom panel presents results for Spain, Sweden, and the United States. Sample sizes differ by question and country. These are, respectively for questions (1) to (5): for Australia 3645, 3645, 4799, 1092, 44; for Austria 320, 320, 507, 219, 17; for Italy 2435, 2435, 3886, 780, 38; for Mexico 525, 525, 593, 202, 39; for Spain 5311, 5311, 6442, 1385, 267; for Sweden 377, 377, 565, 75, 16; for the United States 15650, 15650, 19557, 8273, 594.

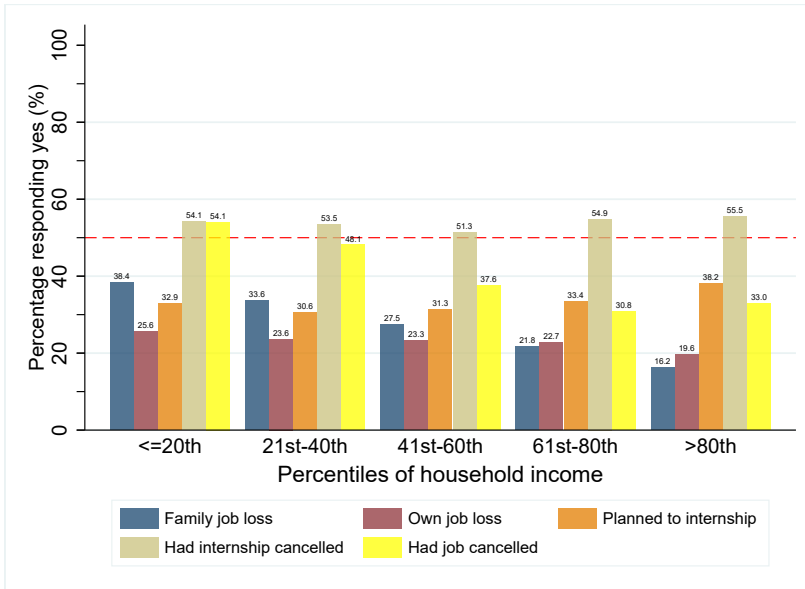
lost a job.<sup>5</sup> Cancellation of internships planned for May–August 2020 was commonplace: 27% of planned internships in Italy, 34% in Austria, 35% in Mexico, 41% in Australia, 51% in Sweden, 58% in US, and 60% in Spain were cancelled.<sup>6</sup> Lastly, the withdrawal or cancellation of existing job offers also occurred at high rates across the seven countries. As with summer internships, the extent of job-offer retractions was highest in Spain where cancellations reached 58%. Job offers in the US were cancelled to a lesser extent than internships (28% canceled), and students in Italy experienced the least job cancellations at 21%.

**Parental income differences.** Figure 3 shows that job loss events were not uniformly distributed across respondents of different socioeconomic backgrounds. Among respondents with parents in the bottom income quintile, 38% had an immediate family member experience job loss. The rate was more than halved (16%) for students with parents in the top quintile of the earnings distribution. Own job loss was also negatively related to parental

<sup>5</sup>The probabilities of reporting job loss do not condition on having a job at the beginning of the pandemic.

<sup>6</sup>Figure 2 also shows that the existence of internship plans varied across countries, from a low of 14% of respondents in Sweden to a high of 43% in Austria and US.

Figure 3: Job loss measures, by parental income



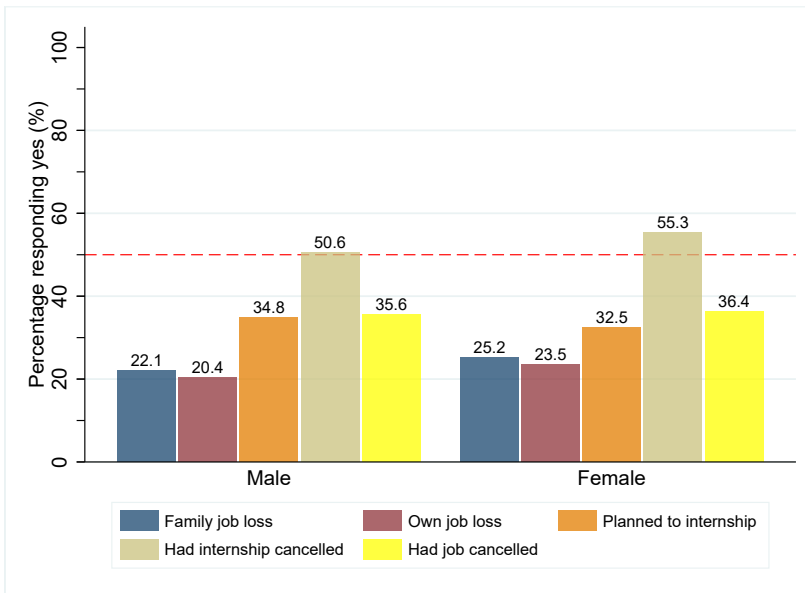
Note: This figure presents mean values of responses to the following five questions: (1) One or more of my immediate family members (parents, siblings, partner) has lost their job (navy bars); (2) I have lost a job (maroon bars); (3) Before COVID-19 pandemic, were you planning on doing an internship at any time between May 2020 and August 2020 (orange bars); (4) My internship got cancelled (khaki bars); (5) Conditional on having a job offer was it withdrawn or cancelled (yellow bars). The responses are stratified by student’s household (parents) quintile which is country-specific based on national income distribution. Sample sizes differ by question and quintile. These are, respectively for questions (1) to (5): for bottom quintile 1637, 1637, 1803, 593, 37; for 21st-40th percentile 2897, 2897, 3219, 981, 81; for 41st-60th percentile 3953, 3953, 4482, 1397, 101; for 61st-80th percentile 5327, 5327, 6063, 2020, 172; for top quintile 7808, 7808, 8861, 3365, 291. Equivalent regression analyses with and without controls are presented in panel A of Table A1.

income: 26% of bottom-quintile students experienced it, compared to 20% in the top quintile. Interestingly, internship cancellation rates are similar across parental income groups, ranging between 51% and 56% percent.<sup>7</sup> In contrast, job offer withdrawals and cancellations were negatively correlated with parental income: 54% of those who had a standing job offer and parents in the bottom income quintile lost the offer, while the corresponding number was 33% for students with parents with incomes in the top quintile.

**Gender differences.** Figure 4 shows somewhat higher incidence of job loss measures among women. The probability of family job loss is higher for female (25%) than for male (22%) students, as well as for own job loss (24% for women and 20% for men). At the same time, internship cancellation rates were 55% for women and 51% for men. By contrast, job offer withdrawals were quite similar for women and men, with both probabilities equal to about 36%.

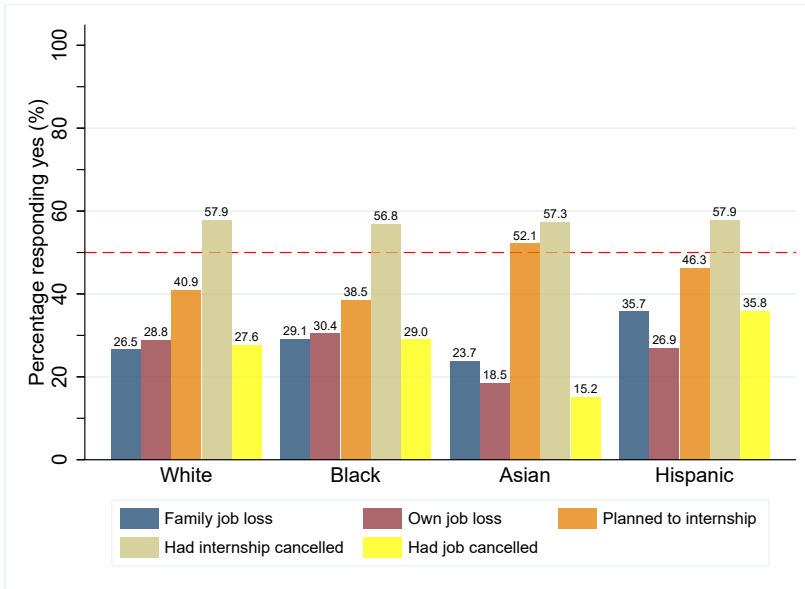
<sup>7</sup>Planning to do an internship to begin with was more common among top-quintile students (38% vs. 31%–33% among the other groups).

Figure 4: Job loss measures, by gender



Note: This figure presents mean values of responses to the following five questions: (1) One or more of my immediate family members (parents, siblings, partner) has lost their job (navy bars); (2) I have lost a job (maroon bars); (3) Before COVID-19 pandemic, were you planning on doing an internship at any time between May 2020 and August 2020 (orange bars); (4) My internship got cancelled (khaki bars); (5) Conditional on having a job offer was it withdrawn or cancelled (yellow bars). The responses are stratified by gender. Sample sizes differ by question and gender. These are, respectively for questions (1) to (5): for males 8123, 8123, 9582, 3322, 289; and for females 18707, 18707, 20953, 6783, 583. Equivalent regression analyses with and without controls are presented in panel B of Table A1.

Figure 5: Job loss measures, by race/ethnicity (US only)



Note: This figure presents mean values of responses to the following five questions: (1) One or more of my immediate family members (parents, siblings, partner) has lost their job (navy bars); (2) I have lost a job (maroon bars); (3) Before COVID-19 pandemic, were you planning on doing an internship at any time between May 2020 and August 2020 (orange bars); (4) My internship got cancelled (khaki bars); (5) Conditional on having a job offer was it withdrawn or cancelled (yellow bars). The responses are stratified by race/ethnicity for the United States only. Sample sizes differ by question as well as race/ethnicity. These are, respectively for questions (1) to (5): for Whites 9395, 9395, 10527, 4295, 384; for Blacks 959, 959, 1004, 387, 31; for Asians 1436, 1436, 1554, 808, 33; and for Hispanics 1933, 1933, 2006, 926, 53. Equivalent regression analyses with and without controls are presented in panel C of Table A1.

**Racial differences in the US.** Figure 5 documents job loss separately for Whites, Blacks, Asians, and Hispanics, among respondents from US institutions. Hispanics and Blacks experienced greater family job loss (36% and 29%, respectively) compared to Asians and Whites (24% and 27%, respectively). Blacks and Whites were the most likely to experience own job loss (30% and 29%, respectively), compared to 27% of Hispanics, and 19% of Asians. Blacks and Whites were least likely to have planned a summer internship (39% and 41%, respectively), whereas Asian and Hispanic students were considerably more likely to have planned summer internships (52% and 46%, respectively). Internship cancellation was similarly likely across groups (between 57%–58%), but job offer withdrawals disproportionately affected Hispanic respondents (36%) compared to Blacks, Whites, and Asians (29%, 28%, and 15%, respectively).

### 3.1.2 Student's labor market activity

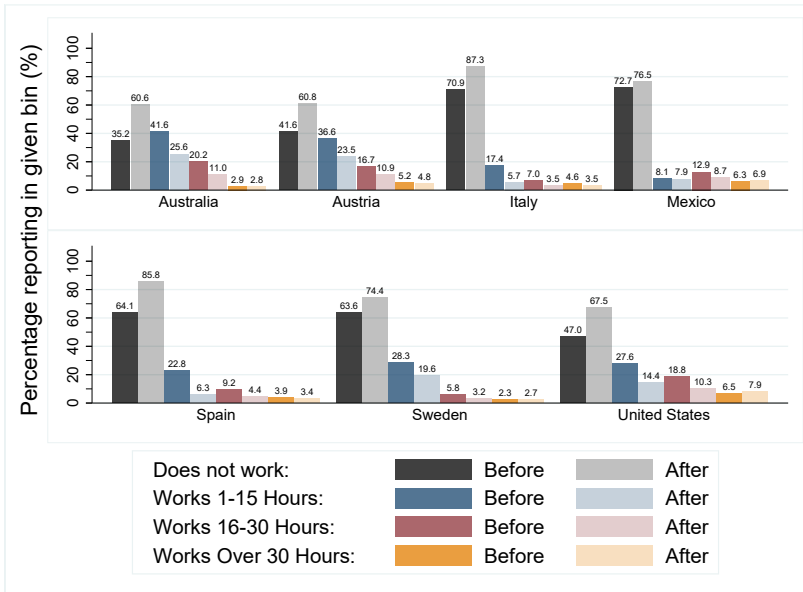
We documented extensive margin labor market responses above but how did COVID-19 affect students' current engagement with the labor market on the intensive margin? To answer this question, we document changes in the distribution of working hours, before and after the pandemic started.

**Results by country.** Figure 6 shows distributions of hours of work, before and after the start of the pandemic, for each of the countries in our sample. The share of students who work a positive number of hours per week varied across countries before the pandemic: 65% of respondents in Australia worked, 52% in Austria, 53% in the US, 36% in Spain and Sweden, 29% in Italy, and 27% in Mexico. Across all countries, however, we see marked increases in the fraction of students who report working zero hours after the start of the pandemic (e.g., from 47% to 68% in US, and from 64% to 86% in Spain). These increases in the share working zero hours are accompanied by substantial decreases in the fractions of those who work between 1–15 hours and 16–30 hours. The fraction working full-time (over 30 hours) remained quite similar across countries with the exception of the US (where it increased from 6.5% to 7.9%) and Italy (where it decreased from 4.6% to 3.5%).

**Parental income differences.** Figure 7 shows working hours by parental income quintiles. Before the pandemic, top-quintile students were least likely to work, especially 16 or more hours (14% of them did, compared to 18%–21% among the other groups). After the pandemic started, however, top-quintile students were working 16 or more hours at similar rates as the other students (11% vs. between 10%–13%). Overall, the share working zero hours increased substantially across all income quintiles, but the magnitude of the change before and after the pandemic was less extensive for the richest students.

**Gender differences.** Figure 8 shows that, before the pandemic, men were less likely to work than women (45% vs. 50%, respectively). After the start of the pandemic, the share not working increased for both men and women. But the extent of the increase was larger for women (16 percentage points for men, and 23 percentage points for women). Men and women worked full-time at similar rates before the pandemic (5.8% and 5.3%, respectively) but afterwards men were more likely to do so (6.7%) than women (5.4%).

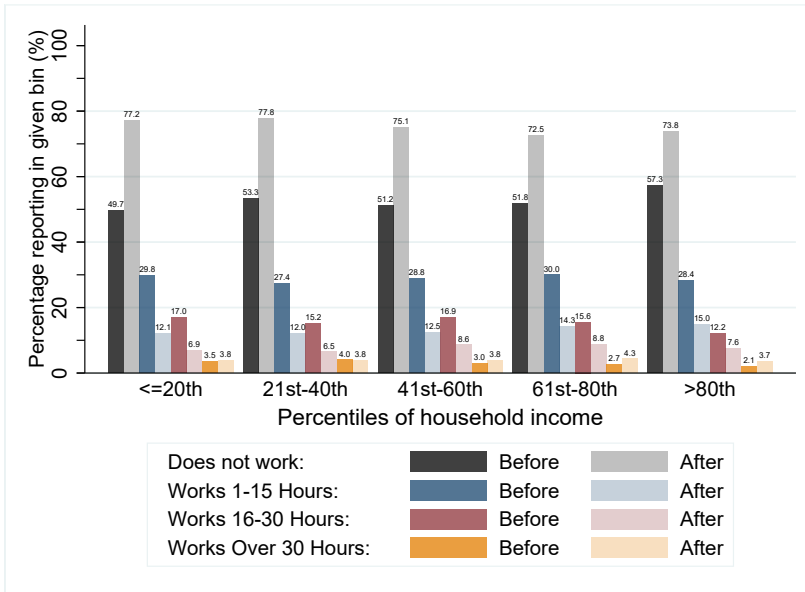
Figure 6: Student’s labor market activity before and after pandemic start, by country



Note: This figure presents mean values of responses to questions regarding employment of students prior to and since COVID-19 pandemic. The exact questions were “Before [Since] the COVID-19 pandemic, did [do] you work for pay (including work-study) while pursuing your studies?”. Respondents had multiple options including: “No, not at all”, 5-hour intervals above zero (e.g., “About 1-5 hours per week”), up to “More than 40 hours per week”. We aggregated these responses to dichotomous scale of four variables depicted in this figure. Variables are multiplied by 100 and sum to 100 within a question. Black bars represent no work, navy bars represent working between 1 and 15 hours per week, maroon bars represent working 16 to 30 hours per week, and orange bars represent working more than 30 hours per week. Solid bars are for work situation before while faded bars are for work situation after the start of COVID-19 pandemic. Sample is divided by country. Top panel presents results for Australia, Austria, Italy, and Mexico while bottom panel presents results for Spain, Sweden, and the United States. Sample sizes are 4758 for Australia, 503 for Austria, 3844 for Italy, 583 for Mexico, 6412 for Spain, 555 for Sweden, and 19359 for the United States.

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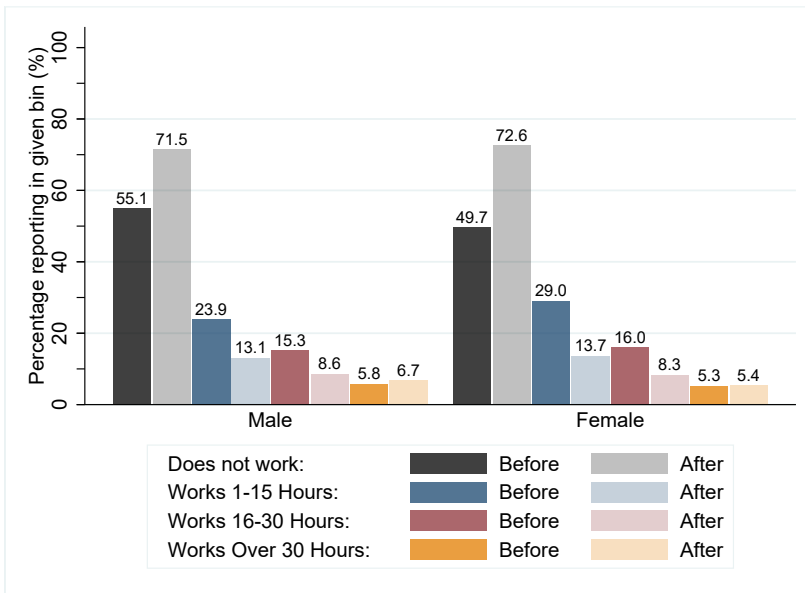
Figure 7: Student’s labor market activity before and after pandemic start, by parental income



Note: This figure presents mean values of responses to questions regarding employment of students prior to and since COVID-19 pandemic. The exact questions were “Before [Since] the COVID-19 pandemic, did [do] you work for pay (including work-study) while pursuing your studies?”. Respondents had multiple options including: “No, not at all”, 5-hour intervals above zero (e.g., “About 1-5 hours per week”), up to “More than 40 hours per week”. We aggregated these responses to dichotomous scale of four variables depicted in this figure. Variables are multiplied by 100 and sum to 100 within a question. Black bars represent no work, navy bars represent working between 1 and 15 hours per week, maroon bars represent working 16 to 30 hours per week, and orange bars represent working more than 30 hours per week. Solid bars are for work situation before while faded bars are for work situation after the start of COVID-19 pandemic. The responses are stratified by student’s household (parents) quintile which is country-specific based on national income distribution. Sample sizes are 1785 for bottom quintile, 3193 for 21st to 40th percentile, 4458 for 41st to 60th percentile, 6024 for 61st to 80th percentile, and 8789 for top quintile.

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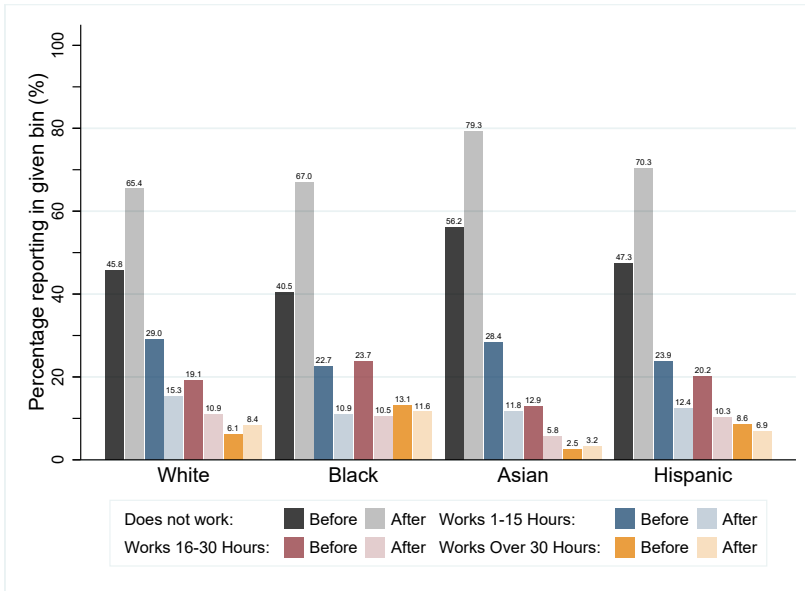
Figure 8: Student’s labor market activity before and after pandemic start, by gender



Note: This figure presents mean values of responses to questions regarding employment of students prior to and since COVID-19 pandemic. The exact questions were “Before [Since] the COVID-19 pandemic, did [do] you work for pay (including work-study) while pursuing your studies?”. Respondents had multiple options including: “No, not at all”, 5-hour intervals above zero (e.g., “About 1-5 hours per week”), up to “More than 40 hours per week”. We aggregated these responses to dichotomous scale of four variables depicted in this figure. Variables are multiplied by 100 and sum to 100 within a question. Black bars represent no work, navy bars represent working between 1 and 15 hours per week, maroon bars represent working 16 to 30 hours per week, and orange bars represent working more than 30 hours per week. Solid bars are for work situation before while faded bars are for work situation after the start of COVID-19 pandemic. The responses are stratified by student’s gender. Sample sizes are 9497 for males and 20790 for females.

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**Figure 9:** Student’s labor market activity before and after pandemic start, by race/ethnicity (US only)



Note: This figure presents mean values of responses to questions regarding employment of students prior to and since COVID-19 pandemic. The exact questions were “Before [Since] the COVID-19 pandemic, did [do] you work for pay (including work-study) while pursuing your studies?”. Respondents had multiple options including: “No, not at all”, 5-hour intervals above zero (e.g., “About 1-5 hours per week”), up to “More than 40 hours per week”. We aggregated these responses to dichotomous scale of four variables depicted in this figure. Variables are multiplied by 100 and sum to 100 within a question. Black bars represent no work, navy bars represent working between 1 and 15 hours per week, maroon bars represent working 16 to 30 hours per week, and orange bars represent working more than 30 hours per week. Solid bars are for work situation before while faded bars are for work situation after the start of COVID-19 pandemic. The responses are stratified by race/ethnicity and gender for the United States only. Sample sizes are 10454, 992, 1530, and 1994, for Whites, Blacks, Asians, and Hispanics, respectively.

**Racial differences in the US.** Figure 9 shows changes in hours of work for US respondents by race/ethnicity. Asian students were the least likely to work any number of hours before the pandemic (44% of them did) compared to the three other groups (ranging between 53%–59%). Full-time work (over 30 hours) was quite uncommon before the pandemic for Asians (2.5%), and somewhat more common for Whites (6.1%) or Hispanics (8.6%) and especially much more common for Blacks (13.1%). After the start of the pandemic, zero hours of work substantially increased for all racial groups, and the share working 1–15 or 16–30 hours similarly decreased for all. Whites’ and Asians’ probability of working full time increased with the pandemic (from 6.1% to 8.4%, and from 2.5% to 3.2%, respectively), while for Blacks’ and Hispanics’ equivalent probabilities somewhat decreased (from 13% to 12%, and from 8.6% to 6.9%, respectively).

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### 3.1.3 Career considerations

How has the pandemic affected the importance that undergraduates attach to future job and career characteristics? We now examine to what degree students consider that several (positive) career considerations have become more important as a result of the pandemic.

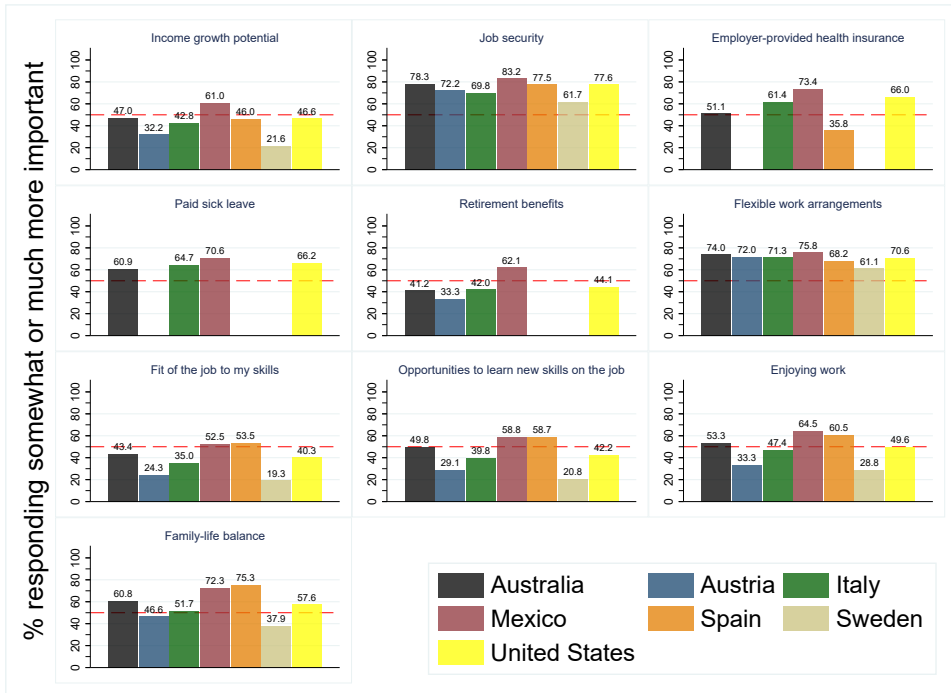
**Results by country.** Figure 10 plots the fraction of respondents in each country who respond that a given career consideration has become somewhat or much more important as a result of the pandemic. The job aspects that respondents feel have become particularly more important are job security and flexible work arrangements. Greater importance of job security was reported by over 60% of respondents in all countries, ranging from 62% in Sweden to 83% in Mexico. Likewise, flexible work arrangements were also reported by over 60% of respondents in all countries. Paid sick leave was also reported by large fractions of students in the countries that the survey offered as an option: Australia (61%), Italy (65%), Mexico (71%), and US (66%).

Students in Mexico and Spain reported opportunities to learn new skills on the job (59% in both cases) and the fit of the job to existing skills (53% and 54%, respectively) had become more important. In Australia and US, 40%–50% of students contend that the fit of the job to existing skills and/or opportunities to learn new skills are increasingly important. Respondents in Italy, Austria, and Sweden were the least likely to believe job fit to their skills and/or opportunities to learn new skills had become more important in response to the pandemic, with about 20%–40% reporting greater importance.

Other job aspects the survey inquired about include employer-provided health insurance, income growth potential, retirement benefits, enjoying work, and family-life balance. Figure 10 shows that respondents selecting these aspects as being more important due to the pandemic vary but, generally speaking, students in Mexico and Spain are the most likely to select these options, followed by those in the US and Australia, those in Italy, and then those in Austria and Sweden.

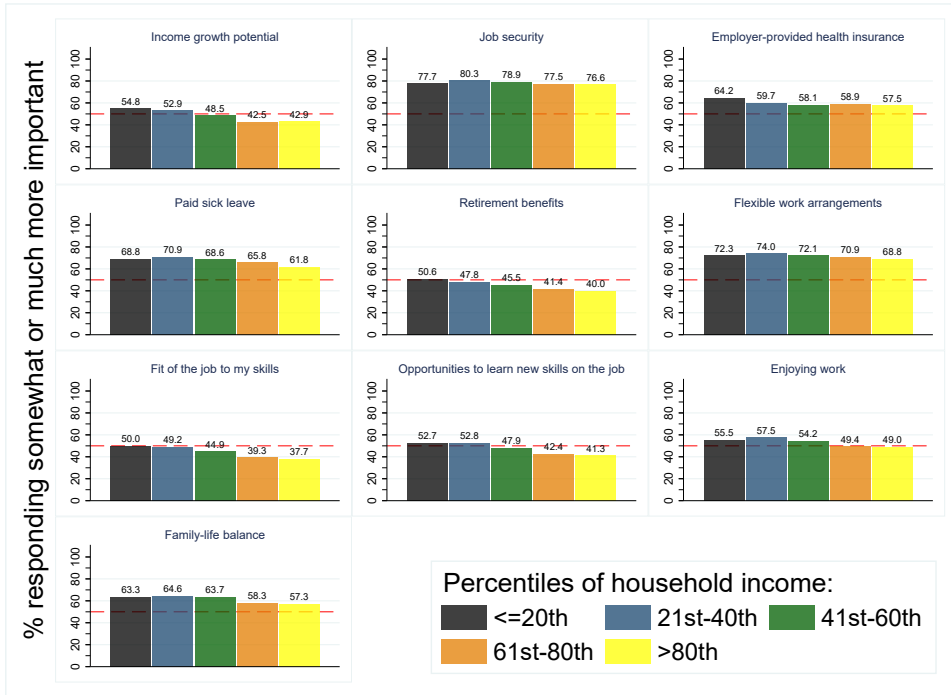
**Parental income differences.** Figure 11 shows a marked parental income gradient for most career considerations, with wealthier students less likely to report positive job characteristics have become more important as a result of the pandemic. Comparing students with parents in the bottom vs. top quintiles, income growth potential has become more important for 55% vs. 43%, respectively; employer-provided health insurance for 64% vs. 58%; paid sick leave for 69% vs. 62%; retirement benefits for 51% vs. 40%; flexible work arrangements for 72% vs. 69%; fit of job to skills for 50% vs. 38%; opportunities to learn new skills on the job for 53% vs. 41%; enjoying work for 56% vs. 49%; and family-life balance for 63% vs. 57%. Job security is the one characteristic that students from all income backgrounds feel similarly about, with close to 80% of all groups claiming the attribute has become more important.

Figure 10: Career considerations as a result of the pandemic, by country



Note: This figure presents mean values of responses to question regarding career considerations. The exact question was worded as "Below are some things that might be important when choosing a career. As a result of the COVID-19 pandemic, how has their importance to you changed?" with the following options: (1) income growth potential, (2) job security, (3) employer-provided health insurance (not asked in Austria and Sweden), (4) paid sick leave (not asked in Austria, Spain, and Sweden), (5) retirement benefits (not asked in Spain and Sweden), (6) flexible work arrangements (for example: working from home, telecommuting), (7) fit of the job to my skills, (8) opportunity to learn new skills on the job, (9) enjoying work, and (10) family-life balance. Each option is depicted as a separate panel and the responses are stratified by country. Black bars are for Australia, navy for Austria, green for Italy, maroon for Mexico, orange for Spain, khaki for Sweden, and yellow for the United States. Sample sizes are 4202 for Australia, 457 for Austria, 3678 for Italy, 541 for Mexico, 5543 for Spain, 514 for Sweden, and 17384 for the United States.

Figure 11: Career considerations as a result of the pandemic, by parental income



Note: This figure presents mean values of responses to question regarding career considerations. The exact question was worded as “Below are some things that might be important when choosing a career. As a result of the COVID-19 pandemic, how has their importance to you changed?” with the following options: (1) income growth potential, (2) job security, (3) employer-provided health insurance (not asked in Austria and Sweden), (4) paid sick leave (not asked in Austria, Spain, and Sweden), (5) retirement benefits (not asked in Spain and Sweden), (6) flexible work arrangements (for example: working from home, telecommuting), (7) fit of the job to my skills, (8) opportunity to learn new skills on the job, (9) enjoying work, and (10) family-life balance. Each option is depicted as a separate panel and the responses are stratified by student’s household (parents) quintile which is country-specific based on national income distribution. Black bars are for bottom quintile, navy for 21st to 40th percentile, green for 41st to 60th percentile, orange for 61st to 80th percentile, and yellow for top quintile. Sample sizes across quintiles are 1770, 3178, 4414, 5993, and 8750 for questions (1), (2), (6), (7), (8), (9), (10); they are 1734, 3118, 4338, 5897, and 8559 for question (3); they are 1481, 2271, 3324, 4917, and 7397 for question (4); and they are 1495, 2312, 3377, 4975, 7534 for question (5). Equivalent regression analyses with and without controls are presented in panel A of Tables A2 and A3.

**Gender differences.** Figure 12 shows that women are more likely than men to place increased importance on positive career characteristics as a result of the pandemic. Gender differences are especially pronounced for paid sick leave (70% of women vs. 55% of men), employer-provided health insurance (62% vs. 51%), family-life balance (63% vs. 53%), flexible work arrangements (74% vs. 64%), and job security (80% vs. 69%). Women were also more likely than men to assign greater importance on income growth potential (48% vs. 41%, respectively), retirement benefits (46% vs. 37%), fit of the job to existing skills (43% vs. 38%), opportunities to learn new skills (47% vs. 41%), and enjoying work (53% vs. 48%).

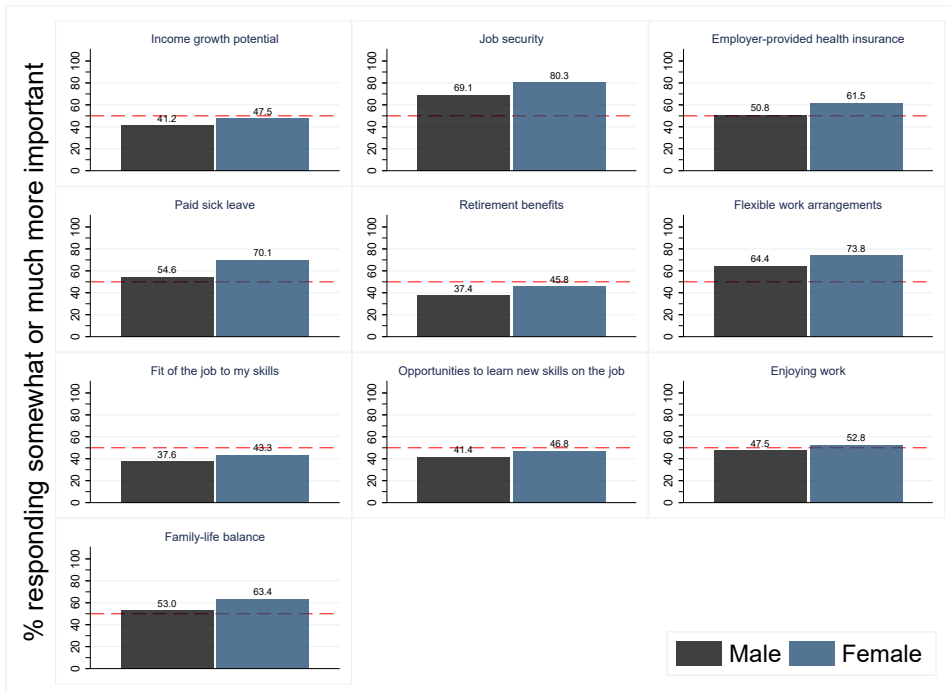
**Racial differences in the US.** Figure 13 shows that White students were less likely than members of the other racial/ethnic groups to assign increased importance to positive career characteristics. The greatest gap arises with income growth potential, where 42% of Whites assigned increased importance compared to 51% of Asians, 56% of Hispanics, and 62% of Blacks. Job security was assigned increased importance at high rates for all groups. Blacks (83%) and Hispanics (82%) are considerably more likely to consider job security as more important than Asians (78%) and Whites (77%), however. Employer-provided health insurance and paid sick leave were assigned increased importance by between 71%–75% of Asians, Hispanics, and Blacks, compared to 64% of Whites. The remaining career considerations—retirement benefits, flexible work arrangements, job fit to existing skills, opportunities to learn new skills, enjoying work, and family-life balance—all show similar patterns: highest assignment of increased importance among Blacks, followed by similar rates among Asians and Hispanics, and significantly lower rates for Whites.

### 3.1.4 Willingness to accept negative job characteristics

We now ask whether the pandemic has made students more willing to accept negative job characteristics after graduating. We consider four dimensions: working part-time, working at a job for which the student is overqualified, doing an unpaid internship, and working for the minimum wage.

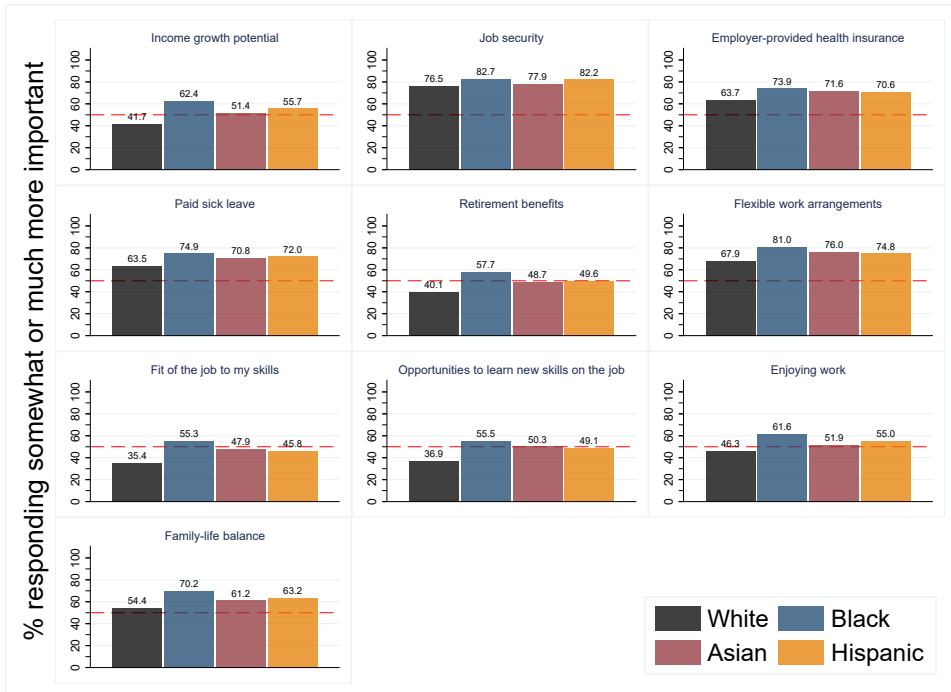
**Results by country.** Figure 14 shows the fraction of respondents whom the pandemic has made somewhat or much more willing to accept negative job aspects after graduation. Across all countries and all negative job aspects, less than 35% of students reported being more willing to work with such conditions. Between 21%–34% are more willing to work part-time, with the maximum fraction occurring in Mexico (34%), Spain (33%), and Australia (33%), and the minimum in Italy (21%). The fractions being more willing to be overqualified are somewhat similar, with students in Spain, Australia, and US being the most willing (34%, 32%, and 30%, respectively). Students were generally not willing to hold an unpaid internship after graduation (9% in Austria and up to 24% in Australia) or work for minimum wages (4% in Mexico and up to 20% in Spain).

Figure 12: Career considerations as a result of the pandemic, by gender



Note: This figure presents mean values of responses to question regarding career considerations. The exact question was worded as "Below are some things that might be important when choosing a career. As a result of the COVID-19 pandemic, how has their importance to you changed?" with the following options: (1) income growth potential, (2) job security, (3) employer-provided health insurance (not asked in Austria and Sweden), (4) paid sick leave (not asked in Austria, Spain, and Sweden), (5) retirement benefits (not asked in Spain and Sweden), (6) flexible work arrangements (for example: working from home, telecommuting), (7) fit of the job to my skills, (8) opportunity to learn new skills on the job, (9) enjoying work, and (10) family-life balance. Each option is depicted as a separate panel and the responses are stratified by gender. Black bars are for males while navy bars are for females. Sample sizes for males and females respectively are 9412 and 20579 for questions (1), (2), (6), (7), (8), (9), (10); they are 9085 and 19980 for question (3), they are 7565 and 16347 for question (4); and they are 7723 and 16628 for question (5). Equivalent regression analyses with and without controls are presented in panel B of Tables A2 and A3.

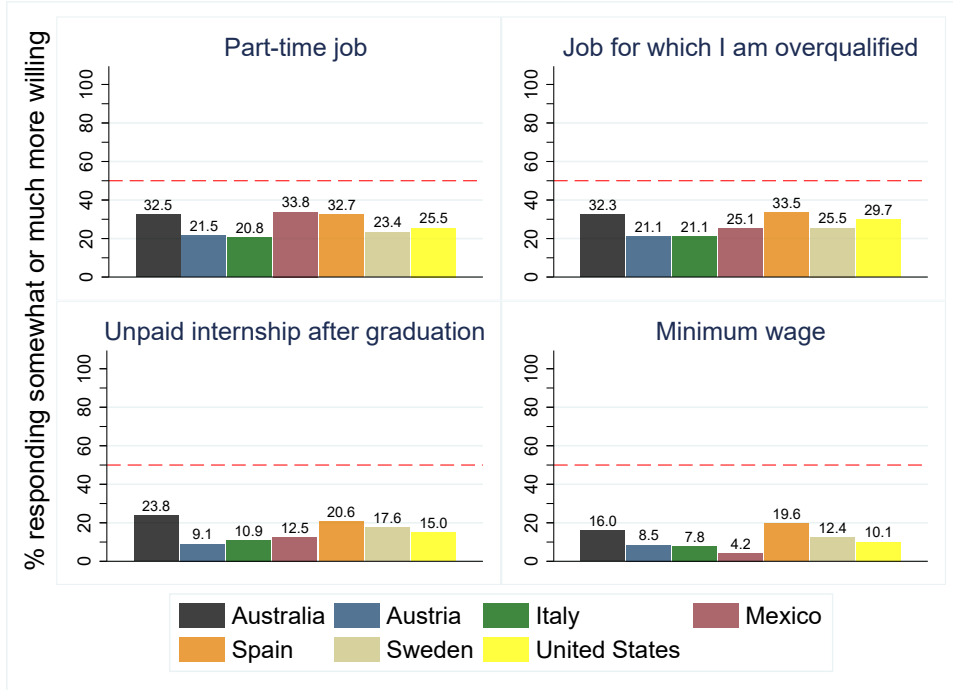
Figure 13: Career considerations as a result of the pandemic, by race/ethnicity (US only)



Note: This figure presents mean values of responses to question regarding career considerations. The exact question was worded as "Below are some things that might be important when choosing a career. As a result of the COVID-19 pandemic, how has their importance to you changed?" with the following options: (1) income growth potential, (2) job security, (3) employer-provided health insurance (not asked in Austria and Sweden), (4) paid sick leave (not asked in Austria, Spain, and Sweden), (5) retirement benefits (not asked in Spain and Sweden), (6) flexible work arrangements (for example: working from home, telecommuting), (7) fit of the job to my skills, (8) opportunity to learn new skills on the job, (9) enjoying work, and (10) family-life balance. Each option is depicted as a separate panel and the responses are stratified by race/ethnicity for the United States only. Black bars are for Whites, navy bars are for Blacks, maroon bars are for Asians, and orange bars are for Hispanics. Sample sizes for Whites, Blacks, Asians, and Hispanics respectively are 10407, 979, 1522 and 1971. Equivalent regression analyses with and without controls are presented in panel C of Tables A2 and A3.

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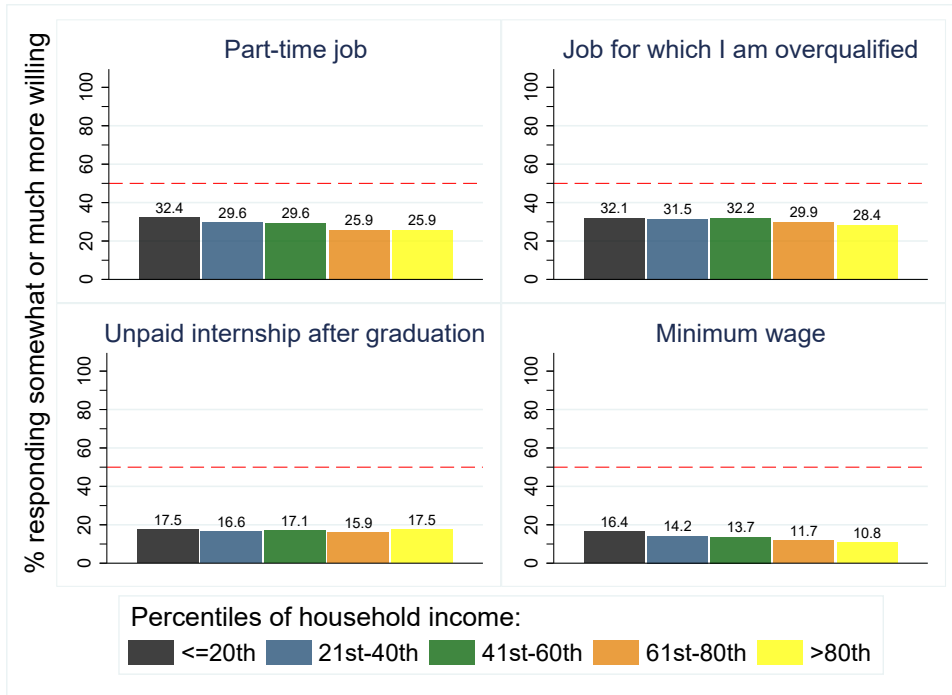
**Figure 14:** Greater willingness to accept negative job characteristics as a result of the pandemic, by country



Note: This figure presents mean values of responses to question regarding career compromises. The exact question was worded as “Think about the job market in the first two years after you complete your current degree. As a result of the COVID-19 pandemic, how has your willingness to work in jobs with the characteristics listed below changed?” with the following options: (1) work in a part-time job, (2) work in a job for which I am overqualified, (3) take an unpaid internship after graduation, and (4) work for minimum wage. Each option is depicted as a separate panel and the responses are stratified by country. Black bars are for Australia, navy for Austria, green for Italy, maroon for Mexico, orange for Spain, khaki for Sweden, and yellow for the United States. Sample sizes are 4223 for Australia, 460 for Austria, 3677 for Italy, 542 for Mexico, 5545 for Spain, 518 for Sweden, and 17420 for the United States.

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**Figure 15:** Greater willingness to accept negative job characteristics as a result of the pandemic, by parental income

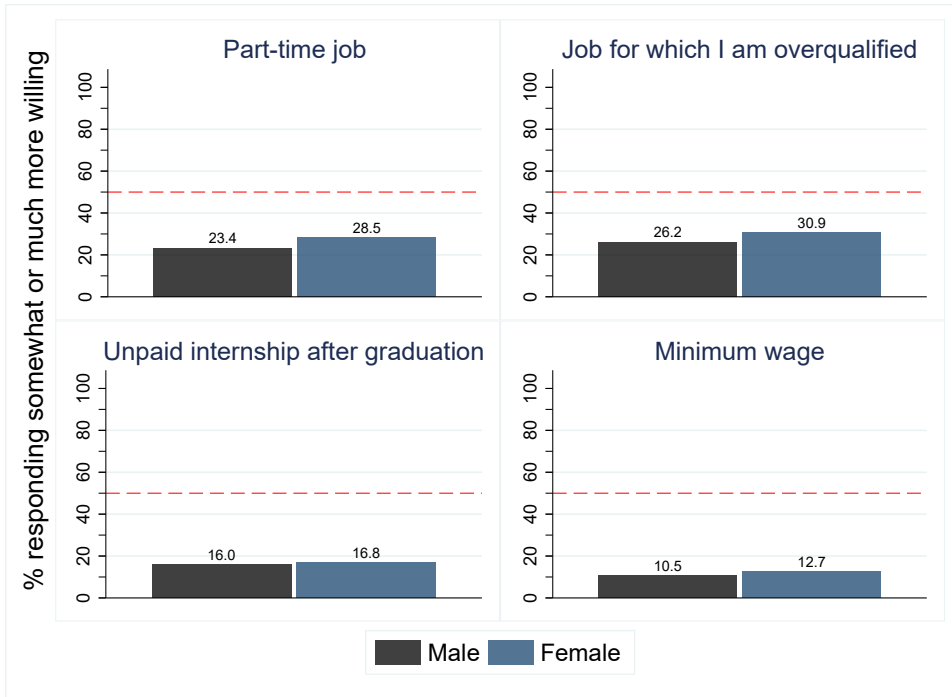


Note: This figure presents mean values of responses to question regarding career compromises. The exact question was worded as “Think about the job market in the first two years after you complete your current degree. As a result of the COVID-19 pandemic, how has your willingness to work in jobs with the characteristics listed below changed?” with the following options: (1) work in a part-time job, (2) work in a job for which I am overqualified, (3) take an unpaid internship after graduation, and (4) work for minimum wage. Each option is depicted as a separate panel and the responses are stratified by student’s household (parents) quintile which is country-specific based on national income distribution. Black bars are for bottom quintile, navy for 21st to 40th percentile, green for 41st to 60th percentile, orange for 61st to 80th percentile, and yellow for top quintile. Sample sizes across quintiles are 1769, 3184, 4440, 6013, and 8796. Equivalent regression analyses with and without controls are presented in panel A of Table A4.

**Parental income differences.** Figure 15 shows that students with wealthier parents are less likely to report that the pandemic has made them more willing to accept negative job characteristics. Comparing students with parents in the bottom vs. top quintiles, the fraction who have become more willing to have a part-time job is 32% vs. 26%, respectively; a job for which they are overqualified is 32% vs. 28%; and work for minimum wage is 16% vs. 11%. Having an unpaid internship after graduation is the one characteristic that students from all backgrounds feel similarly about, with between 16%–18% of all groups saying they have become more willing to take such a position.

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**Figure 16:** Greater willingness to accept negative job characteristics as a result of the pandemic, by gender



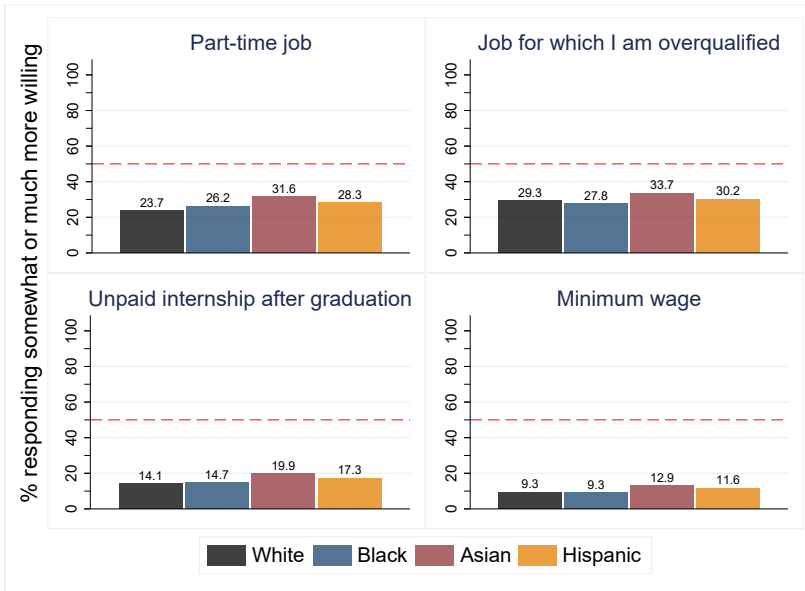
Note: This figure presents mean values of responses to question regarding career compromises. The exact question was worded as “Think about the job market in the first two years after you complete your current degree. As a result of the COVID-19 pandemic, how has your willingness to work in jobs with the characteristics listed below changed?” with the following options: (1) work in a part-time job, (2) work in a job for which I am overqualified, (3) take an unpaid internship after graduation, and (4) work for minimum wage. Each option is depicted as a separate panel and the responses are stratified by gender. Black bars are for males while navy bars are for females. Sample sizes for males and females respectively are 9463 and 20634. Equivalent regression analyses with and without controls are presented in panel B of Table A4.

**Gender differences.** Figure 16 shows that women are slightly more willing to accept negative job characteristics after graduation as a result of the pandemic. This is true for part-time jobs (29% of women vs. 23% of men), being overqualified (31% vs. 26%), doing an unpaid internship (17% vs. 16%), and working for minimum wage (13% vs. 11%).

**Racial differences in the US.** Figure 17 shows how changes in the willingness to accept negative job characteristics after graduation as a result of the pandemic vary by race/ethnicity in the US. Asians and Hispanics are the most willing to accept negative characteristics, while Blacks and Whites are the least willing to accept negative job characteristics. Among Asians, 32% would be more willing to work part-time, 34% would be more willing to be overqualified, 20% to do an unpaid internship, and 13% to work for minimum wage. Among Hispanics, 28% would be more willing to work part-time, 30% to be overqualified, 17% to do an unpaid internship, and 12% to work for minimum wage. Among Blacks, 26% would be

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**Figure 17:** Greater willingness to accept negative job characteristics as a result of the pandemic, by race/ethnicity (US only)



Note: This figure presents mean values of responses to question regarding career compromises. The exact question was worded as “Think about the job market in the first two years after you complete your current degree. As a result of the COVID-19 pandemic, how has your willingness to work in jobs with the characteristics listed below changed?” with the following options: (1) work in a part-time job, (2) work in a job for which I am overqualified, (3) take an unpaid internship after graduation, and (4) work for minimum wage. Each option is depicted as a separate panel and the responses are stratified by race/ethnicity for the United States only. Black bars are for Whites, navy bars are for Blacks, maroon bars are for Asians, and orange bars are for Hispanics. Sample sizes for Whites, Blacks, Asians, and Hispanics respectively are 10431, 981, 1530 and 1987. Equivalent regression analyses with and without controls are presented in panel C of Table A4.

more willing to work part-time, 28% to be overqualified, 15% to do an unpaid internship, and 9% to work for minimum wage. Lastly, among Whites, 24% would be more willing to work part-time, 29% to be overqualified, 14% to do an unpaid internship, and 9% to work for minimum wage.

### 3.1.5 Earnings expectations at ages 30 and 45

What are students’ earnings expectations in the long term, and how do they vary across groups? Survey respondents were presented with the contemporaneous average earnings of 30- and 45-year-olds in their country who hold a college degree, and then asked about their expected earnings at those same ages. We summarize this information by showing the share of respondents who reported earnings expectations that are greater (in real terms) than the average presented to them.

**Results by country.** Figure 18 shows how the fraction who reported higher-than-average expected earnings varies across countries. Almost all respondents in Mexico reported expected earnings greater than the Mexican college average for both ages (98%). In contrast, only 38% and 33% of students in Spain expected earnings greater than the average at 30 and 45, respectively. Like in Spain, a common theme across countries is that a greater share of students expected higher-than-average earnings at 30 compared to 45: 48% and 44% in Australia, 62% and 44% in Italy, 71% and 64% in Sweden, and 65% and 60% in US. The exception is Austria, where 43% and 57% expect greater-than-average earnings at ages 30 and 45, respectively.

**Parental income differences.** Figure 19 shows earnings expectations at ages 30 and 45, by parental income quintile. Compared to the bottom three quintiles, students with parents in the top two quintiles are more likely to expect greater-than-average earnings at 30 and 45. Between 49%–50% of students in the bottom three quintiles expect greater-than-average earnings at 30, while this number is equal to 57% of students with parents in the fourth quintile, and 72% with parents in the fifth quintile. The levels for greater-than-average earnings at age 45 are somewhat lower, but the relative patterns are similar.

**Gender differences.** Figure 20 shows men have much higher earnings expectations than women: 67% of men and 54% of women expect greater-than-average earnings at age 30, and 64% of men and 46% of women do so at age 45.

**Racial differences in the US.** Figure 21 shows that, in the US, Asian students have the greatest earnings expectations. At age 30, 64% of Whites, 65% of Blacks, 67% of Hispanics, and 72% of Asians expect greater-than-average earnings. At age 45, the corresponding fractions for Whites, Blacks, Hispanics, and Asians are, respectively, 58%, 63%, 63%, and 70%.

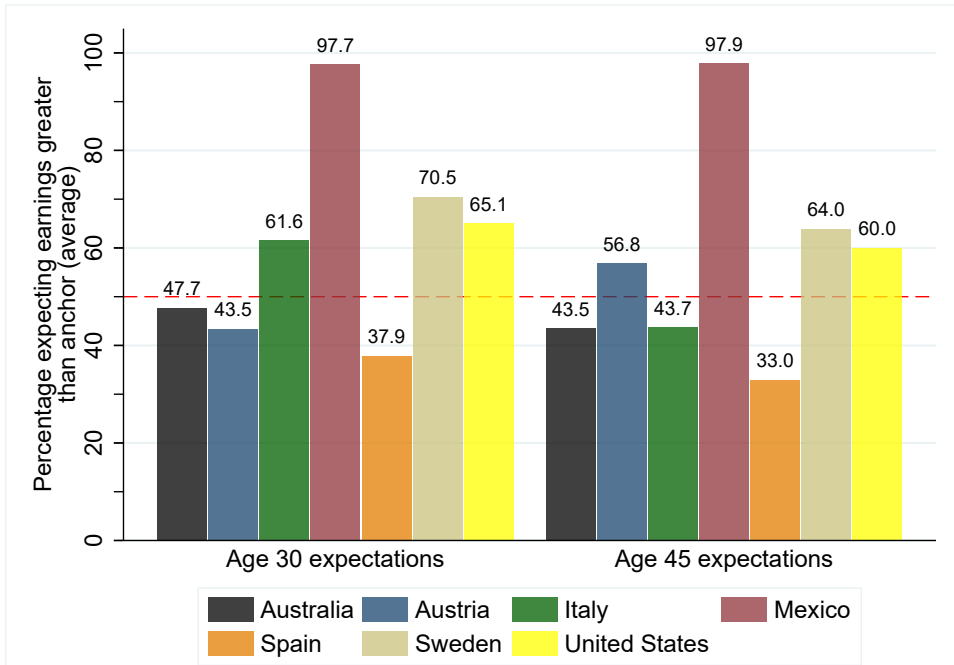
### 3.1.6 Discussion of labor market outcomes

Overall, our findings document that the labor market outcomes and future prospects of university students across the world have been adversely affected by the pandemic. In the seven countries in our sample, students have experienced own and family job loss at high rates, as well as reduced internship opportunities, and cancelled job offers. These events will likely hurt students in long-lasting ways (von Wachter, 2020).

While pervasive, the damaging effects of the pandemic have disproportionately affected students who already in normal times face greater disadvantage and barriers in the labor market: students from lower-income backgrounds, female students, and students belonging to racial minorities. Our results show that these groups of students were particularly more likely to experience job loss in their family, and, in most cases, also more likely to experience job loss themselves (both current jobs and canceled job offers).

Concurrently, the pandemic has increased the importance that low-income, female, and minority students place on positive future job characteristics, as well as the willingness to

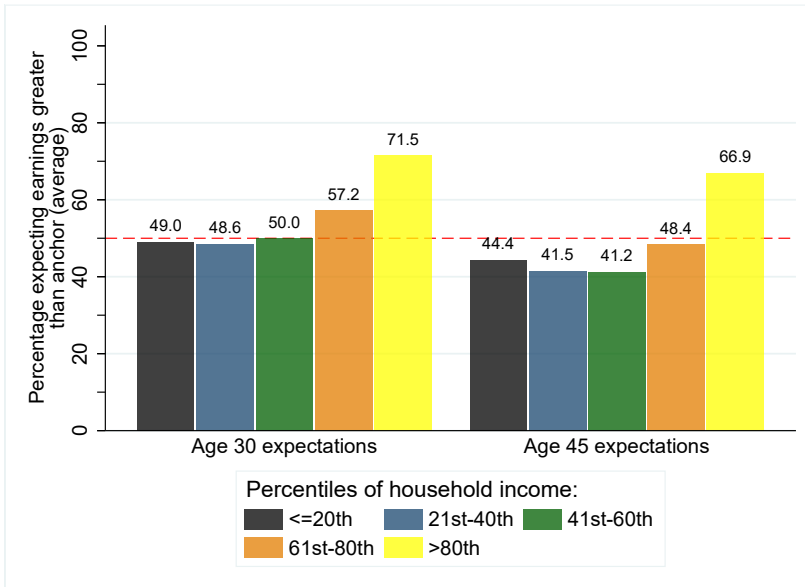
Figure 18: Earnings expectations at ages 30 and 45 (=1 if greater than current average), by country



Note: This figure presents mean values of responses to questions regarding earnings expectations. The exact questions were worded as “In 2019, the average annual earnings of a working 30 [45] year old with at least a Bachelor’s degree was about \$60,000 [\$93,000]. What do you expect your earnings will be at age 30 [45]. Assume that there is no inflation between now and when you are 30 [45] and take into account any additional education you may obtain.” and we discretize by generating an indicator variable that takes value of 1 if the ratio of individual answer and referenced average values is greater than 1. We multiply the indicator by 100. Left-hand side set of bars presents these values for age 30 while right-hand side set of bars presents these values for age 45. Black bars are for Australia, navy for Austria, green for Italy, maroon for Mexico, orange for Spain, khaki for Sweden, and yellow for the United States. Sample sizes are 3584 for Australia, 359 for Austria, 3121 for Italy, 524 for Mexico, 5093 for Spain, 430 for Sweden, and 15169 for the United States. Average values at age 30 [45] are USD 60,000 [USD 93,000] for the United States, AUD 85,000 [AUD 132,000] for Australia, EUR 44,181 [EUR 68,736] for Austria, SEK 370,000 [SEK 543 000] for Sweden, EUR 1,300 [EUR 2,200] for Italy (monthly reference), EUR 2,200 [EUR 3,400] for Spain (monthly reference), and MXN 13,000 [MXN 18,000] for Mexico (monthly reference). All reference values are for 2019 except for Mexico, Italy, and Spain where they are from 2018, 2016 and 2014, respectively, the last years for which publicly available data is accessible.

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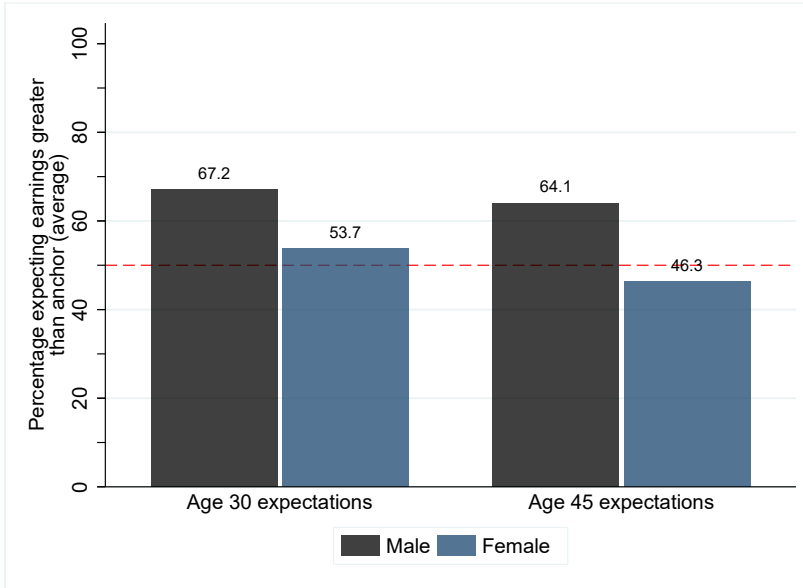
**Figure 19:** Earnings expectations at ages 30 and 45 (=1 if greater than current average), by parental income



Note: This figure presents mean values of responses to questions regarding earnings expectations. The exact questions were worded as “In 2019, the average annual earnings of a working 30 [45] year old with at least a Bachelor’s degree was about \$60,000 [\$93,000]. What do you expect your earnings will be at age 30 [45]. Assume that there is no inflation between now and when you are 30 [45] and take into account any additional education you may obtain.” and we discretize by generating an indicator variable that takes value of 1 if the ratio of individual answer and referenced average values is greater than 1. We multiply the indicator by 100. Left-hand side set of bars presents these values for age 30 while right-hand side set of bars presents these values for age 45. The responses are stratified by student’s household (parents) quintile which is country-specific based on national income distribution. Black bars are for bottom quintile, navy for 21st to 40th percentile, green for 41st to 60th percentile, orange for 61st to 80th percentile, and yellow for top quintile. Respective sample sizes are 1593, 2973, 4109, 5667, and 8155. Average values at age 30 [45] are USD 60,000 [USD 93,000] for the United States, AUD 85,000 [AUD 132,000] for Australia, EUR 44,181 [EUR 68,736] for Austria, SEK 370,000 [SEK 543 000] for Sweden, EUR 1,300 [EUR 2,200] for Italy (monthly reference), EUR 2,200 [EUR 3,400] for Spain (monthly reference), and MXN 13,000 [MXN 18,000] for Mexico (monthly reference). All reference values are for 2019 except for Mexico, Italy, and Spain where they are from 2018, 2016 and 2014, respectively, the last years for which publicly available data is accessible. Equivalent regression analyses with and without controls are presented in panel A of Table A5.

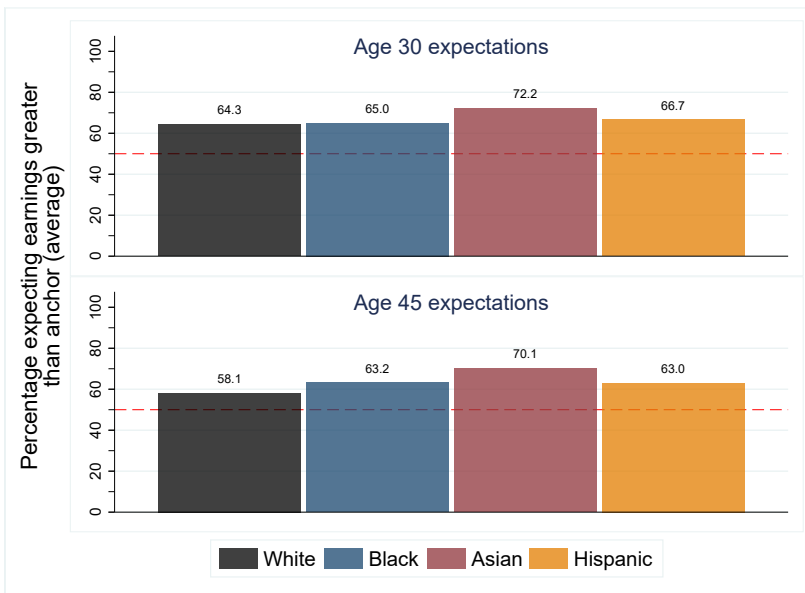
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**Figure 20:** Earnings expectations at ages 30 and 45 (=1 if greater than current average), by gender



Note: This figure presents mean values of responses to questions regarding earnings expectations. The exact questions were worded as “In 2019, the average annual earnings of a working 30 [45] year old with at least a Bachelor’s degree was about \$60,000 [\$93,000]. What do you expect your earnings will be at age 30 [45]. Assume that there is no inflation between now and when you are 30 [45] and take into account any additional education you may obtain.” and we discretize by generating an indicator variable that takes value of 1 if the ratio of individual answer and referenced average values is greater than 1. We multiply the indicator by 100. Left-hand side set of bars presents these values for age 30 while right-hand side set of bars presents these values for age 45. Black bars are for males while navy are for females. Respective sample sizes are 8695 and 18001. Average values at age 30 [45] are USD 60,000 [USD 93,000] for the United States, AUD 85,000 [AUD 132,000] for Australia, EUR 44,181 [EUR 68,736] for Austria, SEK 370,000 [SEK 543 000] for Sweden, EUR 1,300 [EUR 2,200] for Italy (monthly reference), EUR 2,200 [EUR 3,400] for Spain (monthly reference), and MXN 13,000 [MXN 18,000] for Mexico (monthly reference). All reference values are for 2019 except for Mexico, Italy, and Spain where they are from 2018, 2016 and 2014, respectively, the last years for which publicly available data is accessible. Equivalent regression analyses with and without controls are presented in panel B of Table A5.

**Figure 21:** Earnings expectations at ages 30 and 45 (=1 if greater than current average), by race/ethnicity (US only)



Note: This figure presents mean values of responses to questions regarding earnings expectations. The exact questions were worded as “In 2019, the average annual earnings of a working 30 [45] year old with at least a Bachelor’s degree was about \$60,000 [\$93,000]. What do you expect your earnings will be at age 30 [45]. Assume that there is no inflation between now and when you are 30 [45] and take into account any additional education you may obtain.” and we discretize by generating an indicator variable that takes value of 1 if the ratio of individual answer and referenced average values is greater than 1. We multiply the indicator by 100. The responses are stratified by race/ethnicity and gender for the United States only. Top panel presents age 30 while bottom panel age 45 expectations. Left-hand side set of bars presents these values for males while right-hand side set of bars presents values for females. Black bars are for Whites, navy for Blacks, green for Asians, and orange for Hispanics. Sample sizes are 9368, 869, 1289, 1750 for Whites, Blacks, Asians, and Hispanics, respectively. Equivalent regression analyses with and without controls are presented in panel C of Table A5.

accept negative ones. Two hypotheses help explain why low-income, female, and minority students place more importance on good job characteristics as a result of the pandemic. First, their households generally being hit harder by the pandemic (Figures 3, 4, and 5) might lead these students to have more pessimistic expectations about their future labor market.<sup>8</sup> More pessimistic expectations could in turn lead to lower faith in future on-the-job search outcomes and a greater value placed on landing a good job right away. Such higher importance could be aspirational, even if the actual chances of finding such a good job are diminished by the pandemic. A second potential explanation could arise even if all students have similar expectations about the future labor market, through students from wealthier and more advantaged backgrounds having stronger family safety nets and professional networks. Such insurance against income loss, job loss, or health shocks, might make students from more advantaged backgrounds less reliant on good job attributes. Note that the results in Figures 15, 16, and 17—showing that poorer, female, and minority students are more willing to accept negative job characteristics—are not consistent, however, with explanations in which students from less advantaged backgrounds have become more demanding of positive work conditions. While aspirations to land good jobs are stronger for these students, they are also more willing to work under negative conditions if necessary.

### 3.2 Educational outcomes

Educational prospects of students have also been affected as a result of the COVID-19 pandemic. In this section, we analyze the particular effects across several dimensions including: educational consequences and challenges, future schooling plans, and changes in studying characteristics due to the pandemic.

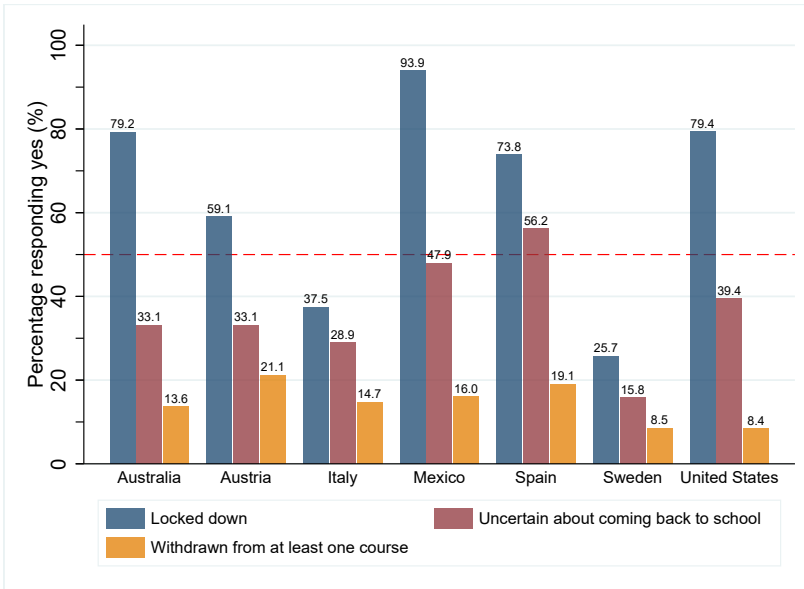
#### 3.2.1 Educational consequences

**Results by country.** Figure 22 shows differences in educational consequences of the pandemic across countries. Most students in all countries, except in Sweden, were under lockdown measures with certain degree of variation in the percentage of affected students. For example, in Mexico, almost a 94% of students were affected while in Austria only 59% of students. In Sweden, only a 25.7% of students were under lockdown and a 37.5% of students in Italy.<sup>9</sup> When it comes to the possibility of not returning to the current university in Fall 2020, 56% of students in Spain and a and a 48% of students in Mexico respond affirmatively, whereas only a 15.8% of students in Sweden considered this possibility. In the remaining countries (Australia, Austria and United States), about a third of the students

<sup>8</sup>Kuchler and Zafar (2019) show that personally experiencing unemployment affects individuals' expectations about the aggregate unemployment rate, arguing that this is consistent with "naive extrapolation." Roth and Wohlfart (2020) show that when expectations are manipulated, people extrapolate recession expectations to personal economic expectations, and those who do more so are people who are more exposed to macroeconomic risk.

<sup>9</sup>This relatively low number for Italy is due to the fact that the survey in the one Italian university in our sample launched in late Summer 2020 and, as opposed to other questions that specifically ask about the Spring semester, the question on lockdown referred to "right now."

Figure 22: Education disruptions, by country



Note: This figure presents mean values of responses to the following three questions/statements: (1) I am “locked down”, “quarantined”, “staying home”, or “sheltering in place” (navy bars); (2) Is it possible that the COVID-19 pandemic might lead to your not returning to your current university in Fall 2020 (maroon bars); and (3) Have you withdrawn from any of your courses since the COVID-19 pandemic? (orange bars). The responses are stratified by country. Sample sizes differ by question and country. These are, respectively for questions (1) to (3): for Australia 3645, 3986, 4799; for Austria 320, 405, 506; for Italy 2435, 2919, 3868; for Mexico 525, 501, 593; for Spain 5311, 4657, 6454; for Sweden 377, 469, 565; for the United States 15650, 16750, 19630.

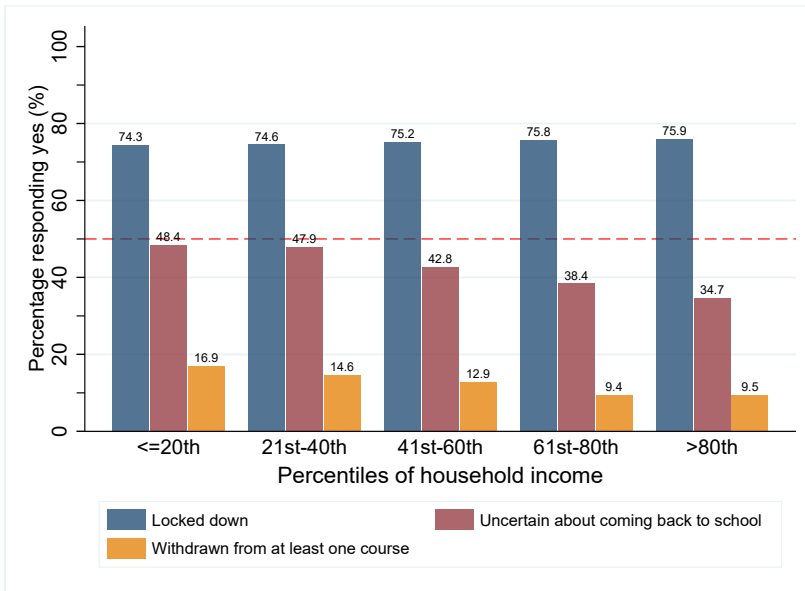
thought about not returning to the universities in which they were enrolled at the onset of the pandemic. Finally, a relatively smaller fraction of students, between 21% in Austria and a 8% in United States, have withdrawn from at least one course since the start of the pandemic.

**Parental income differences.** Figure 23 shows differences in educational consequences by parental income. There are practically no differences in the percentage of students under lockdown measures. On the other hand, there are large differences when it comes to the uncertainty of coming back to school in Fall 2020. Around 50% of students in bottom quintiles are uncertain, whereas only a 35% of students in the top quintile report uncertainty regarding return to their pre-pandemic university. Similarly, students from the top two quintiles are less affected (around a 9%) by having withdrawn from any course, whereas in the bottom two quintiles the percentage of students is higher (more than 14%).

**Gender differences.** Figure 24 shows differences in educational consequences by gender. In short we do not find any striking differences in these measures by student’s gender. As expected, females and males seem to be equally affected by lockdown measures (74.4% of

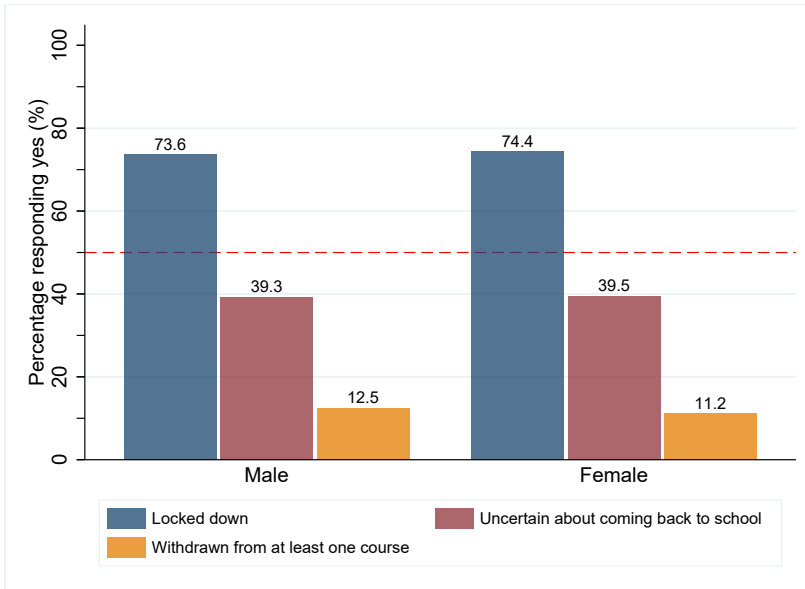
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Figure 23: Education disruptions, by parental income



Note: This figure presents mean values of responses to the following three questions/statements: (1) I am "locked down", "quarantined", "staying home", or "sheltering in place" (navy bars); (2) Is it possible that the COVID-19 pandemic might lead to your not returning to your current university in Fall 2020 (maroon bars); and (3) Have you withdrawn from any of your courses since the COVID-19 pandemic? (orange bars). The responses are stratified by student's household (parents) quintile which is country-specific based on national income distribution. Sample sizes differ by question and quintile. These are, respectively for questions (1) to (3): for bottom quintile 1637, 1472, 1802; for 21st-40th percentile 2897, 2584, 3223; for 41st-60th percentile 3953, 3687, 4479; for 61st-80th percentile 5327, 5025, 6055; for top quintile 7808, 7487, 8861. Equivalent regression analyses with and without controls are presented in panel A of Table A6.

Figure 24: Education disruptions, by gender



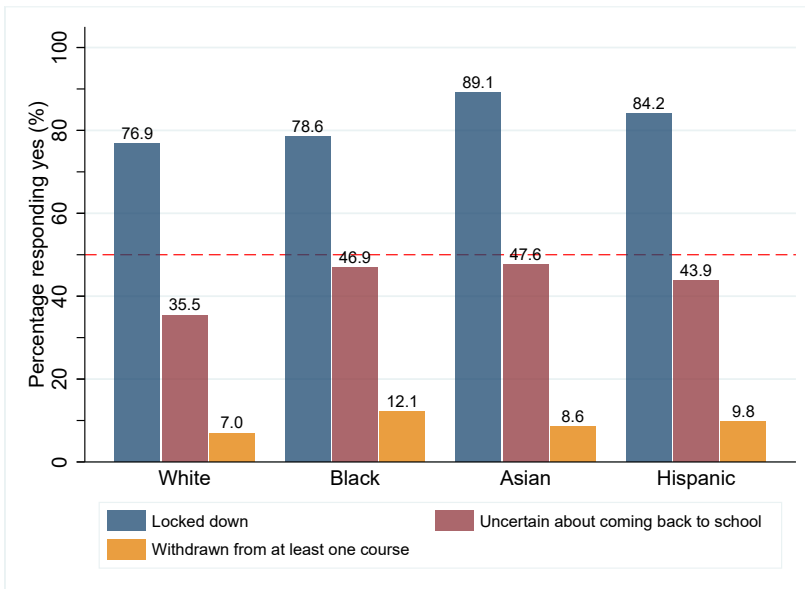
Note: This figure presents mean values of responses to the following three questions/statements: (1) I am “locked down”, “quarantined”, “staying home”, or “sheltering in place” (navy bars); (2) Is it possible that the COVID-19 pandemic might lead to your not returning to your current university in Fall 2020 (maroon bars); and (3) Have you withdrawn from any of your courses since the COVID-19 pandemic? (orange bars). The responses are stratified by gender. Sample sizes differ by question and gender. These are, respectively for questions (1) to (3): for males 8123, 7985, 9582; and for females 18707, 17156, 20946. Equivalent regression analyses with and without controls are presented in panel B of Table A6.

females and 73.6% of males), but they also have similar probabilities of having withdrawn from courses (12.5% of males and 11.2% of females) and being uncertain about coming back to school (39.5% of females and 39.3% of males).

**Racial differences in the US.** Figure 25 shows racial differences in educational consequences in the United States. Asian students have been affected in a higher proportion by lockdown measures (89%) and uncertainty about coming back in Fall 2020 (47.6%). This could be related to the fact that states with larger Asian populations, e.g. California, imposed stricter social distancing measures at the beginning of the pandemic. White students are the least likely to report uncertainty about returning to school (around 36%). Black students had the highest propensity to have withdrawn from at least one course (12.1%). Around 9-10% of Asian and Hispanic students had withdrawn from at least one course, and White were the least likely to drop a course (7%).

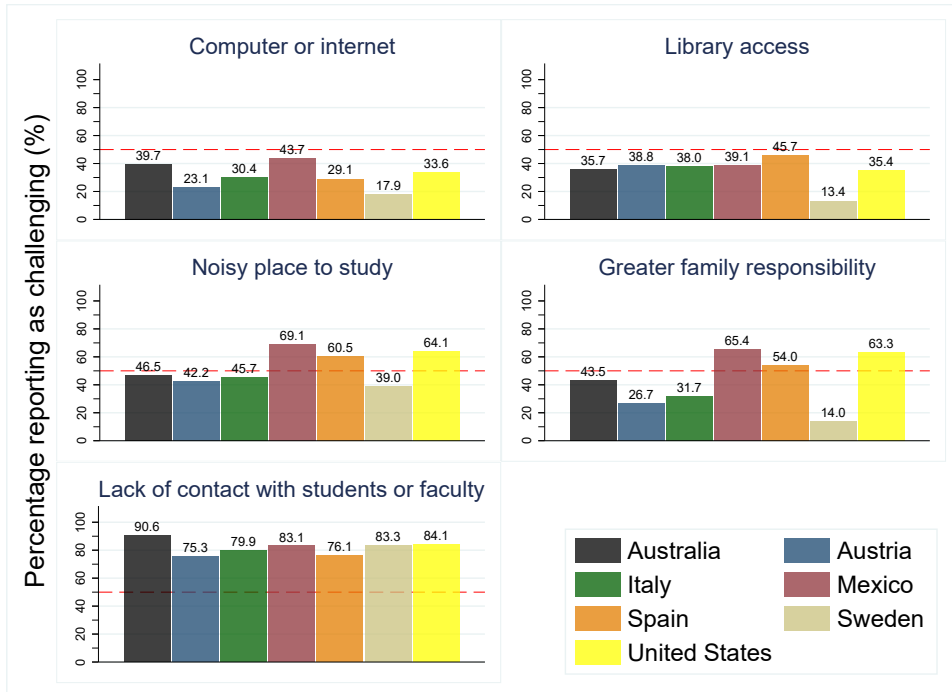
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Figure 25: Education disruptions by race/ethnicity (US only)



This figure presents mean values of responses to the following three questions/statements: (1) I am “locked down”, “quarantined”, “staying home”, or “sheltering in place” (navy bars); (2) Is it possible that the COVID-19 pandemic might lead to your not returning to your current university in Fall 2020 (maroon bars); and (3) Have you withdrawn from any of your courses since the COVID-19 pandemic? (orange bars). The responses are stratified by race/ethnicity and gender for the United States only. Sample sizes differ by question as well as race/ethnicity and gender. These are, respectively for questions (1) to (3): for Whites 9395, 9078, 10530; for Blacks 959, 844, 1000; for Asians 1436, 1316, 1552; for Hispanics 1933, 1754, 2007. Equivalent regression analyses with and without controls are presented in panel C of Table A6.

Figure 26: Education challenges, by country



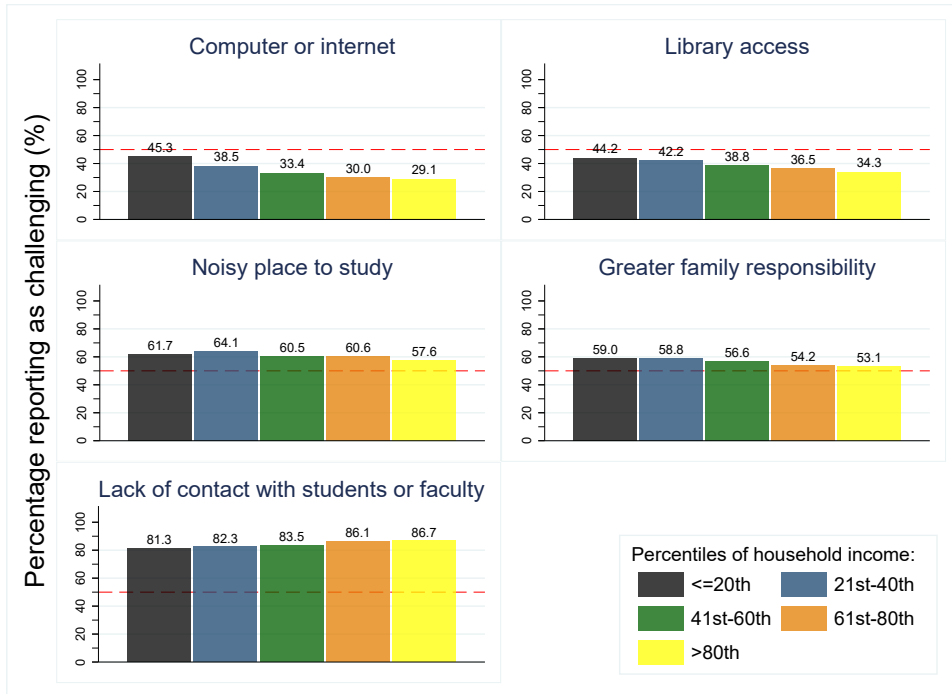
Note: This figure presents mean values of responses to question regarding challenges to completing coursework. The exact question was worded as “Did/does your situation since the COVID-19 pandemic present any challenges to completing your courses successfully? (check all that apply)” with the following options: (1) insufficient computer resources or internet problems, (2) library closed or insufficient library resources, (3) lack of a quiet place to study, (4) increased family responsibilities, and (5) (a) lack of contact with other students or (b) lack of contact with faculty. Each option is depicted as a separate panel and the responses are stratified by country. Black bars are for Australia, navy for Austria, green for Italy, maroon for Mexico, orange for Spain, khaki for Sweden, and yellow for the United States. Sample sizes are 4643 for Australia, 490 for Austria, 3651 for Italy, 586 for Mexico, 5997 for Spain, 485 for Sweden, and 18700 for the United States.

### 3.2.2 Educational challenges

**Results by country.** Figure 26 shows country differences in educational challenges to completing coursework faced by students due to the pandemic. For students in all countries, the most significant issue is lack of contact with other students or faculty (varying from a 75% in Austria up to a 91% in Australia) followed by noisy place to study (varying from a 39% in Sweden up to a 69% in Mexico). There are large differences across countries in the proportion of students reporting greater family responsibilities, from a 14% in Sweden up to a 65% in Mexico. Finally, students also report as challenges insufficient library access (especially in Spain, with 45.7% of students) and computer or internet problems (especially in Mexico and Australia, with 43% and 40% of students, respectively).

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Figure 27: Education challenges, by parental income

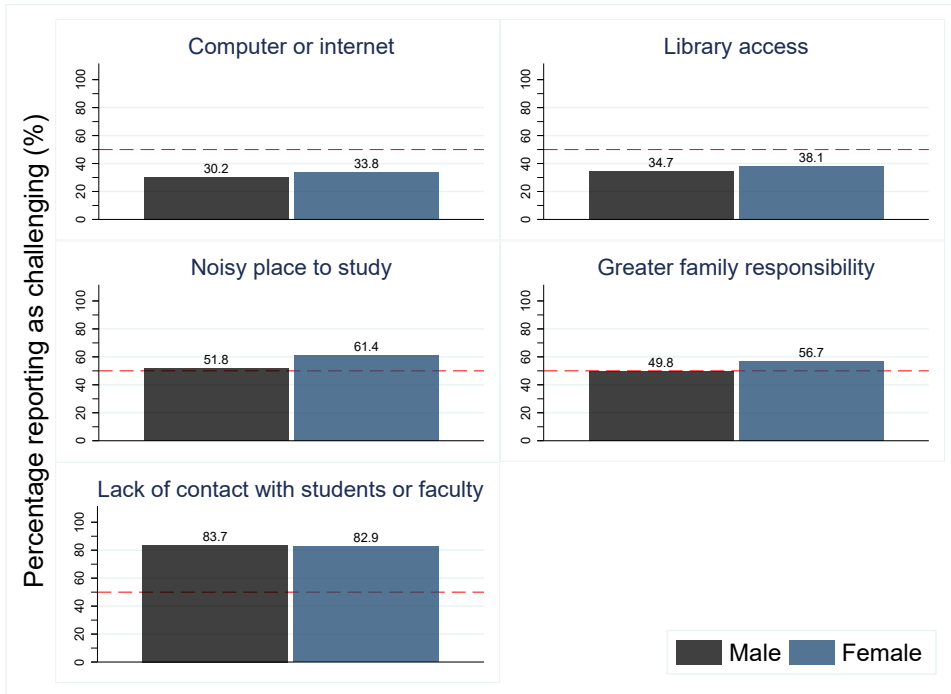


Note: This figure presents mean values of responses to question regarding challenges to completing coursework. The exact question was worded as “Did/does your situation since the COVID-19 pandemic present any challenges to completing your courses successfully? (check all that apply)” with the following options: (1) insufficient computer resources or internet problems, (2) library closed or insufficient library resources, (3) lack of a quiet place to study, (4) increased family responsibilities, and (5) (a) lack of contact with other students or (b) lack of contact with faculty. Each option is depicted as a separate panel and the responses are stratified by student’s household (parents) quintile which is country-specific based on national income distribution. Black bars are for bottom quintile, navy for 21st to 40th percentile, green for 41st to 60th percentile, orange for 61st to 80th percentile, and yellow for top quintile. Sample sizes across quintiles are 1755, 3115, 4298, 5735, and 8373. Equivalent regression analyses with and without controls are presented in panel A of Table A7.

**Parental income differences.** Figure 27 shows differences in educational challenges by parental income. In general, a higher proportion of students from the top quintile report that the lack of contact with other students and faculty is the most important challenge (86.7%), whereas the rest of the challenges are more important for the two bottom quintiles, including computer/internet issues and greater family responsibilities. For example, only 29% of students in the top income quintile reports problems with computer or internet access while this proportion raises to 45%, or by more than 50 percent, for those in the bottom income quintile.

**Gender differences.** Figure 28 shows differences in educational challenges by gender. Here we do not find any striking gender differences in demand for contact with other students and faculty. An 84% of males and a 83% of females report this as a challenge to complet-

Figure 28: Education challenges, by gender



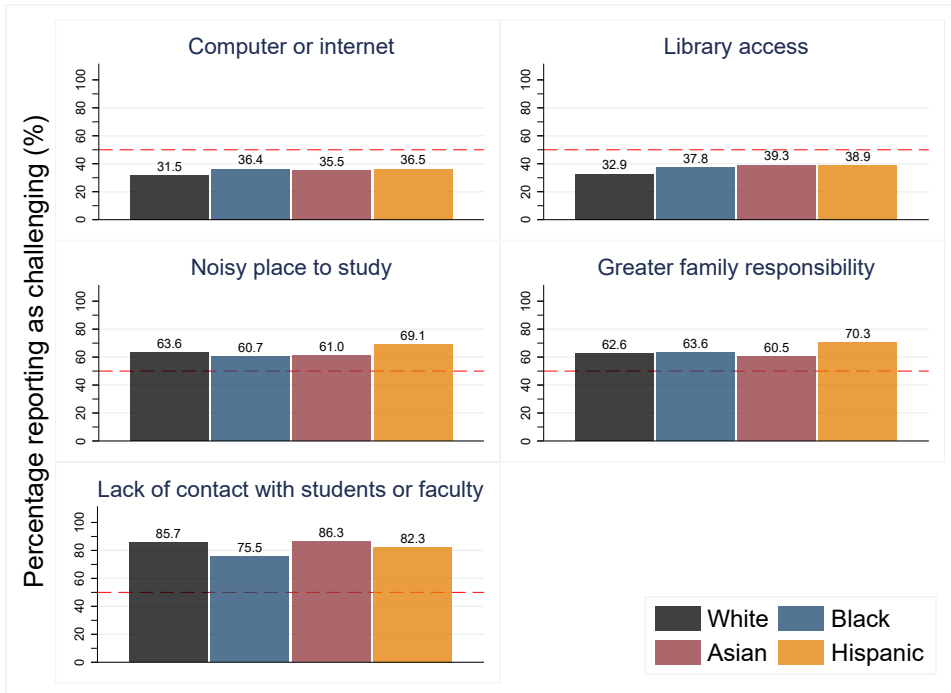
Note: This figure presents mean values of responses to question regarding challenges to completing coursework. The exact question was worded as “Did/does your situation since the COVID-19 pandemic present any challenges to completing your courses successfully? (check all that apply)” with the following options: (1) insufficient computer resources or internet problems, (2) library closed or insufficient library resources, (3) lack of a quiet place to study, (4) increased family responsibilities, and (5) (a) lack of contact with other students or (b) lack of contact with faculty. Each option is depicted as a separate panel and the responses are stratified by gender. Black bars are for males while navy bars are for females. Sample sizes for males and females respectively are 8920 and 20012. Equivalent regression analyses with and without controls are presented in panel B of Table A7.

ing their coursework. Regarding the rest of the challenges, we find a higher proportion of females than males reporting greater family responsibilities (56.7%), noisy place to study (61.4%), library access (38%) and computer or internet problems (34%).

**Racial differences in the US.** Figure 29 shows racial differences in educational challenges in the United States. In general, Hispanics are most likely to report computer or internet problems (36.5%), library access (38.9%), noisy place to study (69%) and greater family responsibilities (70%). In the case of lack of contact with other students and faculty, however, the proportion of students reporting this challenge is highest among Asians (86%) and Whites (85.7%).

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Figure 29: Education challenges, by race/ethnicity (US only)



Note: This figure presents mean values of responses to question regarding challenges to completing coursework. The exact question was worded as “Did/does your situation since the COVID-19 pandemic present any challenges to completing your courses successfully? (check all that apply)” with the following options: (1) insufficient computer resources or internet problems, (2) library closed or insufficient library resources, (3) lack of a quiet place to study, (4) increased family responsibilities, and (5) (a) lack of contact with other students or (b) lack of contact with faculty. Each option is depicted as a separate panel and the responses are stratified by race/ethnicity for the United States only. Black bars are for Whites, navy bars are for Blacks, maroon bars are for Asians, and orange bars are for Hispanics. Sample sizes for Whites, Blacks, Asians, and Hispanics respectively are 9963, 952, 1491 and 1951. Equivalent regression analyses with and without controls are presented in panel C of Table A7.

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### 3.2.3 Uncertainty about returning to school

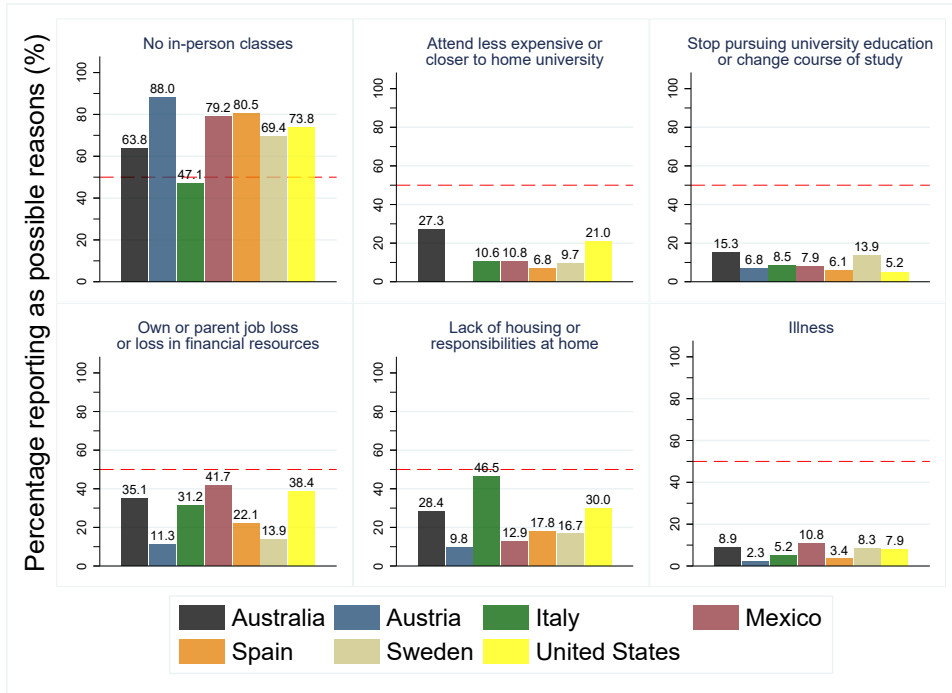
**Results by country.** Figure 30 shows differences among countries when it comes to the reasons why there is uncertainty about returning to school. In all countries, a significant percentage of students think that no in-person classes is the most important reason behind this uncertainty regarding Fall 2020 semester. Some differences between countries are also visible: in Austria and Spain a 88% and 80.5% of students, respectively, reported this reason whereas in Australia it is a 63.8% of students and in Italy only a 47.1%. On the other hand, Mexico, US and Australia, compared to other places, are the countries with a higher proportion of students reporting other reasons such as own or parent job loss or loss of financial resources (41.7% in Mexico, 38.4% in the US, and 35.1% in Australia). Italy shows a higher percentage of students reporting lack of housing or responsibilities at home (46.5%), and Australia is also the country reporting attending less expensive or closer to home university (27%) and stop pursuing college education or change the field of study (15%) as important reasons. A significant percentage of students in US also reported familiar job losses and financial issues (38.4%). In the case of US, two other reasons stand out: lack of housing and familiar responsibilities (30%) and attend less expensive or closer universities (21%).

**Parental income differences.** Figure 31 shows differences across the parental income distribution. There is a positive correlation between parental income and the percentage of students that reported no in-person classes as a factor behind the uncertainty to returning to classes in Fall 2020. The correlation between the importance of other reasons (mainly related to financial resources, familiar responsibilities or labour market consequences in the household) and parental income, however, is just the opposite. In the case of parental job loss or experiencing financial problems, the percentage of students in bottom quintiles that reported this reason (48.9%) is higher than in top quintiles (23%). In the case of lack of housing or responsibilities at home, this reason was reported by a 37.5% of students in the bottom quintile whereas in the top quintile only a 19.6% of students reported it. These results make sense given the labor market findings that we reported above.

**Gender differences.** Differences by gender are shown in Figure 32. In short, we do not find any meaningful differences across males and females. A similar percentage of males and females reported all the main reasons.

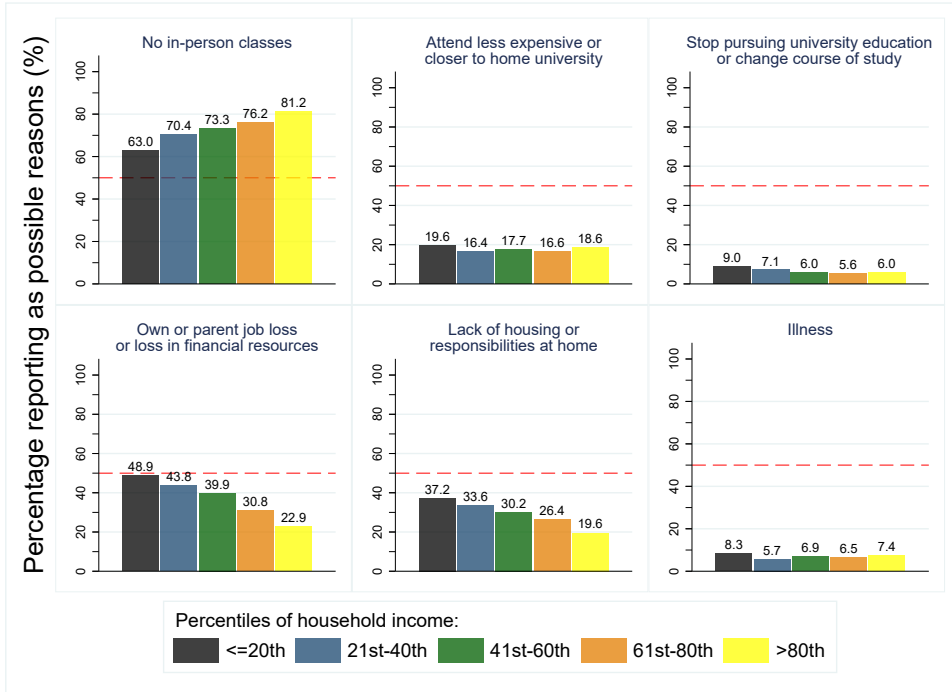
**Racial differences in the US.** Figure 33 shows the same reasons but by race and ethnicity for the US sample. White and Hispanic students are most likely to list no in-person classes as a source of uncertainty. At the same time, Hispanics along with Black students are most concerned about financial resources and family responsibilities which makes sense given that these two groups were disproportionately affected when it comes to the labor market. On the other hand, we do not find any striking differences when it comes to attending less

Figure 30: Reasons behind uncertainty about returning to school in Fall 2020, by country



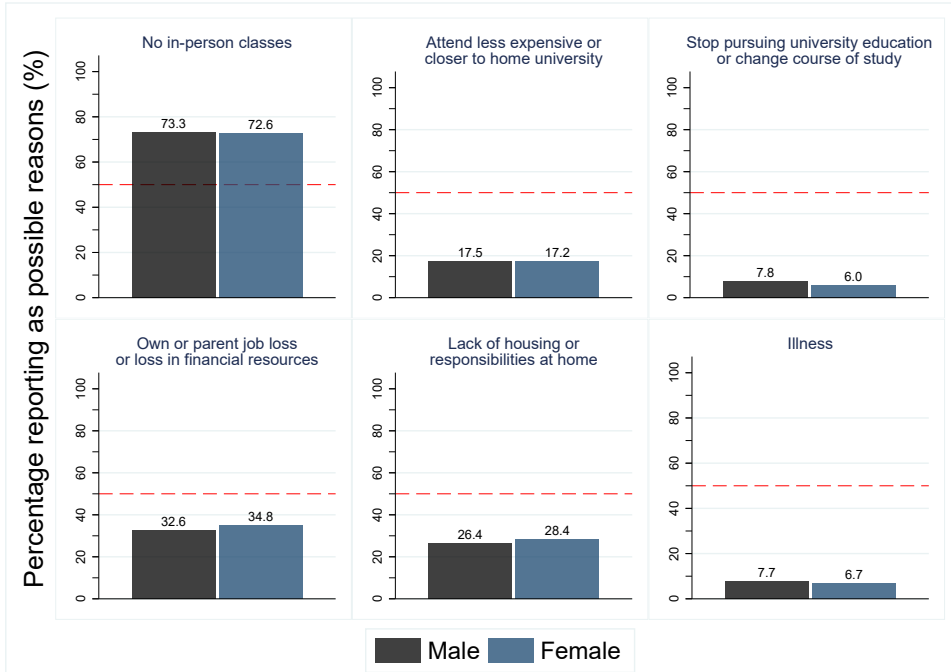
Note: This figure presents mean values of responses to question regarding reasons behind the possibility of not returning to university. The exact question was worded as “What factors might lead to your not returning to your university in Fall 2020? (check all that apply)” with the following options: (1) in-person classes do not resume, (2) want to go to university closer to home, (3) want to go to less expensive university (not asked in Austria), (4) want to change course of study, (5) want to stop going to university, (6) one or more parents laid off, (7) lost own job, (8) other loss of financial resources, (9) lack of housing, (10) responsibilities at home, and (11) illness. These questions were only presented to students who responded “yes” to the following question: “Is it possible that the COVID-19 pandemic might lead to your not returning to your current university in Fall 2020?”. For succinctness, the figure combines the following questions (2) and (3) as second panel, questions (4) and (5) as third panel, questions (6), (7), and (8) as fourth panel, questions (9) and (10) as fifth panel. Each option is depicted as a separate panel and the responses are stratified by country. Black bars are for Australia, navy for Austria, green for Italy, maroon for Mexico, orange for Spain, khaki for Sweden, and yellow for the United States. Sample sizes are 1298 for Australia, 133 for Austria, 792 for Italy, 240 for Mexico, 2552 for Spain, 72 for Sweden, and 6526 for the United States.

Figure 31: Reasons behind uncertainty about returning to school in Fall 2020, by parental income



Note: This figure presents mean values of responses to question regarding reasons behind the possibility of not returning to university. The exact question was worded as “What factors might lead to your not returning to your university in Fall 2020? (check all that apply)” with the following options: (1) in-person classes do not resume, (2) want to go to university closer to home, (3) want to go to less expensive university (not asked in Austria), (4) want to change course of study, (5) want to stop going to university, (6) one or more parents laid off, (7) lost own job, (8) other loss of financial resources, (9) lack of housing, (10) responsibilities at home, and (11) illness. These questions were only presented to students who responded “yes” to the following question: “Is it possible that the COVID-19 pandemic might lead to your not returning to your current university in Fall 2020?”. For succinctness, the figure combines the following questions (2) and (3) as second panel, questions (4) and (5) as third panel, questions (6), (7), and (8) as fourth panel, questions (9) and (10) as fifth panel. Each option is depicted as a separate panel and the responses are stratified by student’s household (parents) quintile which is country-specific based on national income distribution. Black bars are for bottom quintile, navy for 21st to 40th percentile, green for 41st to 60th percentile, orange for 61st to 80th percentile, and yellow for top quintile. Sample sizes across quintiles are 698, 1217, 1560, 1900 and 2570 for all but second panel. Sample sizes across quintiles for the second panel (“Attend less expensive or closer to home university”) are 693, 1202, 1549, 1885, and 2538. Equivalent regression analyses with and without controls are presented in panel A of Tables A8 and A9.

Figure 32: Reasons behind uncertainty about returning to school in Fall 2020, by gender



Note: This figure presents mean values of responses to question regarding reasons behind the possibility of not returning to university. The exact question was worded as “What factors might lead to your not returning to your university in Fall 2020? (check all that apply)” with the following options: (1) in-person classes do not resume, (2) want to go to university closer to home, (3) want to go to less expensive university (not asked in Austria), (4) want to change course of study, (5) want to stop going to university, (6) one or more parents laid off, (7) lost own job, (8) other loss of financial resources, (9) lack of housing, (10) responsibilities at home, and (11) illness. These questions were only presented to students who responded “yes” to the following question: “Is it possible that the COVID-19 pandemic might lead to your not returning to your current university in Fall 2020?”. For succinctness, the figure combines the following questions (2) and (3) as second panel, questions (4) and (5) as third panel, questions (6), (7), and (8) as fourth panel, questions (9) and (10) as fifth panel. Each option is depicted as a separate panel and the responses are stratified by gender. Black bars are for males while navy bars are for females. Sample sizes for males and females respectively are 3092 and 6668 for all but second panel. Sample sizes for males and females respectively for the second panel (“Attend less expensive or closer to home university”) are 3049 and 6591. Equivalent regression analyses with and without controls are presented in panel B of Tables A8 and A9.

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expensive university or one that is closer to home. Black students were the most likely, however, than any other race/ethnic group to report they would discontinue their university education.

### 3.2.4 Changes in studying time due to the pandemic

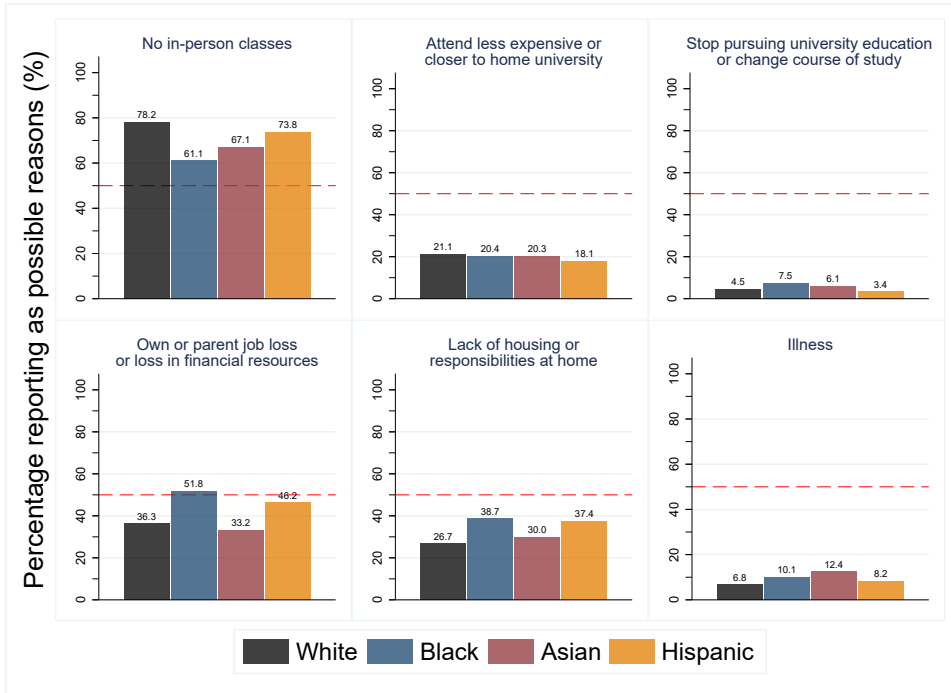
**Results by country.** Figure 34 shows differences across countries in the changes in the studying time due to the COVID-19 pandemic. In general, students devoting fewer hours (less than 15 hours per week) have increased their studying time as a consequence of pandemic in all the countries. In some cases, as in Sweden, the percentage of students in this category has changed from a 17% to a 26%. The percentage of students devoting a higher amount of hours per week before the pandemic (16-30 hours and over 30 hours per week), however, has been reduced in most countries. In some cases like the US, the percentage of students devoting between 16 and 30 hours has fallen from 47.3% to 32.6% and the percentage of students devoting more than 30 hours has fallen from a 23% to a 13%. There is one exception in this latter case; in Spain, the percentage of students devoting over 30 hours per week has raised from 38.5% up to a 44%. Thus, it appears that on average students in all countries shifted from more to less hours of studying time.

**Parental income differences.** Figure 35 shows the percentage of students by time devoted to study before and after the pandemic. In this case, the general pattern explored by country is consistent across different income levels. We observe a shift from studying 16 or more hours a week to between 1 and 15 hours a week. Interestingly, this shift appears larger for more compared to less affluent households. For example, rate of studying between 1 and 15 hours increases by 16 percentage points for those in the bottom income quintile and by 20 percentage points for those in the top.

**Gender differences.** Figure 36 shows documents differences by gender. Here we do not find any striking differences in studying time either before or during the pandemic.

**Racial differences in the US.** Figure 37 shows studying patterns by students race/ethnicity in the US. First, we observe differences in studying times across racial-ethnic categories. For example, before the pandemic, Asian students were most likely to study over 30 hours per week at 30.9% compared with only 17.9% for Black students. We observe reductions in study time across all groups considered, however, these are not uniform. The rate of studying only 1 to 15 hours increased by 26 percentage points for Whites but only by 21 percentage points for Black students who were most likely to study less in the pre-pandemic period. Conversely, declines in studying over 30 hours a week range from 13 percentage points for Asian students to 8 percentage points for Black students.

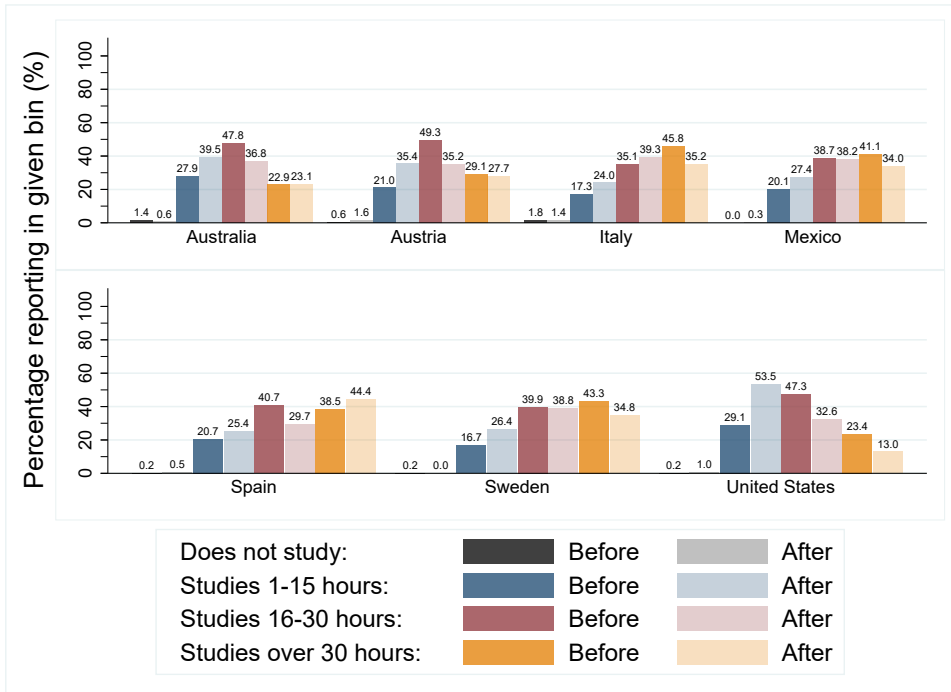
**Figure 33:** Reasons behind uncertainty about returning to school in Fall 2020, by race/ethnicity (US only)



Note: This figure presents mean values of responses to question regarding reasons behind the possibility of not returning to university. The exact question was worded as “What factors might lead to your not returning to your university in Fall 2020? (check all that apply)” with the following options: (1) in-person classes do not resume, (2) want to go to university closer to home, (3) want to go to less expensive university (not asked in Austria), (4) want to change course of study, (5) want to stop going to university, (6) one or more parents laid off, (7) lost own job, (8) other loss of financial resources, (9) lack of housing, (10) responsibilities at home, and (11) illness. These questions were only presented to students who responded “yes” to the following question: “Is it possible that the COVID-19 pandemic might lead to your not returning to your current university in Fall 2020?”. For succinctness, the figure combines the following questions (2) and (3) as second panel, questions (4) and (5) as third panel, questions (6), (7), and (8) as fourth panel, questions (9) and (10) as fifth panel. Each option is depicted as a separate panel and the responses are stratified by race/ethnicity for the United States only. Black bars are for Whites, navy bars are for Blacks, maroon bars are for Asians, and orange bars are for Hispanics. Sample sizes for Whites, Blacks, Asians, and Hispanics respectively are 3195, 388, 621 and 764. Equivalent regression analyses with and without controls are presented in panel C of Tables A8 and A9.

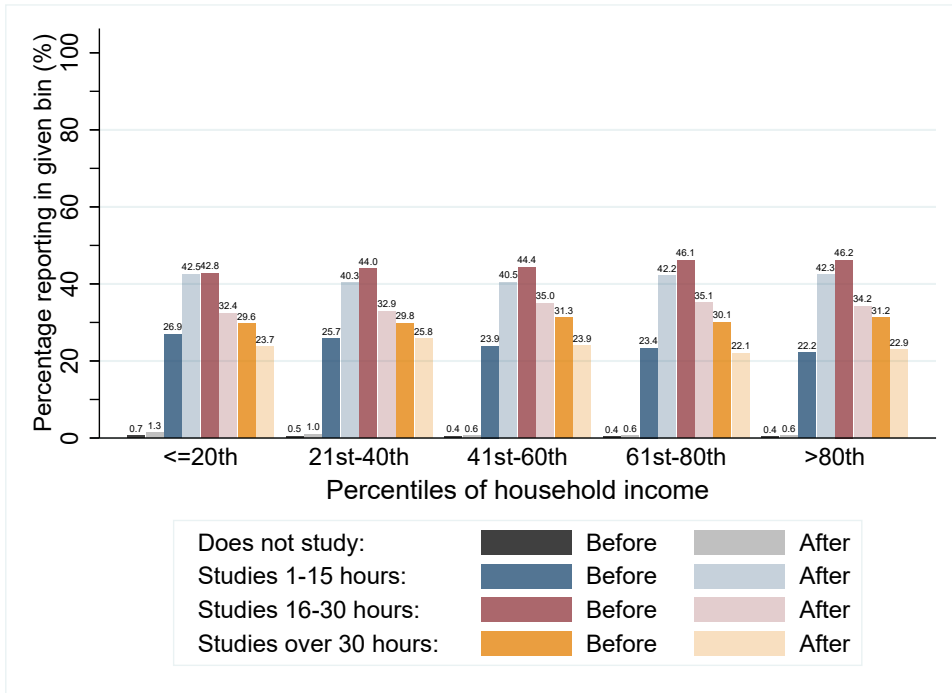
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Figure 34: Changes in studying time, by country



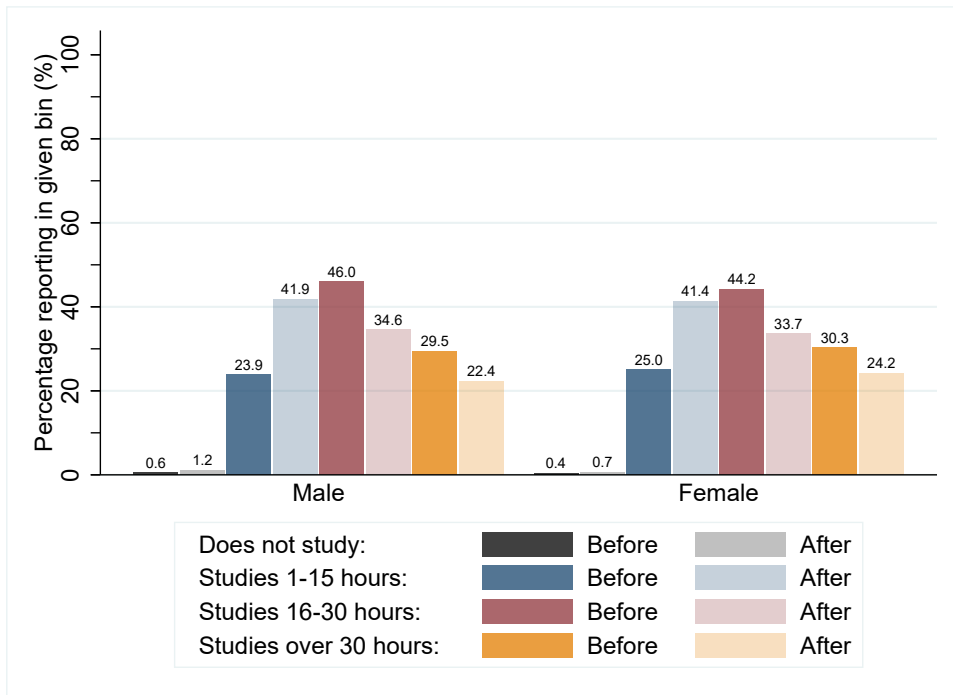
Note: This figure presents mean values of responses to questions regarding studying time of students prior to and since COVID-19 pandemic. The exact questions were "Before [Since] the COVID-19 pandemic, about how many hours per week did [do] you devote to academic work? (for example: attending class, reading class materials, attending labs, doing problem sets, writing papers, etc.)". Respondent had multiple options including: "None", 5-hour intervals above zero (e.g., "About 1-5 hours per week"), up to "More than 40 hours per week". We aggregated these responses to dichotomous scale of four variables depicted in this figure. Variables are multiplied by 100 and sum to 100 within a question. Black bars represent no studying, navy bars represent studying between 1 and 15 hours per week, maroon bars represent studying 16 to 30 hours per week, and orange bars represent studying more than 30 hours per week. Solid bars are for studying situation before while faded bars are for studying situation after the start of COVID-19 pandemic. Sample is divided by country. Top panel presents results for Australia, Austria, Italy, and Mexico while bottom panel presents results for Spain, Sweden, and the United States. Sample sizes are 4747 for Australia, 505 for Austria, 3851 for Italy, 591 for Mexico, 6434 for Spain, 564 for Sweden, and 19505 for the United States.

Figure 35: Changes in studying time, by parental income



Note: This figure presents mean values of responses to questions regarding studying time of students prior to and since COVID-19 pandemic. The exact questions were "Before [Since] the COVID-19 pandemic, about how many hours per week did [do] you devote to academic work? (for example: attending class, reading class materials, attending labs, doing problem sets, writing papers, etc.)". Respondent had multiple options including: "None", 5-hour intervals above zero (e.g., "About 1-5 hours per week"), up to "More than 40 hours per week". We aggregated these responses to dichotomous scale of four variables depicted in this figure. Variables are multiplied by 100 and sum to 100 within a question. Black bars represent no studying, navy bars represent studying between 1 and 15 hours per week, maroon bars represent studying 16 to 30 hours per week, and orange bars represent studying more than 30 hours per week. Solid bars are for studying situation before while faded bars are for studying situation after the start of COVID-19 pandemic. The responses are stratified by student's household (parents) quintile which is country-specific based on national income distribution. Sample sizes are 1796 for bottom quintile, 3211 for 21st to 40th percentile, 4473 for 41st to 60th percentile, 6041 for 61st to 80th percentile, and 8835 for top quintile.

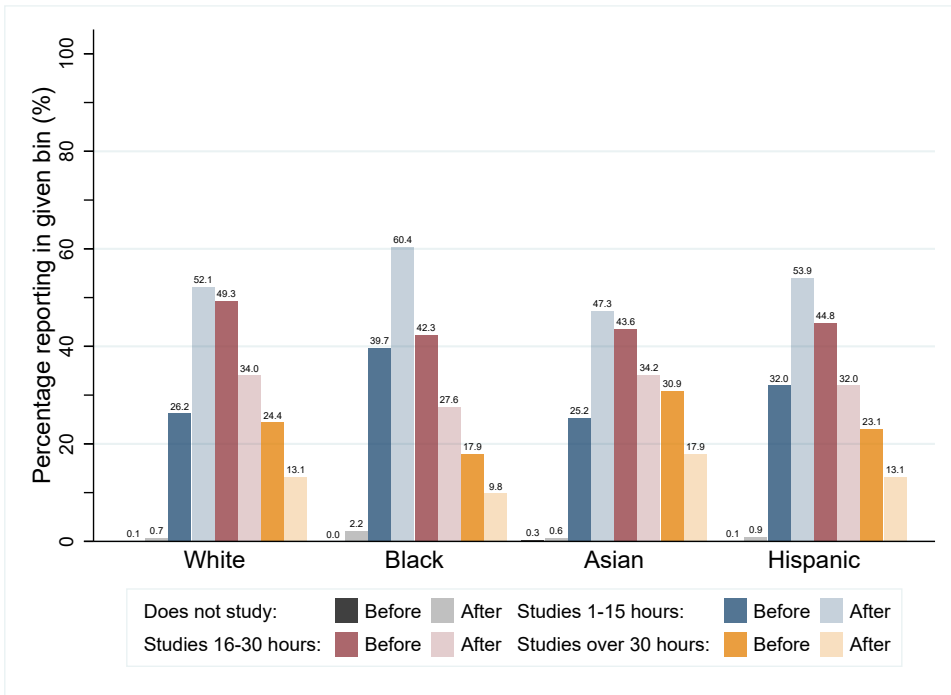
Figure 36: Changes in studying time, by gender



Note: This figure presents mean values of responses to questions regarding studying time of students prior to and since COVID-19 pandemic. The exact questions were "Before [Since] the COVID-19 pandemic, about how many hours per week did [do] you devote to academic work? (for example: attending class, reading class materials, attending labs, doing problem sets, writing papers, etc.)". Respondent had multiple options including: "None", 5-hour intervals above zero (e.g., "About 1-5 hours per week"), up to "More than 40 hours per week". We aggregated these responses to dichotomous scale of four variables depicted in this figure. Variables are multiplied by 100 and sum to 100 within a question. Black bars represent no studying, navy bars represent studying between 1 and 15 hours per week, maroon bars represent studying 16 to 30 hours per week, and orange bars represent studying more than 30 hours per week. Solid bars are for studying situation before while faded bars are for studying situation after the start of COVID-19 pandemic. The responses are stratified by student's gender. Sample sizes are 9537 for males and 20881 for females.

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Figure 37: Changes in studying time, by race/ethnicity (US only)



Note: This figure presents mean values of responses to questions regarding studying time of students prior to and since COVID-19 pandemic. The exact questions were "Before [Since] the COVID-19 pandemic, about how many hours per week did [do] you devote to academic work? (for example: attending class, reading class materials, attending labs, doing problem sets, writing papers, etc.)". Respondent had multiple options including: "None", 5-hour intervals above zero (e.g., "About 1-5 hours per week"), up to "More than 40 hours per week". We aggregated these responses to dichotomous scale of four variables depicted in this figure. Variables are multiplied by 100 and sum to 100 within a question. Black bars represent no studying, navy bars represent studying between 1 and 15 hours per week, maroon bars represent studying 16 to 30 hours per week, and orange bars represent studying more than 30 hours per week. Solid bars are for studying situation before while faded bars are for studying situation after the start of COVID-19 pandemic. The responses are stratified by race/ethnicity and gender for the United States only. Sample sizes are 10504, 999, 1550, and 2002, for Whites, Blacks, Asians, and Hispanics, respectively.

### 3.2.5 Discussion on educational outcomes

The GC19SS survey shows that COVID-19 has affected students' experiences at university across all analyzed countries. In this section, we have studied results on educational consequences, challenges, reasons behind the uncertainty to return to classes and changes in studying time.

Across all samples, the main reason for considering not returning to university is the lack of in-person classes, which suggests important implications from the university perspective. On the other hand other factors such as the role of financial resources or educational challenges exhibit more heterogeneous patterns.

The most important differences by country are based on family responsibilities (practically non-existent in Sweden to over 60% in the US) and in-person classes (especially important in Austria and Spain). Family responsibilities also exhibit large differences, with Swedish students being less affected opposite to what happened in countries like Mexico and Spain, where students reported a higher worrying. Physical barriers (as library and internet access) are also important in some countries like Spain, Australia and Mexico, which is possibly associated to rural-urban segregation.

We discover relatively large differences by household income when it comes to educational challenges related to infrastructure such as computer or internet as well as library access. This could be due to the fact that lower SES students disproportionately rely on university resources and infrastructure for their educational success. Interestingly, these students were least concern with lack of in-person classes and most troubled by financial and family concerns. This makes sense if poorer students treat university education as investment rather than consumption good, however, they were also most likely to stop pursuing tertiary education altogether.

Although, we did not find many striking differences by gender, except for perhaps women disproportionately reporting lack of quiet place to study and elevated family responsibilities, we did observed gaps by racial-ethnic groups in the US. In the US it appears that Hispanic students were particularly affected when it comes to educational challenges. They were the most likely to report being limited by noisy study place and greater family responsibilities. Furthermore, Black and Hispanic students are more likely not to return to school in Fall 2020, due to reasons like lack of housing, family responsibilities, loss of own job, and other financial losses. Lack of contact with other students of lack of in-person classes seems to be more important for Asians and Whites. Finally, Black students are most likely to stop pursuing university education.

### 3.3 Health outcomes

#### 3.3.1 COVID-19 incidence

We describe how the pandemic affected the health outcomes of students and their families, both in terms of direct COVID-19 incidence as well as mental health issues. We first document to what degree have students experienced COVID-19 symptoms, tested positive for COVID-19, or had a family member or acquaintance die from COVID-19.

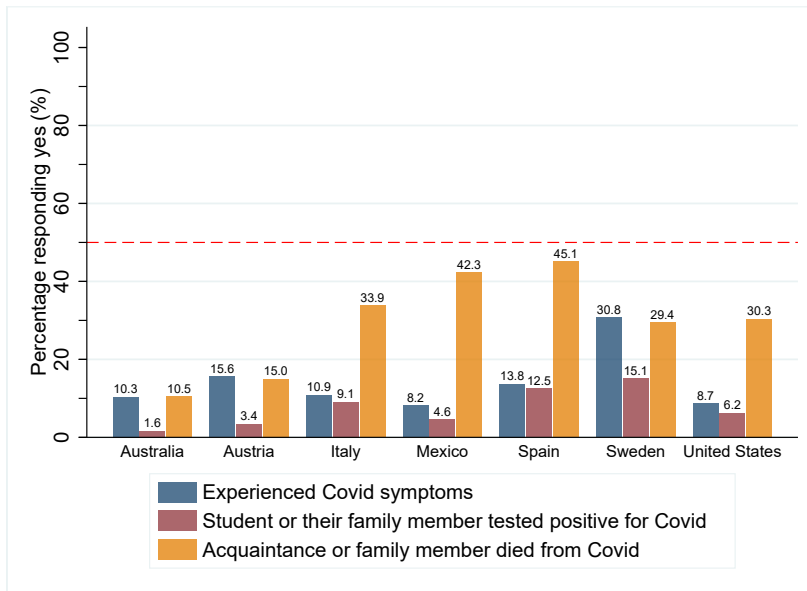
**Results by country.** Figure 38 shows how COVID-19 incidence has differentially affected undergraduates across countries in the survey. Students in Sweden, which did not close down its economy although universities moved to remote instruction for the most part, were by far the most likely to experience COVID-19 symptoms (31%). They were followed by Austria and Spain (16% and 14%, respectively), and Italy, Australia, the US, and Mexico (11%, 10%, 9%, and 8%, respectively). Testing positively for COVID-19, either the student themselves or their family member, also varied across countries. Sweden and Spain had the highest rates of positive testing (15% and 13%, respectively), followed by Italy (9%), the US (6%), Mexico (5%), Austria (3%), and Australia (2%). Students also reported relatively high rates of having lost an acquaintance or family member to COVID-19: 45% did so in Spain, 42% in Mexico, 34% in Italy, 30% in the US, 29% in Sweden, 15% in Austria, and 11% in Australia.

**Parental income differences.** Figure 39 shows COVID incidence by parental income quintiles. Incidence across students of different socioeconomic backgrounds was fairly similar, without clear parental income gradients. Across groups, between 9%–11% experienced COVID symptoms, 6%–7% tested positive for COVID (either themselves or their family member), and 30%–33% had an acquaintance or family member die from COVID-19.

**Gender differences.** COVID-19 incidence was also quite similar for male and female students. Figure 40 shows that 10% of both men and women experienced symptoms, while 7% of both genders tested positive (either themselves or their family member). A slight difference arises in the fraction reporting having an acquaintance or family member die from COVID-19, with 28% of men doing so compared to 32% of women.

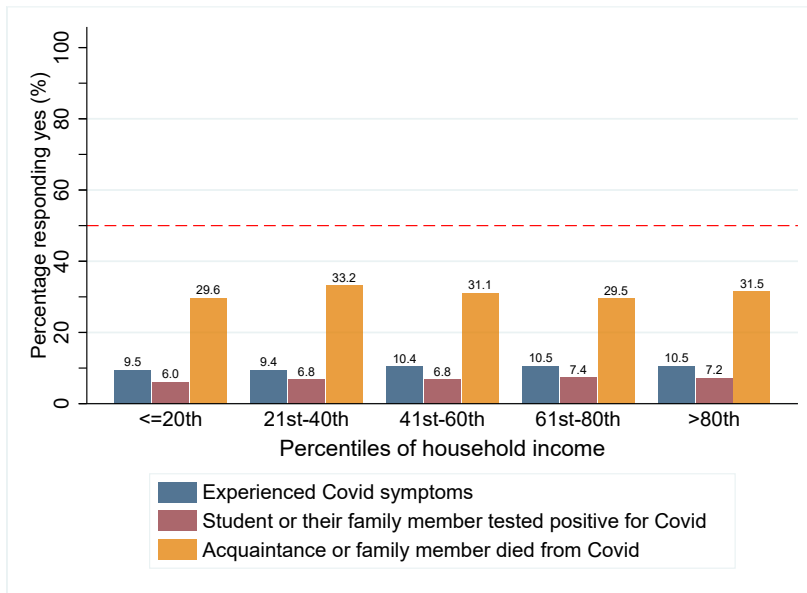
**Racial differences in the US.** Figure 41 shows that COVID-19 incidence in the US was quite different for students of different races/ethnicities. White students were the more likely to report having experienced symptoms (9%), compared to Hispanics (8%), Blacks (7%), and Asians (6%). In terms of testing positive and deaths, however, Blacks and Hispanics were the hardest hit. Among Blacks and Hispanics, 8% had a positive test (either themselves or their family member), compared to 6% of Whites and 3% of Asians. Black students experienced by far the most deaths among acquaintances and family members (42% of them did), followed by Hispanics (32%), and Asians and Whites (28%).

Figure 38: COVID incidence, by country



Note: This figure presents mean values of responses to the following five questions/statements: (1) I have experienced symptoms (dry cough, fever, aches) that are consistent with COVID-19 (navy bars); (2) (a) I have been positively diagnosed with COVID-19 or (b) One of my immediate family members (parents, siblings, partner) has been positively diagnosed with COVID-19 (maroon bars); (3) (a) One of my immediate family members (parents, siblings, partner) has died from COVID-19 or (b) I know someone outside of my immediate family who has died from COVID-19 (orange bars). Sample is divided by country. Sample sizes are 3645 for Australia, 320 for Austria, 2435 (questions 1 and 2) and 1480 (question 3) for Italy, 525 for Mexico, 5311 for Spain, 377 for Sweden, and 15650 for the United States.

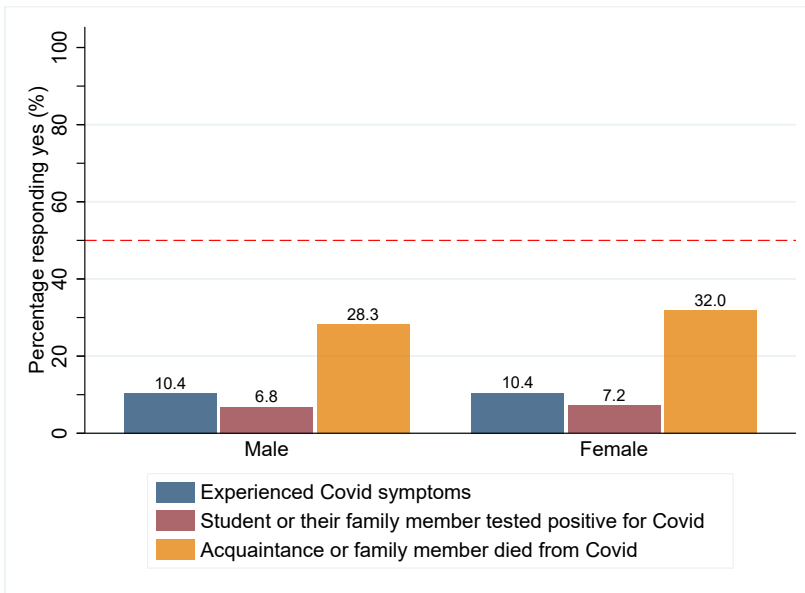
Figure 39: COVID incidence, by parental income



Note: This figure presents mean values of responses to the following five questions/statements: (1) I have experienced symptoms (dry cough, fever, aches) that are consistent with COVID-19 (navy bars); (2) (a) I have been positively diagnosed with COVID-19 or (b) One of my immediate family members (parents, siblings, partner) has been positively diagnosed with COVID-19 (maroon bars); (3) (a) One of my immediate family members (parents, siblings, partner) has died from COVID-19 or (b) I know someone outside of my immediate family who has died from COVID-19 (orange bars). The responses are stratified by student’s household (parents) quintile which is country-specific based on national income distribution. Sample sizes for questions (1) and (2) are 1637 for bottom quintile, 2897 for 21st to 40th percentile, 3953 for 41st to 60th percentile, 5327 for 61st to 80th percentile, and 7808 for top quintile. Equivalent numbers for question (3) are 1556, 2765, 3814, 5124, and 7566. Equivalent regression analyses with and without controls are presented in panel A of Table A10.

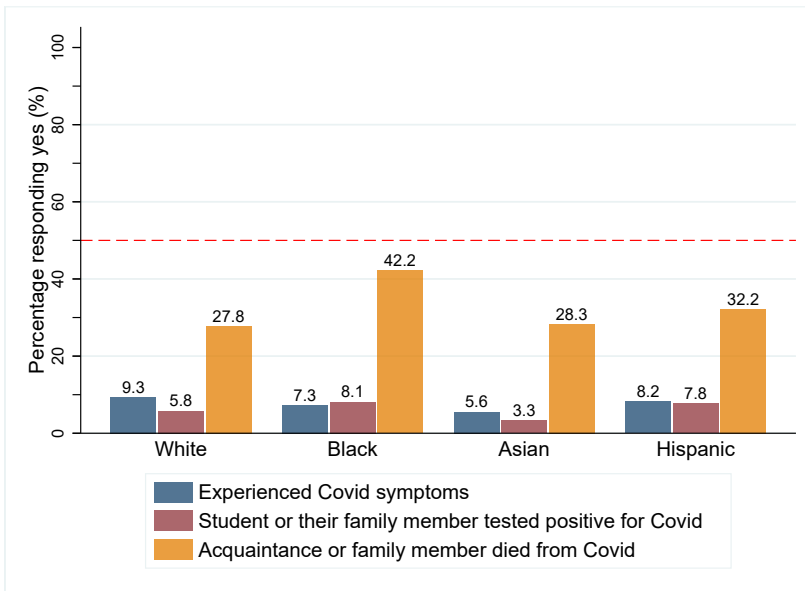
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Figure 40: COVID incidence, by gender



Note: This figure presents mean values of responses to the following five questions/statements: (1) I have experienced symptoms (dry cough, fever, aches) that are consistent with COVID-19 (navy bars); (2) (a) I have been positively diagnosed with COVID-19 or (b) One of my immediate family members (parents, siblings, partner) has been positively diagnosed with COVID-19 (maroon bars); (3) (a) One of my immediate family members (parents, siblings, partner) has died from COVID-19 or (b) I know someone outside of my immediate family who has died from COVID-19 (orange bars). The responses are stratified by student's gender. Sample sizes are 8123 for males and 18707 for females for questions (1) and (2) while they are 7850 and 18039 for question (3). Equivalent regression analyses with and without controls are presented in panel B of Table A10.

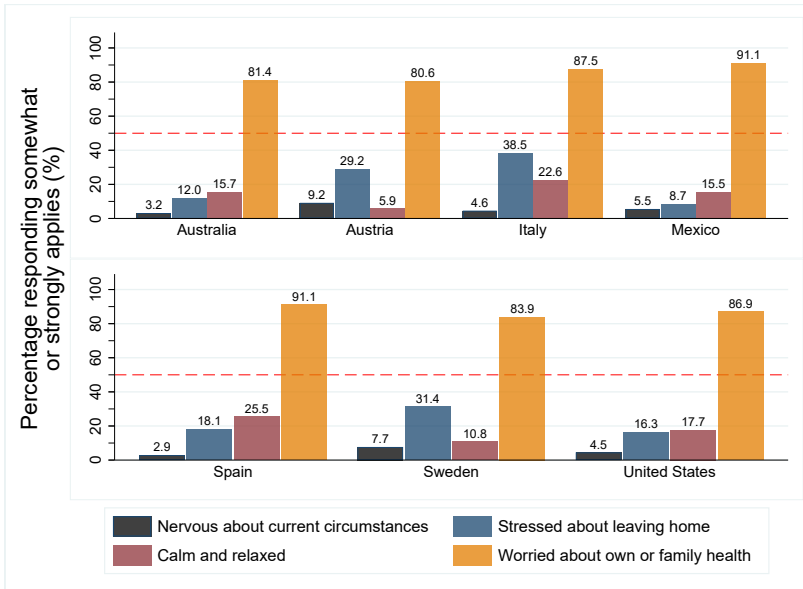
Figure 41: COVID incidence, by race/ethnicity (US only)



Note: This figure presents mean values of responses to the following five questions/statements: (1) I have experienced symptoms (dry cough, fever, aches) that are consistent with COVID-19 (navy bars); (2) (a) I have been positively diagnosed with COVID-19 or (b) One of my immediate family members (parents, siblings, partner) has been positively diagnosed with COVID-19 (maroon bars); (3) (a) One of my immediate family members (parents, siblings, partner) has died from COVID-19 or (b) I know someone outside of my immediate family who has died from COVID-19 (orange bars). The responses are stratified by race/ethnicity and gender for the United States only. Sample sizes are 9395, 959, 1436, and 1933, for Whites, Blacks, Asians, and Hispanics, respectively. Equivalent regression analyses with and without controls are presented in panel C of Table A10.

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Figure 42: Mental health issues related to the pandemic, by country



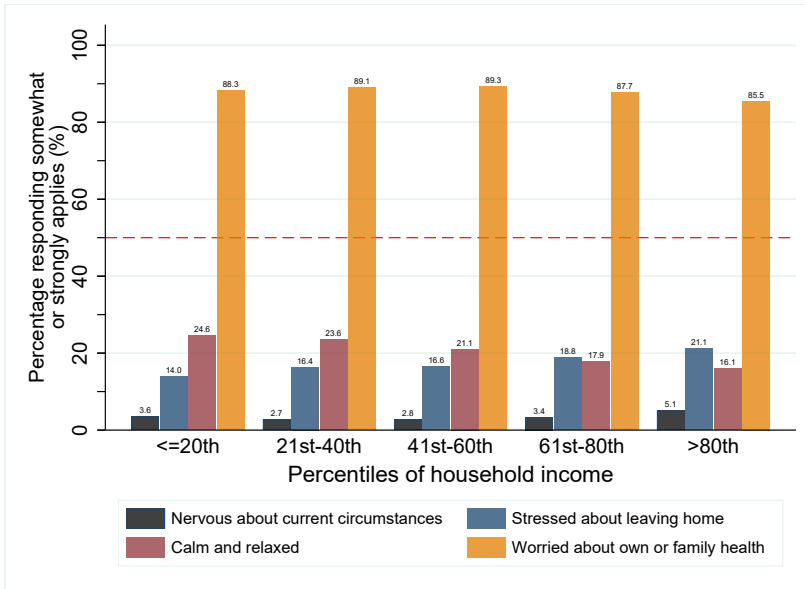
Note: This figure presents mean values of responses to the following five questions/statements: (1) I am nervous when I think about current circumstance (black bars); (2) I feel stressed about leaving my house (navy bars); (3) I am calm and relaxed (maroon bars); (4) (a) I am worried about my health or (b) I am worried about the health of my family members (orange bars). Sample is divided by country. Top panel presents results for Australia, Austria, Italy, and Mexico while bottom panel presents results for Spain, Sweden, and the United States. Sample sizes are 4165 for Australia, 459 for Austria, 3655 for Italy, 541 for Mexico, 5594 for Spain, 509 for Sweden, and 17053 for the United States.

### 3.3.2 Mental health

We also investigated the extent to which the pandemic has affected undergraduates' mental health. We focus on the level of nervousness and stress that they felt regarding the pandemic, as well as how worried they were about their health and that of their families.

**Results by country.** Figure 42 shows that the vast majority of students across countries was worried about their health or that of their family members, from 81% in Austria to 91% in Mexico and Spain. A fair amount of students—which varies across countries—reported being stressed about leaving home: 39% in Italy, 31% in Sweden, 29% in Austria, 18% in Spain, 16% in the US, 12% in Australia, and 9% in Mexico. The fraction explicitly reporting being nervous about current circumstances also varied across countries, ranging from 3% in Spain and Australia up to 9% in Austria. Lastly, it was not uncommon for some students to report being calm and relaxed. In Spain, 26% reported so, followed by Italy (23%), the US (18%), Australia and Mexico (16%), Sweden (11%), and Austria (6%).

Figure 43: Mental health issues related to the pandemic, by household income



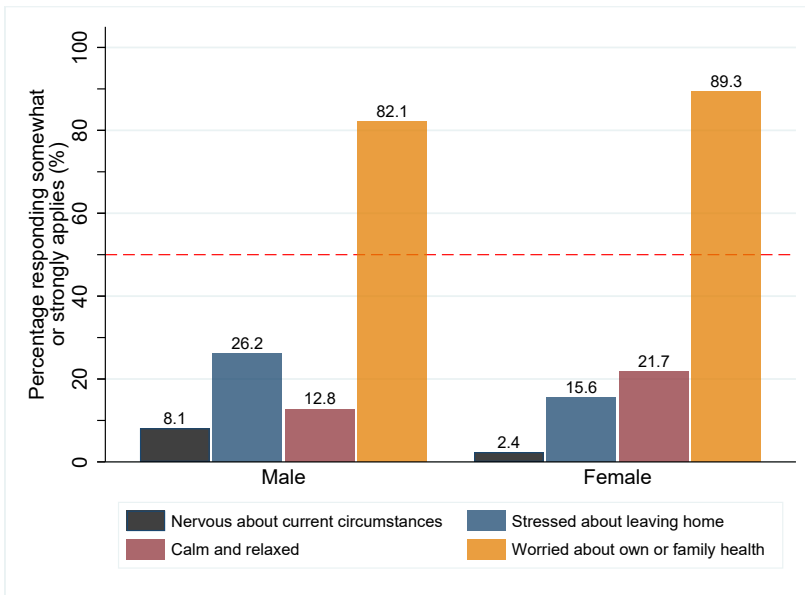
Note: This figure presents mean values of responses to the following five questions/statements: (1) I am nervous when I think about current circumstance (black bars); (2) I feel stressed about leaving my house (navy bars); (3) I am calm and relaxed (maroon bars); (4) (a) I am worried about my health or (b) I am worried about the health of my family members (orange bars). The responses are stratified by student’s household (parents) quintile which is country-specific based on national income distribution. Sample sizes are 1793 for bottom quintile, 3212 for 21st to 40th percentile, 4456 for 41st to 60th percentile, 6046 for 61st to 80th percentile, and 8824 for top quintile. Equivalent regression analyses with and without controls are presented in panel A of Table A11.

**Parental income differences.** Figure 43 shows mental health outcomes by parental income. Worrying about own or family health was quite similar across groups, with a small difference between those in the top quintile (86%) compared to the other four quintiles (88%–89%). At the same time, students from wealthier backgrounds were more stressed about leaving their home (21% of top-quintile vs. 14% of bottom-quintile students), somewhat more likely to report being nervous about current circumstances (5.1% vs. 3.6%), and less likely to feel calmed and relaxed (16% vs. 25%).

**Gender differences.** Figure 44 shows that women were more likely than men to be worried about their own or their family’s health (89% of women vs. 82% of men). They were less likely to be nervous about current circumstances (2.4% vs. 8.1%), less stressed about leaving home (16% vs. 26%), and more likely to feel calm and relaxed (22% vs. 13%).

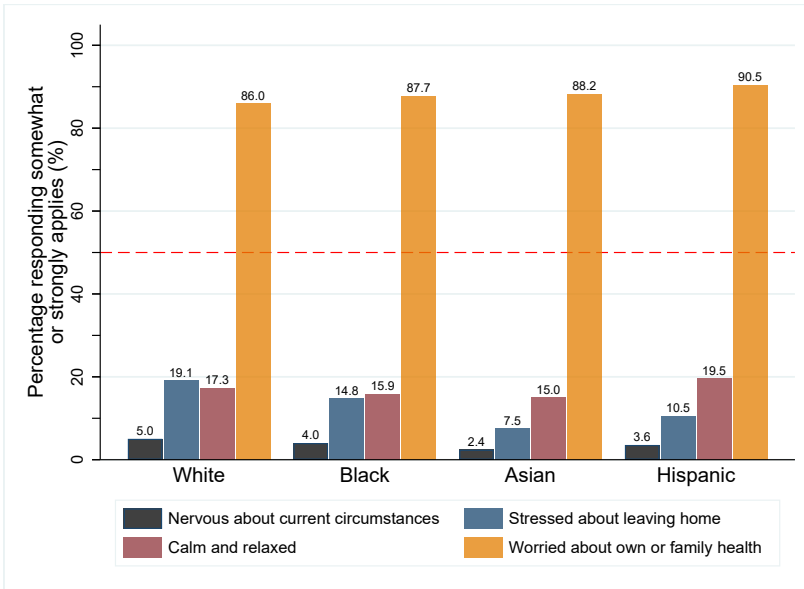
**Racial differences in the US.** Figure 45 shows that, across all races/ethnicities, the fraction of students being worried about their own or their family’s health was very high, but particularly so among Hispanics (91%), followed by Asians and Blacks (88%), and then Whites (86%). Whites, however, were the most likely to report being stressed about leaving home

Figure 44: Mental health issues related to the pandemic, by gender



Note: This figure presents mean values of responses to the following five questions/statements: (1) I am nervous when I think about current circumstance (black bars); (2) I feel stressed about leaving my house (navy bars); (3) I am calm and relaxed (maroon bars); (4) (a) I am worried about my health or (b) I am worried about the health of my family members (orange bars). The responses are stratified by student’s gender. Sample sizes are 9515 for males and 20812 for females. Equivalent regression analyses with and without controls are presented in panel B of Table A11.

Figure 45: Mental health issues related to the pandemic, by race/ethnicity (US only)



Note: This figure presents mean values of responses to the following five questions/statements: (1) I am nervous when I think about current circumstance (black bars); (2) I feel stressed about leaving my house (navy bars); (3) I am calm and relaxed (maroon bars); (4) (a) I am worried about my health or (b) I am worried about the health of my family members (orange bars). The responses are stratified by race/ethnicity and gender for the United States only. Sample sizes are 10457, 994, 1527, and 1995, for Whites, Blacks, Asians, and Hispanics, respectively. Equivalent regression analyses with and without controls are presented in panel C of Table A11.

(19%, compared to 15% Blacks, 11% Hispanics, and 8% Asians) or being nervous about current circumstances (5% of Whites, compared to 4% Blacks, 3.6% Hispanics, and 2.4% Asians). Hispanics were the most likely to report being calm and relaxed (20%), followed by Whites (17%), Blacks (16%), and Asians (15%).

### 3.3.3 Discussion of health outcomes

The GC19SS survey shows that the dramatic health consequences of COVID-19 felt around the world also acutely affected undergraduate students. Across the countries in our sample, a substantial number of students experienced COVID-19 symptoms and large fractions of them had an acquaintance or family member die from COVID-19. Their mental health also took a toll, with substantial fractions feeling nervous about the pandemic or stressed about leaving home. Almost all of them were worried about their own health or that of their family.

While we find no large differences in COVID-19 incidence by parental income or gender, substantial disparities by race/ethnicity arise in the US. According to the US Center for Disease Control, African Americans have been hardest hit by COVID-19, with roughly twice the documented infection rate, five times the hospitalization rate and twice the death rate,

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compared with Whites.<sup>10</sup> This is also to certain degree reflected in our data. Prior to the pandemic, Black-White differences in mortality were staggering, with age-adjusted mortality rates for Blacks equal to the same levels for Whites from thirty years ago (Wrigley-Field, 2020).<sup>11</sup> Thus, the pandemic, if anything, likely exacerbated these differences.

In the GC19SS, Whites were more likely to report experiencing symptoms, but Blacks and Hispanics experienced positive tests and the death of someone in their social or family network at significantly higher rates. Compared to racial minorities and women, Whites and men were more likely to be nervous and/or stressed about the pandemic and its consequences.

## 4 Conclusions

The global COVID-19 pandemic has affected educational experiences of university students in most countries, harmed their employment status as well as that of their family members, and created concerns about physical and mental health. College students' situations and perspectives have been transformed as a result of both the health crisis and the economic impact on the labor market and household conditions.

To learn about how the pandemic affected college students' education experiences, labor market prospects, and physical and mental health, a group of researchers designed the Global COVID-19 Student Survey (GC19SS). The survey asks students about their and their families' employment situations, changes in career considerations, earnings expectations, education experiences and challenges, uncertainty about returning to school, changes in study habits, mental health, and incidence of COVID-19. We analyze the data from the GC19SS by stratifying by country, parental income, gender, and race/ethnicity (US only).

College students' and their parents experienced high rates of job loss during the pandemic, particularly in the US, Spain and Australia and for students from lower-income households. Many graduating seniors had accepted job offers only to have them rescinded. The cancellation of job offers was particularly extensive in Spain (58%), for students from lower-income households (56%), and for Hispanics in the US (36%). In addition, many students had internships planned for the summer, and a large share were cancelled due to the pandemic. The percentages of students with cancelled internships varies across countries, with over half of the internships cancelled for students in Spain, the US, and Sweden. Internship cancellations tended to be more common for women (55%) than for men (50%), but the percentages with internships cancelled does not vary across household income or race/ethnicity (in the US).

The pandemic triggered changes in career considerations as well as expectations about future earnings. Over half of college students across all countries, household income groups, genders, and races/ethnicities (in the US) consider job security, paid sick leave, and flexible

<sup>10</sup>Hispanics have similar infection and hospitalization rates to Blacks, however, the COVID19 death rate is similar to Whites. See <https://www.cdc.gov/coronavirus/2019-ncov/COVID-data/investigations-discovery/hospitalization-death-by-race-ethnicity.html>

<sup>11</sup>White excess mortality, associated with COVID-19, would need to increase by a factor of six to reach the best Black mortality rates outside of the pandemic (Wrigley-Field, 2020).

work arrangements to be more important given the pandemic. We note, however, there are sizable differences across countries, for household income percentiles, between men and women, and for different races/ethnicities. In terms of earnings expectations at the ages of 30 and 45, students in some of the countries expect to be earning above average incomes at either or both 30 and 45 years of age. Exceptions include students from Spain and Australia. Around 70% of students with household incomes above the 80th percentile expect to earn more than the average at both ages. Slightly less than half of students with parental incomes below the 20th percentile expect to be earning less than the average at both ages. Over 60% of men expect to be earning above average incomes at 30 and 45 years old, but only 53% of women expect to be earning above average income at age 30 and 46% expect to earn above average incomes at age 45.

The pandemic induced changes in how students allocate their time. The share of students who reported not working before the pandemic compared with the analogous share during the pandemic increased dramatically across countries, parental income groups, genders, and races/ethnicities (US only). For those who worked before, the vast majority of them report working less after the onset of the pandemic. Students who tended to study more before, however, reduced time allocated to studying. The patterns also hold, with only a few exceptions, across the stratifying variables.

College students in most the countries in the survey report high degree of uncertainty about attending college in Fall 2020. However, that uncertainty is much smaller in Sweden than it is other countries, such as Spain, Mexico, and the US. The percentage of students who are uncertain about returning to school is highest for students with parental incomes at or below the 40th percentile. Likewise, the uncertainty associated with returning to school is also higher among members of minority groups in the US (Black, Asian, Hispanic). The primary reason behind the uncertainty of returning to school is the prospect of the university offering no in-person classes. Loss of financial resources or job losses either for the student or their parents also impacts the uncertainty of returning to school, but this varies by parental income and race/ethnicity (in the US). The main challenge students faced was lack of contact with other students and faculty, but having a noisy place to study and greater family responsibilities are noteworthy challenges in some countries (e.g., Mexico, Spain, and the US), for students from households with lower parental incomes, for women, and for Hispanic students in the US.

In terms of health, the percentage of students having tested positive or knowing someone who tested positive for COVID-19 varies widely across countries, with students in Sweden with the highest rates followed by Spain. The incidence of COVID-19 appears fairly invariant to parental income and gender, but Black and Hispanic students were more likely to have tested positive or know someone who did than White and Asian students. The percentage of students who have an acquaintance or family member that died from COVID-19 is highest in Spain (45%) and Mexico (42%), but the percentage does not vary sizeably across parental income. The rate is slightly higher for women over men (32% vs. 28%) and, in the US, the percentage of Black students who know someone who died from

COVID-19 is 42% versus much lower rates for White (28%), Asian (28%), and Hispanic (32%) students. A large share of students across all countries, parental income groups, genders, and races/ethnicities (in the US) report being worried about their own health or the health of family members. Male students tend to be more nervous and stressed about the pandemic than women, while a larger share of women than men report being calm and relaxed.

As of May 2021 the COVID-19 pandemic caused at least 150 million infections and over 3 million deaths but these consequences have not been uniform across countries, socioeconomic groups or races and ethnicities. In this paper we documented the consequences of the pandemic for university students across seven countries and 29 institutions. Despite the varying penetration of the virus it appears that students across settings suffered from the pandemic in terms of their labor market, educational and health outcomes. On the one hand, the degree of heterogeneity in these consequences was relatively small. On the other hand, however, we detected patterns that if anything will likely deepen the inequalities that existed prior to the pandemic with lower-SES students, females, and minorities bearing the disproportionate burden. We hope that gaps or lack of thereof in some cases, which we identified in this paper will guide university administrators and policy makers in more effectively overcoming the consequences of COVID-19 pandemic for the tertiary education. Our subsequent data collection will also allow us to verify to what degree the uncertainties and worries of students in our sample materialized providing one of the first international panel evidence on student's experiences during this unprecedented health shock.

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