

Impacts of The COVID-19 Pandemic On First-Generation, Low-Income And Rural Students In Indonesia And Vietnam: A Cross-Cultural Comparative Study

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ABSTRACT

Comparative studies around the impact of the COVID-19 pandemic are still limited. This paper explores the question: how has the COVID-19 pandemic affected higher education students, and which ones have been most impacted? Indonesia and Vietnam are our focus. We leveraged a rich set of data collected online from both countries (n = 2600). We used regression analyses to measure students' wellbeing, financial hardships, access to technology, and educational satisfaction. As expected, we found statistically significant differences between both countries except for the wellbeing domain. For within-country comparison, consistent for both countries, low-income students were less likely to access technology and were more likely to experience financial distress than their counterparts. Indonesian first-gen students also showed a similar trend. Lastly, we observed a lower likelihood of satisfaction from rural and low-income students in Indonesia for their education during the pandemic. We provide our policy recommendations for both countries.

Keywords: COVID-19 pandemic, comparative study, disadvantaged students, first-generation, higher education, low-income, rural

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INTRODUCTION

The COVID-19 pandemic has affected 600 million students in higher education institutions across 200 countries. Studies from across the world have also shown that there is a widening gap for access to digital devices across socioeconomic (SES) status (Adnan & Anwar, 2020; Murgatroid, 2020; Pokhrel, 2021; Rodriguez-Planas, 2020; UNESCO, 2020; World Bank 2020b). This study aims to explore the question: how has the COVID-19 pandemic affected higher education students, and which ones have been impacted the most? We focus specifically on Indonesia and Vietnam.

The COVID-19 pandemic has affected students' outcomes in higher education in Indonesia and Vietnam, particularly students' well-being, access to technology, the financial hardships they have endured, and their satisfaction with the quality of learning throughout the pandemic. Many studies focused on the COVID-19 pandemic and its impact on higher education have only examined within-country or its regional effects (Aucejo et al., 2020; Agasisti & Soncin, 2021; Arënliu et al., 2021; Coman et al., 2020; Rodriguez-Planas, 2020). However, no comparative studies have explored this question for the Southeast Asia (SEA) region, one of the most rapidly industrializing, urbanizing, and fast growing economic regions globally in the second quarter of 2020 before the COVID-19 pandemic hit (Djalante et al., 2020). For developing countries such as Indonesia and Vietnam, the pandemic's enormous impact on their higher education students has been notable. Throughout this study, we intend to bridge the gaps that we observe in the literature.

We selected Indonesia and Vietnam as two countries to compare for several reasons. First, they are both from the SEA region. They are experiencing demographic bonus dividends from their respective populations in which there will be an increase in labor market participation that may boost the productivity of their economies. These two countries have invested in their higher education systems in anticipation of current and future demographic dividends that will positively impact their economies (Afandi, 2017, World Bank, 2016). As a result, there has been an upward trend in the total enrollment of higher education students over the last two decades, including first-generation higher education students (Asian Development Bank, 2011). Therefore, examining the COVID-19 pandemic's impact on these two countries sheds light on future policy implications. Second, studies have shown that the retention rate of SEA first-generation students is among the lowest rates for students in higher education systems across the globe. Understanding the context of these two countries deeply is worthwhile because they were simultaneously trying to provide financial assistance to low-income families during the pandemic (Djalante et al., 2020). Third, there are different approaches to how the two governments handled the pandemic. Vietnam has shown itself to be one of the most successful countries globally for its handling of the COVID-19 pandemic, while in stark contrast, Indonesia has suffered immensely from the pandemic (Djalante et al., 2020; UN News, 2020; Willoughby, 2021).

With more than 12 million higher education students in the SEA region and over 75% of them from Vietnam and Indonesia, our study will provide important lessons learned about the impact of the COVID-19 pandemic on higher education students in the SEA region. Ideally, in future research, we hope to include other countries in the SEA region that have shared cultural and demographic similarities with Indonesia and Vietnam for more robust results. However, we decided to only compare these two countries with our current time and resource constraints. Future research will build on our findings by including more countries in the SEA region.

The remainder of this paper will be divided into four sections. First, we will discuss the theoretical framework, prior research findings, and the literature, as well as comparative studies about the COVID-19 pandemic and its impact on higher education. In addition, we will highlight parts of the literature that aim to bridge the gap with our research study. Second, we will elaborate on the cross-sectional data in this study, specifically the methods and empirical strategies that we will employ to test our hypothesis. Third, we will present our results and discuss our findings. Finally, we will conclude with our findings, discuss important policy implications, acknowledge the limitations of our study, and point out opportunities for future studies.

THEORETICAL FRAMEWORK

Currently, no specific theoretical framework is geared towards the wellbeing and burnout of college students when referring to the current COVID-19 pandemic. Therefore, our research draws prominent theories developed before the pandemic, mainly from industrial and organizational psychology. The concepts of well-being and burnout have been thoroughly researched in recent decades and are confirmed to be psychological and multidimensional. In the realm of psychological well-being, researchers have proposed many theories. Ryan and Deci (2001) summarized two primary theoretical views in their study of well-being: the hedonic view and the eudaimonic view. The hedonic view suggests that “well-being consists of pleasure and happiness” (p. 143). The eudaimonic view states that “well-being consists of more than just happiness” but “in the actualization of human potentials” (p. 143). More specifically, Ryff (1989) proposed six dimensions of psychological well-being: autonomy, environmental mastery, personal growth, positive relationships, purpose in life, and self-acceptance (Ryff, 1989). Maslach (1993) defines burnout as a multidimensional psychological syndrome. Its three core components are emotional exhaustion, depersonalization, and reduced personal accomplishment. Emotional exhaustion means “feelings of being emotionally overextended and depleted of one’s emotional resources” caused by “work overload and personal conflicts at work” (Maslach, 2000, p. 69). Depersonalization “refers to a negative, cynical, or excessively detached response to other people” caused by “overload of emotional exhaustion” (Maslach, 2000, p. 69). Reduced personal accomplishment “refers to a decline in feelings of competence and productivity at work” linked to “depression and an inability to cope with the demands of the job,” which may be exacerbated by “a lack of social support and of opportunities to develop professionally” (Maslach, 2000, p. 69).

We used the above theories to guide our study. Well-being and burnout are multidimensional and associated with many factors. Those factors and dimensions exist at the personal, interpersonal, and institutional levels. For college students facing the pandemic, we see the following factors as determinants of their well-being and burnout conditions: institutional support, educational satisfaction, family support, finance, friendship, and health.

LITERATURE REVIEW

COVID-19 Studies from Around the Globe

Many studies from around the globe have shown that the COVID-19 pandemic has negatively impacted many aspects of higher education. A study by Aucejo et al. (2020) surveyed students in the U.S. showed that COVID-19 delayed graduation, increased loss of jobs, and decreased prospective earnings. The study also showed that low-income students suffered the most. Studies from different parts of Europe, including from the UK, Italy, Romania, and Kosovo, have also shown that the COVID-19 pandemic has negatively impacted students’ financial situation, teaching and learning process in the universities, access to technologies, literacy, overall quality and satisfaction of learning and students’ overall wellbeing (Agasisti & Soncin, 2021; Arënliu et al., 2021; Choi et al., 2020; Coman et al., 2020). These results are also identical to studies from Asia (Baloch et al., 2021; Barrot et al., 2021; Gopal et al., 2021; Hassan & Bao, 2020). However,

all these studies are within-country comparisons, while comparative studies are still limited in numbers (Helsingen et al., 2020; Jae Moon et al., 2021; Kumar, 2020). Thus, the need for comparative studies is inevitable and urgent (Araújo et al., 2020) not only because most higher education systems have shifted to online learning (Chan, 2020), but the consensus in the literature has shown that there is a growing inequality during the pandemic (Bambra et al., 2021).

Consistent with within-country studies, a few comparative studies have shown that the pandemic impacted higher education students in their financial situations, technological access, overall quality and satisfaction of instruction, as well as their overall wellbeing (Djajadikerta et al., 2021; Ma et al., 2021; Mlambo and Ndebele, 2021; Tejedor et al., 2020; Tang et al., 2021). A comparative study involving 62 countries from Aristovnik et al. (2020) has also shown similar adverse effects on students' performance. However, there are still missing sub-groups in the literature about this topic: first-generation, rural, and low-income students (McFadden, 2015). Through this study, we hope to bridge this gap.

The COVID-19 Pandemic and Disadvantaged Students in Higher Education

Some studies about rural students and low-income students during the pre-pandemic period showed that students from these sub-groups experienced more barriers while navigating higher education systems than their counterparts did, but most of these studies are from the U.S. (Bastedo & Jaquette, 2011; Byun et al., 2012; Engle & Tinto, 2008; Eagle & Tinto, 2008; Goldman et al., 2020; House et al., 2020; Irvin et al., 2012; Kilgo et al., 2018; Lightweis, 2014; Padron, 1992; Tate et al., 2015).

Very few studies from the pandemic focus on these vulnerable sub-groups, and the available ones only focus on a within-country context. For instance, Lee et al. (2021) found that first-generation students in the U.S. were more likely to take a gap year or time off from school. Another study has shown that compared to students in general, low-income students were 1) more likely to experience barriers attending online classes during the pandemic; 2) more prone to dropping their courses; and 3) more likely to experience financial and personal distress, including securing daily basic needs and shelter (Rodríguez-Planas, 2020). Another study from the California State University and University of California systems – one of the largest community college systems in the U.S. – has shown that the pandemic was much harder on students from minority and lower-income backgrounds within these groups of students, indicating that the most significant drop in enrollment was for community college students (17%) (Bulman & Fairlie, 2021). Additionally, young people who live alone with lower socioeconomic status (SES) and who have no secure employment experienced higher rates of mental distress when compared to their counterparts who were able to retain their jobs during the pandemic (Scarpetta et al., 2020).

Studies on the Impacts of the COVID-19 Pandemic on Higher Education in Indonesia and Vietnam

The COVID-19 pandemic and the shutdown of schools created some disruptions in Vietnamese and Indonesian education, which have not been evaluated to date. However, some emergent literature has focused on the impact of school disruption and higher education's response to governmental policies. Recent studies from Indonesia also note that access to technology, the quality of the instruction during the pandemic, as well as personal motivation and wellbeing have been significant determinant factors regarding the success of online learning during the COVID-19 pandemic (Yudiawan et al., 2021; Khusna & Khoiruddin, 2020).

In Vietnam, Pham & Ho (2020) described the possibilities and challenges of online learning in Vietnam's higher education system, acknowledging that there may not have been sufficient policies and resources to integrate online learning fully. They concluded, however, that "the COVID-19 pandemic has brought about an opportunity to introduce e-learning

comprehensively into Vietnamese higher education” (Pham & Ho, 2020, p.1329), outlining pathways for its incorporation into post-COVID-19 Vietnam. Another study shows that there has been a high level of disruption from the COVID-19 pandemic on students' work, study productivity, and modes of learning (Nguyen et al., 2020).

However, these studies from Indonesia and Vietnam only look at specific institutions or regions. Through our research, we aim to not only compare the outcomes between Indonesia and Vietnam, but we will also compare them nationally. With virtually no comparative studies available about the impact of the COVID-19 pandemic on first-generation, rural, and low-income students, especially from the context of Asia, we aim to bridge the literature gap.

Overview of Higher Education Systems in Indonesia and Vietnam

Indonesia

Currently, there are 122 state universities and over 3,129 private universities across Indonesia, serving seven million students (The Ministry of Education, 2017; BPS, 2019). There was a significant increase in the enrollment rate at higher education institutions in Indonesia, from about 3% in 2005 to almost 17% in 2019 (OECD, 2019). However, most higher education enrollment is mainly at private institutions, and concerns about their quality exist (see Appendix A for details). Inequality of access to higher education in Indonesia is also another concern. Students in urban areas are more likely to have higher education than in rural areas. More males attend higher education institutions than females (Digdowiseiso, 2020), and low-income students have lower rates than their counterparts attending universities (see Table 1). Not only that, access to university is also heavily concentrated in western Indonesia. Only a limited number of seats are available for attending more affordable public universities, making the situation more complicated (Nizam, 2016). This high level of competition leaves most students graduating from secondary schools to either attend a private university or participate in the labor market. To prepare a competitive labor market under the demographic-bonus window, the Indonesian government has reformed some top-priority sectors, including education, health, and economy (Afandi, 2017; Bappenas, 2017). For instance, the government provided more incentives and financial support to universities to conduct research and recruit a highly qualified teaching force and scholarships for students in public and private universities.

Table 1: Indonesia’s Student Enrollment in Higher Education by Income Level (2015 – 2020)

Income Quartile	Percentage of Higher Education Gross Enrollment by Income level					
	2015	2016	2017	2018	2019	2020
Quartile 1	5.08	8.08	9.96	10.19	11.44	16.13
Quartile 2	8.60	13.69	14.74	14.86	16.34	19.31
Quartile 3	14.99	18.78	19.80	20.98	21.88	24.27
Quartile 4	26.48	30.47	29.72	31.38	29.83	30.23
Quartile 5	59.61	58.12	60.78	63.41	62.14	56.87

Source: Ministry of Education of Indonesia (Copyright 2020)

Indonesia’s Universities and the COVID-19 Pandemic

Much like other countries around the globe, all these efforts have been disrupted by the COVID-19 pandemic. The Indonesian Ministry of Education and Culture (Kemdikbud, 2020) has issued national policies to ameliorate the barriers of transitioning from in-person learning to virtual learning through the Emergency Learning bill No. 4 that includes its commitment to help teachers,

K-12 students, and higher education students and instructors with access to the internet during the pandemic. Through the *Permendikbud* bill No. 25 2020 (Kemdikbud, 2020), the government also decided to help students from low-income families who make less than \$200 per month with financial packages for higher education tuition. For instance, those qualified for the program may pay half of the tuition during the pandemic if they only take up to 6 credits. However, this policy only applies to students who attend public institutions. Since most higher education students attend private institutions in Indonesia, the government's ability to help them is limited. For this latter group of students, the government has offered some financial packages for about 800,000 students from low-income families who can maintain good performance in their studies through its *Kartu Indonesia Pintar* and *Bidikmisi* scholarship programs. (Kemdikbud, 2020).

Vietnam

Currently, Vietnam has four types of higher education institutions serving 1,778,855 students in undergraduate and graduate programs (Bui et al., 2017; Ministry of Education and Training, 2019). The details about the higher education system in Vietnam can be seen in Table 2. Since the early 2000s, privatization in higher education has thrived. Private institutions, however, are responsible to the state through their governing boards (Hayden & Lam, 2007, p.76). Vietnam has made significant reforms in its strategy to develop higher education in the last two decades, especially since “access to higher education has more than doubled since 2000” (World Bank, 2020a).

Issues still exist in higher education in Vietnam, however. There is a lack of representation of ethnic minority students (Hayden & Lam, 2007) and inequalities in higher education between rural and urban students (Trinh & Korinek, 2017; Vu et al., 2013). The quality of instruction and training is another concerning issue (Hien, 2010; Phan et al., 2016; McCornac, 2014; Tran, 2013). Most higher education institutions in Vietnam need significant aid in research, teaching, and learning, and they still lack institutional autonomy for their operation (Hayden & Lam, 2007). Higher education networks, quality of academic staff and teaching methods, assurance, and management mechanisms are also some of the World Bank's challenges in Vietnam's higher education institutions. (World Bank, 2020a).

Vietnam's Universities and the COVID-19 Pandemic

Vietnam has been a world leader because it successfully contained the spread of COVID-19 by the government's prompt and proactive precautions and legislation (117/2020/ND-CP) in areas such as transportation, immigration, information dissemination, and health care (Tran et al., 2020; Hartley et al., 2021; Le et al., 2021). The Vietnamese government was exceptionally responsive in the education sector. In January 2020, the government made rapid decisions to close all schools and move to online learning at all levels (Tran et al., 2020; Le et al., 2021, Pham & Ho, 2020). On August 13, 2021, the Ministry of Education and Training issued Circular No. 08/2021/TT-BGDĐT, where it added specific regulations for online teaching and learning in higher education in which universities must maintain the quality of teaching and learning at a comparable level to in-person teaching and learning. They must build online learning systems for students.

Table 2: Vietnam's Overview Higher Institutions (2019 - 2020)

Total undergrad students: 1.672.881 students			
By type of institutions	Public institutions: 1,359,402		Private institutions: 313,479
By gender	Male: 760,221 students		Female: 912,660 students
By ethnic groups	Ethnic minorities: 103.181 students		The Kinh: 1.569.700 students
By mode of study	Full – time: 1.514.862 students	Part – time: 118.419 students	Distance learning (E-Learning): 39.600 students
Total graduate students: 105.974 students			
By level of the program	Master's: 94.920		PhD: 11.054

Source: Ministry of Education and Training Vietnam (Copyright 2019)

As of July 2021, public universities in Vietnam operate under different financial mechanisms: fully financially autonomous, partly financially autonomous, and fully financially dependent institutions. For financially autonomous and fully financially dependent institutions, their budgets have been allocated by the national or local government. For colleges and universities at the provincial level of supervision, local governments may provide further financial support to develop the necessary infrastructure and technology needed for online teaching and learning.

The Vietnamese government has passed two budget packages for COVID-19 relief; however, these packages do not specifically target higher education students. Some universities have had policies to support students during the pandemic, such as rent fee support, internet access support, and lodging support. The Vietnamese government has focused on two simultaneous goals: fighting the pandemic and maintaining economic development. Both goals are expected to keep the labor market stable for now.

RESEARCH METHOD

Research Question

In our exploratory study, we ask: *How has the COVID-19 pandemic impacted low-income, rural, and first-generation higher education students in Indonesia and Vietnam, and how does it compare to their counterparts within each country?* We will examine four domains in our analysis: the students' overall wellbeing, their financial and personal hardships, their access to technology and the internet, as well as their educational satisfaction.

Hypotheses

In summary, based on the existing literature reviews, we propose several hypotheses:

H₁: For our cross-country comparison between higher education students in Indonesia and Vietnam, we expect to see some statistically significant differences, especially on the access to technology, well-being, and educational satisfaction. We hypothesize that higher education students in Indonesia will be more likely to face barriers to these outcomes than Vietnam's students. We based this hypothesis on the different approaches these two countries took at the pandemic's beginning. Vietnam has been praised internationally for its approach to mitigating the COVID-19 pandemic, while in contrast, Indonesia was one of the countries in this region that were impacted the most by COVID-19.

H₂: For our within-country comparisons, we hypothesize that compared to their counterparts, first-generation, low-income, and rural higher education students in each country are more likely to face barriers in accessing technology and the internet, are more likely to experience financial and well-being distress during the pandemic and are less likely to be satisfied with their educational experience during the pandemic. We propose this hypothesis based on the current literature centered on the topic of first-generation, low-income, and rural higher education that show these students face more barriers than their counterparts as they navigate their education in their respective higher education system (Digdowiseiso, 2020; Dinh & Nguyen, 2020; Khusna & Khoiruddin, 2020; Nguyen et al., 2020; Rodríguez-Planas, 2020; Yudiawan et al., 2021).

There also might be some differences observed on the impact of COVID-19 across institutions in these two countries. For instance, institutions with fewer resources might be impacted heavily than those with more resources. Another possibility is also related to the geographical differences across institutions. For instance, there are significant socio-economic and developmental differences between western and eastern Indonesia and between northern and southern Vietnam. Students from geographically challenged areas like eastern Indonesia and northern Vietnam are more likely to face barriers to their studies, including access to technology and the internet, when compared to their counterparts or students who come from western Indonesia or southern Vietnam, in general. However, with the limitations of our data, we cannot empirically test this hypothesis. We only control the university's size as a proxy for this issue because most large universities in these two countries are located in western Indonesia and southern Vietnam.

Data and Sample

The rationale of this study is to see if there have been similarities and differences in the impact of the COVID-19 pandemic among our subgroups of interest: first-generation, low-income, and rural higher education students in Indonesia and Vietnam. We approach this rationale by making both cross-country comparisons between Indonesia and Vietnam for the whole sample of students and within-country comparisons for all the subgroups of interests with their counterparts in each country. The data for this study come from an online survey that we distributed to higher education students in Vietnam, Indonesia, and the U.S. through their International Student Offices, and we use convenience sampling to gather the data. We built the survey based on surveys from studies about the COVID-19 pandemic that look specifically at its impact on higher education students' outcomes and wellbeing (Rodríguez-Planas, 2020; Means, 2020; The Understanding America Study Survey; OECD PISA 2015 Student Questionnaire; Lee et al., 2021). In our survey, we focus on four domains: students' overall wellbeing, their financial hardships, their access to technology, and their levels of educational satisfaction during the COVID-19 pandemic. Forty-eight questions ask the respondents about their demographic backgrounds and the four main domains of our research.

We decided to focus on these four domains of questions for several reasons. First, comparative studies around the impact of the COVID-19 pandemic have shown that higher

education students across the world are negatively impacted in these four domains (Djajadikerta et al., 2021; Ma et al., 2021; Mlambo and Ndebele, 2021; Tejedor et al., 2020; Tang et al., 2021; Aristovnik et al., 2020). Second, before the COVID-19 pandemic, studies centered on first-generation, low-income, and rural higher education students showed that these subgroups of students faced barriers to navigating their education in their respective higher education systems, including limited access to technology as well as higher financial and mental distress (Bastedo & Jaquette, 2011; Byun et al., 2012; Engle & Tinto, 2008; Eagle & Tinto, 2008; House et al., 2020; Irvin et al., 2012; Kilgo et al., 2018; Lightweis, 2014; Padron, 1992; Tate et al., 2015). However, most studies concerning first-generation, low-income, and rural higher education students mostly come from the western part the world, particularly the U.S. context. No studies from the SEA region have discussed this important topic. We provide versions of the survey in multiple languages: English, Bahasa Indonesia, and Vietnamese, and ask the participants to respond to the survey using their primary language.

The details of all the domains are as follows. First, for access to the technology domain, we want to know how the respondents accessed technology during the pandemic. Second, we ask the respondents about their financial concerns for the economic hardship they might endure during the pandemic. Third, for the wellbeing domain, we ask the respondents to indicate their level of agreement on several statements about the sources of significant concern during the COVID-19 pandemic and the intensity of their burnout rates, as well as whether they thought about dropping out of school in the next term or semester. Fourth, we divide the educational satisfaction domain into two different analyses: the factors contributing to students' academic satisfaction and students' overall ratings during the pandemic on several aspects, including the overall quality of their schools, classroom engagement, the quality of instruction, the relationships between professors and students and the opportunities that their schools provided. Lastly, we ask the respondents about their demographic backgrounds, including whether they are first-generation students, their major, their year in college, their age, their gender, their parental income level, the type of university that they attend, their ethnicity, and the area where they come from. We obtained 2,643 responses from both countries, with 2,080 responses from Indonesia and 563 responses from Vietnam from these cross-sectional data.

Analytical Strategy

We provide descriptive statistics of respondents' demographics from both countries for the analysis. These demographic characteristics include age, year of college, gender, income, urbanicity, type of higher education institution and its size, the sources of financing higher education, and whether the respondents indicate that they are first-generation students. We also provide descriptive statistics for all the outcomes from four domains by comparing the two countries. Lastly, we provide within-country comparisons between first-generation and low-income students and their counterparts from each country. Specifically, we calculate:

$$Y_i = \beta_0 + \beta_1 \text{Firstgen}_i + \beta_2 \text{LowIncome}_i + \beta_3 \text{Rural}_i + X_i + e_i$$

Y_i represents all of the individual i outcomes from all four domains. This variable Y_i is a binary variable that takes the value of 1 if the respondents i answered "Yes" or "Agree" to each of the statements in each of the four domains, and 0 if otherwise. Coefficients β_1 to β_3 represent our primary explanatory variables in our analysis. *Firstgen* is an indicator variable that takes the value of 1 if student i is a first-generation student and 0 if otherwise. We define first-generation students as higher education students whose parents did not finish any college education, following the definition from past research studies (McKay & Estrella, 2008; Pascarella et al., 2003). In addition, *Low Income* is a proxy of students' i socioeconomic status (SES) if the students' parents make less

than \$200 monthly. *Rural* is an indicator of the urbanicity of the students. *X* is a vector of demographic characteristics that we mentioned before.

RESULTS

Demographics of Higher Education Students in Vietnam and Indonesia

We provide important demographic information about our sample (see Table 3). We ran a simple t-test of all the demographic characteristics we plan to include in our regression models for this output. This t-test is used to inform us if the significance in the average between Indonesia and Vietnam occurred by chance. Significance results (p -value $<.05$) for each of the demographics in this table indicate that there are indeed significant differences between Indonesian and Vietnamese students in that particular characteristic.

Based on Table 3, of the analytical sample of 2,643, about 79% of the respondents are Indonesian, and only about 21% are Vietnamese. As expected, we observe that almost all demographic characteristics between these two countries are statistically different: income status, urbanicity, age, gender, type of university, and the source of students' college financing, but we do not observe a statistically significant difference in the first-generation status and the college year of the students.

Table 3: T-test for Analytical Sample Demographics

Variable	Indonesia			Vietnam			P-value
	N	Mean	SD	N	Mean	SD	
First-generation	2080	0.55	0.49	563	0.51	0.47	0.13
Low income**	2080	0.55	0.49	563	0.25	0.43	0.00
Rural***	2080	0.39	0.49	563	0.04	0.21	0.00
Age***	1636	37.31	14.33	545	22.19	3.77	0.00
Undergraduate	2080	0.75	0.43	560	0.78	0.02	0.18
Female***	2050	0.77	0.42	555	0.58	0.49	0.00
Public university***	2080	0.44	0.49	563	0.14	0.38	0.00
Big University***	2080	0.51	0.50	563	0.60	0.49	0.00
Family pays for education***	2080	0.40	0.49	563	0.85	0.35	0.00

*** $p < .01$, ** $p < .05$, * $p < .1$

Several vital findings show significant differences between these two countries. First, there is a higher percentage of low-income students from Indonesia than Vietnam (55% vs 25%). We use the cut-off of \$200 to categorize the students as low-income students based on the guideline from the World Bank. In addition, we also notice that more students come from rural areas in Indonesia (39%) than those in Vietnam (4%). Third, we have over half our samples in both countries categorized as first-generation students. The rest of Table 1 presents the remaining summary statistics.

Cross-country Comparisons: Indonesia and Vietnam

In the next set of results, we provide a cross-country comparison of outcomes from four different domains in this study by running t-test comparisons for the average responses for each outcome between the Indonesia and Vietnam samples. The details of the cross-country comparison can be seen in Table 4.

The cross-country comparison in Table 4 found statistically significant differences between higher education students in Indonesia and Vietnam in almost all outcomes in the domains

that we measured. We have found a higher proportion of students in Indonesia who expressed concern for having poor internet quality during the pandemic (23%) than the students in Vietnam (12%). The proportion of students who chose to do virtual learning in Indonesia (85%) is higher than in Vietnam (77%). In contrast, we do not observe any differences between the two groups regarding financial hardship (running out of money within three months). This finding implies that, on average, higher education students in both countries experienced the same level of financial hardship during the pandemic.

We also found a significant gap in the personal burnout rate between Indonesian students and Vietnamese students. On average, we noticed that there is also a statistically significant difference in students' perceptions of their workload during the pandemic by about a 20-percentage point difference, with Indonesian students having higher rates than Vietnamese students. However, we observe null results between the two countries on the rate of students thinking of dropping out of school during the pandemic. Lastly, for the educational satisfaction domain, we observe that, on average, Vietnamese students tend to give an overall higher rating of their study experience during the pandemic than Indonesian students do (Table 4 Domain 4).

Within-Country Comparisons

For our subsequent analysis, we seek to provide within-country comparisons among first-generation, rural, and low-income students for each country (see Tables 5 - 9). We compare these three sub-groups of students with their counterparts within each country. Overall, we did not find significant results in almost all outcomes.

For our first domain of access to technology (see Table 5), we found that low-income students are less likely to have access to technology when compared to their high-income counterparts by about 22 and eight percentage points in Vietnam and Indonesia, respectively. A similar trend is also observed regarding very poor internet quality. On average, when compared to their counterparts, low-income students in both countries are associated with a higher likelihood of experiencing very poor internet quality by ten percentage points and nine percentage points in Vietnam and Indonesia, respectively; and, for those who come from rural parts of Indonesia, the likelihood is even higher than for nonrural students (15 percentage points). For our second domain (see Table 6), we have found that being Indonesian and first-generation was associated with six percentage points of being more likely to run out of money in three months during the pandemic. Low-income Indonesian students were also 14 percentage points more likely to run out of money than high-income students. Finally, rural Indonesian students were five percentage points more likely to run out of money than their urban counterparts. A similar trend is observed in low-income Vietnamese students. Low-income students were 11 percentage points more likely to run out of money during the pandemic than students who did not come from a low-income background.

In our third domain of students' well-being (see Table 7), we do not find any statistically significant differences among all three sub-groups of students from Indonesia in all of the outcomes. However, we found that, on average, being a first-generation Vietnamese student is associated with a lower likelihood of experiencing physical burnout than their counterparts, by about nine percentage points. In addition, we have found that being a low-income student in Vietnam is associated with an increase of about 18 percentage points compared to their counterparts if they mentioned that they experienced a heavier school workload during the pandemic than before the pandemic. We did not find any statistically significant results for our Indonesian sample, implying no difference in students' wellbeing of first-gen, rural and low-income students and their counterparts.

Lastly, we observed that regarding our rating outcomes in Table 9, rural students from Indonesia tend to give lower ratings of their educational experience during the pandemic in several outcomes, including school's overall quality (5% points); quality of instruction (8%), instructor-

student and student-student relationships (7% and 6% points); and job opportunities (7% points). We did not find this pattern among Vietnamese students.

Table 4 T-test of Outcome Variables between Indonesia and Vietnam: Cross-country Comparisons

Variable	Indonesia			Vietnam			P-value
	N	Mean	SD	N	Mean	SD	
Domain 1: Access to technology and the internet							
Virtual learning***	1933	0.85	0.36	523	0.77	0.42	0.00
Have access to technology during the pandemic	1686	0.93	0.25	451	0.90	0.88	0.08
Pay for technology from their own money***	1686	0.69	0.46	451	0.75	0.43	0.01
Very weak internet quality***	1686	0.23	0.42	451	0.12	0.33	0.00
Domain 2: Financial hardship							
Run out money in the next 3 months	2081	0.42	0.49	563	0.45	0.49	0.27
Increased tuition ***	2080	0.06	0.24	563	0.12	0.32	0.00
Taking more than 18 credits during pandemic***	1988	0.54	0.52	541	0.19	0.39	0.00
Domain 3: Well-being							
Health is major concern during pandemic	1686	0.79	0.41	451	0.76	0.43	0.17
Physically exhausted during pandemic***	1686	0.87	0.33	451	0.56	0.49	0.00
Emotionally exhausted***	1686	0.89	0.31	451	0.69	0.46	0.00
Thinking of dropping out of school	1686	0.19	0.39	451	0.20	0.40	0.51
Heavier schoolwork during pandemic***	1933	0.66	0.47	523	0.55	0.49	0.00

*** p<.01, ** p<.05, * p<.1

Table 4 (continued) T-test of Outcome Variables between Indonesia and Vietnam: Cross-country Comparisons

Variable	Indonesia			Vietnam			P-value
	N	Mean	SD	N	Mean	SD	
Domain 4: Factors Contributing to Educational Satisfaction During the Pandemic							
Cost of attendance**	1780	0.15	0.36	478	0.19	0.39	0.03
Teacher-student interaction***	1780	0.26	0.44	478	0.20	0.40	0.00
Job prospect	1780	0.07	0.25	478	0.05	0.23	0.29
Safety measure***	1780	0.07	0.25	478	0.21	0.41	0.00
Knowledge and skills ***	1780	0.38	0.48	478	0.27	0.44	0.00
Positive school's rating***	1780	0.19	0.39	478	0.24	0.43	0.01
Positive engagement***	1780	0.29	0.45	478	0.37	0.48	0.00
Better quality of instruction***	1780	0.23	0.42	478	0.35	0.48	0.00
Better relationship between professor and student ***	2081	0.23	0.42	563	0.28	0.45	0.01
Better relationship among students **	2081	0.23	0.42	563	0.31	0.47	0.00
Better rate for school to provide job and opportunities***	2081	0.21	0.40	563	0.31	0.47	0.00

Table 5: Domain 1 Access to Technology

Variable	Virtual Learning		Access to Technology		Spend own money for technology		Poor internet quality	
	VIE	INA	VIE	INA	VIE	INA	VIE	INA
First-gen	.06 (.04)	.04* (.02)	.01 (.06)	-.03 (.03)	.014 (.04)	-.01 (.03)	-.01 (.03)	.040* (.03)
Low income	-.02 (.05)	-.03 (.02)	-.22*** (.08)	-.08*** (.03)	-.10* (.05)	.00 (.03)	.10** (.04)	.09** (.03)
Rural	.10 (.08)	.01 (.02)	-.15 (.16)	-.02 (.03)	.10 (.09)	-.07** (.03)	-.01 (.07)	.15** (.03)
Constant	.76*** (.16)	.95*** (.04)	3.87*** (.23)	.72*** (.18)	.68*** (.06)	1.04*** (.11)	.30*** (.11)	.07 (.05)
Observ.	498	1498	429	429	1306	1353	429	1306
R-sq	.02	.03	.06	.03	.02	.02	.04	.07

Note: All models above control for demographic differences

Robust standard errors are in parentheses

*** p<.01, ** p<.05, * p<.1

For our last domain of educational satisfaction determinants, we seek to understand what the determinants of students' educational satisfaction during their pandemic-learning experience are (see Table 8), the students' overall ratings of their schools, the quality of learning and instruction in the classroom, as well as what their engagement and relationships with their peers and instructors (see Table 9). From Table 8, we find that compared to their counterparts, both first-generation and low-income Indonesian students, as well as low-income Vietnamese students, are associated with a higher likelihood of saying that the cost of attendance is a critical factor in determining their educational satisfaction during the pandemic by six, four and 13 percentage points higher than their counterparts, respectively. On the other hand, we find that low-income Vietnamese students are about 12 percentage points less likely than their counterparts to say that teacher-student relationships and knowledge or skills obtained during the pandemic are critical factors in determining their satisfaction with education. On the other hand, Indonesian low-income students are less likely to say that their knowledge and skills during the pandemic are critical for their satisfaction than their counterparts by about six percentage points. This is understandable because low-income students in Indonesia seemed to be more worried by the cost of attendance in their education.

Table 6: Domain 2 Financial Hardship

Variable	Run out of money in 3 months		Increased tuition		Taking more than 18 credits (undergrad)	
	VIE	INA	VIE	INA	VIE	INA
First-gen	.07 (.04)	.06** (.03)	.00 (.03)	-.02* (.01)	-.04 (.03)	-.01 (.02)
Low income	.11** (.05)	.14*** (.03)	.05 (.03)	-.01 (.01)	-.00 (.04)	.02 (.02)
Rural	.13 (.10)	.05* (.03)	-.06 (.06)	.00 (.01)	-.03 (.08)	.07*** (.03)
Constant	.19 (.17)	.27*** (.06)	.08 (.11)	.07** (.03)	.41*** (.14)	1.02*** (.05)
Observations	534	1617	534	1617	515	1542
R-sq	.02	.05	.04	.01	.01	.23

Note: All models above control for demographic differences

Robust standard errors are in parentheses

*** p<.01, ** p<.05, * p<.1

Table 7: Domain 3 Well-being during the COVID-19 Pandemic

Variable	Health is a major concern		Physically exhausted		Emotionally exhausted		Thinking of dropping out of school		Heavier school workload	
	VIE	INA	VIE	INA	VIE	INA	VIE	INA	VIE	INA
First-gen	.06	-.03	-.09**	.010	.03	-.01	.02	.04*	-.04	.02
	(.04)	(.03)	(.05)	(.020)	(.05)	(.02)	(.04)	(.02)	(.04)	(.03)
Low income	-.03	-.04*	.04	.01	.04	.00	.04	.03	.18***	.01
	(.05)	(.03)	(.05)	(.02)	(.05)	(.02)	(.05)	(.02)	(.05)	(.03)
Rural	.01	.02	.04	.01	-.03	.02	-.03	-.03	-.00	.02
	(.10)	(.03)	(.10)	(.02)	(.10)	(.02)	(.09)	(.02)	(.11)	(.03)
Constant	.54***	.78***	.82***	.74***	.57***	.77***	.27	.16***	.88***	.75***
	(.16)	(.06)	(.19)	(.05)	(.19)	(.04)	(.17)	(.05)	(.18)	(.06)
Observ.	429	1306	429	1306	429	1306	429	1306	498	1498
R-sq	.03	.02	.04	.02	.01	.04	.04	.01	.05	.01

Note: All models above control for demographic differences

Robust standard errors are in parentheses

*** p<.01, ** p<.05, * p<.1

Table 8: Domain 4 Main Factors Associated with Students' Educational Satisfaction During the COVID-19 Pandemic

Variable	Cost of attendance		Teacher-student interaction		Job prospect		Safety		Knowledge and skills obtained	
	VIE	INA	VIE	INA	VIE	INA	VIE	INA	VIE	INA
First-gen	-.03 (.04)	.06*** (.02)	.01 (.04)	-.00 (.03)	.03 (.02)	.02 (.02)	.02 (.04)	-.03** (.02)	-.05 (.04)	-.02 (.03)
Low income	.13** * (.05)	.04** (.02)	-.12*** (.04)	.01 (.03)	.01 (.03)	.01 (.01)	-.04 (.04)	-.02 (.02)	.04 (.05)	-.06** (.03)
Rural	.06 (.11)	.00 (.02)	-.02 (.08)	.04* (.03)	-.01 (.05)	-.02 (.01)	-.07 (.08)	-.00 (.01)	-.01 (.10)	-.03 (.03)
Constant	.27* (.14)	-.01 (.04)	.19 (.13)	.22*** (.06)	.03 (.01)	.06* (.03)	.24 (.16)	.03 (.03)	.20 (.17)	.67*** (.06)
Observ.	455	1385	455	1385	455	1385	455	1385	455	1385
R-sq	.04	.09	.03	.06	.02	.01	.03	.02	.04	.03

Note: All models above control for demographic differences

Robust standard errors are in parentheses

*** p<.01, ** p<.05, * p<.1

Table 9: Domain 4 Educational Ratings During the COVID-19 Pandemic

Variable	School Quality		Classroom engagement		Instruction quality	
	VIE	INA	VIE	INA	VIE	INA
First-gen	-.02 (.04)	.01 (.02)	-.02 (.05)	-.02 (.03)	.01 (.04)	-.04 (.03)
Low income	.00 (.05)	.01 (.02)	-.08 (.05)	-.03 (.03)	-.10* (.05)	.01 (.03)
Rural	.04 (.10)	-.05** (.02)	-.01 (.10)	-.04 (.03)	.010 (.10)	-.08*** (.02)
Constant	.20 (.17)	.13*** (.05)	.13 (.19)	.25*** (.06)	.22 (.18)	.21*** (.05)
Observ.	455	1385	455	1385	455	1385
R-sq.	.04	.03	.02	.02	.04	.03

Table 9 (continued)

Variable	Prof & student relationship		Students' relationship		Job opportunities	
	VIE	INA	VIE	INA	VIE	INA
First-gen	-.04 (.04)	-.01 (.02)	-.03 (.04)	-.03 (.02)	-.01 (.04)	-.02 (.02)
Low income	-.00 (.05)	.00 (.02)	-.01 (.05)	-.01 (.02)	-.10** (.05)	.00 (.02)
Rural	-.03 (.09)	-.07*** (.02)	-.06 (.10)	-.06** (.02)	.01 (.10)	-.06*** (.02)
Constant	.21 (.16)	.23*** (.05)	.27* (.16)	.30*** (.05)	.32* (.17)	.19*** (.05)
Observ.	534	1617	534	1617	534	1617
R-sq.	.01	.02	.01	.01	.02	.03

All models control demographic differences. Robust standard errors in parentheses *** p<.01, ** p<.05, * p<.1

DISCUSSION

Our exploratory paper found that college students in Indonesia and Vietnam differ in many aspects. This finding is expected since both countries differ in educational structures and policies, even though they are in the same geographical region and have similar economic growth. Such differences may also stem from the demographic composition of our samples, where Indonesian students are from rural and low-income families, and Vietnamese students are mainly from urban areas and study at private universities. In Indonesia and Vietnam, private universities are more expensive, indicating their students' high socioeconomic status. Therefore, we would expect to see differences in students' responses in the survey resulting in the differences we found in later analyses (Table 1).

When we compare outcomes in all four domains, even though most of the outcomes do not show significant results, which is expected, as discussed above, we still find a few statistically significant differences between Indonesian and Vietnamese higher education students. Indonesian students appear to have more concerns about their quality of education and perceive a higher level of burnout and workload than Vietnamese students. On the other hand, Vietnamese students tend to give an overall higher rating for the educational experience than their Indonesian counterparts. Many factors can explain these differences. First, Indonesia is geographically more extensive and has a bigger population than Vietnam. Given the size of Indonesia, it may have been more challenging to implement quick policy changes during the pandemic. On the other hand, Vietnam is a more systematically and politically centralized nation. Changes, therefore, may have happened faster. Therefore, changes in educational policy were more consistent and prompt in the Vietnamese context, which helped with the students' perception of workload and levels of burnout.

In a sense, having a stable environment supports mental health and the quality of academic work. Vietnam achieved both with its rapid policies when the pandemic started (Tran et al., 2020; Hartley et al., 2021; Le et al., 2021). The differences in reactions to the pandemic from the Vietnamese and Indonesian governments at the early stages of the pandemic may have contributed to the differences between the two student populations.

Finally, we found that many more Vietnamese students in the sample are from urban areas than their Indonesian counterparts. This could explain why students in Vietnam experienced less burnout and had an overall better perception of their educational experiences online than Indonesian students. Students from urban areas are more likely to access technology (Trinh & Korinek, 2017; Vu et al., 2013). They are also more likely to come from affluent families and to have higher academic achievement. These reasons may explain the differences between the two countries.

However, it is still important to realize that first-generation, low-income, and rural students from both countries faced some significant challenges during the pandemic. This finding aligns with existing findings highlighting how the pandemic has worsened the pre-existing inequalities among subgroups of students (e.g., Eagle and Tinto, 2008; Lee et al., 2021; Mlambo and Ndebele, 2021).

We had somewhat similar conclusions for within-country comparisons even though not all outcomes are significant. We found that in some outcomes, first-generation, rural, and low-income college students are more likely to experience financial distress, specifically struggling to access technology as well as experiencing limited access to the internet, as they navigated virtual learning during the pandemic when compared to their counterparts within their own country. It is then understandable that these students, particularly low-income students and students from rural areas, are also less likely to have had better learning experiences during the pandemic. These results resonate with the existing literature (e.g., Coman et al., 2020; Barrot et al., 2020; Djajadikerta et al., 2021; Ma et al., 2021; Trinh & Korinek, 2017; Vu et al., 2013).

POLICY IMPLICATIONS

Understanding how the COVID-19 pandemic has impacted higher education students unequally in these two countries may provide necessary guidance on how the higher education systems in Indonesia and Vietnam should navigate and address the widening gaps between these sub-groups. Some targeted assistance for these vulnerable sub-groups of students during the pandemic may have also helped these countries in the long run in maintaining a consistently good quality of the workforce which will be necessary for maximizing each country's potential for the demographic-bonus opportunities that they are both anticipating. Since higher education institutions are not merely entities for students to gain knowledge but are also entities designed to prepare their students to shape the complexity of their country's social fabric in the future, more open and comprehensive collaborations among central and local governments, higher education institutions, private sectors, and community members are necessary to address the inequalities and the learning losses that students may have endured during the pandemic. In addition, since the survey that we distributed was in the electronic form where the respondents can access it online through their technological device, we should still have a cautious interpretation when looking at the results. Will the results be different when we conduct a paper-based survey to include students who did not have any technological devices? How much change will we observe in the results when the responses are nationally representative? How do these governments see these results as a pressing issue to solve, especially during the COVID-19 pandemic? These are some of the questions we still have as we discuss the policy implications for both countries below.

Indonesia

We found that students in Indonesia experienced a higher level of burnout and limited access to technology during the pandemic. Among them, first-generation students, students from low-income families, and rural places were more likely to be affected. Even though the Indonesian government already had some aid packages targeting students, they should have specifically targeted this vulnerable group to help them during the pandemic. The existing bills *Surat Edaran Kementerian Pendidikan dan Kebudayaan Nomor 4 Tahun 2020* and *Permendikbud* bill No. 25 2020 only offer limited financial support for a small number of students who are mainly from public institutions. Such financial support may help with the financial stress and the lack of technology, but it may not address nuanced concerns in well-being and support for burned-out students. We still witness stark differences among the different groups of students based on income and location.

The government should invest in its country's social infrastructure to address inequalities in the long term. Future policies should include technology, communication, and internet development in remote areas. At the same time, higher education institutions should address concerns about modes of teaching and learning because the pandemic has revealed that the current system is not flexible, adaptive, and supportive enough for students. Educators and policymakers should also be concerned about the quality of students' mental health during unexpected circumstances like the pandemic.

Vietnam

The pandemic has exposed and exacerbated many existing issues in higher education in Vietnam. Among them are unequal access to technology and a heavy focus on traditional in-person teaching and learning. The Vietnamese government should invest in infrastructure focusing on information and technology, innovating instruction and learning modes, and granting higher education institutions more autonomy, especially in uncertain situations. The most important policy

is to include higher education in the next pandemic relief package, not only for institutions but also for individual students.

There is a stark difference in communication infrastructure between remote rural and urban areas. Rural and remote students, usually from low-income families, face many online learning and teaching challenges. These students may not have the necessary devices and sufficient internet connection to effectively navigate learning on an online platform, even though mobile internet service has rapidly developed in recent years. The quality, however, is still low and unstable in rural and remote areas. The government, specifically the Ministry of Information and Communications and its local authorities, need to develop policies that will improve access to technology and the internet in these areas. In addition, the government should have appropriate and prompt policies to support students from low-income families with needed devices and services at Community Learning Centers to assist with their education.

LIMITATIONS AND FUTURE RESEARCH

Our study faces certain limitations. First, our data were collected at one point in time. Even though we tried to collect as many responses from as many different levels and majors as we could in the two countries, we had limited success. We cannot say the sample is representative of all students in higher education in Indonesia or Vietnam, especially in the case of Vietnam, because our responses were mainly from the Northern part of the country. Second, our study does not imply causal inference. Interpretations from this study should be used with caution. Yet, correlational studies still provide meaningful insights when causal inferences are challenging. We plan on three future approaches. First, we aim to broaden our study within Southeast Asia. This approach will cover a broader range of countries with differential economic development and distinguished cultural aspects. In the second approach, we plan to follow up with what the pandemic's aftermath will look like in Indonesia and Vietnam by conducting follow-up research on the same topic. This approach will provide a continuum of the pandemic's impact on the two countries. Lastly, we plan to conduct in-depth qualitative research into the impacts of the pandemic on first-generation and low-income students. This approach will provide meaningful insights and answers to our overarching research question: What have been the impacts of the COVID-19 pandemic on students in higher education in Indonesia and Vietnam?

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