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Working Paper

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ADBI Working Paper, No. 1419

Provided in Cooperation with:
Asian Development Bank Institute (ADBI), Tokyo

Suggested Citation: Asadullah, Mohammad Niaz (2023) : Back to school after COVID-19 pandemic: Resumption or transitional disruption?, ADBI Working Paper, No. 1419, Asian Development Bank Institute (ADBI), Tokyo,
https://doi.org/10.56506/IECA8988

This Version is available at:
https://hdl.handle.net/10419/296811

ADBI Working Paper Series

BACK TO SCHOOL AFTER COVID-19 PANDEMIC: RESUMPTION OR TRANSITIONAL DISRUPTION?

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No. 1419
December 2023

Asian Development Bank Institute

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Suggested citation:

Asadullah, M N. 2023. Back to School After COVID-19 Pandemic: Resumption or Transitional Disruption? ADBI Working Paper 1419. Tokyo: Asian Development Bank Institute. Available: https://doi.org/10.56506/IECA8988

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An earlier version of this paper was presented at the ADBI-ADB-ISEAS Conference on Improving the Quality of Basic Education in Southeast Asia, 13–14 October 2022. I am grateful to Lee Hwok-Aun and Daniel Suryadarma for very helpful comments on the earlier draft of the paper. Data used in this study come from a survey implemented by LeapEd, and I am indebted to Jayanti Sothinathan and Nina Adlan Disney for their support at all stages of this research.

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Abstract

Since its onset in 2020, the COVID-19 pandemic has globally disrupted school operations, leading to a shift to some form of homeschooling arrangements. After two years, in March 2022, the government of Malaysia officially reopened all schools, ending its homeschooling program. This relatively long-lasting shock to onsite schooling has impacted learners, parents, and teachers in multiple dimensions, creating additional challenges for a full learning recovery. As all countries have now reopened schools for students to return, it is important to learn from student experiences. In this paper, we exploit a purposefully designed, nationwide, cross-sectional survey of government-owned primary and secondary schools in Malaysia to document student learning experiences during the early months of the home-to-school transition. We do so in multiple dimensions using objective and subjective indicators, and we additionally ask how this transition was influenced by pretransition homeschooling experience. Our empirical analysis and choice of indicators is guided by a conceptual framework that distinguishes between two competing hypotheses related to school reopening experiences: resumption vs transitional disruption. We find that 59% of secondary and 72% of primary level students report that they are happy to be back in school. School reopening also coincides with a significant reduction in educational-related worries (e.g., concerns over dropout, learning loss, and loss of interest in study) and indices of negative emotions (i.e., feelings of being tense, depressed, and restless), particularly among secondary school students. More importantly, those satisfied upon return to school report a statistically significant reduction in worries related to learning loss. These correlations support the resumption hypothesis. Yet our data highlights an important puzzle: Even after school reopening, one-third of students report that they do not learn more, at least one-fifth report a struggle to catch up on studies, and up to 40% are concerned about learning loss. The majority of learners additionally report not receiving more support from teachers and parents. Recipients of public aid as well as private (i.e., parental) support report being happy about school reopening and are less likely to report “not learning more.” We conclude by discussing these somewhat paradoxical findings and the need for remedial measures beyond financial support for struggling learners to minimize post school reopening, transitional disruptions.

Keywords: COVID-19, edtech, learning crisis, home-based education, school closure

JEL Classification: D10, I21, J22, Q50

Contents

1. INTRODUCTION

In the aftermath of the COVID-19 school shutdown, a global concern has emerged over an increase in learning poverty (Donnelly and Patrinos 2021). In addition, policymakers are worried about the uneven nature of the learning loss, namely inequality in learning outcomes as well as a potential decline in educational interests and mental health, particularly among children from disadvantaged social groups (Viner et al. 2022). Among rich families, research has documented an increase in parental activism during school closure and/or the growing use of fee-charging Edtech services (Jochim and Poon 2022; James 2021; Watson 2020). Evidence also suggests worrying trends in other related indicators, such as dropout, early marriage, and child labor among ow-income communities. The consensus in the literature is that learning deficits have persisted over time; two years into the pandemic, the poorest children have fallen furthest behind and many older students have dropped out (Moscoviz and Evans 2022; Betthäuser, Bach-Mortensen, and Engzell 2023).

In anticipation of such inequalities, governments worldwide launched homeschooling and/or distance learning programs during the pandemic. In addition, some interventions focused on supplementary tutoring using mobile communication technology to target certain students and/or parents. However, most studies confirm that such provisions have been inadequate; home learning during school closure did not help ensure learning continuity. Evidence shows that learning time fell in most cases (Asadullah and Bhattacharjee 2022). Overall, learners were unhappy at home and children should return to schools (Asadullah 2023). Therefore, the consensus view is that early reopening of schools and avoiding further closure is a prerequisite for learning recovery (World Bank et al. 2022).

All governments in developing countries have now responded by reopening schools. The global home-to-school transition has created new optimism. According to international donors and development agencies, with the right teachers and teaching at the right level, the negative impacts on education from COVID-19 can be fully recovered after a complete transition from home to school (World Bank et al., 2022). Regardless of their socioeconomic background, students who have returned to school have seen substantial increases in learning time (Cattan et al. 2021)[1]. However, there is considerable inequality in return to school even in high-income countries. In the UK, children from socioeconomically better-off families were more likely to return to classrooms when allowed by school authorities (Cattan et al. 2021). Among those who returned, children from better-off families (e.g., better awareness about COVID-19 and vaccinated parents) suffered less from infection anxieties (Burak 2023).

In developing countries, the views and experiences of students returning to schools after prolonged homeschooling during the COVID-19 pandemic have not been well-documented. Research on reopening modalities has primarily been focused on health and safety provisions and lesson delivery format (fully in-person vs. hybrid). Specific school-level, health-related, reopening measures for students and teachers has included mask wearing, physical distancing, health screening, school schedules, and PPE (Gurdasani et al. 2021; Hoffman et al. 2021; Save the Children 2022). Other research has emphasized better training and guidance for caregivers at home to assist school-aged children in their education (Grover et al. 2022). Research on the decision and/or experience of returning to school has highlighted a variety of factors related to

[1] Cattan et al (2021): “better-off students also increased their learning time by more when they returned to school, our results suggest that substantial targeted support will be needed to help disadvantaged pupils catch up, even after all children are back in the classroom.”

what determines a successful return and whether and how it affects learning (Beijbom 2022; Zhan et al. 2021; Powell et al. 2022; Groenewald et al. 2023). They range from perceived epidemic safety (and the availability of sanitization), concerns over the threat of infections, and experiences with online learning during school closure. In some instances, this has reduced parental support for early reopening of schools. In contrast, research documenting the gaps in educational provisions and support in school and at home based on the experience of countries that have fully reopened their educational systems is lacking.

As such, the transition back to school has raised new concerns. We don't know whether students and teachers have fully recovered from the pandemic and returned to classrooms and whether remedial measures in place for post-pandemic recovery are working.[2] Given the evidence gap, our primary research objective is to document the extent and nature of learning disruptions (or the lack thereof) experienced by learners during home-to-school transition in an upper middle-income country, that of Malaysia. We assess recovery in terms of increased engagements in learning activities and loss/regain in emotional wellbeing, learning motivation and effort, and educational aspirations. The secondary objective is to document how these factors vary by demographic and socioeconomic backgrounds and institutional provisions (e.g., support received from school authorities and teachers) during the "home-to-school transition."

Research on home-to-school transition has been constrained by the absence of post-opening data. We circumvent this gap by designing and implementing our own survey which we conducted with a large number of primary and secondary government schools in Malaysia. Other contributions of the study are as follows. First, we develop a conceptual framework for studying the implications of school reopening that argues that the post-pandemic return to school can be seen as both a case of learning resumption and disruption. Second, the research helps to identify and profile the at-risk child population during the post-pandemic home-to-school transition. Third, we add to the global literature on the enduring and multidimensional impact of COVID-19. Fourth, we document the determinants of educational participation and performance in low-income communities of upper-middle-income countries.

The rest of the paper is organized as follows. Section 2 briefly explains the study context. Second 3 conceptualizes home–school transition. Section 4 describes the data, sample, and methodological framework. Section 5 presents the main findings. Section 6 concludes with a summary of the main findings and some policy recommendations.

2. STUDY CONTEXT

Education is a high priority in Malaysia as confirmed by favorable budgetary allocations[3]. But the overall performance is low when judged in terms of student achievement in international assessments (Asadullah, Perera, and Xiao 2020; Perera and Asadullah 2019). The government has an ambitious education sector blueprint to improve quality by 2025. But the COVID-19 pandemic has created new challenges. Learning poverty, as defined by the World Bank, stood at around 12% before the pandemic. Available estimates of learning loss following the school closure time of the

[2] An exception is Singh, Romero, and Muralidharan (2022) who causally assessed some of these questions for India.

[3] Government expenditure on education was 5% of the GDP or higher for most of the period 1980–2015. See https://data.worldbank.org/indicator/SE.XPD.TOTL.GD.ZS?locations=MY.

pandemic is much higher (ADB 2021). In 2020, the government launched a national homeschooling scheme—*Pemakluman Pelaksanaan Pengajaran Dan Pembelajaran Di Rumah*—popularly known as PdPR. It followed immediately after 18 March 2020; that is, the first "Movement Control Order" (MCO). For the PdPR, the Ministry of Education partnered with Google For Education. In June 2020, the Ministry of Education Malaysia branded its Google Classroom online learning platform as DELIMa (Digital Educational Learning Initiative Malaysia) by partnering with Microsoft, Google, and Apple. The government formally launched the home-based learning (HBL) guideline in October 2020, further updating the guideline in Feb 2021. In between, decisions to reopen schools were withdrawn or postponed on several occasions (Shaharudin 2020; Rajaendran and Gong 2021). For instance, the announcement in July 2020 of temporary school reopening in September was postponed to 3 October 2020 amid concern over increased exposure to COVID-19. Regardless of any short-term reopening, schools continued to offer online learning beginning in March 2020.

Despite its potential, PdPR was less than adequate to support learners at home, at least in the first year. An earlier assessment suggests that not only were online lessons less regular but also home support was lacking in terms of parental resources and guidance for a sizable population of learners (Asadullah 2023). Among other findings, 34% of students who used PdPR reportedly found online programs difficult to follow; the overall uptake was also low (50%). Overall, only 18% of students were happy with the switch to online learning, with 33% reportedly unhappy and 48% neutral. Unsurprisingly, most children preferred returning to school if given the option.

To sustain full reopening efforts, the government in October 2022 sanctioned new fiscal provisions as part of the national budget. Notable measures included increasing the Supplementary Food Programme (RMT) and "early schooling aid" (also known as "Bantuan Awal Persekolahan (BAP)"). The latter was raised from RM 100 to RM 150[4] for all students regardless of their parental income. This went into effect in January 2023. After two years of PdPR, Malaysia fully reopened to onsite schooling on 21 March 2022. The survey to support this study was completed during August–November 2022. Therefore, our focus is on the first year of post-COVID school-based learning as well as the experience of transitioning from home to full onsite schooling.

3. CONCEPTUALIZING HOME-TO-SCHOOL TRANSITION: RESUMPTION VS DISRUPTION

During the COVID-19 pandemic, we have seen changing roles and responsibilities of the state through which supplementary provisions were introduced for offsite education. In addition, parents had to take the lead in supporting homeschooling, and they subsequently helped in the transition to onsite education. Alongside the "digital divide," concerns emerged over a "parenting divide."[5] In theory, schools provide the ideal platform to narrow educational inequalities across socioeconomic groups. However, the pandemic-related disruptions have also created new challenges for school authorities (Defeyter et al. 2020). Beyond fulfilling the educational mission of knowledge acquisition, schools must meet the socialization needs of learners.

[4] In case of multiple school-going children, the transfer amount is adjusted proportionately; for example, RM450 in BAP for a family of three school-going children. For further details, see https://www.thestar.com.my/news/nation/2022/10/07/budget-2023-early-schooling-aid-raised-to-rm150-for-all-pupils.

[5] https://www.thestar.com.my/news/education/2021/09/12/family-support-environment-crucial-for-learning.

How then should the home-to-school transition be conceptualized? There are two extreme scenarios. One is *optimistic*, whereby school opening *per se* will ensure full return to onsite education and/or reverse preexisting negative trends. This view assumes positive shifts in parenting norms and educational practices among teachers. The other is the *pessimistic* scenario, whereby despite school reopening, there will be a worsening of preexisting trends and loss of aspirations, particularly if appropriate remedial programs are absent. The second scenario captures the possibility of disruption over continuity (Maranto et al. 2020)[6].

Corresponding to the optimistic scenario is the "*resumption*" hypothesis. According to this view, return to school *per se* will not only equalize learning opportunities but will end the earlier disruptions experienced when schooling suddenly shifted to home in 2020. It assumes that schools offer a safe space for all learners; have the necessary resources, including teacher readiness; and that parents are also in a position to support added resources needed for children to return to school.

The hypothesis specific to the pessimistic view is one of transitional "*disruption*," whereby the return to school in the short run either creates new challenges or only partially normalizes children's learning experiences, therefore creating added psychosocial burdens on learners[7]. During the first two years of the pandemic, students and teachers suffered from multiple shocks and distress. The sudden school closure also led to changes in roles, responsibilities, and norms. The traditional role of state authorities in education delivery is now well extended into offsite responsibilities using online platforms. Equally, parents have seen increased involvement in having to work with school authorities during the pandemic for implementation of homeschooling schemes.

In general, factors that shape a parental decision to send children back to school following a school reopening include both personal factors (i.e., health issues, learning effectiveness) and environmental factors (i.e., school environment, family environment, social environment). Therefore, dissatisfaction with home schooling in terms of personal and environmental factors can be hypothesized to influence parental decisions to send their children back to school (Zhan et al. 2021). Successful transition to school (i.e., the "resumption hypothesis") needs to ensure that beyond the decision for students to return to onsite classes, several additional conditions are fulfilled: (i) minimum provision of complementary family resources and parental support; (ii) safety-related readiness of schools and teachers; and (iii) remedial measures in school. Carvalho et al. (2020) has identified five critical domains as necessary for effective school reopening and recovery. These are: (i) engaging communities in reopening plans; (ii) targeting resources to where they are most needed; (iii) getting children back to school; (iv) making school environments safe; and (v) recovering learning loss. For domain 3 (encouraging and supporting the reenrollment of all students), they emphasize increasing parental awareness, flexible attendance options, and financial/in-kind aid for learners. For domain 4, the emphasis is on improved health and safety measures (including school-based psychosocial support to returning students), while domain 5-related (learning recovery-related) key measures include provisions for accelerated learning, student-centric training, coaching to prepare teachers to assist returning children to catch up with lessons, and parental engagements.

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[6] An intermediate or ambiguous scenario is one where both elements are present.

[7] For qualitative evidence on anxiety related to re-entry into schools in a developing country, see Amin, Hossain and Ainul (2021).

The available academic evidence in the literature seems to favor the disruption hypothesis. Some scholars insist that with the appropriate learning-focused reform, it is possible to improve learning even beyond pre-COVID-19 levels (e.g., Angrist et al. 2021). However, evidence on systematic learning recovery is limited. The most recent systematic review of the evidence in developing countries is pessimistic about learning progress during the pandemic (Betthäuser, Bach-Mortensen, and Engzell 2023). More recent experience with educational disruption also suggests a lack of learning recovery. For instance, a follow-up study on children aged 3–11 affected by a large earthquake in northern Pakistan shows that even after four years, learning outcomes were significantly worse. This is despite the fact that affected families didn't systematically experience an economic decline (Andrabi et al. 2023).

In sum, the post-pandemic home–school transition can be conceptually viewed as both a case of learning resumption and disruption. An evaluation of the associated hypotheses requires an examination of the positive and negative changes in the demand and supply side indicators and that too in three dimensions: (i) quantity of inputs; (ii) quality of inputs; and (iii) their distribution across socioeconomic groups (i.e., equity). We explain this further in the next section.

4. DATA, SAMPLE, AND METHODOLOGY

For the proposed research, we partnered with LeapEd, an independent, not-for-profit organization with a grassroots presence that is dedicated to improving the quality of public schools in Malaysia. The organization is the main implementing partner of the Trust Schools Programme (TSP)[8], which supports close to 100 educational institutions under the national school system, covering some of the most challenging and under-provided public schools at the primary and secondary level (LeapEd 2019). It has nationwide coverage including all regions: NORTHERN states (Kedah, Perak, and Pulau Pinang); CENTRAL states (Kuala Lumpur and Selangor); SOUTHERN states (Johor); and EAST MALAYSIA (Sabah and Sarawak). Our original target population included all 94 primary and secondary schools served by LeapEd since 2011 and students aged 10–17 years enrolled therein. While we could reach out to 23,672 students, the final sample was comprised of 16,037 complete responses of which 47% are by primary grade children (Year 4–6); the rest belong to students enrolled in secondary grades (Form 1–6).

[8] Launched in June 2009 and initially covering 10 educational institutions, TSP is a national-level education transformation program that aims to boost the quality of education in existing schools through some form of private–public partnership (PPP). While program schools remain under full government control and management, they differ from non-TSP schools in two aspects. First, they enjoy autonomy related to six aspects: curriculum, timetabling, student admission policy, staffing, financial management, and procurement (with some autonomies activated while others are dormant based on current MoE policies). Second, they receive financial support from private sponsors toward capacity building for a five-year cycle for TSP 1.0 and three years for TSP 2.0. This initiative is aligned with the Malaysia Education Blueprint (MEB) 2013–2025 objective to ensure universal and affordable quality education. TSP works by improving school leadership/management systems (including greater parental and community involvement); improving teaching and learning environment to improve student performance in government schools; and improving student leadership programs through Student Voice Groups (SVG). Schools are selected across a range of performance bands and are sponsor-driven with discussions with MoE. However, no formal assessment of the geographic distribution of these schools is available (this is my reading of the available evidence/literature). At the time of conducting this study, TSP had served 94 schools against the government's target of 500 by 2025. However, the TSP initiative has facilitated development of other innovative schemes, such as the Ground-up School Transformation Programme (GUSTO) launched in 2015. While our study includes almost all Trust Schools, we neither study the educational experience across cohorts nor compare schools exposed to GUSTO or other programs. These issues are outside the scope of our study.

The survey was administered onsite and online using a bilingual six-module instrument and was piloted in July 2022. The actual data collection took place between August and November 2022[9]. While in most cases, data was collected through in-class sessions moderated by classroom teachers, a handful of schools without an information technology (IT)-room relied on an online method, sharing the survey link with their students to independently complete the survey.[10]

Key domains (or modules) of quantitative data collection were: (i) Personal/demographic background; (ii) Presence (school lessons as well as online in case of "blended lessons"); (iii) Time use (learning activities); (iv) Emotional wellbeing (v) Socioeconomic background /COVID-related disruptions and loss to the family. Alongside students, teachers were also interviewed[11]. This paper only focuses on student experience. As for measurement framework, we included a range of questions to gather self-assessed measures related to subjective wellbeing, quality of PdPR lessons, family support at home, and challenges faced following school reopening. Since we're interested in documenting transitional disruption, some questions were repeated using the recall method to retrospectively gather data about the past (e.g., 2020 vs 2021 vs 2022; January vs April 2022).

Given our conceptual framework (see section 3), we employed multiple outcome variables in order to (i) capture educational disruptions in multiple domains; and (ii) unpack the underlying behavioral pathways for the observed disruptions[12]. We did so descriptively as well as by estimating regression models that examine corelates of different aspects of post-reopening experience. The models were comprised of variables in five domains: (i) Demographics (gender, age and ethnicity); (ii) Home environment (access to books and digital gadget/Internet); (iv) Parental background; and (v) Regional fixed effects. In our analysis, the main covariates of interest were PdPR-related indicators (perceived quality of online lessons, satisfaction with teachers, and preference for online schooling).

Appendix Table 1 reports summary statistics on socioeconomic background/control variables by level of schooling. The sample is balanced by gender and region (e.g., 29% of sample secondary students are from East Malaysia). However, Malaya children are overrepresented; at the primary level, they comprise 93% of our sample population. In contrast, students of Chinese and Indian ethnicity have a combined sample share of 3%, though this is higher (10%) at the secondary level. Turning to socioeconomic indicators, the majority report having home Wi-Fi and good quality internet. Smartphone ownership is almost universal among secondary students. Almost

[9] To comply with the government guideline, the research design was subject to approval by the Education Policy Planning and Research Division (EPRD) of the Ministry of Education Malaysia.

[10] Students were reached through their classroom teachers who shared a QR code to the online version of the questionnaire, which was designed using *SurveyGizmo*. Only the Bahasa Malay (BM) version of the questionnaire was circulated. Only students present in the school on the designated day of the survey participated (those absent that day were left out??). On average, the survey took 20 minutes to complete. LeapEd was responsible for the survey implementation plan and field management). The data was collected during school hours in the schools. Students answered the questionnaire under teacher supervision in the computer labs.

[11] For teachers, key survey domains/modules were: (i) Personal/demographic background; (ii) Teacher's teaching practices (level and change); (iii) Teacher's mind-set (related to student ability, etc); (iv) Teacher's assessment of changes in student behavior and learning motivation (including attendance /enrolment); and (v) Socioeconomic background /COVID-related disruptions and loss to the family.

[12] Additional motivation from a multidimensional approach comes from the RAPID framework of the World Bank that emphasizes five actions for accelerating post-COVID learning recovery: (i) Reach all children; (ii) Assess learning; (iii) Prioritize the fundamentals; (iv) increase the efficiency of instruction; and (v) develop psychosocial health and wellbeing (World Bank et al. 2022).

half of the respondents believe that their parents have good digital skills. Since there are statistically significant differences in socioeconomic status indicators between primary and secondary grade children (the latter being better off), we present results separately for the two groups throughout the paper.

Lastly, this is a descriptive study that represents a first step in understanding the experience of learners in Malaysian national schools after the government ended the homeschooling program in 2022. Nonetheless, our study is subject to a number of limitations. While nationally spread out, the sample excludes private schools that cater to children from minority ethnic groups (e.g., Chinese and Indian) as well as non-TSP public schools. Voluntary participation means that not all children and schools that were originally targeted completed the survey. Data on two dimensions of parental socioeconomic background (i.e., education and income) were missing and hence not considered in the analysis. In the absence of longitudinal school-level administrative data on enrollment, we also could not analyze actual decisions to drop out. For the same reason, assessment of transitional change is also solely based on recall data. These caveats should be considered when interpreting the results.

5. MAIN FINDINGS

Given our two research objectives, we organize this section in two parts. The first subsection compares data on key indicators before and after the home–school transition. The second sub-section presents regression results that help to understand the socioeconomic divide in key outcomes.

5.1 Pre-reopening Educational Experience of Students

Table 1 reports summary statistics on nearly 20 indicators capturing pre-transition experience by level of schooling. Seven of these relate to PdPR (first three capture quality while the next three focus on quality of lessons). More specifically, these are: PdPR lesson being easy to follow (i.e., perceived to be of good quality); PdPR lesson instructions were clear; satisfied with teachers for PdPR online lesson; PdPR lesson being regularly held; regular (student) participation in PdPR lesson; use of PdPR lesson in January 2022 by the student; and preference for return to onsite education instead of continuing online for PdPR lesson. Other indicators include three proxies for overall happiness (before closure [e.g., Jan 2020], during school closure [2021], and change in-between); three proxies for educational worries (learning loss, loss of interest, dropping out from school); worry about COVID infection; and four proxies for psychological feelings (restless, depressed, tense, and afraid). Among notable findings, secondary students were significantly less favorable in their assessment of PdPR.[13] By January 2022, they were also less likely to use PdPR lessons (60% compared to 77% of primary students). Compared to pre-COVID data, students reported 9%–10% reduction in overall happiness scores. This is also consistent with a high proportion reporting negative feelings (e.g., 47%, 25%, 43%, and 24% of secondary students being restless, depressed, tense, and afraid, respectively) and negative educational worries (e.g., 43%, 55%, and 51% of secondary students worried about learning loss, loss of interest in education, and dropping out from school, respectively).

[13] This could be either because older students were more exposed to PdPR owing to longer study hours or they were left unaided by parents and on their own to follow Piper-related instructions or both.

Last, 34%–35% of students reported being worried about COVID infection during school closure.[14]

Table 1: Indicators of Pre-reopening (Jan 202–Jan 2022) Experience—Secondary vs Primary

	Secondary	Primary	t-Test of Difference
	Mean/SE	Mean/SE	(1)-(2)
PdPR lesson: perceived quality is good	0.685	0.781	–0.095***
	[0.006]	[0.005]	
PdPR lesson: instructions were clear	0.690	0.762	–0.072***
	[0.005]	[0.005]	
PdPR lesson: satisfied with teachers	0.820	0.852	–0.032***
	[0.004]	[0.004]	
PdPR lesson: regular session in 2021	0.721	0.665	0.055***
	[0.005]	[0.005]	
PdPR lesson: regular attendance in 2021	0.466	0.493	–0.027***
	[0.005]	[0.006]	
PdPR lesson: used in January 2022	0.609	0.776	–0.167***
	[0.005]	[0.005]	
PdPR lesson: preferred a return to onsite education	0.696	0.656	0.040***
	[0.005]	[0.005]	
Feeling happy: pre-school closure (Jan 2020)	0.362	0.327	0.035***
	[0.005]	[0.005]	
Feeling happy: school closure (2021)	0.259	0.237	0.021***
	[0.005]	[0.005]	
Feeling happy: change following school closure	–0.104	–0.090	–0.014
	[0.006]	[0.006]	
Feeling restless	0.470	0.460	0.010
	[0.005]	[0.006]	
Feeling depressed	0.253	0.244	0.009
	[0.005]	[0.005]	
Feeling tense	0.434	0.273	0.162***
	[0.005]	[0.005]	
Feeling afraid	0.243	0.209	0.035***
	[0.005]	[0.005]	
Worry about learning loss	0.433	0.340	0.093***
	[0.005]	[0.005]	
Worry about loss of interest	0.551	0.404	0.146***
	[0.005]	[0.006]	
Worry about dropping out	0.511	0.413	0.097***
	[0.005]	[0.006]	
Worry about COVID infection	0.343	0.359	–0.017**
	[0.005]	[0.005]	
	8,417	7,620	

Notes: (1) The value displayed for t-tests are the differences in the means across the groups. ***, **, and * indicate significance at the 1, 5, and 10% critical level. All figures/data refer to the post-school reopening period (i.e., Jan 2021–Jan 2022); "feelings" and "worries" are measured retrospectively. (2) Absence dummy is 1 if at least 1 day absent in the first month of reopening. (3) SE in parenthesis. (4) "perceived quality is good" implies "lessons easy to follow." (5) primary students comprise forms 4–6 (ages 10–12).

[14] This finding is consistent with existing evidence that shows significant COVID-19 anxiety of infection among students after the school reopening; COVID-19 cases reported at school also increased student anxiety (Burak 2023).

We further reexamined pre-reopening indicators vis-à-vis student's desire to return to school[15]. There is a positive and significant correlation between "preference for a return to school" and being worried about learning loss, loss of study interest, and school dropout for both primary and secondary students. In addition, among secondary students, not only the loss of feeling of happiness (relative to the pre-COVID period) is significantly higher for the subgroup who prefer a return to school vis-à-vis those who don't but also a significantly lower proportion of this subgroup report regular attendance (44%) and PdPR instructions to be clear (67%).

5.2 Post-reopening Educational Experience of Students

Table 2 reports summary statistics on 18 indicators capturing post-transition experience by level of schooling of which only one relates to PdPR. Among notable findings, when compared to primary students (72%), secondary students were not only significantly less favorable in their assessment of return to school (59%) but also reported a bigger (3.9) percentage reduction in the use of PdPR lessons compared to (1.6) primary students. Yet secondary students were significantly less likely to be absent from school for at least one day *during the month of reopening*—54% against 65% among primary students[16]. Turning to wellbeing indicators, unsurprisingly, primary students were not only significantly happier (45%) but also reported a larger gain in happiness score following reopening (21 pp) compared to secondary students (12 pp), and were significantly less tense (21%) and afraid (27%). This is also consistent with lower proportions reporting negative educational worries, for example, 30%, 35%, and 36% of primary students worried about learning loss, loss of interest in education, and dropping out from school, respectively. Lastly, 37% of students reported being worried about COVID infection following the reopening of schools.

In order to better describe the transitional change, Figure 1 plots data on changes in psychosocial wellbeing in four dimensions while Figure 2 describes changes in four specific forms of educational worries. A number of patterns are noteworthy. First, for all indicators, secondary students report a significantly higher percentage points change vis-à-vis primary students. Second, across both groups, feelings of restlessness and tension declined following school reopening, although the feeling of being afraid increased (Figure 1). This is consistent with an increase in worry over COVID infection across primary and secondary student groups who otherwise report a decline in worry about learning loss, loss of interest in study, and school dropout (Figure 2).

We reexamined these changes vis-à-vis student's post-reopening appraisal of the decision to return to school. Among primary students, with the exception of "being afraid," there is a clear positive correlation between "being happy to be back in school" and reductions in feelings of being restless, depressed, and tense (Figure 3). Those "happy to be back in school" also reported a bigger percentage point reduction in worries related to learning loss and dropping out from school compared to those who reported not being happy (or neutral) to be back in school as well as reductions in feelings of being restless, depressed, and tense (Figure 4).

[15] Results not reported but available upon request.

[16] In the pooled sample, 60% of students self-reported to be absent from school for at least 1 day in the month of April 2022, while 12% were absent for 5 days or more.

Table 2: Indicators of Post-reopening Experience—Secondary vs Primary

	Secondary Mean/SE	Primary Mean/SE	t-Test of Difference (1)–(2)
Satisfaction with return to school: Happy	0.590	0.729	-0.139***
	[0.005]	[0.005]	
Satisfaction with return to school: Neutral	0.372	0.237	0.135***
	[0.005]	[0.005]	
Satisfaction with return to school: Not happy	0.038	0.034	0.004
	[0.002]	[0.002]	
Absent from school	0.547	0.655	-0.108***
	[0.005]	[0.005]	
Report an increase in study time	0.408	0.496	-0.088***
	[0.005]	[0.006]	
Change in PdPR lessons usage	-0.039	-0.016	-0.024***
	[0.003]	[0.003]	
Feeling happy	0.383	0.454	-0.072***
	[0.005]	[0.006]	
Feeling happier relative to 2021	0.124	0.217	-0.093***
	[0.007]	[0.007]	
Feeling restless	0.450	0.448	0.002
	[0.005]	[0.006]	
Feeling depressed	0.221	0.245	-0.023***
	[0.005]	[0.005]	
Feeling afraid	0.434	0.273	0.162***
	[0.005]	[0.005]	
Feeling tense	0.260	0.219	0.041***
	[0.005]	[0.005]	
Worry about learning loss	0.337	0.302	0.035***
	[0.005]	[0.005]	
Worry about loss of interest	0.435	0.352	0.082***
	[0.005]	[0.005]	
Worry about dropping out	0.421	0.366	0.055***
	[0.005]	[0.006]	
Worry about COVID infection	0.377	0.378	-0.000
	[0.005]	[0.006]	
N	8,417	7,620	

Notes: (1) The value displayed for t-tests are the differences in the means across the groups. ***, **, and * indicate significance at the 1, 5, and 10% critical level. All figures/data refer to the post-school reopening period (i.e., April 2022); “feelings” and “worries” were measured retrospectively. (2) Absence dummy is 1 if at least 1 day absent in the first month of reopening. (3) SE in parenthesis.

Figure 1: Post-school Reopening Change in Wellbeing—Secondary vs Primary

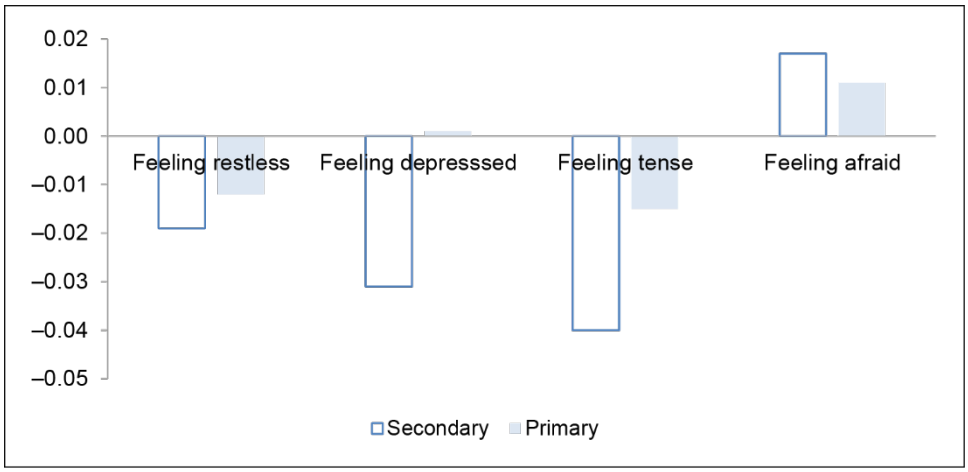
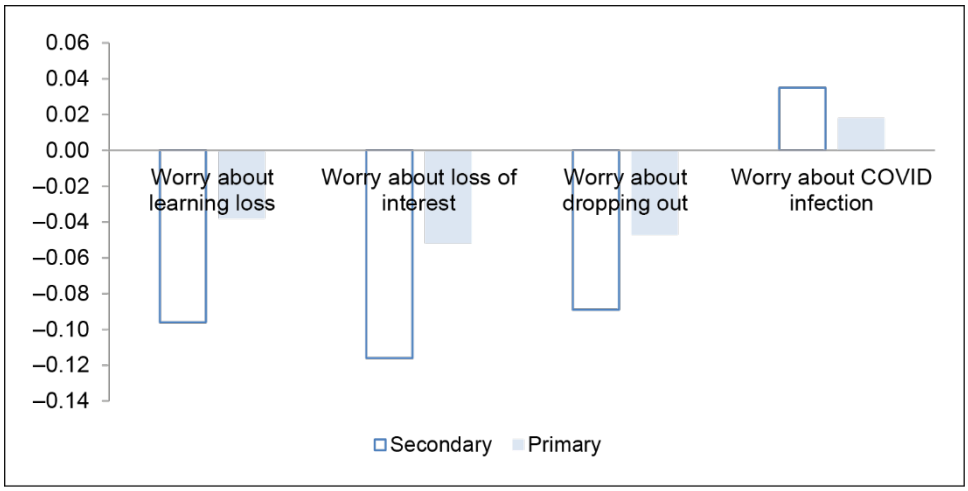


Figure 2: Post-school Reopening Change in Educational Worries—Secondary vs Primary



Note: Based on data reported in Tables 1 and 2.

Figure 3: Post-school Reopening Change in Wellbeing by Student Assessment—Primary Students

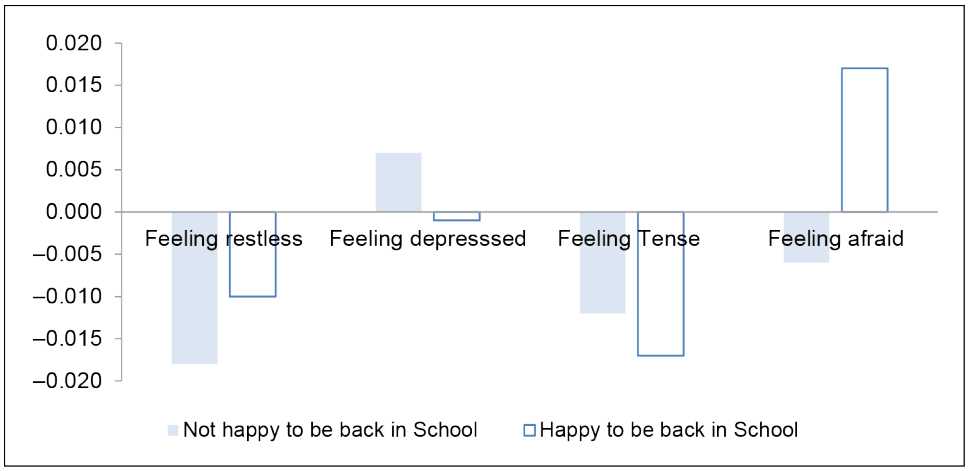
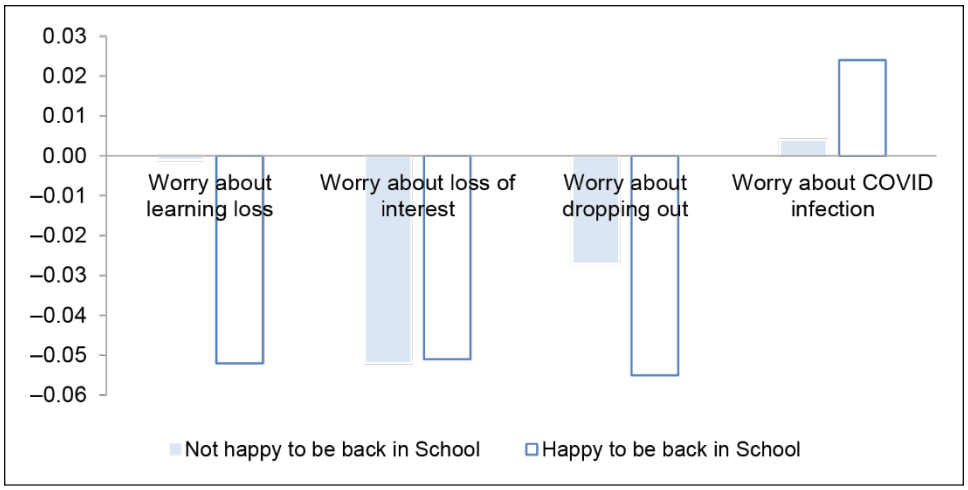


Figure 4: Post-school Reopening Change in Educational Worries by Student Assessment—Primary Students



Among secondary students, there is a similar positive correlation between "being happy to be back in school" and reductions in feelings of being restless, depressed, and tense (Figure 5). The difference between the two groups is not statistically significant with regards to "being afraid," both reporting an increase. Those "happy to be back in school" also reported a bigger percentage point reduction in worries related to learning loss and dropping out from school compared to those who reported not being happy (or neutral) to be back in school as well as reductions in feelings of being restless, depressed, and tense (Figure 6).

Figure 5: Post-school Reopening Change in Wellbeing by Student Assessment—Secondary Students

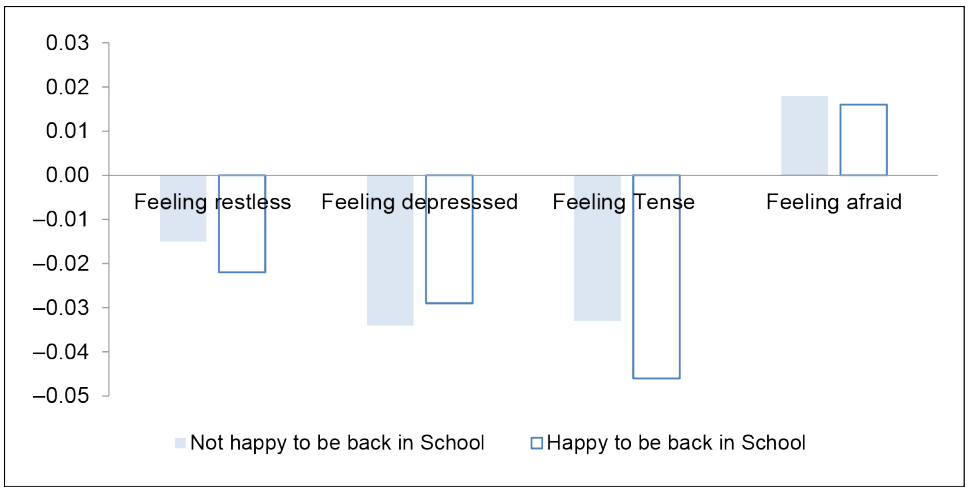
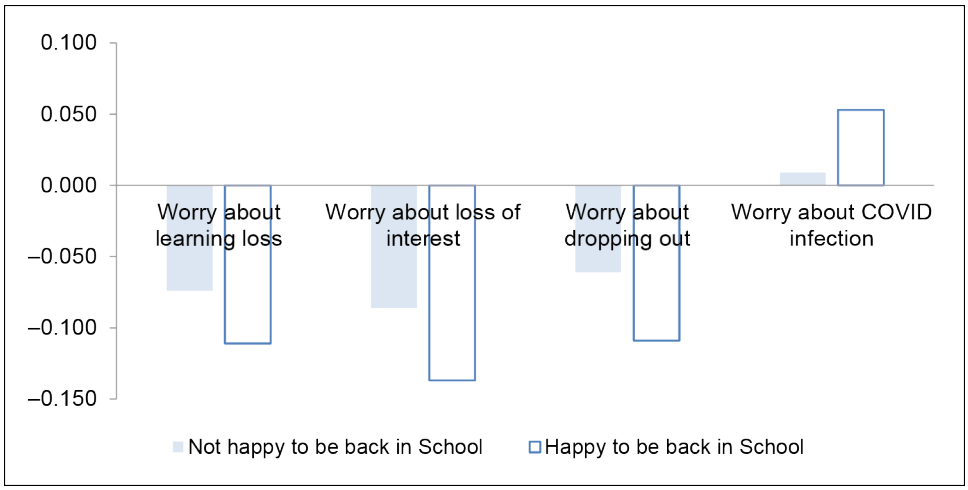


Figure 6: Post-school Reopening Change in Educational Worries by Student Assessment—Secondary Students



We further reexamined pre-reopening indicators vis-à-vis student's desire to return to school[17]. There is a positive and significant correlation between "preference for return to school" and being worried about learning loss, loss of study interest, and school dropout for both primary and secondary students. In addition, among secondary students, not only is the gain in feeling of happiness (relative to pre-reopening period) significantly higher for the subgroup who preferred a return to school (vis-à-vis those who don't), a significantly lower proportion of this subgroup reported being depressed (20%). Yet 35% of these so-called "satisfied students" remained worried about learning loss, which is significantly higher compared to the "unsatisfied students" (30%).

In sum, even though the majority of students reported being contented with school reopening, there are a number of patterns in the data that suggest a variety of transitional disruptions and challenges. Compared to primary students, older (i.e., secondary) students remained less satisfied with school reopening, and even among this "satisfied" subgroup, at least one-third remain worried about learning loss and 41% remained worried about loss of study interest after school reopening. It is possible that these unconditional correlations are confounded by differences in student's sociodemographic backgrounds. For instance, secondary students have relatively better socioeconomic backgrounds which, in turn, can cause higher educational expectations. We partially address this concern in the next section.

5.3 Unpacking the "Home Schooling" (PdPR) Connection in Post-reopening Experience

Given the descriptive evidence presented in the preceding section, we further examine the correlates of student's subjective appraisal of school reopening with a focus on policy factors. First, we tested whether student experience during reopening is a legacy of prior online learning experience at home, that is, whether the PdPR program experience served as a complement to school reopening efforts. Second, we tested the role of access to government aid schemes and support received at home from parents.

[17] Results not reported but available upon request.

Table 3: Regression Estimates of the Correlates of Subjective Assessment of School Re-opening—Primary Students

	(1)	(2)	(3)	(4)	(5)
Female	0.0254**	0.0283**	0.0231**	0.0235**	0.0219**
	(0.0102)	(0.0113)	(0.0102)	(0.00995)	(0.011)
Age	–0.0302***	–0.0228***	–0.0304***	–0.0324***	–0.0263***
	(0.00632)	(0.00694)	(0.0063)	(0.00616)	(0.00679)
Ethnicity: Chinese	–0.0287	–0.04	–0.0178	–0.0235	0.00689
	(0.0475)	(0.0622)	(0.0475)	(0.0463)	(0.061)
Ethnicity: Indian	0.011	–0.038	0.0152	0.0219	–0.0163
	(0.0345)	(0.0406)	(0.0345)	(0.0337)	(0.0398)
Ethnicity: Other	0.0716**	0.0574*	0.0716**	0.0686**	0.0535*
	(0.0285)	(0.0317)	(0.0284)	(0.0278)	(0.031)
Books at home: 26–50	0.00383	0.00263	0.00291	0.00182	0.00139
	(0.014)	(0.0154)	(0.014)	(0.0137)	(0.015)
Books at home: 51–100	0.000547	0.00614	–0.00154	–0.0041	0.00385
	(0.0144)	(0.0159)	(0.0144)	(0.0141)	(0.0156)
Books at home: 101–200	–0.0246	–0.0192	–0.0259	–0.0265	–0.0229
	(0.0174)	(0.0193)	(0.0174)	(0.017)	(0.0189)
Books at home: 201–500	–0.02	–0.0267	–0.0213	–0.011	–0.0218
	(0.0217)	(0.0241)	(0.0217)	(0.0212)	(0.0236)
Books at home: 500+	–0.0354	–0.0198	–0.035	–0.026	–0.0121
	(0.0236)	(0.0268)	(0.0236)	(0.023)	(0.0262)
Internet access: home Wi-Fi	–0.0503***	–0.0439***	–0.0489***	–0.0376***	–0.0311***
	(0.0112)	(0.0122)	(0.0112)	(0.011)	(0.0119)
Internet quality: good	0.00785	0.0154	0.00654	0.0023	0.0115
	(0.0126)	(0.0139)	(0.0126)	(0.0123)	(0.0136)
Digital access: smartphone	0.0349**	0.0195	0.0336**	0.0215	0.00545
	(0.0153)	(0.0169)	(0.0153)	(0.0149)	(0.0165)
Digital access: computer	–0.0189	–0.0134	–0.0187	–0.0171	–0.0126
	(0.0121)	(0.0135)	(0.0121)	(0.0118)	(0.0132)
Digital access: I-pad	–0.0063	–0.0185	–0.0069	–0.00601	–0.0151
	(0.0148)	(0.0165)	(0.0148)	(0.0145)	(0.0162)
Parent's status: mother has good digital skills	0.0677***	0.0548***	0.0665***	0.0736***	0.0609***
	(0.0118)	(0.013)	(0.0117)	(0.0115)	(0.0128)
Parent's status: father has good digital skills	0.0446***	0.0435***	0.0416***	0.0402***	0.0360***
	(0.0114)	(0.0125)	(0.0114)	(0.0112)	(0.0123)
Parent's status: suffered COVID infection	–0.00706	–0.0199*	–0.00463	–0.00891	–0.0204*
	(0.0104)	(0.0114)	(0.0103)	(0.0101)	(0.0112)
Parent's status: suffered job loss	–0.0165	–0.0284**	–0.00749	–0.00562	–0.00996
	(0.0114)	(0.0125)	(0.0115)	(0.0112)	(0.0124)
Region: West Malaysia, northern state	–0.0242	–0.0167	–0.025	–0.0319*	–0.0247
	(0.0197)	(0.0216)	(0.0196)	(0.0192)	(0.0211)
Region: West Malaysia, central state	0.0258	0.0440**	0.0209	0.00313	0.0181
	(0.018)	(0.0202)	(0.018)	(0.0176)	(0.0198)
Region: West Malaysia, southern state	–0.00649	–0.00279	–0.0101	–0.0126	–0.0132
	(0.0176)	(0.0192)	(0.0175)	(0.0171)	(0.0188)
Region: West Malaysia, eastern state	0.0683***	0.0638***	0.0664***	0.0495***	0.0452**
	(0.0167)	(0.0181)	(0.0166)	(0.0163)	(0.0177)
PdPR quality: easy to follow		0.120***			0.112***
		(0.0136)			(0.0133)
PdPR quality: satisfied with teachers			0.0876***		0.0623***
			(0.0144)		(0.0159)
PdPR Preference: prefer onsite schooling				0.209***	0.183***
				–0.0104	-0.0116
Constant	0.968***	0.826***	0.900***	0.874***	0.716***
	(0.0724)	(0.0803)	(0.0731)	(0.0707)	(0.0794)
Observations	7,620	5,914	7,620	7,620	5,914
R-squared	0.028	0.039	0.033	0.077	0.081

Notes: (i) Estimates correspond to linear probability regression (LPM) models. The dependent variable is 1 if the student reported to be “Happy to be back in school”; 0 if neutral or unhappy. (ii) PdPR variables refers to pre-reopening period and are measured based on recall data. (iii) For summary statistics, see Appendix Table A. (iv) Standard errors in parentheses.

Table 4: Regression Estimates of the Correlates of Subjective Assessment of School Re-opening—Secondary Students

	(1)	(2)	(3)	(4)	(5)
Female	0.017	–0.00972	0.0159	0.0101	–0.0146
	(0.0109)	(0.0137)	(0.0109)	(0.0104)	(0.0131)
Age	–0.0110***	–0.0120***	–0.0110***	–0.0135***	–0.0127***
	(0.00355)	(0.00439)	(0.00355)	(0.00339)	(0.00421)
Ethnicity: Chinese	–0.0870***	–0.0387	–0.0838***	–0.0494**	–0.0122
	(0.0207)	(0.033)	(0.0207)	(0.0198)	(0.0317)
Ethnicity: Indian	0.0321	0.0252	0.0348	0.0555*	0.0499
	(0.0327)	(0.0421)	(0.0326)	(0.0312)	(0.0404)
Ethnicity: Other	0.0426**	0.0416*	0.0420**	0.0387**	0.0415**
	(0.0176)	(0.0218)	(0.0175)	(0.0167)	(0.0209)
Books at home: 26–50	–0.0238	–0.0288	–0.0243	–0.0269*	–0.0341*
	(0.0151)	(0.0187)	(0.0151)	(0.0144)	(0.0179)
Books at home: 51–100	–0.00034	–0.0102	–0.00109	–0.00697	–0.0162
	(0.0157)	(0.0195)	(0.0157)	(0.0149)	(0.0187)
Books at home: 101–200	–0.0357*	–0.0503**	–0.0356*	–0.0219	–0.0273
	(0.0184)	(0.0229)	(0.0184)	(0.0175)	(0.022)
Books at home: 201–500	–0.0367*	–0.0846***	–0.0368*	–0.0248	–0.0685**
	(0.0221)	(0.0284)	(0.022)	(0.0211)	(0.0272)
Books at home: 500+	–0.0315	–0.0381	–0.0309	–0.00699	–0.0155
	(0.0247)	(0.0314)	(0.0247)	(0.0236)	(0.0301)
Internet access: home Wi-Fi	–0.0215*	–0.0123	–0.0203	–0.0176	–0.00885
	(0.0125)	(0.0151)	(0.0124)	(0.0119)	(0.0145)
Internet quality: good	0.0332**	0.0332**	0.0308**	0.0321***	0.0323**
	(0.013)	(0.0161)	(0.013)	(0.0124)	(0.0154)
Digital access: smartphone	–0.0225	0.0157	–0.0269	–0.0460*	–0.0213
	(0.0254)	(0.0318)	(0.0254)	(0.0243)	(0.0306)
Digital access: computer	–0.0390***	–0.0522***	–0.0408***	–0.0297**	–0.0484***
	(0.0124)	(0.0154)	(0.0124)	(0.0118)	(0.0148)
Digital access: I-pad	–0.0134	0.00208	–0.0127	–0.00549	0.00333
	(0.0149)	(0.0192)	(0.0149)	(0.0142)	(0.0184)
Parent's status: mother has good digital skills	0.0739***	0.0546***	0.0718***	0.0769***	0.0584***
	(0.0125)	(0.0157)	(0.0125)	(0.012)	(0.015)
Parent's status: father has good digital skills	0.0313**	0.0260*	0.0308**	0.0346***	0.0269*
	(0.0126)	(0.0157)	(0.0126)	(0.012)	(0.0151)
Parent's status: suffered COVID infection	0.0148	0.00715	0.0144	0.0172*	0.0144
	(0.0109)	(0.0136)	(0.0109)	(0.0104)	(0.0131)
Parent's status: suffered job loss	0.00497	–0.00956	0.00821	0.0164	0.00568
	(0.0131)	(0.0162)	(0.0131)	(0.0125)	(0.0156)
Region: West Malaysia, northern state	0.0428**	0.0395*	0.0428**	0.0314*	0.0293
	(0.0173)	(0.0212)	(0.0173)	(0.0165)	(0.0203)
Region: West Malaysia, central state	0.0241	0.0395*	0.0244	0.000261	0.0142
	(0.0162)	(0.0209)	(0.0162)	(0.0155)	(0.0201)
Region: West Malaysia, southern state	0.0643***	0.0787***	0.0603***	0.0494***	0.0547**
	(0.0198)	(0.0243)	(0.0198)	(0.0189)	(0.0234)
Region: West Malaysia, eastern state	0.0522***	0.0601***	0.0541***	0.0350**	0.0445**
	(0.0181)	(0.0217)	(0.0181)	(0.0172)	(0.0208)
PdPR quality: easy to follow		0.0948***			0.0878***
		–0.0145			–0.014
PdPR quality: satisfied with teachers			0.0543***		0.0496***
			–0.014		–0.0175
PdPR Preference: prefer onsite schooling				0.320***	0.299***
				–0.0111	–0.0141
Constant	0.695***	0.685***	0.657***	0.528***	0.481***
	–0.0588	–0.0732	–0.0596	–0.0564	–0.0714
Observations	8,415	5,128	8,415	8,415	5,128
R-squared	0.024	0.028	0.026	0.111	0.109

Notes: See Table 1.

Each Table contains separate results for primary and secondary students. Each regression model controls for a wide range of sociodemographic factors (for details on these variables, see Appendix Table 1). While these added controls are also of interest on their own right, for the sake of parsimony, we do not discuss these in this paper. The results are presented in Table 5. Three main correlates of interest are: (i) PdPR quality: easy to follow; (ii) PdPR quality: satisfied with teachers; and (iii) Preference for onsite schooling. All of these are positively and significantly correlated with the correlates of student's subjective appraisal of school reopening. Compared to primary students, however, the coefficient on "preference for onsite schooling" variable is much larger for the secondary student sample. This result is consistent with the fact that secondary students were reportedly significantly less satisfied with PdPR compared to primary students (see Table 1).

Next, we repeated the analysis using alternative 4 dependent variables—absence from school; "Increase in Study Time"; and "Happiness"—all of which capture different aspects of post-school reopening experience of the students. Reassuringly, the probability of absence from school is statistically significantly and negatively correlated with two direct proxies of perceived PdPR quality and the indirect proxy (preference for onsite schooling; Table 5). Lastly, we tested the robustness of this correlation pattern by estimating additional wellbeing regressions using four specific indicators—feelings of being depressed, restless, afraid, and tense. With the exception of feeling restless, indicators related to PdPR are negatively and significantly associated with wellbeing outcomes in most cases.

5.4 Post-School Reopening Challenges

In order to better understand the mixed transitional experience, we examined subjective data on student's perceptions of the challenges they experienced following school reopening in seven aspects: (i) not learning more; (ii) struggling to catch up; (iii) friends struggling to catch up; (iv) not receiving extra support from teachers; (v) not receiving extra support from parents; (vi) lack of social interactions among students; and (vi) lack of collaboration among students. The first three specifically capture "overall learning experience"; (v) corresponds to home-specific challenges, while (iv), (vi), and (vii) refer to school-specific challenges. Students were asked to identify which of these challenges applied to them. In five out of the seven indicators, a significantly higher proportion of secondary students reported facing the challenge. About one-third (34–35%) of students reported not learning more, and 93% reported not receiving extra support from parents following school reopening (compared to online homeschooling). Two-thirds of students (63%–72%) also reported not receiving extra support from teachers. Among patterns specific to in-class experience, 45%–46% reported a lack of social interactions while 23%–32% reported a lack of collaboration among students (see Figure 7).

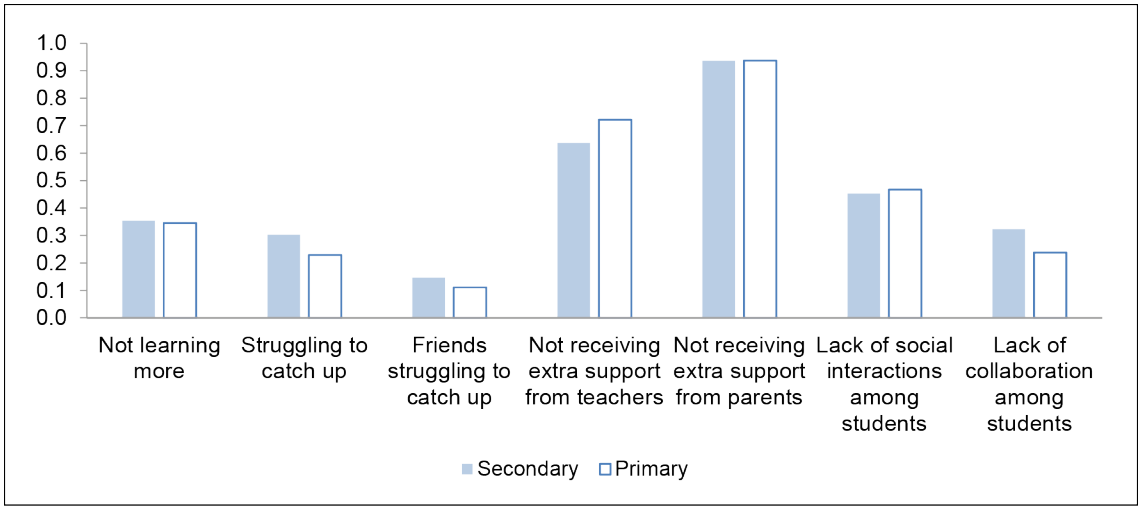
Table 5: Regression Estimates of Correlates of Selected Dimensions of School Re-opening Experience

	Primary				Secondary			
	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)
A. Dependent variable: " Absence from School"								
PdPR quality: easy to follow	–0.0409***			–0.0357**	–0.0442***			–0.0411***
	(0.0149)			(0.0149)	(0.0148)			(0.0149)
PdPR quality: satisfied with teachers		–0.0620***		–0.0696***		–0.0433***		–0.0306*
		(0.0154)		(0.0178)		(0.0139)		(0.0186)
PdPR Preference: prefer onsite schooling			–0.0457***	–0.0293**			–0.0545***	–0.0472***
			(0.0114)	(0.0130)			(0.0116)	(0.0150)
Constant	1.074***	1.114***	1.086***	1.133***	0.697***	0.626***	0.624***	0.743***
	(0.0882)	(0.0784)	(0.0777)	(0.0890)	(0.0748)	(0.0593)	(0.0588)	(0.0761)
Observations	5,914	7,620	7,620	5,914	5,128	8,415	8,415	5,128
R-squared	0.027	0.027	0.027	0.031	0.057	0.056	0.058	0.059
B. Dependent variable: " Increase in Study Time"								
PdPR quality: easy to follow	0.137***			0.131***	0.123***			0.120***
	(0.0156)			(0.0156)	(0.0151)			(0.0152)
PdPR quality: satisfied with teachers		0.0902***		0.0683***		0.0361**		0.0295
		(0.0162)		(0.0186)		(0.0140)		(0.0189)
PdPR Preference: prefer onsite schooling			0.0524***	0.0434***			0.0533***	0.0420***
			(0.0120)	(0.0136)			(0.0117)	(0.0153)
Constant	0.460***	0.485***	0.531***	0.397***	0.226***	0.180***	0.177***	0.183**
	(0.0924)	(0.0823)	(0.0816)	(0.0932)	(0.0761)	(0.0598)	(0.0593)	(0.0775)
Observations	5,914	7,620	7,620	5,914	5,128	8,415	8,415	5,128
R-squared	0.038	0.031	0.030	0.042	0.025	0.016	0.017	0.026
C. Dependent variable: Happiness								
PdPR quality: easy to follow	0.185***			0.173***	0.141***			0.131***
	(0.0374)			(0.0375)	(0.0339)			(0.0340)
PdPR quality: satisfied with teachers		0.140***		0.136***		0.105***		0.0970**
		(0.0382)		(0.0446)		(0.0306)		(0.0424)
PdPR Preference: prefer onsite schooling			0.132***	0.107***			0.174***	0.205***
			(0.0283)	(0.0327)			(0.0255)	(0.0342)
Constant	3.436***	3.566***	3.616***	3.304***	3.562***	3.473***	3.456***	3.382***
	(0.222)	(0.194)	(0.192)	(0.224)	(0.171)	(0.131)	(0.129)	(0.173)
Observations	5,914	7,620	7,620	5,914	5,128	8,415	8,415	5,128
R-squared	0.026	0.021	0.022	0.030	0.019	0.015	0.019	0.027

Notes: All dependent variables, except happiness, are binary indicators. Only estimates specific to PdPR variables are reported; for full regression specification, see Table 1.

We further reexamined these changes vis-à-vis student's post-reopening appraisal of the decision to return to school. Among primary students, with the exception of "not receiving extra support from parents," there is a negative and significant correlation between "being happy to be back in school" and the experience of challenges relating to (i) not learning more; (ii) struggling to catch up; (iii) friends struggling to catch up; and (iv) not receiving extra support from teachers (Figure 8). Corresponding t-test results are available in Appendix Table 2. Among secondary students, this pattern of correlation is even stronger and more systematic across six indicators, with the exception of "lack of social interactions among students" (Figure 9). Altogether, these patterns suggest that a potential contributing factor to a favorable post-reopening assessment of the decision to return to school is comprised of three elements: lack of learning or related difficulty; lack of support from teachers; and a less conducive social environment at school. The lack of parental support, however, is an across-the-board concern.

Figure 7: Post-school Opening Challenges—Primary vs Secondary



Note: Differences between primary and secondary groups statistically significant at 5% level for indicators 2, 3, 4, 6, and 7.

Figure 8: Post-school Opening Challenges by Student Assessment—Primary

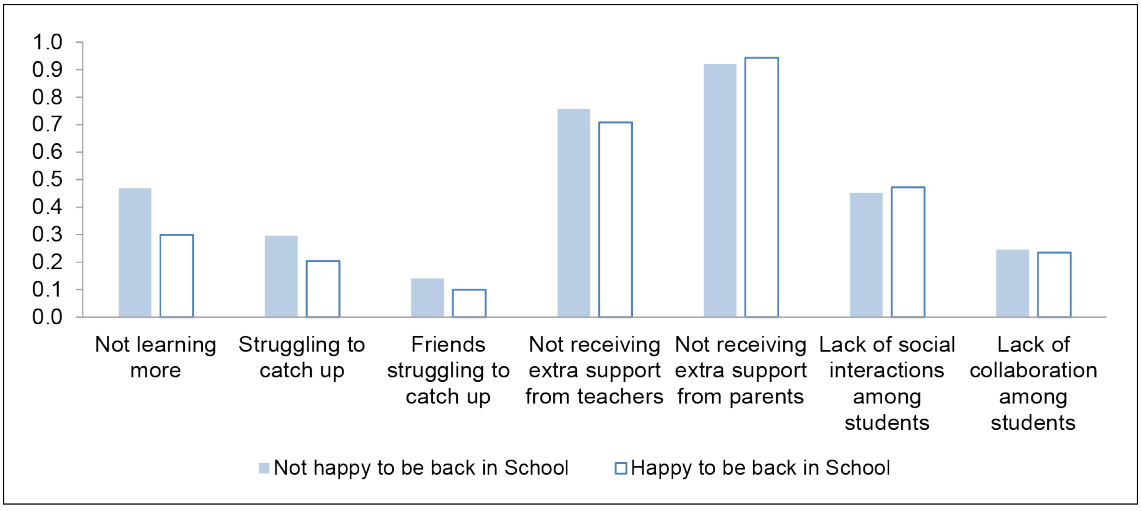
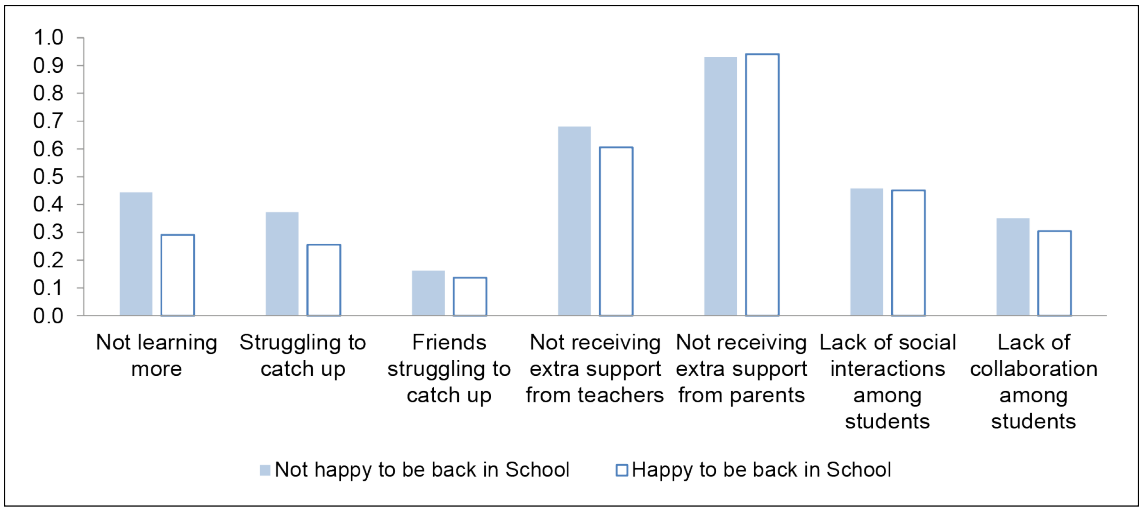


Figure 9: Post-school Opening Challenges by Student Assessment—Secondary



5.5 Policy Pathways for Improving School Reopening Experience

Beyond the positive legacy of PdPR, we are interested in understanding the potential channels through which governments can improve home–school transitional experience. In this section, two specific channels are considered: (ii) access to public aid schemes; and (ii) better support from family. While the former is part of the universal opportunity set available to citizen children in Malaysia, the latter is primarily a reflection of unequal educational opportunities. Access to government aid is assessed with respect to seven programs that we model using alternative indicators, while home provision is modeled using a collection of four binary indicators.

Table 6 reports summary statistics on government aid beneficiaries by level of schooling[18]. Almost one out of every two student respondents in our sample reported benefiting from at least one aid scheme (out of a maximum total of seven schemes). Among secondary students, 24% reported receiving BAP compared to 18% primary school students. Among the seven student-focused schemes identified, SPBK is the most popular (27% and 29% of recipients among our secondary and primary sample students, respectively).

[18] We have also tested for differences in socioeconomic characteristics between aid recipients and non-recipients. In terms of ethnicity, Chinese and Indian students are systematically less likely to report public aid receipt, while non-Malaya Bumiputera are more likely to report it (base category is Malaya Bumiputera). Recipients are also significantly less likely to have good quality Internet and home broadband. Lastly, recipients are likely to not know parental income, and among those who do, they significantly report themselves as “low income.” Altogether, these patterns suggest a pro-poor bias in public aid allocation in school. Results are available upon request.

Table 6: Public Aid vs Private Support by Level of Schooling

	Secondary Mean/SE	Primary Mean/SE	t-Test of Difference (1)-(2)
A. Government Aid Scheme in School			
The Special Needs Student Allowance (EMK)	0.072	0.050	0.022***
	[0.003]	[0.002]	
Special Project for Full Boarding School Students (PKSBP)	0.052	0.048	0.004
	[0.002]	[0.002]	
Pre-University Allowance (EPU)	0.115	0.044	0.070***
	[0.003]	[0.002]	
Help from the Poor Students' Trust Fund (KWAPM)	0.125	0.125	–0.000
	[0.004]	[0.004]	
Early School Assistance (BAP)	0.243	0.184	0.060***
	[0.005]	[0.004]	
Textbook Loan Scheme (SPBK)	0.271	0.291	–0.020***
	[0.005]	[0.005]	
The School Milk Program (PSS)	0.135	0.173	–0.039***
	[0.004]	[0.004]	
Received at least one of the 7 programs	0.491	0.451	0.041***
	[0.005]	[0.006]	
Aid index (0 = if received none; 7 = if received all)	1.013	0.917	0.096***
	[0.016]	[0.016]	
	8,417	7,620	
B. Private Support at Home			
Study support at home: father	0.241	0.324	–0.083***
	[0.005]	[0.005]	
Study support at home: mother	0.439	0.657	–0.218***
	[0.005]	[0.005]	
Study support at home: siblings	0.272	0.267	0.005
	[0.005]	[0.005]	
Study support at home: relatives	0.085	0.065	0.020***
	[0.003]	[0.003]	
Study support at home: self	0.508	0.205	0.304***
	[0.005]	[0.005]	
Increase in educational spending	0.531	0.587	–0.056***
	[0.005]	[0.006]	
Home tutor	0.597	0.449	0.148***
	[0.005]	[0.006]	
Purchase of new device: desktop	0.255	0.222	0.033***
	[0.005]	[0.005]	
Purchase of new device: smart phone	0.757	0.737	0.019***
	[0.005]	[0.005]	
Purchase of new device: I-pad	0.111	0.125	–0.014***
	[0.003]	[0.004]	
N	8,417	7,620	

EMK = Elaun Murid Berkeperluan Khas, PKSBP = Projek Khas Murid Sekolah Berasrama Penuh, EPU = Elaun Pra Universiti, KWAPM = Bantuan Kumpulan Wang Amanah Pelajar Miskin, BAP = Bantuan Awal Persekolahan, SPBK = Skim Pinjaman Buku Teks, PSS = Program Susu Sekolah.

Notes:

(i) Data captures student's self-report of her/his aid recipient status and is not validated by administrative record or the school authority.

(ii) Data corresponds to the student's status at the time of the survey (i.e., post-reopening period).

(iii) Private support refers to post-reopening learning help and investment at home from family members.

Summary statistics on post-reopening learning support indicators at home by level of schooling are presented in panel B of Table 6. Secondary school respondents received less family support in terms of help with home study—24% and 43% reported being helped by father and mother, respectively, compared to 32% and 65% primary students. Unsurprisingly, 50% of secondary learners also reported relying on self-study, compared to only 20% of our sample of primary students. A larger proportion of secondary students also benefitted from a home tutor (59%) compared to primary students (44%). Turning to household spending for educational purposes, the majority reported an increase (53% and 58% among secondary and primary children, respectively). This is consistent with the fact that the majority reported the purchase of a new smartphone.

Tables 7–8 report regression estimates of post-reopening learning-related concerns in three aspects—concerned about "not learning more"; "struggling to catch up"; and "learning loss"—with an exclusive focus on the role of government aid and private (i.e., family) support. Reassuringly, better-supported children are significantly less likely to report "not learning more" following school reopening. In the case of parental support, this correlation is the strongest relative to support received from mother (see Table 8). Equally, those receiving government aid (e.g., BAP) are significantly less likely to report "not learning more" (see Table 7). In the case of "struggling to catch up with lessons," the findings are less systematic. Associations with family input indicators in the regression models are mostly insignificant for secondary students, while there is no clear pattern for primary students. Public aid recipients at the primary level are significantly less likely to struggle with lessons though the relevant coefficients for secondary students. Lastly, better-supported children, whether in terms of public aid or family help, are significantly more likely to be concerned about learning loss. This suggests the need to look beyond economic support or improved allocation of home inputs to assist children to overcome learning loss.

Table 7: Regression Estimates of the Correlates of Selected Dimensions of School Reopening Experience—Indicators of "Public Aid" as Added Covariates

	Primary			Secondary		
Variables	**(1)**	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**
A. Dependent Variable: "Happy to return to school"						
Govt aid: recipient of BAP	0.0696***			0.0370***		
	(0.0132)			(0.0127)		
Govt aid: recipient of any program		0.0495***			0.0452***	
		(0.0103)			(0.0109)	
Govt aid: aggregate index			0.0196***			0.0122***
			(0.00376)			(0.00379)
Constant	0.961***	0.947***	0.951***	0.696***	0.690***	0.697***
	(0.0723)	(0.0724)	(0.0724)	(0.0588)	(0.0588)	(0.0588)
Observations	7,620	7,620	7,620	8,415	8,415	8,415
R-squared	0.031	0.031	0.031	0.025	0.026	0.025
B. Dependent Variable: "Not Learning More" After School Reopening						
Govt aid: recipient of BAP	–0.120***			–0.0606***		
	(0.0139)			(0.0122)		
Govt aid: recipient of any program		–0.0879***			–0.0752***	
		(0.0109)			(0.0105)	
Govt aid: aggregate index			–0.0372***			–0.0244***
			(0.00395)			(0.00364)
Constant	0.586***	0.610***	0.606***	0.584***	0.595***	0.582***
	(0.0759)	(0.0760)	(0.0759)	(0.0565)	(0.0564)	(0.0564)
Observations	7,620	7,620	7,620	8,415	8,415	8,415
R-squared	0.068	0.067	0.069	0.049	0.052	0.051
C. Dependent Variable: "Struggling to catch up with lessons"						
Govt aid: recipient of BAP		–0.0359***			–0.00719	
		(0.00985)			(0.0102)	
Govt aid: recipient of any program	–0.0430***			0.00595		
	(0.0126)			(0.0119)		
Govt aid: aggregate index			–0.00743**			0.00355
			(0.00359)			(0.00356)
Constant	0.219***	0.229***	0.221***	0.113**	0.114**	0.114**
	(0.0689)	(0.0690)	(0.0690)	(0.0552)	(0.0552)	(0.0552)
Observations	7,620	7,620	7,620	8,415	8,415	8,415
R-squared	0.017	0.017	0.016	0.015	0.015	0.016
D. Dependent Variable: "Worried about Learning Loss After School Reopening"						
Govt aid: recipient of BAP	0.0667***			0.0329***		
	(0.0108)			(0.0105)		
Govt aid: recipient of any program		0.0831***			0.0569***	
		(0.0138)			(0.0122)	
Govt aid: aggregate index			0.0346***			0.0219***
			(0.00390)			(0.00365)
Constant	0.216***	0.235***	0.214***	0.136**	0.142**	0.144**
	(0.0753)	(0.0752)	(0.0750)	(0.0567)	(0.0566)	(0.0566)
Observations	7,620	7,620	7,620	8,415	8,415	8,415
R-squared	0.020	0.020	0.025	0.020	0.021	0.023

Table 8: Regression Estimates of the Correlates of "Subjective Assessment of School Reopening"—Private Inputs as Added Covariates

	Primary			Secondary		
Variables	**(1)**	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**
A. Dependent Variable: "Happy to return to school"						
Study support at home: father		0.0227**	0.0226**		0.0244*	0.0231*
		(0.0110)	(0.0110)		(0.0137)	(0.0137)
Study support at home: mother		0.0554***	0.0556***		0.0423***	0.0405***
		(0.0109)	(0.0110)		(0.0119)	(0.0119)
Study support at home: others		0.0120	0.0120		0.0352***	0.0343***
		(0.0112)	(0.0112)		(0.0114)	(0.0114)
Home tutor	–0.00366		–0.00526	–0.0368***		–0.0319***
	(0.0105)		(0.0105)	(0.0111)		(0.0111)
Constant	0.969***	0.919***	0.921***	0.707***	0.631***	0.644***
	(0.0725)	(0.0728)	(0.0729)	(0.0589)	(0.0599)	(0.0600)
Observations	7,620	7,620	7,620	8,415	8,415	8,415
R-squared	0.028	0.032	0.032	0.025	0.028	0.029
B. Dependent Variable: "Not Learning More" After School Reopening						
Study support at home: father		–0.0602***	–0.0611***		–0.0648***	–0.0660***
		(0.0116)	(0.0115)		(0.0131)	(0.0131)
Study support at home: mother		–0.110***	–0.108***		–0.0550***	–0.0567***
		(0.0114)	(0.0114)		(0.0114)	(0.0114)
Study support at home: others		–0.0494***	–0.0489***		–0.0479***	–0.0486***
		(0.0117)	(0.0117)		(0.0109)	(0.0109)
Home tutor	–0.0408***		–0.0379***	–0.0205*		–0.0290***
	(0.0110)		(0.0109)	(0.0107)		(0.0107)
Constant	0.588***	0.679***	0.691***	0.594***	0.681***	0.693***
	(0.0763)	(0.0762)	(0.0762)	(0.0567)	(0.0573)	(0.0575)
Observations	7,620	7,620	7,620	8,415	8,415	8,415
R-squared	0.060	0.074	0.076	0.046	0.057	0.057
C. Dependent Variable: "Struggling to catch up with lessons"						
Study support at home: father		–0.00615	–0.00756		–0.0217*	–0.0210
		(0.0105)	(0.0105)		(0.0129)	(0.0129)
Study support at home: mother		0.00972	0.0121		–0.0162	–0.0152
		(0.0104)	(0.0104)		(0.0112)	(0.0112)
Study support at home: others		0.00551	0.00623		–0.0219**	–0.0214**
		(0.0106)	(0.0106)		(0.0107)	(0.0107)
Home tutor	–0.0566***		–0.0573***	0.0189*		0.0162
	(0.00995)		(0.00996)	(0.0105)		(0.0105)
Constant	0.234***	0.210***	0.228***	0.107*	0.146***	0.139**
	(0.0689)	(0.0694)	(0.0694)	(0.0553)	(0.0563)	(0.0564)
Observations	7,620	7,620	7,620	8,415	8,415	8,415
R-squared	0.020	0.016	0.020	0.016	0.017	0.017
D. "Worried about Learning Loss After School Reopening"						
Study support at home: father		0.0291**	0.0296***		0.0360***	0.0361***
		(0.0115)	(0.0115)		(0.0132)	(0.0132)
Study support at home: mother		0.0787***	0.0777***		0.0321***	0.0322***
		(0.0114)	(0.0114)		(0.0115)	(0.0115)
Study support at home: others		0.0560***	0.0557***		0.0194*	0.0195*
		(0.0116)	(0.0116)		(0.0110)	(0.0110)
Home tutor	0.0246**		0.0222**	–0.00156		0.00296
	(0.0109)		(0.0109)	(0.0107)		(0.0107)
Constant	0.235***	0.171**	0.164**	0.140**	0.0901	0.0889
	(0.0754)	(0.0756)	(0.0756)	(0.0568)	(0.0577)	(0.0579)
Observations	7,620	7,620	7,620	8,415	8,415	8,415
R-squared	0.016	0.024	0.025	0.019	0.022	0.022

6. DISCUSSION AND CONCLUSION

In the absence of months of in-person learning opportunities during school closure, concerns over learning loss have increased. At the same time, there are anxieties among learners and parents as schools have reopened. An equitable return to onsite learning requires effective planning and targeting of resources supported by data on the experience of the returning students so that related shortfalls and risk factors are addressed early. To this end, this study builds on a purposefully-designed survey of schools and students, arguably the largest in the context of post-pandemic Malaysia, that captures early experience with school reopening. More specifically, we asked learners a series of questions about their educational experiences before and after the school reopening and sought their views about the potential impacts on their educational outcomes and aspirations.

Among key findings, retrospective appraisal of PdPR (or the experience with pre-reopening phase) by our student respondents is relatively favorable. In contrast, an earlier assessment (i.e., Asadullah 2023) showed a larger proportion of students being dissatisfied with PdPR lessons. This could partly reflect improved educational governance in the second year of school closure. However, attendance was still irregular and the uptake of online lessons was low among students. Similar to earlier evidence, we find a significant socioeconomic divide in access to digital technology as well as home support provisions and high latent demand for a return to onsite education or school reopening (Asadullah 2023).

Reassuringly, we find that the majority (59% of secondary and 72% of primary level students) are satisfied to be back in school. School reopening has also coincided with a significant reduction in education-related worries, such as concerns over drop out, learning loss, and loss of interest in study, particularly among secondary school students. Self-reported scores on psychological wellbeing (i.e., feelings of being tense, depressed and restless) also show significant improvement. At the same time, there is an increase in concern over COVID infection and feelings of being afraid, which could be explained by the former concern.

Concern over infection aside, home-to-school return has coincided with improvements in learners' emotional wellbeing. Those satisfied upon return to school also reported a statistically significant reduction in worries related to learning loss. Multivariate regression analysis suggests a positive correlation between student satisfaction with a return to school and satisfaction with PdPR independent of their sociodemographic backgrounds and locations. This conditional correlation holds for other dimensions of school reopening experience (such as absence from school and worries related to learning loss, dropout, and loss of interest), lending support to the "resumption hypothesis."

Yet our data highlights an important puzzle: one-third report not learning more while at least one-fifth report struggling to catch up on studies. Our data suggests that at least in the first six months of school reopening, concerns over a lack of social interaction in school prevail. We also do not find evidence of increased support from teachers and parents during the home-to-school transition. While the majority of learners reported not receiving more support from teachers and parents, recipients of public aid (e.g., BAP) as well as private support (e.g., parental assistance with learning at home and provision of home tutoring) reported being happy about school reopening and were less likely to report "not learning more." Despite their overall positive learning experience, students on public aid (e.g., BAP) and with private support (e.g., parental

assistance with learning at home and provision of home tutoring) remained significantly worried about learning loss.

Our findings confirm that the reopening of schools is a necessary first step toward educational continuity. But this alone is not sufficient to guarantee resumption of the normal academic routine. Equally, the positive association between the overall experience of return to school and prior home-based online learning experience under PdPR has not been enough to minimize concerns over post-reopening, learning-related anxieties. Our analysis of the transition back to in-person learning has highlighted new challenges related to catching up on the missed educational content. Alongside remedial lessons, the findings also highlight the need for greater policy provisions for relearning of socialization skills. In sum, the transition out of home-based learning following school reopening has helped tackle a number of disruptions experienced during school closure. At the same time, there is evidence of new disruptions or the persistence of some of the earlier disruptions. In other words, the post-pandemic return to school can be seen both as a case of learning resumption and disruption. Existing school-based measures, such as access to educational aid, have been found to be significantly associated with a positive transitional experience. However, the perceived lack of teacher and family support underscores the need for remedial measures beyond financial support for struggling learners to minimize post-school reopening transitional disruptions. Therefore, the combined efforts of schools and families will be needed for an effective and equitable learning experience at school.

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APPENDIX

Appendix Table 1: Summary Statistics—Socioeconomic Background Variables by Level of Schooling

	Secondary	Primary	t-test of Difference
	Mean/SE	Mean/SE	(1)-(2)
Female	0.529	0.512	0.017**
	[0.005]	[0.006]	
Age	14.471	11.021	3.451***
	[0.018]	[0.009]	
Ethnicity: Malay	0.746	0.931	–0.185***
	[0.005]	[0.003]	
Ethnicity: Chinese	0.085	0.012	0.073***
	[0.003]	[0.001]	
Ethnicity: Indian	0.029	0.023	0.006**
	[0.002]	[0.002]	
Ethnicity: Other	0.140	0.034	0.106***
	[0.004]	[0.002]	
Books at home: 0–25	0.271	0.323	–0.052***
	[0.005]	[0.005]	
Books at home: 26–50	0.239	0.221	0.018***
	[0.005]	[0.005]	
Books at home: 51–100	0.217	0.210	0.006
	[0.004]	[0.005]	
Books at home: 101–200	0.131	0.122	0.009*
	[0.004]	[0.004]	
Books at home: 201–500	0.082	0.069	0.013***
	[0.003]	[0.003]	
Books at home: 500+	0.060	0.055	0.005
	[0.003]	[0.003]	
Internet access: home Wi-Fi	0.532	0.545	–0.012
	[0.005]	[0.006]	
Internet quality: good	0.752	0.769	–0.017**
	[0.005]	[0.005]	
Digital access: smartphone	0.953	0.869	0.084***
	[0.002]	[0.004]	
Digital access: computer	0.419	0.301	0.118***
	[0.005]	[0.005]	
Digital access: I-pad	0.181	0.156	0.025***
	[0.004]	[0.004]	
Parent's status: mother has good digital skills	0.499	0.640	–0.141***
	[0.005]	[0.005]	
Parent's status: father has good digital skills	0.480	0.575	–0.095***
	[0.005]	[0.006]	
Parent's status: suffered COVID infection	0.434	0.511	–0.077***
	[0.005]	[0.006]	
Parent's status: suffered job loss	0.227	0.304	–0.077***
	[0.005]	[0.005]	
Region: West Malaysia, northern state	0.159	0.127	0.032***
	[0.004]	[0.004]	
Region: West Malaysia, central state	0.262	0.217	0.045***
	[0.005]	[0.005]	
Region: West Malaysia, southern state	0.120	0.218	–0.098***
	[0.004]	[0.005]	
Region: West Malaysia, eastern state	0.162	0.296	–0.134***
	[0.004]	[0.005]	
Region: East Malaysia	0.297	0.142	0.155***
	[0.005]	[0.004]	
N	8,417	7,620	

Notes: The value displayed for t-tests are the differences in the means across the groups. ***, **, and * indicate significance at the 1, 5, and 10% critical level. Parental income and education variables suffer from a missing data problem and hence were not used.

Appendix Table 2: Post-school Opening Challenges

				Primary			Secondary		
	Secondary Mean/SE	Primary Mean/SE	t-Test Diff (1)-(2)	Not Happy to be Back Mean/SE	Happy to be Back=1 Mean/SE	t-Test Diff (1)-(2)	Not Happy to be Back Mean/SE	Happy to be Back=1 Mean/SE	t-Test Diff (1)-(2)
Not learning more	0.354	0.345	0.009	0.469	0.299	0.170***	0.444	0.291	0.154***
	[0.005]	[0.005]		[0.011]	[0.006]		[0.008]	[0.006]	
Struggling to catch up	0.303	0.229	0.074***	0.296	0.204	0.091***	0.373	0.255	0.118***
	[0.005]	[0.005]		[0.010]	[0.005]		[0.008]	[0.006]	
Friends struggling to catch up	0.147	0.111	0.036***	0.142	0.100	0.043***	0.162	0.137	0.025***
	[0.004]	[0.004]		[0.008]	[0.004]		[0.006]	[0.005]	
Not receiving extra support from teachers	0.637	0.721	–0.084***	0.757	0.708	0.049***	0.681	0.606	0.075***
	[0.005]	[0.005]		[0.009]	[0.006]		[0.008]	[0.007]	
Not receiving extra support from parents	0.936	0.937	–0.000	0.920	0.943	–0.023***	0.930	0.941	–0.011**
	[0.003]	[0.003]		[0.006]	[0.003]		[0.004]	[0.003]	
Lack of social interactions among students	0.453	0.467	-0.013*	0.452	0.472	–0.020	0.457	0.451	0.007
	[0.005]	[0.006]		[0.011]	[0.007]		[0.008]	[0.007]	
Lack of collaboration among students	0.323	0.238	0.085***	0.246	0.235	0.011	0.351	0.304	0.047***
	[0.005]	[0.005]		[0.009]	[0.006]		[0.008]	[0.007]	
N	8,417	7,620		2,064	5,556		3,447	4,970	

Note: This table contains data corresponding to Figures 7–9.