

Sector

#### Education **UNESCO COVID-19 Education Response**

United Nations Educational, Scientific and Cultural Organization

# How many students are at risk of

# not returning to school?

Advocacy paper 30 July 2020

#### In a nutshell

UNESCO estimates that about 24 million learners, from pre-primary to university level, are at risk of not returning to school in 2020 following the education disruption due to COVID-19. Almost half of them are found in South and West Asia and sub-Saharan Africa. University students are affected the most, due to the costs related to their studies. Pre-primary education is the second most affected while at primary and secondary level 10.9 million students are at risk, 5.2 million of whom are girls. Socioeconomic factors are behind this risk, including the need to generate income, increased household and child caring responsibilities, early and forced marriage and/or unintended pregnancy in certain contexts or fear of resurgence of the virus. Those who did not have access to distance education during confinement are also at risk.

This advocacy paper calls on Governments and other partners to increase investments and efforts to remove barriers to education and take the necessary legal and policy actions to make school environments more conducive to students' learning and well-being. "These findings emphasize the need to proactively address all the drivers of educational exclusion and to strengthen the resilience of education systems in the face of this unprecedented crisis", says Stefania Giannini, Assistant Director-General for Education at UNESCO.

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### 1. Purpose of the paper

This paper presents the findings of a simulation exercise carried out by UNESCO, which estimates the number of learners at risk of not returning to education institutions in 2020 due to COVID-19. It seeks to raise a warning flag about the risk of massive dropout of students as a result of the crisis and economic shocks caused by the COVID-19 pandemic and to stimulate policy dialogue and action among policymakers and the international community. Urgent measures are needed to address drivers of exclusion in education, such as push factors (those inherent to schools and education systems) and pull factors (those related to social, economic and cultural conditions).

Through analysis of country-level interventions, experience and policy dialogue across countries, along with lessons learned from past crises, UNESCO proposes actions that governments and the international community may consider in order to address the risk of massive dropout, while taking a resolute transformative approach to tackling decades-long unresolved bottlenecks where possible.

This paper acknowledges certain limitations, mainly resulting from the unprecedented nature of the pandemic and the globally shared uncertainty of how it might further evolve. Qualitative data and evidence were rapidly collected, primarily based on information retrieved online, which may exclude other resources and data available through other means. In addition, the model only reflects the impact of economic shocks on enrolment and does not take into account the impact of confinement factors and prolonged school closures nor parents' and learners' sanitary concerns on enrolment. In order to address these limitations, UNESCO will conduct a series of case studies to collect and analyze more in-depth quantitative and qualitative data as soon as the situation permits it, with a view to improving the depth and accuracy of the simulation exercise.

## 2. Highlights

The COVID-19 pandemic has caused an unprecedented crisis in education and school closures across the globe. As most countries are now reopening or planning to reopen their education institutions, the priority is to ensure the return of all learners. However, experience from past crises and economic shocks suggest that not all students will be able return to school.

Though we have yet to measure the full effect of the COVID-19 crisis on education, it is evident that millions of students are at risk of not returning to education institutions, many of them eventually dropping out. This is due to a number of factors including: a) financial constraints and pressure to take up employment, b) household chores, c) childcare, especially when parents or caregivers are ill or have passed away, d) early and forced marriage and/or early and unintended pregnancy, with girls being particularly vulnerable, and, e) fear of resurgence of the virus. In addition, learning loss and learning gaps incurred during the confinement may also drive disadvantaged learners away from education. Moreover, where remote learning has not been effective, learners may become disinterested in education, even after schools reopen.

UNESCO projections, covering 180 countries and territories, estimate that about **24 million students** (from pre-primary to tertiary education) will be at risk of not returning to education institutions in 2020, including care centres, schools, universities or other training institutions, of which 10.9 million are in primary and secondary levels. 11.2 million are girls and young women, with 5.2 million of them being primary and secondary school students. The 10.9 million in primary and secondary levels is in addition to the 258 million children and youth of this age who were already out of school prior to the crisis. These findings are likely to be adjusted as the sanitary situation continues to evolve.

**Tertiary education** is affected the most, with an estimated 3.5% decline in enrolment, resulting in 7.9 million fewer students. This is followed by **pre-primary education** with an estimated 2.8% decline in enrolments, corresponding to 5 million children. **Primary and secondary education** are likely to be relatively less affected.

The largest share of learners at risk of not returning to school are found in **South and West Asia** (5.9 million) and **sub-Saharan Africa** (5.3 million). At **university level globally, boys** are at a greater risk of not returning to school than girls but in **primary and secondary education**, **girls** are more at risk. In South and West Asia, girls in pre-primary education (3.41%) are more likely than boys (3.15%) to be affected. In sub-Saharan Africa, a higher percentage of girls across all education levels is likely to be affected (1.99%), compared to boys (1.90%). In addition, in sub-Saharan Africa, pre-primary education will be hit the hardest, with enrolment expected to decline by 7.9% for both boys and girls. Students living in **poverty and marginalization** and those affected by **conflict and migration** are hit the hardest.

Missing out on education has serious personal and collective repercussions. These findings point to the need to strengthen the resilience of education systems and address the drivers of education exclusion so as to transform education institutions into attractive environments which are conducive to learning. Also, efforts must persist to remove the barriers to education, pre-existing the COVID-19 crisis, which prevent millions of children and youth from accessing and benefiting from quality education.

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The crisis revealed that most education systems were largely unprepared and ill-adapted to ensure continuity of inclusive education outside schools. Policy responses to mitigate the risk of learners not returning to school should be system-wide and seek to address critical factors that **push learners out of education systems** through, for example, a review of education legal frameworks, policies and plans, in light of the lessons learned from the crisis and with the emphasis on curriculum and innovative approaches to teaching and learning. They should also increase focus on inclusion and equity measures including gender equality, to ensure vulnerable students are provided with the necessary pedagogical and other support to return to school, and work to render learning environments more conducive to students' learning and wellbeing.

Governments, civil society organizations and other partners should also work to address the factors that **pull learners out of education systems** through further strengthening awareness on the right to education, advocating on the importance of education for sustainable livelihoods and personal, social and economic empowerment. Collaboration among all stakeholders should be reinforced to ensure social demand for education and address disengagement, engaging with finance and other concerned ministries to advocate that resources allocated to education are in fact an investment and a long-term solution for economic recovery and growth.

# 3. Introduction

As the world came to a standstill with the COVID-19 pandemic impacting everyone socially, culturally and economically, education was not spared. Schools all over the world gradually started closing as part of measures to contain the spread of the virus, affecting about 90% of the world's student population and revealing the fragility of education systems worldwide. Countries rapidly tried to turn to distance learning solutions but due to the lack of connectivity, equipment and direct teacher-student interaction, it was particularly challenging for governments to ensure that all learners continue their education and avoid school dropouts. Despite these efforts, the number of students who have already dropped out of school, or are considering doing so, has been increasing.

The COVID-19 crisis has further aggravated the existing learning crisis and inequalities while we are yet to measure its full effect on the education system. Millions of students are at risk of dropping out of school or delaying their return. This is due to a number of factors including: a) financial constraints and pressure to take up employment, b) household chores, c) childcare, especially when parents or caregivers are ill or have passed away, d) early and forced marriage and/or early and unintended pregnancy, with girls being particularly vulnerable, and, e) fear of resurgence of the virus.

In addition, learning loss and learning gaps incurred during the confinement may also drive disadvantaged learners away from education. Furthermore, education is expected to be shifting between in-person learning and remote learning, or a combination of them, as virus resurgence is anticipated. Where remote learning has not been effective, more learners may become disinterested in education, even after schools reopen.

Efforts have been made to estimate the impact of COVID-19 on dropout but the numbers are likely to continue to change as the sanitary situation evolves. In April 2020, the Malala Fund<sup>1</sup> estimated that 10 million girls at secondary education in low and lower-middle income countries would be at risk of dropping out because of the COVID-19 pandemic, based on experiences from the Ebola crisis in Sierra Leone. In June 2020, the World Bank<sup>2</sup> released a report using data on 157 countries and estimating that approximately 7 million primary and secondary students globally will be at risk of dropping out and that the out-of-school population would increase by 2% due to the economic shocks caused by COVID-19. Save the Children<sup>3</sup> also estimated that between 7.0 and 9.7 million children (in low- and middle-income countries, excluding China) are at risk of dropping out of school due to rising levels of child poverty.

<sup>&</sup>lt;sup>1</sup> Malala Fund (2020). Girl's education and COVID-19: What past shock can teach us about mitigating the impact of pandemics. <u>https://downloads.ctfassets.net/0oan5gk9rgbh/6TMYLYAcUpjhQpXLDgmdIa/dd1c2ad08886723cbad85283d479de09/GirlsEdu</u> cationandCOVID19\_MalalaFund\_04022020.pdf (accessed on 8 July 2020)

<sup>&</sup>lt;sup>2</sup> World Bank (2020). Simulating the potential impacts of COVID-19 school closures on schooling and learning outcomes: A set of global estimates. <u>http://pubdocs.worldbank.org/en/798061592482682799/covid-and-education-June17-r6.pdf</u> (accessed on 8 July 2020)

<sup>&</sup>lt;sup>3</sup> Save the Children (2020). Save our education. <u>https://www.savethechildren.net/save-our-education-report/</u> (accessed on 13 July 2020).

UNESCO estimates that some **24 million learners** are at risk of not returning to education institutions, including day care centres, schools and higher education institutions, following school closures due to COVID-19 (see Annex 1 for the methodology).

This estimate covers all students (boys and girls), all levels of education (from primary to tertiary) and includes a larger number of countries (180 countries and territories with available data) and can be considered almost universal. It is based on the most recent data available from the International Monetary Fund's (IMF) projection of economic outlook for June 2020 and UIS enrolment data and gender parity indices. Given the serious impact of the current crisis on education and training systems on most countries around the world, this report also includes high-income countries.

The COVID-19 crisis is still underway, with obvious uncertainty about how long and to what extent the pandemic will continue to impact education systems across the globe. Previous crises revealed that disadvantaged students are affected the most. The longer they stay out of school, the less likely they are to return. Some important parameters, such as the way social and cultural dimensions influence enrolment patterns in the context of the current crisis, are yet to be gauged and reflected. As the situation is still evolving and if the crisis is further prolonged, UNESCO's projection will need to be revised accordingly.

Notwithstanding these uncertainties, it is anticipated that a massive number of students will be unlikely to return to their education institutions unless urgent and appropriate actions are taken. Measures must be systemic and multisectoral, including **addressing both drivers of exclusion in education**, such as push factors (those inherent to schools and education systems) and pull factors (those related to social, economic and cultural conditions).<sup>4</sup>

While statistical information remains limited, according to official and other anecdotal information that UNESCO collected and analysed through desk research, in consultation with Member States and research institutions, higher education students are particularly at risk due to traditional high education costs, while primary education students seem to be less affected. At university level, students are often dependent on part-time jobs and/or their parents' income. With the economic impact of the pandemic and consequent loss in revenue, higher education students are finding it difficult to reenrol. For instance, in Japan, a survey by a student group, covering junior college, university and graduate students, reveals that 20.3% of post-secondary students are considering dropping out of school due to financial repercussions from the spread of COVID-19,<sup>5</sup> 0.2% of which have already dropped out. The struggle students face in paying for their higher education is a reality in other countries as well. In Lebanon, for example, the existing economic crisis, exacerbated by the COVID-19 pandemic, has impacted students' ability to continue their higher education studies due to their inability to pay school fees.<sup>6</sup> Consequently, this has also placed considerable pressure on universities which struggle to remain open. Aware of the financial burden of higher education, Germany introduced support in the form of interest-free loans of

<sup>&</sup>lt;sup>4</sup> UNESCO COVID-19 Issue Note no. 7.1 "School reopening". <u>https://unesdoc.unesco.org/ark:/48223/pf0000373275</u> (Accessed on 22 July 2020)

<sup>&</sup>lt;sup>5</sup> The Japan Times. 30 April 2020. 20% of Japan's postsecondary students mull dropout amid virus crisis. <u>https://www.japantimes.co.jp/news/2020/04/30/national/20-japans-postsecondary-students-mull-dropout-amid-virus-crisis/#.XvDCgZMza3K</u> (last accessed on 22 June 2020).

<sup>&</sup>lt;sup>6</sup> Al Fanar Media. 1 June 2020. 'Lebanon's Double Crisis Crushes Both Students and Universities'. <u>https://www.al-fanarmedia.org/2020/06/lebanons-double-crisis-crushes-both-students-and-universities/</u> (last accessed on 22 June 2020).

up to €650 a month to international students to avoid an increase in the number of dropouts.<sup>7</sup> Learners from disadvantaged backgrounds who are usually more at risk, appear to be affected by the COVID-19 crisis to a greater extent. It is important to note that the financial burden of higher education is even more important for students from poorer households. In addition, families with limited resources might also face income loss increasing poverty and pushing learners to work to feed their families, opening the door to child labour. In Bangladesh for example, fears have been expressed concerning primary education students from poor families who will probably be sent to work in order to support their families if incentives or special financial care are not put in place. The government has indicated that it is working on a plan to reduce the dropout rates, including an increase of stipends and the identification of ultra-poor families.<sup>8</sup> Similarly, in the United States, a high school in Washington DC has reported that some students are not taking online classes because they are working in day jobs, such as in restaurants and landscaping.<sup>9</sup> In Thailand, in the region of Isaan, it is predicted that tuition fees and living expenses will become a burden for families because of the lack of part-time work students traditionally used to rely on.<sup>10</sup>

Another group of vulnerable learners likely to be disproportionally affected are those living in conflict-affected areas as well as displaced and vulnerable migrant populations, who already face challenges in accessing and remaining in school and completing learning. Evidence from past crises has shown that progressing to secondary education for these groups is usually a challenge, while the pandemic is expected to exacerbate these difficulties as a result of increased precarity and violence. These learners also face higher risks of getting infected due to poor sanitary conditions and lack of access to health services, which in turn impact their education.

Adolescent girls face a higher risk of not returning to school, especially in sub-Saharan Africa and South Asia, where existing difficulties prevent them from accessing school and completing their education. School closures can aggravate these difficulties as they increase the risks of early and forced marriage, sexual exploitation and abuse, early and unintended pregnancy and female genital mutilation. During the Ebola crisis, many countries witnessed a rise in violence against girls, contributing to school dropout.<sup>11</sup> This fear was recently expressed by the Minister of Women's Affairs in Nigeria, who said that the COVID-19 crisis might lead to an increase in all forms of violence such as sexual, physical and emotional exploitation, early and forced marriages, child trafficking and child labour, in a country where girls' education is already a challenge.<sup>12</sup>

<sup>&</sup>lt;sup>7</sup> The Pie News. 6 March 2020. 'Germany: gov offers Covid-19 grants & loans'. <u>https://thepienews.com/news/germany-government-offers-covid-19-grants-and-loans/</u> (last accessed on 22 June 2020).

<sup>&</sup>lt;sup>8</sup> The business standard. 12 May 2020. 'Covid-19 may accelerate primary school dropout rate, impact enrolment'. <u>https://tbsnews.net/bangladesh/education/covid-19-may-accelerate-primary-school-dropout-rate-impact-enrolment-80428</u> (last accessed on 22 June 2020).

<sup>&</sup>lt;sup>9</sup> The Washington Post. 10 May 2020. 'Low attendance and Covid-19 have ravaged D.C.'s poorest schools. Fall will be about reconnecting'. <u>https://www.washingtonpost.com/local/education/in-dc-schools-spring-was-ravaged-by-covid-and-disconnection-fall-will-be-about-catching-up/2020/05/10/60ad1774-8b3f-11ea-8ac1-bfb250876b7a\_story.html (last accessed on 22 June 2020).</u>

<sup>&</sup>lt;sup>10</sup> The Isaan record. 11 April 2020. 'The situation of Covid-19 and the impact on Ubon University students' (unofficial translation). Available at <a href="https://isaanrecord.com/2020/04/11/schools-shutdown-due-to-the-coronona-virus-ubu/">https://isaanrecord.com/2020/04/11/schools-shutdown-due-to-the-coronona-virus-ubu/</a> (last accessed on 22 June 2020).

<sup>&</sup>lt;sup>11</sup> UNESCO COVID-19 Issue Note no. 3.1 "Addressing the gender dimensions of school closures" <u>https://unesdoc.unesco.org/ark:/48223/pf0000373379</u> (last accessed on 22 July 2020).

<sup>&</sup>lt;sup>12</sup> Daily Post. 22 May 2020. Covid-19 may increase school dropouts, forced marriages in Nigeria – Buhari's Minister. <u>https://dailypost.ng/2020/05/22/covid-19-may-increase-school-drop-outs-forced-marriages-in-nigeria-buharis-minister/</u> (last accessed on 22 June 2020).

# 4. Millions at risk of not returning to school

In order to understand the impact of the economic shock caused by the COVID-19 pandemic on enrolment, UNESCO developed a simulation model covering 180 countries and territories (see Annex 2). The per capita Gross Domestic Product (GDP) (PPP, 2011 constant prices) and the Gross Enrolment Ratios (GER) between 1990 and 2018 were analysed to determine the statistical relationship between these two factors for pre-primary, primary, lower secondary, upper secondary, and tertiary education. Gender parity indices were also included in the statistical analyses and the coefficients were calculated separately for male enrolment and female enrolment to reflect the difference in economic changes impacting enrolment for boys and girls.

Due to the COVID-19 crisis, 23.8 million children, adolescents and youth (from pre-primary to tertiary education) globally will be at risk of not returning to care centres, schools or universities in 2020, among which 10.9 million are primary and secondary education students. Of these, some 11.2 million girls and young women are expected to be at risk due to the COVID-19 pandemic, 5.2 million of which are primary and secondary school students. These numbers (10.9 million, of which 5.2 million girls) are in addition to the 258 million children and youth of primary and secondary school age<sup>13</sup> who were already out-of-school prior to the crisis.

	Female		Male		Total		
Education level	# at-risk students ('000)	% increase of at-risk students	# at-risk students ('000)	% increase of at-risk students	# at-risk students ('000)	% increase of at-risk students	
Pre-primary	2,440	2.84%	2,573	2.75%	5,013	2.79%	
Primary	976	0.27%	1,074	0.28%	2,050	0.27%	
Lower secondary	2,106	1.30%	2,326	1.32%	4,431	1.31%	
Upper secondary	2,114	1.73%	2,306	1.71%	4,420	1.72%	
Tertiary	3,626	3.06%	4,242	3.91%	7,868	3.47%	
Total	11,261	1.32%	12,521	1.39%	23,782	1.36%	

 Table 1: Number of students at risk of not returning to education institutions: projection results (180 countries and territories)

Corroborating official and other anecdotal information that UNESCO has collected and analysed, **tertiary education will be the most affected (3.5% decline in enrolment - 7.9 million students at risk)**. At the primary and secondary (both lower and upper) education levels, the decrease in enrolment is estimated at around 11 million (Figure 1). Globally, higher percentages of girls are likely to be more affected at pre-primary and upper secondary levels, while higher percentages of boys than girls are at a greater risk of not returning to schools and universities at other levels of education.

<sup>&</sup>lt;sup>13</sup> UIS (2019) <u>http://uis.unesco.org/sites/default/files/documents/new-methodology-shows-258-million-children-adolescents-and-youth-are-out-school.pdf</u> (accessed on 26 June 2020)



#### Figure 1: Increase (percentage) and number of at-risk students (180 countries and territories)

Large shares of learners at risk are found in South and West Asia (5.9 million) and sub-Saharan Africa (5.3 million), which, combined, represent 47% of the total number of at-risk students (Figure 2).



#### Figure 2: Distribution of at-risk students by region

(*Legend*: SWA – South and West Asia; SSA – Sub-Saharan Africa; EAP – East Asia and Pacific; LAC – Latin America and the Caribbean; NAWE – North America and Western Europe; ARB – Arab States; CEE – Central and Eastern Europe; CA – Central Asia)

The pattern of the impact on gross enrolment varies across regions. For instance, in South and West Asia, girls in pre-primary and upper secondary education are more likely to be affected than boys (Figure 3). In sub-Saharan Africa, girls across all education levels seem to be more affected than boys, except at pre-primary level (Figure 4).



#### Figure 3: Percentage of at-risk students by gender, South and West Asia

#### Figure 4: Percentage of at-risk students by gender, sub-Saharan Africa



In sub-Saharan Africa, students at risk of not returning to school are concentrated in lower levels of education. About 40% of the total of at-risk students at pre-primary education are in the sub-Saharan Africa region, while at the tertiary education level, the global share of this region is less than 6%. This is against the background that sub-Saharan Africa is likely to be among the hardest hit at the higher education level (4.12% compared to a global average of 3.47%), illustrating the smaller size of tertiary enrolments. The large share of at-risk students at both lower and upper secondary will be in South and West Asia (Figure 6).

Details of the number of students at risk of not returning to education institutions at different levels of education are presented in Annex 3.





# 5. Conclusions and recommendations

UNESCO estimates that close to 24 million students are at risk of not returning to school in 2020 due to the COVID-19 crisis. These projections point to the need to focus on re-enrolment efforts when preparing for school reopening, taking into consideration the factors that may increase this risk, such as the level of education, gender, geographical location and socio-economic conditions.

The COVID-19 crisis is still underway, with obvious uncertainty about how long and to what extent the pandemic will continue to impact education systems across the globe. Previous crises revealed that disadvantaged students are affected the most. The longer they stay out of school, the less likely they are to return. Some important parameters, such as the way social and cultural dimensions influence enrolment patterns in the context of the current crisis, are yet to be gauged and reflected. As the situation is still evolving and if the crisis is further prolonged, UNESCO's projection will need to be revised accordingly.

Notwithstanding these uncertainties, it is anticipated that a massive number of students will be unlikely to return to their education institutions unless urgent and appropriate actions are taken. Measures must be systemic and multisectoral, including addressing both drivers of exclusion in education, such as push factors (those inherent to schools and education systems) and pull factors (those related to social, economic and cultural conditions).

In light of the findings of desk research and through analyses of country-level interventions, experiences and policy dialogues across countries as well as lessons learned from past crises, UNESCO proposes the following recommendations that governments and the international community should consider in order to address the risk of massive dropouts and reduce the number of students at risk of not returning to education institutions, while taking a resolute transformative approach to tackling decades-long unresolved bottlenecks wherever possible.

- 1. Reimagine and transform: Education systems have been impacted at all levels, from preprimary to higher education, and in all countries. The crisis revealed that most, if not all, education systems were seriously unprepared and ill-adapted to ensuring continuity of inclusive education and learning and there was an urgent need to put in place learning systems that enable lifelong and life-wide learning opportunities for all. Policy responses to mitigate the risk of learners not returning to schools should be system-wide, and especially address critical factors that push learners out of education systems, through:
  - reviewing and revising education legal frameworks, policies and plans in light of the lessons learned from the crisis and in view of strengthening the resilience of education systems,
  - improving curriculum readiness and introducing innovative approaches to teaching and learning, such as the gradual integration of hybrid/blended learning programmes through a combination of distance and school-based learning and leveraging the potential of alternative modalities in order to address and meet the diverse and differential learning needs of learners,
  - increasing focus on inclusion and equity measures, including gender equality, to ensure vulnerable students, especially those with special needs, are provided with necessary pedagogical and other support to return to education institutions,

- ensuring that the sexual and reproductive health (SRH) and rights of all young people are considered, including the provision of high-quality comprehensive sexuality education, and SRH services and commodities they need to make healthier choices and to be able to return to school,
- rendering learning environments and cultures more attractive and conducive to learning and strengthening the socialization and wellbeing dimensions of education institutions, and ensuring these are free from violence, including gender-based violence, stigma and discrimination.
- 2. Advocate: Many students are at risk of not returning to school because of social, cultural, economic, geographical or other factors. Governments and civil society organizations need to seriously address these factors that pull learners out of education systems through:
  - further strengthening awareness on the right to education, as well as advocacy on the importance of education for sustainable livelihoods, and personal, social and economic empowerment among all stakeholders, including families, students, local communities and traditional leaders,
  - boosting collaboration between all stakeholders to ensure high social demand for education and student motivation and to address disengagement,
  - engaging with finance and other concerned ministries to advocate that investing in education is also considered as a solution for economic recovery and growth, ensuring that education is an important part of stimulus packages and that vulnerable learners are not impeded in accessing education by economic, sanitary and nutritional factors.
- **3. Monitor**: Transform national information and learning management systems in order to better **track and support learners' education and well-being** beyond merely registering learners' presence at school. This could be done through:
  - repositioning education management information systems (EMIS) not only as tools for retrospectively capturing the situation but more as early warning systems that detect and act on the risks in participation and learning in education as well as learners' and educators' well-being, including that schools have in place the necessary water, sanitation and hygiene (WASH) facilities, equipment and commodities for infection control, school health and nutrition programmes that include comprehensive sexuality education and access to SRH services and commodities, and training of teachers and school staff in all of these critical areas,
  - investing in research and evidence-building on how to harness various and alternative education delivery modalities, as well as their effectiveness and potential risks,
  - exploring innovative approaches, including technologies, to bring schools and other education institutions closer to the learners and learning communities and their needs.

The UNESCO-McKinsey *Toolkit on COVID-19 Response on Re-enrolment* includes useful information on recommended strategies and actions to mitigate the risk of non-enrolment after the school closure, a summary of which is presented in Annex 4.

## 6. Annexes

#### Annex 1: Methodology and limitations of the simulation exercise

The purpose of the model is to estimate the number of learners at risk of not returning to education institutions in 2020 due to the economic shocks caused by COVID-19. Covering 180 countries, the projected GDP per capita (purchasing power parity, 2011 constant prices) figures were calculated based on the International Monitoring Fund's (IMF) World Economic Outlook reports (April 2019, October 2019, April 2020, and June 2020 updates).

The per capita GDP (PPP, 2011 constant prices) and the gross enrolment rations between 1990 and 2018 were analysed to determine the statistical relationship between these two factors for pre-primary, primary, lower secondary, upper secondary, and tertiary education. Gender parity indices were also included in the statistical analyses and the coefficients were calculated separately for male enrolment and female enrolment to reflect the difference in economic changes impacting enrolment for boys and girls.

Using historical data of enrolment figures across institutions of all levels, from pre-primary to tertiary, the research ran linear regression of enrolment rates with variables such as adjusted GDP per capita (Purchasing Power Parity (PPP), 2011 constant prices) and the Gender Parity Index (GPI). Through extended comparative analysis, regional-level trends were established to be the best level of regression. Regional-level data allow for more data points to prevent the potential pitfall of overfitting of the model, which might undermine the validity of results, especially for countries with limited available data points.

#### Scope

- 1. Educational level: this exercise covers five different levels of education: pre-primary, primary, lower secondary, upper secondary and tertiary education.
- 2. The data span over 180 countries in 8 separate regions, giving deep insights into variations across regions.
- 3. Income level: countries were categorized into low income, lower-middle income, uppermiddle income and high-income countries according to the World Bank classification
- 4. Gender: Gender plays a major role in enrolment figures. This paper looked into the impact on Male (GERM) and Female (GERF) enrolment figures separately

#### Data sources and projections

Enrolment and gender-related data between 1990 and 2018 was extracted from the UIS data centre<sup>14</sup>. For the economic projection, we made use of the economic prediction data from the IMF World Economic Outlook reports and their databases (April 2019, October 2019, April 2020, and June 2020 update)<sup>15</sup>.

<sup>&</sup>lt;sup>14</sup> <u>http://data.uis.unesco.org/</u>

<sup>&</sup>lt;sup>15</sup> <u>https://www.imf.org/en/Publications/WEO</u>

Using data analytics software R, the research team performed linear regression between Gross Enrolment Ratio of each Gender (GERM or GERF) and GDP (PPP, 2011 constant prices) and GPI. The research investigated various configurations of PPP data (including squared and root functions) and decided on using a logarithmic scale for its reliability and validity. Each of the linear regressions makes use of data at the region level. Regression was performed for each gender at each level of education, which amounted to 10 sets of regression results for each region.

The at-risk student number refers to the net change in total enrolment in 2020 between COVID and non-COVID scenarios and the results are calculated for both gender and education levels.



To aggregate country level data, the change in enrolment of each gender at each level of education was used. The GPI for each country is invariant between 2018 and 2020.

#### Limitations

Country-specific projections of GDP per capita were not possible in this model due to the limited availability of the data used for the IMF World Economic Outlook June 2020 updates. With the exception of the Euro area and G7 countries, group averages<sup>16</sup> were used for the calculation. Given that economies may be affected differently by COVID-19 across countries, country-specific GDP projection is critically important to enhance the robustness of the model. Once the full dataset for the IMF's June World Economic Outlook update becomes available, the estimation can be updated.

The model only reflects the impact of economic shocks on enrolment. To a varying degree across countries, it captures different economy-related factors such as difficulties to pay fees, demand for employment and increases in early and forced marriage and early and unintended pregnancy. On the other hand, the current exercise does not take into account the impact of confinement and prolonged school closure nor sanitary concerns among parents on changes in enrolment. As the data become available from school reopening, a new set of analyses may be produced. In order to address these limitations, UNESCO shall conduct a series of case studies to collect and analyse more in-depth quantitative and qualitative data. UNESCO shall also carry out regional impact assessments of COVID-19 as part of the UNESCO-UNICEF-World Bank consortium project funded by the Global Partnership for Education (GPE).

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<sup>&</sup>lt;sup>16</sup> IMF country classification: Other Advanced Economies, Emerging and developing Asia, Emerging and developing Europe, Latin America and the Caribbean, Middle East and Central Asia, Sub-Saharan Africa.

# Annex 2: Countries and territories included in the projections

Arab States	Central Asia	Central & Eastern Europe	East Asia & the Pacific	Latin America & the Caribbean	North America & Western	South & West Asia	Sub-Saharan Africa
					Europe		
Algeria	Armenia	Albania	Australia	Antigua and Barbuda	Austria	Afghanistan	Angola
Bahrain	Azerbaijan	Belarus	Brunei Darussalam	Argentina	Canada	Bangladesh	Benin
Djibouti	Georgia	Bosnia and Herzegovina	Cambodia	Aruba	Cyprus	Bhutan	Botswana
Egypt	Kazakhstan	Bulgaria	China	Barbados	Denmark	India	Burkina Faso
Iraq	Kyrgyzstan	Croatia	China, Hong Kong SAR	Belize	Finland	Iran (Islamic Republic of)	Burundi
Jordan	Mongolia	Czechia	Fiji	Bolivia (Plurinational State of)	France	Maldives	Cabo Verde
Kuwait	Tajikistan	Estonia	Indonesia	Brazil	Germany	Nepal	Cameroon
Lebanon	Turkmenistan	Hungary	Japan	Chile	Greece	Pakistan	Central African Republic
Libya	Uzbekistan	Latvia	Kiribati	Colombia	Iceland	Sri Lanka	Chad
Mauritania		Lithuania	Lao People's	Costa Rica	Ireland		Comoros
Morocco		Montenegro	Democratic Republic	Dominican Republic	Israel		Congo
Oman		North Macedonia	Malaysia	Ecuador	Italy		Cote d'Ivoire
Qatar		Poland	Micronesia (Federated States	El Salvador	Luxembourg		Democratic Republic of the Congo
Saudi Arabia		Republic of Moldova	of)	Grenada	Malta		Equatorial Guinea
Sudan		Romania	Myanmar	Guatemala	Netherlands		Eritrea
Tunisia		Russian Federation	New Zealand	Guyana	Norway		Eswatini
United Arab Emirates		Serbia	Papua New Guinea	Haiti	Portugal		Ethiopia
Yemen		Slovakia	Philippines	Honduras	Spain		Gaboli
		Slovenia	Republic of Korea	Jamaica	Sweden		Gampia
		Turkey	Samoa	Mexico	Switzerland		Gridina
		Ukraine	Singapore	Nicaragua	The Kingdom of Belgium		Guinea Guinea Bissou
			Solomon Islands	Panama	United Kingdom of Great		Guinea-Bissau Konya
			Thailand	Paraguay	Britain and Northern Ireland		Lesotho
			Timor-Leste	Peru	United States of America		Liberia
			longa	Saint Lucia			Madagascar
			Vanuatu	Saint Vincent and the Grenaumes			Malawi
			Viet Nam	The Dehemos			Mali
				Tripidad and Tobago			Mauritius
							Mozambique
				Oluguay			Namibia
							Niger
							Nigeria
							Rwanda
							Sao Tome and Principe
							Senegal
							Seychelles
							Sierra Leone
							South Africa
							South Sudan
							Тодо
							Uganda
							United Republic of Tanzania
							Zambia
							Zimbabwe

	Central Asia		South and	West Asia	Sub-Saha	ran Africa	Arab States		
	# at-risk	% increase	# at-risk	% increase	# at-risk	% increase	# at-risk	% increase	
	students	of at-risk	students	of at-risk	students	of at-risk	students	of at-risk	
Female	('000)	students	('000)	students	('000)	students	('000)	students	
Pre-primary	43	3.01%	374	3.41%	904	7.84%	88	3.19%	
Primary	4	0.12%	279	0.28%	371	0.44%	41	0.18%	
Lower secondary	18	0.50%	678	1.53%	699	3.49%	77	0.86%	
Upper secondary	37	1.93%	510	1.57%	384	4.07%	131	2.02%	
Tertiary	24	1.68%	937	4.22%	208	4.67%	67	1.10%	
Total female	126	1.05%	2,779	1.33%	2,566	1.99%	405	0.86%	
Male									
Pre-primary	47	3.15%	408	3.15%	937	7.86%	95	3.21%	
Primary	5	0.11%	313	0.31%	395	0.43%	50	0.19%	
Lower secondary	19	0.46%	769	1.64%	745	3.21%	91	0.88%	
Upper secondary	54	1.71%	550	1.53%	483	3.77%	139	1.93%	
Tertiary	11	1.05%	1,132	4.58%	203	3.68%	526	8.82%	
Total male	135	0.98%	3,173	1.44%	2,764	1.90%	901	1.73%	
Total									
Pre-primary	90	3.08%	783	3.27%	1,842	7.85%	184	3.20%	
Primary	9	0.12%	592	0.30%	765	0.44%	91	0.19%	
Lower secondary	37	0.48%	1,447	1.59%	1,444	3.34%	168	0.87%	
Upper secondary	91	1.79%	1,060	1.55%	867	3.89%	270	1.98%	
Tertiary	35	1.41%	2,070	4.41%	411	4.12%	594	4.91%	
Grand total	262	1.01%	5,952	1.39%	5,330	1.94%	1,307	1.31%	

Annex 3: Number of students at risk of not returning to education institutions: Projection results by region and by income group

	East Asia and the Pacific		Latin Amerio	ca and the	Central ar	d Eastern	North America and Western		
			Caribb	bean	Eur	ope	Europe		
	# at-risk	% increase	# at-risk	% increase	# at-risk	% increase	# at-risk	% increase	
	students	of at-risk	students	of at-risk	students	of at-risk	students	of at-risk	
Female	('000)	students	('000)	students	('000)	students	('000)	students	
Pre-primary	386	1 20%	304	3 03%	157	2 / 7%	18/	1 72%	
Primary	1/19	0.17%	120	0.42%	11	0.11%	104	0.00%	
	305	0.17%	286	1 61%	/3	0.11%	0	0.00%	
Linner secondary	406	1 16%	342	2 3 2%	  	1 /1%	205	1 37%	
Tertiary	739	1.10%	583	2.52%	197	2 13%	871	3.95%	
Total female	1 984	0.84%	1 635	1 90%	505	1 18%	1 260	1 41%	
Mala	1,504	0.0470	1,000	1.50%	505	1.10/0	1,200	1.41/0	
IVIDIE					164	2 40%			
Pre-primary	416	1.16%	313	3.04%	104	2.4070	192	1.72%	
Primary	177	0.18%	123	123 0.41% 12 0.119	0.11%	0	0.00%		
Lower secondary	364	0.78%	291	1.61%	47	0.43%	0	0.00%	
Upper secondary	457	1.23%	309	2.23%	104	1.30%	210	1.23%	
Tertiary	1,102	3.13%	455	3.87%	142	1.94%	671	3.95%	
Total male	2,515	0.99%	1,492	1.77%	469	1.07%	1,072	1.20%	
Total									
					320	2.44%			
Pre-primary	801	1.18%	617	3.04%			376	1.72%	
Primary	326	0.17%	243	0.41%	23	0.11%	0	0.00%	
Lower secondary	669	0.76%	577	1.61%	89	0.42%	0	0.00%	
Upper secondary	863	1.20%	652	2.28%	202	1.35%	415	1.30%	
					339				
Tertiary	1,841	2.51%	1,038	3.91%		2.04%	1,541	3.95%	
Grand total	4,499	0.92%	3,127	1.83%	974	1.12%	2,332	1.30%	

Projection Result by inco	me group
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	High Income		Upper Middl	e Income	Lower Mid	dle Income	Low Income		
	# at-risk	% increase		% increase of	# at-risk	% increase	# at-risk	% increase	
	students	of at-risk	# at-risk	at-risk	students	of at-risk	students	of at-risk	
Female	('000)	students	students ('000)	students	('000)	students	('000)	students	
Pre-primary	262	1.74%	706	1.81%	821	3.31%	651	9.13%	
Primary	24	0.06%	236	0.23%	468	0.28%	248	0.45%	
Lower secondary	46	0.21%	530	0.95%	1,034	1.44%	496	3.73%	
Upper secondary	279	1.32%	706	1.54%	868	1.75%	260	5.08%	
Tertiary	1,002	3.38%	1,154	2.29%	1,283	3.65%	187	5.81%	
Total female	1,613	1.28%	3,332	1.14%	4,474	1.28%	1,842	2.20%	
Male									
Pre-primary	272	1.73%	750	1.77%	874	3.12%	677	9.18%	
Primary	26	0.06%	264	0.24%	520	0.30%	264	0.43%	
Lower secondary	52	0.22%	588	0.96%	1,158	1.53%	528	3.33%	
Upper secondary	287	1.21%	728	1.51%	943	1.72%	348	4.27%	
Tertiary	808	3.41%	1,232	2.77%	2,028	5.57%	174	4.51%	
Total male	1,445	1.14%	3,563	1.15%	5,523	1.49%	1,991	2.06%	
Total									
Pre-primary	534	1.74%	1,456	1.79%	1,695	3.21%	1,328	9.16%	
Primary	49	0.06%	500	0.23%	989	0.29%	512	0.44%	
Lower secondary	98	0.21%	1,118	0.96%	2,191	1.49%	1,024	3.52%	
Upper secondary	566	1.26%	1,434	1.52%	1,811	1.73%	608	4.58%	
Tertiary	1,810	3.39%	2,386	2.52%	3,311	4.63%	361	5.10%	
Grand total	3,058	1.21%	6,895	1.15%	9,997	1.39%	3,832	2.13%	

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#### Annex 4: Considerations for action

Various strategies and actions can be considered to help mitigate the risk of non-enrolment after the school closure depending on the countries' priorities and capacity as summarized below. For more information on strategies and actions, see the full UNESCO-McKinsey Toolkit on COVID-19 Response on Re-enrolment.<sup>17</sup>

			Resources needed for implementation							
Levers		Strategies	Budget	þ	Social reach	Ň	Human resources	000	Supporting materials/infrastructure	
I. Supply		Online pre-learning	Budget for curriculum advisors or additional time for admins/teachers to draft pre-learning and organize flexible enrollment, online platform	e e	Contact with parents and students email/phone/address) to commur flexible options and pre-learning curriculums	icate	Curriculum advisors, admins/te tutors	achers,	Online platform for pre-learning or email, website for school, paper guidance	Key takeaways <ul> <li>Each strategy of re-enrollment</li> </ul>
	Improvement of facilities/teachingBudget for inves for teachers and	Budget for investment in new training for teachers and new facilities		Contact with construction companies/architects, for training contact with coaches or specialist	Coaches or moderators for train procurement officer (for contra architects, builders (or partners firm)	ning, cting), hip with	Paper or materials for training (e.g., website, posters), construction site	will require different resources to be implemented:		
		Health and safety measures	Investment in advisors for health protocol and in commodities (masks, gels)		Ability to reach families and stude (e.g., through email) to ensure communication of safety measure reassure them)	nts (to	Health advisors		Health commodities (e.g., masks, gels), paper posters in school	budget, social reach, human resources and infrastructure
II. Demand	E.	Awareness	Budget for development, production and delivery of the materials for the awareness campaign		Contact with TV/radio/advertising communication companies for development and delivery, ties wi community centers, youth centers religious organizations	and th	Marketing and design staff (or t partnership), moderators for av seminars, social media specialis	hrough vareness ts	Posters, radio ads, TV ads, billboards, projectors for presentations, social media accounts	Countries can     adapt the     strategy to their     needs,
		Economic support	Budget for cash transfers and subsidization of meals/materials		Contact with utility company or fina services company to deliver suppor	ncial t	Committee to manage transfers oversight, tracking	ò,	Online wire transfer platform/bank or secure physical delivery system (e.g., through post)	expanding their current capacity or using
		School initiated engagement	Budget for additional time teachers/admins spend on outreach o additional staff	r	Contact with people who have addresses and phone numbers of students at risk, contact with key influencers of these students (e.g. youth orgs.)	,	Teachers and admins/educator: call/visit students	s to	Phones, connectivity networks, online calling services, transport for teachers	collaboration and bridge the gap
III. Institutio	onal TCV	Community incentives	Budget for community grants or planning		Close contact with community lea different sector (incl. religious organization, youth centers)	ders in	Administrators to reach out, ma ment committee for grant overs staff to design and develop mat	anage- sight, erials	Ability to meet (e.g., online system, social distance friendly space), phone lines for peer-to-peer advice	
	عمري/-	Policy making	Budget for lobbying and law makers/paralegals		Connection to authorities at all lev judiciary branch and its members	vels,	Paralegals, members of the judi	ciary	Mechanism to draft legal decrees, materials to communicate new policies	

<sup>&</sup>lt;sup>17</sup> UNESCO and McKinsey & Co. (2020). COVID-19 Response Toolkit (version 1). <u>https://unesdoc.unesco.org/ark:/48223/pf0000373765</u>

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