

Progresses in Different Rates: Global Development of Secondary Education Attendance and the Impacts of the Covid-19 Pandemic, 2000-2022

Abstract

Over the past two decades, global social development has made significant progresses, including achievements in secondary education attendance. However, the Covid-19 pandemic presented a major challenge, severely disrupting secondary education. This study analyzes global trends in secondary education enrollment from 2000 to 2022, focusing on the pandemic's impact and exploring disparities in secondary education attendance across different social groups. Using data from the Multiple Indicator Cluster Surveys (MICS) and Demographic and Health Surveys (DHS), we examined trends in secondary education attendance and variations by family financial resources, cultural capital, and urban versus rural residence. Our findings reveal a steady increase in attendance rates prior to the pandemic, followed by a notable decline during 2020-2022. The impact of Covid-19 on secondary education varied across social groups; adolescents from affluent families, those with better-educated household heads, or those living in urban areas were less affected by disruptions to educational opportunities. The pandemic not only influenced but also exacerbated existing inequalities within the social and educational systems. The missed learning opportunities for this cohort of adolescents are likely to have long-term consequences for their life trajectories, skills development, and employment prospects.

Keyword

Social Development; Secondary Education Attendance Rates; Covid-19; Cross-country Comparison

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Introduction

Over the past 20 years, social development has consistently increased at the global level, driven by various factors, including global initiatives like the Millenium Development Goals (MDGs) and Sustainable Development Goals (SDGs). The expansion of education at all levels, particularly the rise in secondary education attendance, is one of the most significant social development achievements in the past two decades (United Nations, 2021). Past research has highlighted the role of secondary education in promoting short-term benefits, such as improved employment opportunities and economic stability, as well as long-term impacts like enhanced social mobility and reduced social inequality (World Bank, 2018). The growth of secondary education has laid a solid foundation for continued human capital development, contributing to sustainable growth across countries. This is especially crucial given the projected global population increase to 10 billion by 2057, with much of the population growth concentrated in Sub-Saharan Africa (United Nations, 2022). Ensuring access to education beyond the basic level is critical for addressing future challenges, including declining fertility rates, the impact of Artificial Intelligence on the labor market, and climate change.

The outbreak of the 2019 Coronavirus posed a significant challenge to secondary education enrollment. In fact, school education was one of the most severely affected areas during Covid-19, partly due to multiple waves of the pandemic and the physical lockdowns of campuses between 2020 and 2022. This disruption led to several educational consequences, including learning loss and an increase in dropout rates (UNESCO, 2021). Additionally, factors such as a lack of social security and economic hardship in the labor market may have compelled some students to leave secondary education earlier than anticipated to financially support their families during the pandemic (ILO, 2020).

While adolescents across the globe were affected by the pandemic, not all social groups experienced its impact equally. Past research has highlighted the importance of economic, social, and cultural factors, as well as regional variations within a society, in determining educational achievement (Chmielewski, 2019). Families with greater financial resources are more likely to afford the costs associated with education (Buchmann & Hannum, 2001). Similarly, better-educated parents tend to place a higher value on education, thereby being more supportive of their children's school attendance (Lareau, 2018). Areas that lack digital infrastructure or spacious educational facilities may have been forced to close schools or keep them closed for extended periods (UNICEF, 2020). Individuals living in urban areas generally have better access to educational resources, which leads to higher attendance rates (Evans, 2016).

In the event of a pandemic outbreak, adolescents from families with greater financial resources, cultural capital, or access to regional educational infrastructure are likely to be in a better position. These advantages provide greater resilience against potential economic hardships, increasing the likelihood of continuing their secondary education, especially since secondary education is not compulsory in many countries (UNESCO, 2017). In contrast, adolescents from less advantaged families or those living in rural areas are more vulnerable and may be forced to leave school at higher rates. The loss of educational opportunities, combined with their existing socio-economic disadvantages, exacerbates the challenges posed by the COVID-19 pandemic, potentially leading to a greater widening of inequalities.

The Current Study

Many existing studies have documented the influences of Covid-19 on educational attendance in specific countries, finding significant disruptions in school attendance, shifts to remote learning, and declines in educational outcomes (Engzell et al., 2021; Di Pietro, 2023). Other studies have examined the pandemic's global impact, highlighting its negative effects on learning gains, primary education enrollment, and other areas such as equity in education and digital access (Reimer & Schleicher, 2020; Van Lancker & Parolin, 2020). However, less research has specifically focused on secondary education or the underlying mechanisms at a global level, where the negative impacts on school enrollment may be most pronounced.

To address this gap, the current study examines global trends in secondary education enrollment and the potential influences of the Covid-19 pandemic. Specifically, this research aims to answer three key questions: (1) What has been the global trend in secondary education attendance over the past two decades? (2) Did the Covid-19 outbreak lead to a decline in secondary education attendance globally? (3) What factors are associated with changes in secondary education attendance, particularly the roles of family financial resources, family cultural capital, and urban environments in shaping adolescents' opportunities to receive secondary education?

Data and Methods

Data for this research were obtained from the Multiple Indicator Cluster Surveys (MICS) and Demographic and Health Surveys (DHS), which are large-scale, nationally representative surveys conducted globally and widely used in social science research to analyze trends in education, health, and other social indicators. For this study, all countries with three or more years of observations in either the DHS or MICS databases between 2000 and 2022 were included to facilitate trend analysis. This resulted in a selection of 54 countries.

We divided the years between 2000 and 2022 into three-year time intervals¹ and calculated the average secondary education attendance rates for countries within each interval. If a country appeared more than once within a three-year interval, only the most recent survey from that country was used. Countries were weighted by their population size relative to the total population of all countries surveyed within the same interval². In the end, we included 202 survey waves from these 54 countries in the analysis. Table 1 lists the countries and survey waves included in the study.

[Table 1 about here]

The secondary education attendance rate was measured by considering both lower secondary and upper secondary education attendance in a country during the surveyed school year³. Household wealth quantiles were used as an indicator of family financial resources, while the education attainment of the household head served as a proxy for family cultural capital. The

¹ The 2018-2019 interval is the only three-year time interval that spans two years. This adjustment was made to combine the years 2020, 2021, and 2022 into a single interval, capturing the potential impacts of the COVID-19 outbreak.

² India has a large population, which might disproportionately influence the trends in the graphs. To address this, we also examined the trends of secondary education attendance by three-year time intervals excluding India (not shown here). The results were very similar.

³ We followed the standard calculation method of secondary school attendance rates as outlined in the DHS/MICS reports, and therefore only included countries where both lower and upper secondary education attendance rates were reported in the country reports.

urban environment was measured by whether the respondent resided in an urban area.

We first present the overall trend in secondary school attendance rates using the 202 survey waves from the 54 countries, analyzing data before and after Covid-19, and organized into three-year intervals starting from 2000. To illustrate the varying impacts of COVID-19 on secondary education enrollment by family financial resources, family cultural capital, and urban environment, we then analyze how the trend in secondary education attendance rates varies by individuals' household wealth, household head's educational attainment, and urban or rural residence, all aggregated at the country level.

Preliminary Findings

Figure 1 presents the overall trend in secondary education attendance rates, showing changes across three-year intervals from 2000 to 2022. There were increases in the secondary education attendance rates from 2000 to 2005, followed by a period of relative stability with minor fluctuations between 2005 and 2009. An upward trend resumes and continues for ten years from 2009 to 2019. However, this upward trajectory reverses slightly in the 2020-2022 period, indicating a decline that may have been influenced by the Covid-19 pandemic.

[Figure 1 about here]

Figure 2 shows the variations in the trend of secondary education attendance rates by family's financial resources, measured by household wealth quintiles over the studied period. Across all wealth categories, there is a general upward trend in attendance rates over time, with adolescents from the richest households consistently having the highest attendance rates and the poorest having the lowest. While the gap between wealth groups persists throughout the period, a noticeable narrowing is observed when comparing the variations by household wealth from the early 2000s to the late 2010s.

We observed a decline in secondary education attendance rates from 2020 to 2022 across all wealth quintile groups. This suggests a negative impact on secondary educational opportunities during the pandemic, affecting social groups regardless of their economic status. However, the decrease in attendance rates between 2018-2019 and 2020-2022 is uneven across different wealth quintiles. The largest decreases are seen among the poorest quintile, while the declines are milder in the richer and richest quintiles. Adolescents from affluent families appeared more resilient, experiencing less severe impacts on their secondary education attendance during the pandemic, which allowed them to maintain better educational opportunities compared to their less affluent counterparts.

[Figure 2 about here]

Figure 3 presents the trend of secondary education attendance rates by the educational attainment of the household head from 2000 to 2022. Across the years, secondary school attendance rates have generally increased for all groups. Children from households where the head has secondary or higher education consistently show the highest secondary education attendance rates, followed by those with heads who have primary education, and then those where the head has no education. Consistent with the findings from Figure 1 and Figure 2, we observed a decline in secondary education attendance rates during the 2020-2022 period across adolescents with household heads of different educational attainment levels, potentially reflecting the impact of the Covid-19 pandemic. In addition, Figure 3 shows that the decline in secondary education attendance was relatively modest among adolescents with household heads who have primary or

higher education, while those with heads who have no education experienced the largest decrease in attendance, thus being the most affected by the negative impact of the pandemic.

[Figure 3 about here]

Figure 4 illustrates the trend of secondary education attendance rates by urban and rural residence in the studied period. It shows an overall increasing trend with some fluctuations. While adolescents living in urban areas consistently have higher attendance rates than their rural counterparts, the gaps between the two has narrowed from the early 2000s to the late 2010s. Both urban and rural secondary education attendance rates peaked during the 2018-2019 period, followed by a decline in 2020-2022. This decline was more pronounced in rural areas, suggesting that the pandemic had a more significant impact on secondary education opportunities for rural adolescents compared to those in urban settings.

[Figure 4 about here]

Conclusions

Using nationally representative data from the 202 waves across 54 countries from 2000 to 2022, this study demonstrated a steady global increase in secondary education attendance rates prior to the outbreak of the Covid-19 pandemic. This increase in secondary education attendance occurred among adolescents with varying levels of family financial resources, cultural capital, and access to educational infrastructures. These trends provided inspiring possibilities for education equality and societal prosperity on a global scale. However, this progress was abruptly halted by the pandemic, leading to a consistent decrease in secondary education attendance rates.

The negative impacts of the Covid-19 pandemic on secondary education attendance varied across social groups. Adolescents from the most affluent families, those with better-educated household heads, or those living in urban areas were less affected by disruptions to educational opportunities. Family financial resources, cultural capital, and the unequal distribution of educational infrastructure are critical factors that not only influence but also exacerbate existing inequalities within the social system. Access to secondary education is determined not only by the availability of physical or online campuses but also by factors such as parental unemployment, precarious job market, economic hardship, state welfare policies, and family dynamics. Consequently, students from less privileged backgrounds were disproportionately disadvantaged. While the influence of Covid-19 on secondary education attendance rates may gradually diminish, the missed learning opportunities for this cohort of adolescents will likely have long-term consequences for their life trajectories, skills development, and lifelong employment prospects.

For the next phase of the study, several additional steps are planned. First, we will analyze lower-secondary and upper-secondary education separately and distinguish between compulsory and non-compulsory secondary education to gain a more detailed understanding of trends at each level. We will also expand the dataset to include more countries, which will allow us to illustrate trends on a country-by-country basis. To better understand the impact of various factors, we will aggregate observations from each country and run regression models incorporating both country-level and individual-level indicators. This approach will help identify and compare the specific influences of different variables on secondary education attendance. Furthermore, we will compare trends across different world regions to identify regional disparities and commonalities in the effects of the Covid-19 pandemic on secondary education attendance rates.

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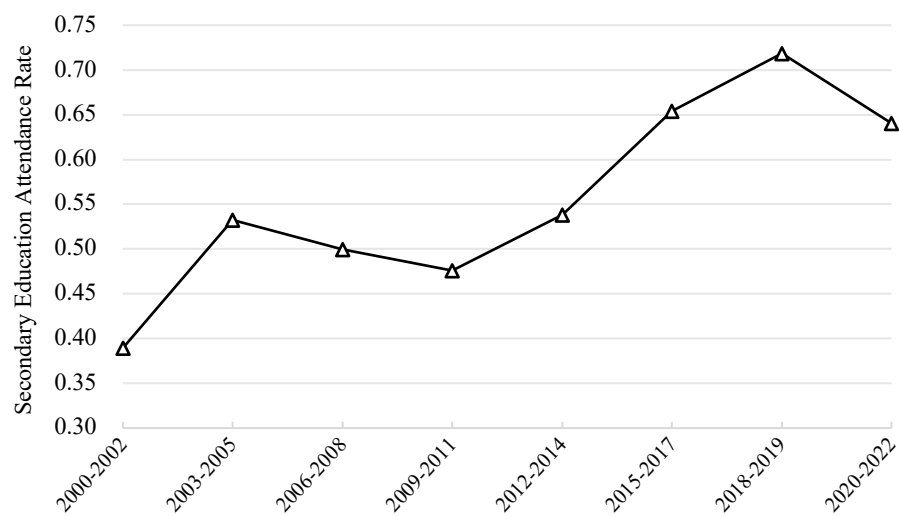
Table 1. List of Countries and Waves

Country (54)	Data Source (202 waves)	Income Classification
Bangladesh	DHS 2011, 2014, 2017	2011 (L); 2014, 2017 (LM)
Belarus	MICS 2005, 2012, 2019	2005 (LM); 2012, 2019 (UM)
Benin	DHS 2001, 2006, 2011; MICS 2021	2001, 2006, 2011 (L); 2021 (LM)
Burkina Faso	DHS 2003, 2010	L
Cambodia	DHS 2000, 2005, 2010, 2014, 2021	2000, 2005, 2010, 2014 (L); 2021 (LM)
Cameroon	DHS 2004, 2011; MICS 2000, 2006, 2014	2000, 2004 (L); 2006, 2011, 2014 (LM)
Central African Republic	MICS 2000, 2006, 2010, 2018	L
Chad	DHS 2014; MICS 2000, 2010, 2019	L
Colombia	DHS 2000, 2005, 2010, 2015	2000, 2005 (LM); 2010, 2015 (UM)
Cuba	MICS 2019	UM
Côte d'Ivoire	DHS 2011; MICS 2000, 2006, 2016	2000, 2006 (L) ;2011, 2016 (LM)
DR Congo	DHS 2007, 2014; MICS 2001, 2010, 2017	L
Dominican Republic	DHS 2002, 2007; MICS 2014, 2019	2002, 2007 (LM); 2014, 2019 (UM)
Egypt	DHS 2000, 2005, 2008, 2014	LM
Eswatini	MICS 2000, 2010, 2014	LM
Gabon	DHS 2000, 2012, 2019	UM
Gambia	MICS 2000, 2005, 2010, 2018	L
Ghana	DHS 2003, 2008, 2014; MICS 2011, 2017	2003, 2008 (L); 2011, 2014, 2017 (LM)
Guatemala	DHS 2014	LM
Guinea	DHS 2005, 2012; MICS 2016	L
Guinea-Bissau	MICS 2000, 2006, 2010, 2014, 2018	L
Guyana	MICS 2000, 2006, 2014, 2019	2000, 2006, 2014 (LM); 2019 (UM)
Haiti	DHS 2000, 2005, 2012, 2016	L
India	DHS 2005, 2016, 2019	2005 (L); 2016, 2019 (LM)
Iraq	MICS 2000, 2006, 2011, 2018	2000, 2006, 2011 (LM); 2018 (UM)
Kazakhstan	MICS 2006, 2010, 2015	UM
Kyrgyzstan	MICS 2005, 2014, 2018	2005 (L); 2014, 2018 (LM)
Laos	MICS 2000, 2006, 2011, 2017	2000, 2006 (L); 2011, 2017 (LM)

Lesotho	DHS 2004, 2009, 2014	2004 (L); 2009, 2014 (LM)
Liberia	DHS 2007, 2013, 2019	L
Madagascar	DHS 2003, 2008, 2021	L
Mali	DHS 2001, 2006, 2012	L
Mauritania	MICS 2007, 2011, 2015	2007, 2011 (L); 2015 (LM)
Mongolia	MICS 2000, 2005, 2010, 2013, 2018	2000, 2005 (L); 2010, 2013, 2018 (LM)
Mozambique	DHS 2003, 2011	L
Namibia	DHS 2000, 2006, 2013	2000, 2006 (LM); 2013 (UM)
Nepal	DHS 2006, 2011, 2016, 2022	2006, 2011, 2016 (L); 2022 (LM)
Nigeria	DHS 2003, 2008, 2013; MICS 2011, 2016, 2021	2003 (L); 2008, 2011, 2013, 2016, 2021 (LM)
Peru	DHS 2004, 2007, 2011, 2012	2004, 2007 (LM); 2011, 2012 (UM)
Philippines	DHS 2003, 2017, 2022	LM
Rwanda	DHS 2000, 2005, 2010, 2014, 2019	L
Sao Tome and Principe	MICS 2000, 2014, 2019	2000 (L); 2014, 2019 (LM)
Senegal	DHS 2005, 2010, 2014, 2017, 2019	2005, 2017 (L); 2010, 2014, 2019 (LM)
Sierra Leone	DHS 2008, 2013, 2019; MICS 2000, 2005, 2010, 2017	L
Suriname	MICS 2000, 2006, 2010, 2018	2000, 2006 (LM); 2010, 2018 (UM)
Thailand	MICS 2005, 2012, 2015, 2019, 2022	2005 (LM); 2012, 2015, 2019, 2022 (UM)
Togo	MICS 2000, 2006, 2010, 2017	L
Trinidad and Tobago	MICS 2000, 2006, 2011	2000 (UM); 2006, 2011 (H)
Turkmenistan	MICS 2006, 2015, 2019	2006 (LM); 2015, 2019 (UM)
Uganda	DHS 2000, 2006, 2011, 2016	L
Uzbekistan	MICS 2000, 2006, 2021	2000, 2006 (L); 2021 (LM)
Viet Nam	MICS 2000, 2006, 2011, 2013, 2020	2000, 2006 (L); 2011, 2013, 2020 (LM)
Zambia	DHS 2001, 2007, 2013	2001, 2007 (L); 2013 (LM)
Zimbabwe	DHS 2005, 2010, 2015; MICS 2014, 2019	2005, 2010, 2014, 2015 (L); 2019 (LM)

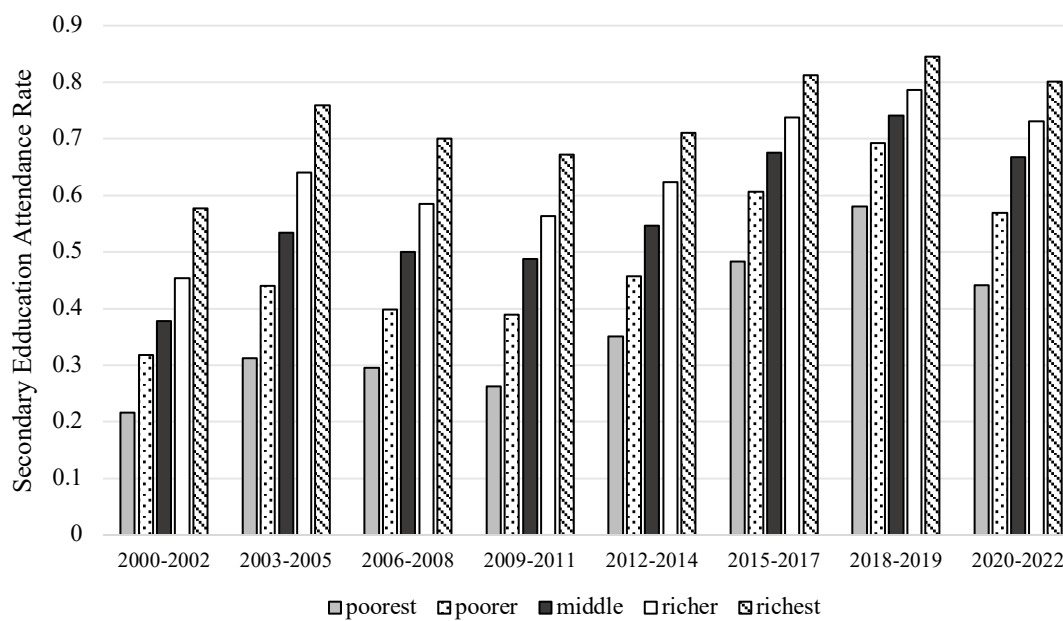
Note: L = Low Income; LM = Lower-middle Income; UM = Upper-middle Income; H = High Income. Classification according to World Bank Standards (Metreau, Young & Eapen, 2024).

Figure 1. Secondary Education Attendance Rates, 2000-2022



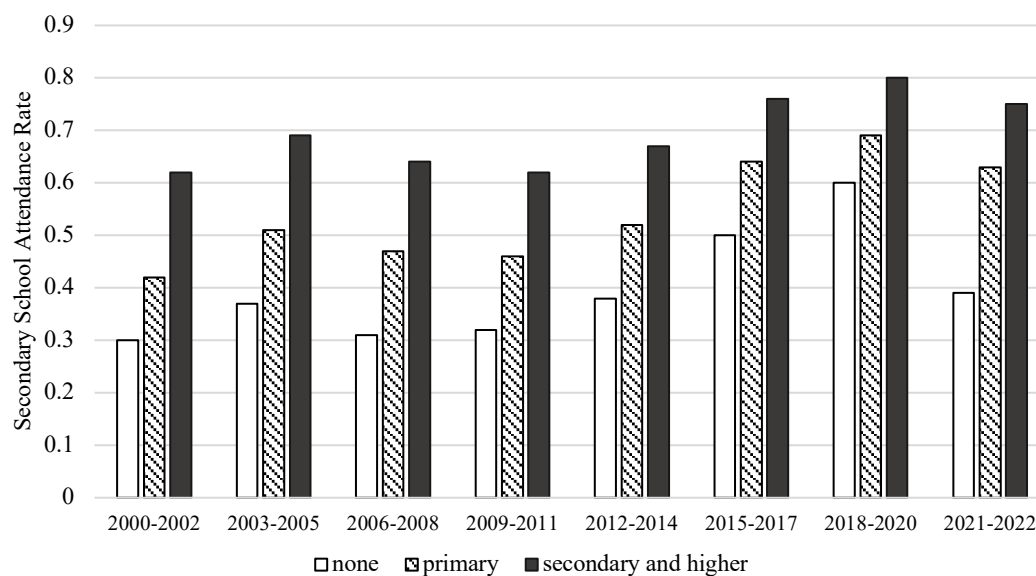
Source: DHS and MICS.

Figure 2. Secondary Education Attendance Rates by Household Wealth Quintiles, 2000-2022



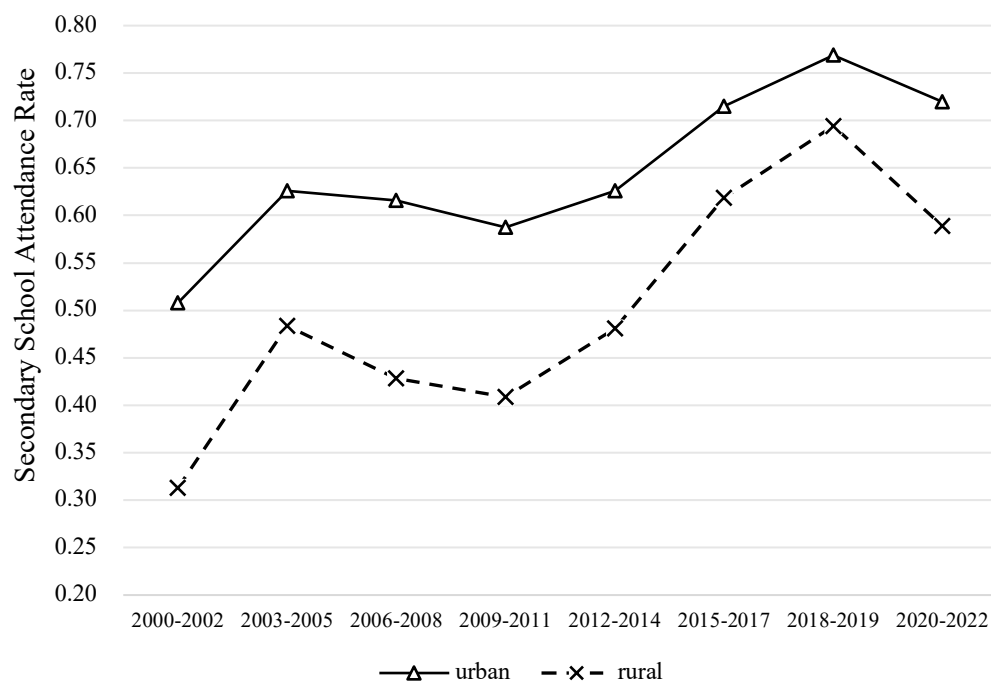
Source: DHS and MICS.

Figure 3. Secondary Education Attendance Rates by Educational Attainment of Household Head, 2000-2022



Source: DHS and MICS.

Figure 4. Secondary Education Attendance Rates by Residential Areas, 2000-2022



Source: DHS and MICS.