How will the COVID-19 pandemic affect births?

Technical Brief

21 December 2021

Key Messages

- Based on available reported data from UNFPA and the Short Term Fertility Fluctuation (STFF) study to date, there are no signs of dramatic increases or decreases in fertility due to the COVID-19 pandemic.
- Short term effects were observed in a range of highly developed countries but these reverted to pre-pandemic levels and trends shortly after.
- Data from low and middle income countries suggest similarities to those of many developed countries, with short term declines in births and subsequent recoveries.
- Birth registry data from the least developed countries remain so incomplete that no clear conclusions can be drawn of how COVID-19 affected births. In four countries, Benin, Bhutan, Kosovo and to a lesser extent Bangladesh, births increased temporarily during the pandemic, and then reverted to pre-pandemic trends. In Bangladesh, the temporary rise in births was consistent with evidence that family planning services were acutely disrupted at the height of the pandemic.
- The short-term decline in births observed in many countries is consistent with other historical crises, such as the Great Depression or the 2008 economic crisis, when widespread economic insecurity, and uncertainty about the future, led to temporary declines in fertility[1].
- In the case of COVID-19, these declines have been more short-lived than in former crises.
- However, there is a need for more follow up to determine long-term impacts as the pandemic evolves and new mitigation measures are rolled out.
- The paucity of civil registration data across the Least Developed Countries, especially in Africa, means that these governments lack sound subnational population projections, and limited means to plan for development at local level.
- Among the many other inequalities exposed by COVID-19, these analyses underscore the need for deep investments in civil registration and related data systems in the Least Developed Countries (LDCs). Across Africa, for example, there have been numerous reports of family planning service disruptions due to COVID-19, but the national data on birth (or death) registrations remain so incomplete that any potential impacts remain undocumented.

1 Sobotka, T., Skirbekk, V., and Philipov, D. (2011). Economic Recession and fertility in the developed world. Population and Development Review. 37(2): 267–306.

1.The long history of fertility decline in crisis

Public health crises and economic shocks have long been recognized as conditions that alter reproductive behaviour. The Spanish flu (1918-1920) caused fertility rates to plunge, reaching a low point 6 to 9 months after the pandemic's peak morbidity and mortality. The fertility consequences of economic hardship and uncertainty were evident for years after the Great Depression. In the USA, the Total Fertility Rate (TFR) fell from around 2.5 in 1929 to approximately 2.2 births per woman in 1939, more than five years after the crisis[2]. This postponement in births resulted in an extraordinarily small cohort of "children of the Great Depression". But by the late 1940's, following WWII and an economic recovery, fertility increased dramatically, peaking in 1957 at 3.8 births per woman at the height of the 'baby boom'. More recently, fertility declined after the economic recession of 2008 in North America and Europe, and the economic and fertility recoveries were uneven across different population groups, varying by sex, age, education and other factors[3]. For example, less-educated women were more likely to maintain or increase their fertility under economic uncertainty, while highly educated women reacted to employment uncertainty by postponing pregnancy, especially if they were childless. For males, those with low levels of education and low skills showed the largest decline in first child birth rates.

2. The COVID-19 pandemic and fertility behaviours

Since its inception in late 2019, the COVID-19 pandemic has created a global public health crisis, economic depression, and social disruptions either directly or indirectly. As of 8 December 2021, nearly 266 million COVID-19 cases and 5.27 million deaths[4] have been reported worldwide; estimates of excess all-cause mortality across the world suggest that the toll of the pandemic is far greater, and has thus far contributed to excess deaths approaching three times that number, i.e. 15 million deaths. The impact of the pandemic on fertility outcomes has been of immediate and serious interest, due to the historic experiences noted above, and because evidence of disrupted supply chains and health sector lockdowns raised urgent concerns about the potential inaccessibility of family planning products and services, resulting in more unplanned births. A pan-UNFPA webinar was offered to gauge interest in tracking how the pandemic will affect fertility decision making and behavior. A common approach was elaborated, with inclusion criteria. UNFPA Country Offices facilitated close discussion with governments about data sharing, and in some eventual cases, shared in-depth discussion about the interpretation of observed trends.

2 COMOLLI, C. L. 2017. The fertility response to the Great Recession in Europe and the United States: Structural economic conditions and perceived economic uncertainty. Demographic research, 36, 1549-1600.

3 Sobotka, T., Skirbekk, V., and Philipov, D. (2011). Economic Recession and fertility in the developed world. Population and Development Review. 37(2): 267–306.

4 https://ourworldindata.org/covid-cases

During the course of the pandemic, many countries went into partial or complete lockdowns at some point of 2020 in order to control the spread of the virus. With the rollout of vaccines and considering the impact of lockdowns on economies and livelihoods, many countries have resisted implementing further hard lockdowns, but these dynamics are changing week to week.

Changes in human fertility are never obvious in the short-run given 9 months of pregnancy, but COVID-19 related short-term declines in birth rates have become increasingly clear in a number of countries. The pandemic has hit countries across the globe at different periods and with a range of intensities, and the impacts of the pandemic on fertility are likely to differ according to a number of factors such as the intensity and duration of how the pandemic manifests in each country, a country's socioeconomic level and its policy responses. While some countries illustrate evidence of fertility declines during the pandemic and a rebound thereafter, several countries in our analysis have seen a short-term increase in fertility. There was also considerable evidence of disruptions in health and contraceptive services in African countries in the early months of the pandemic - data to be updated.

3.COVID-19 impact on contraception and sexual and reproductive health services

Public health crises can severely disrupt the availability and use of sexual and reproductive health (SRH) services and family planning. During the 2014 peak of the Ebola epidemic in West Africa, family planning distribution declined by 65% in Liberia, 51% in Guinea and 23% in Sierra Leone, and a post-Ebola baby boom in Liberia in January 2016 was attributed to a rise in unintended pregnancies[5]. UNFPA experts in East and Southern Africa (ESA) reported significant disruption to health services and contraceptive uptake during the first peak of the COVID-19 pandemic (in May-July 2020 in comparison to May-July 2019)[6], including: 1) outpatient visits declined in 10 of 12 ESA countries, ranging from a 5% decline in Zambia to 48% in Zimbabwe; 2) use of family planning services fell in 6 of 12 ESA countries, with the drop in visits for injectable contraceptives ranging from 10% in Tanzania to 87% in Angola; 3) the number of antenatal care (ANC) visits decreased in 5 of 13 countries, ranging from a 3% decrease in Ethiopia to a 44% in Zimbabwe.

Evidence has also emerged on how the pandemic is affecting access to SRH information and services for adolescents and young women. In Malawi, closure of schools, coupled with limited household economic resources during COVID-19, contributed to an 11% increase in teenage pregnancies from January to August 2020 compared to the same period in 2019[7]. The implications of these changes are extremely difficult to track, as these are among the countries with the most limited birth registration coverage, which is the data sources required for tracking short-term impacts on fertility.

5 McBain et al, 2016 https://www.thelancet.com/action/showPdf?pii=S0140-6736%2816%2931895-5

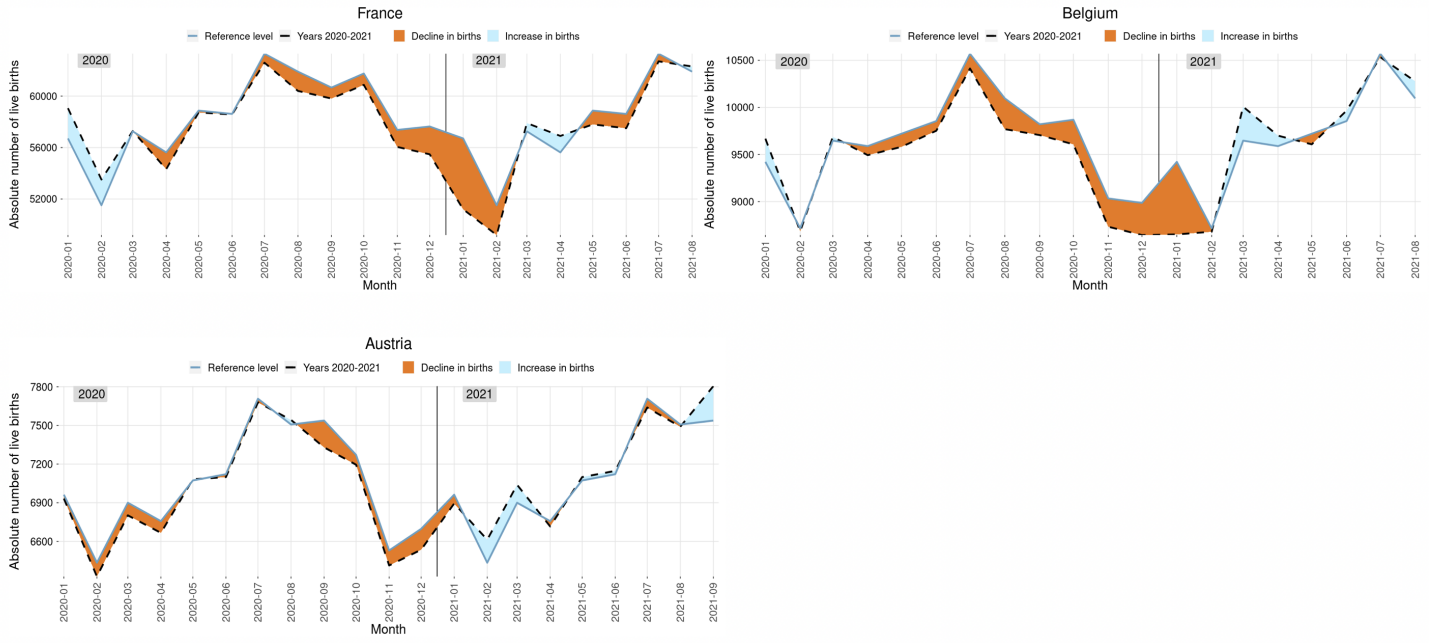
6 WHO-UNFPA-UNICEF, 2gether 4SRHR (2020) Data on Disruption of services (comparison between February and April 2019 and February to April 2020).

7 WHO-UNFPA-UNICEF, 2gether 4SRHR (2020) Data on Disruption of services (comparison between February and April 2019 and February to April 2020).

4. Impact of the COVID-19 pandemic on fertility in wealthy, data-rich countries

As early as December 2020, data from developed countries of Europe, Asia and the Americas suggested pandemic-related dips in birth counts. The Short-Term Fertility Fluctuations (STFF)[8] data series were the first to identify impacts of the COVID-19 pandemic on births. The STFF records monthly trends in the number of births and fertility rates across highly developed countries with good quality birth registration data. In a cluster of countries, the COVID-19 pandemic led to a temporary reduction in fertility over several months, with subsequent recoveries to prior trends. The short-term decline in births was associated with the first wave of the COVID-19 pandemic, with a notable downturn in the number of monthly births from November 2020 to January 2021 compared to pre-COVID years (corresponding to pregnancies that would have been conceived in the early months of the pandemic). Not all European countries displayed such short-term depression of births aligned with the early months of the COVID-19 pandemic; in fact, there was no clear negative impact of the COVID-19 pandemic on births in the Nordic countries (e.g. Denmark, Norway, Sweden, Finland), nor in Germany, the Netherlands, or Slovenia.

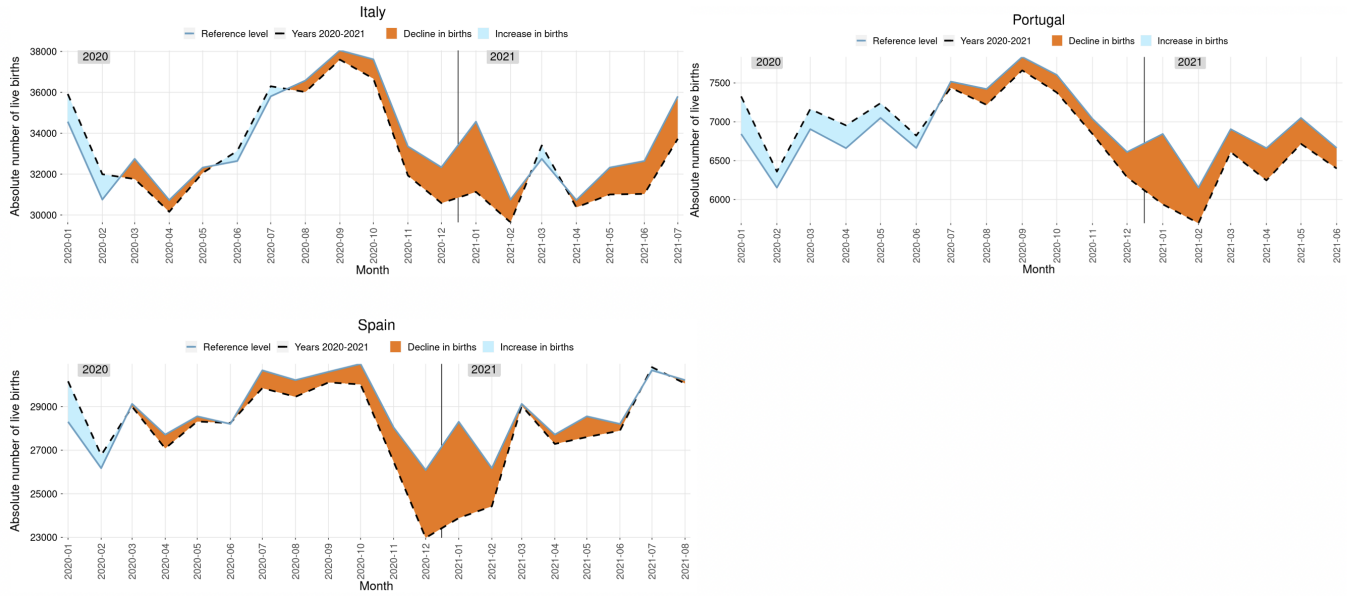
The Western European countries of France, Belgium and Austria showed decreases in monthly births through January or February 2021 - these were more dramatic in France and Belgium. These were followed by increases of varying degrees thereafter.



Figures obtained from: Human Fertility Database. Max Planck Institute for Demographic Research (Germany) and Vienna Institute of Demography (Austria). Available at www.humanfertility.org (data downloaded on [15 December 2021]).

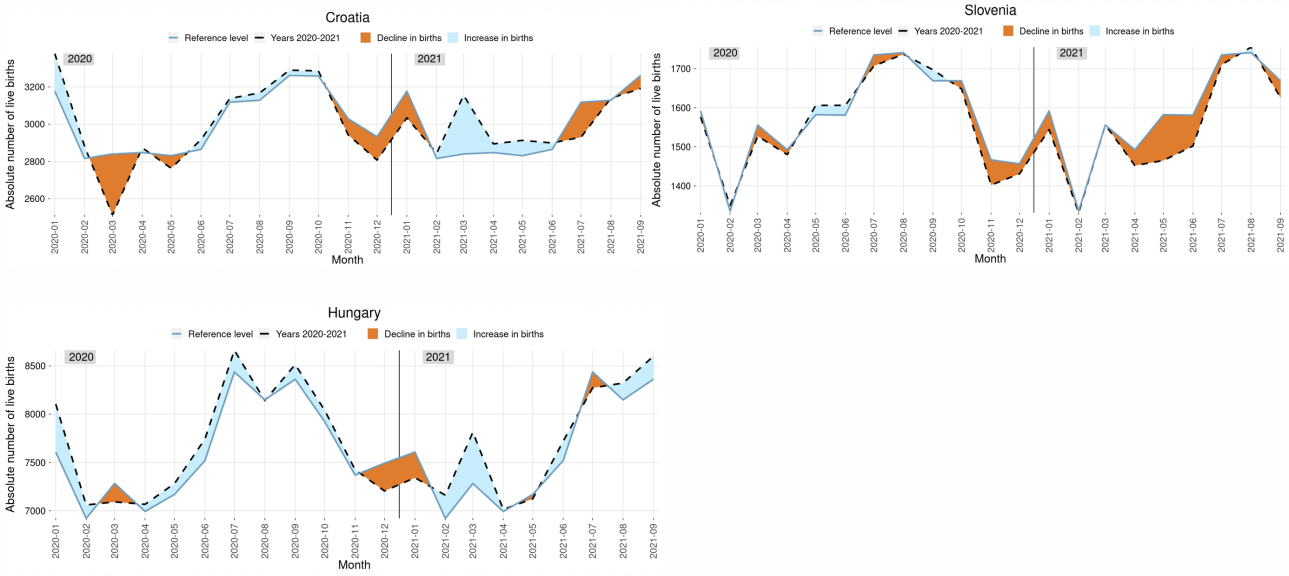
8 Human Fertility Database. Max Planck Institute for Demographic Research (Germany) and Vienna Institute of Demography (Austria). Available at www.humanfertility.org (data downloaded on [15 December 2021]).

The Southern European countries of Italy, Portugal and Spain were some of the worst-affected by the first wave of the pandemic. The three countries show a similar pattern of huge declines in births as early as September to October 2020. Unlike Italy and Spain, Portugal has not yet recovered from the decline in births. [9]



Figures obtained from: Human Fertility Database. Max Planck Institute for Demographic Research (Germany) and Vienna Institute of Demography (Austria). Available at www.humanfertility.org (data downloaded on [15 December 2021]).

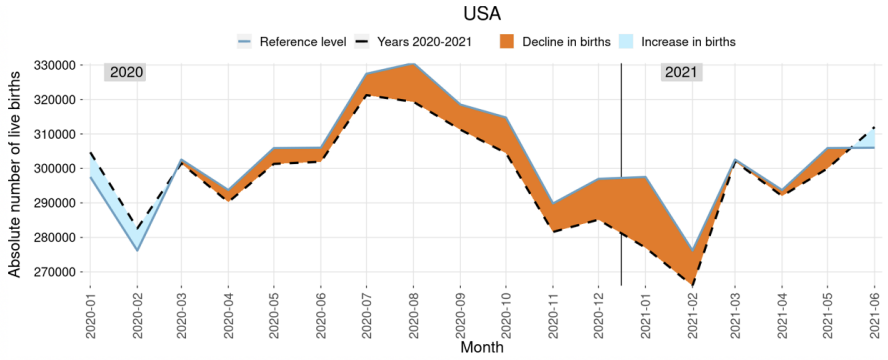
In the Central European countries of Croatia, Hungary and Slovenia births declined only marginally after October 2020. The trend reversal is somewhat more prominent in Hungary, where the number of births has been on the rise again since April 2021.



Figures obtained from: Human Fertility Database. Max Planck Institute for Demographic Research (Germany) and Vienna Institute of Demography (Austria). Available at www.humanfertility.org (data downloaded on [15 December 2021]).

9 Data source: Human Fertility Database. Max Planck Institute for Demographic Research (Germany) and Vienna Institute of Demography (Austria). Available at www.humanfertility.org (data downloaded on [15 December 2021]).

The trend for the USA suggests a pre-pandemic decline in births that dipped further by November 2020, was sustained through February 2021, with a recovery in births thereafter, albeit at a lower level.[10]



Figures obtained from: Human Fertility Database. Max Planck Institute for Demographic Research (Germany) and Vienna Institute of Demography (Austria). Available at www.humanfertility.org (data downloaded on [15 December 2021]).

In summary, changes in birth trends were short-lived and there appears to be a compensatory effect between birth increases and decreases, and in some cases the rebounds surpass initial drops.

5. Observations from developing countries

Collecting timely and high-quality birth data in developing countries is far more challenging due to inadequate coverage and operations of the birth registration system[11]. However, developing countries contribute a significant portion to the global number of births, and it is essential to collect and track birth data in developing countries to understand the short and long term impact of the COVID-19 pandemic on fertility, as well as future population dynamics.

To complement the observations from developed countries, UNFPA has been tracking births across several UNFPA programme countries to gain a cross sectional understanding of the immediate impact of COVID-19 pandemic on fertility, and to establish protocols in the UNFPA Country Offices that will enable UNFPA to track the longer-term impact of the pandemic on births, as long as the pandemic continues. From the outset, this work has also provided important information about the quality and coverage of current birth registration systems in UNFPA programme countries, and the capacity of governments to use such data in times of emergency.

10 Data source: Human Fertility Database. Max Planck Institute for Demographic Research (Germany) and Vienna Institute of Demography (Austria). Available at www.humanfertility.org (data downloaded on [15 December 2021]).

11 AbouZahr, Carla, et al. "The COVID-19 Pandemic: Effects on Civil Registration of Births and Deaths and on Availability and Utility of Vital Events Data." American Journal of Public Health 111.6 (2021): 1123-1131..

5.a. Data and methods

From the first quarter of 2021, UNFPA headquarters (HQ) provided a webinar and an open invitation to UNFPA Country Offices (COs) and corresponding partner governments to engage in a shared project to track birth responses to the pandemic. After the overall approach and selection criteria were agreed, tools were distributed to participating countries from five UNFPA regions (Arab States ; Asia and the Pacific; East and Southern Africa; West and Central Africa; and Latin America and the Caribbean), for capturing monthly birth data, including the total number of population by year and the status of birth registration delays during the pandemic.

Data collection

The project collects monthly birth counts recorded in the civil registration and vital statistics systems (CRVS) or other routine data systems such as the expanded program on immunization (EPI). Typically, these data were collected from 2018 in order to provide a reference period of 24 months prior to the onset of the pandemic, with data collected until the most recent month or quarter. COs working with government partners provided updates as new data became available. To participate in the study, a target country was required to have at least 90% coverage of births in their vital statistics, as reported to the UN SDGs. Data from several countries was provided as "preliminary", and later updated with officially "confirmed" data published at fixed intervals throughout the year.

Fifty-three UNFPA programme countries were initially targeted based on a birth registration completeness threshold of 90%[12]. This threshold is just above the 85% completeness used as a reference, e.g. by the United Nations demographic yearbook[13], and others (e.g. Rao et al. 2020)[14] as an appropriate threshold to adjust bias or errors from incomplete birth registration data when estimating fertility indicators.

This report presents incoming birth data from countries for which the most recent (pre, and during the pandemic) were available: five Asian countries (Bangladesh, Bhutan, Iran, Mongolia, and Thailand), five Latin American countries (Bolivia, Brazil, Columbia, Cuba, and Peru), four European countries (Georgia, Moldova, Kosovo, and Ukraine), and one African country (Benin). With the exception of Bhutan, data included both home and institutional births. The number of births used for Bhutan represents only institutional deliveries and does not include home delivery, which are available in CRVS only from 2019. In Bhutan, most deliveries take place in health facilities, with an estimated number of home deliveries at less than 100 births per year.

5.b. Country examples of data circumstances

UNFPA COs provided information on likely disruption or delays in the registration of births during the pandemic, and there was indeed evidence of registration delays during the lockdown periods of 2020, for example, in both Brazil and Bolivia. Thailand and Peru update their registration systems on a daily basis, and there was little evidence of disruption. During the pandemic in Bhutan, a hotline for ambulance services for pregnant women was set up and all births supported by skilled

12 https://data.unicef.org/resources/dataset/percentage-children-age-5-whose-births-registered-sex-place-residence-household-wealth-quintile/

13 https://www.who.int/data/gho/indicator-metadata-registry/imr-details/83

14 Rao, Chalapati, Robert Mswia, Martin Brastchi, and Philip Setel. "Estimating Completeness of Birth and Death Registration." (2020).

birth attendants were registered in the health management information system. In Colombia and Moldova, no gaps in birth registration due to the pandemic were identified.

According to the UNFPA Bangladesh CO report, some health services were interrupted in Bangladesh from March to May 2020. While Bangladesh had family planning commodities in stock, the distribution of family products was limited once the COVID-19 pandemic started, due to a reduction in family planning service hours, and disruptions in community-based distribution.

While some of the birth data illustrate considerable fluctuations during the pandemic, especially in 2020, it must be noted that much of the data used in this study are "real-time" preliminary data from cooperating governments, and preliminary data are sometimes subject to retrospective changes by national offices. In this regard, the interpretation of birth data trends in each country may be subject to change once all preliminary birth data become officially confirmed data. Therefore, this repot (Dec 2021), is limited to simple descriptive analyses. As data are progressively confirmed by governments, will the study team systematically explore the social and operational factors underlying the observed patterns in births.

6. Monthly births across countries

This report describes the birth trends in the cooperating UNFPA programme countries before and after the COVID-19 pandemic began. The present results from 15 countries are classified into four groups, according to similarities in the observed changes in births after the pandemic began. The birth trends from two countries (Colombia and Iran), are only at quarterly intervals, not monthly.

The first group of countries shows stable trends in monthly births (quarterly for Colombia and Iran), with no evident impact of the COVID-19 pandemic (Brazil, Cuba, Georgia, Mongolia, Colombia, and Iran). The second group shows a small decline in births in the beginning of 2021, then rebounding to the pre-pandemic trends (Peru, Thailand, Ukraine) - a pattern closer to many observations in Europe and the USA. The third group (Bolivia and Moldova) shows a much greater decline in the number of births after COVID-19 pandemic started, compared to previous years. The fourth group (Bangladesh, Benin, Bhutan, and Kosovo) shows a temporary increase in births after the COVID-19 pandemic began, before reverting to pre-pandemic trends.

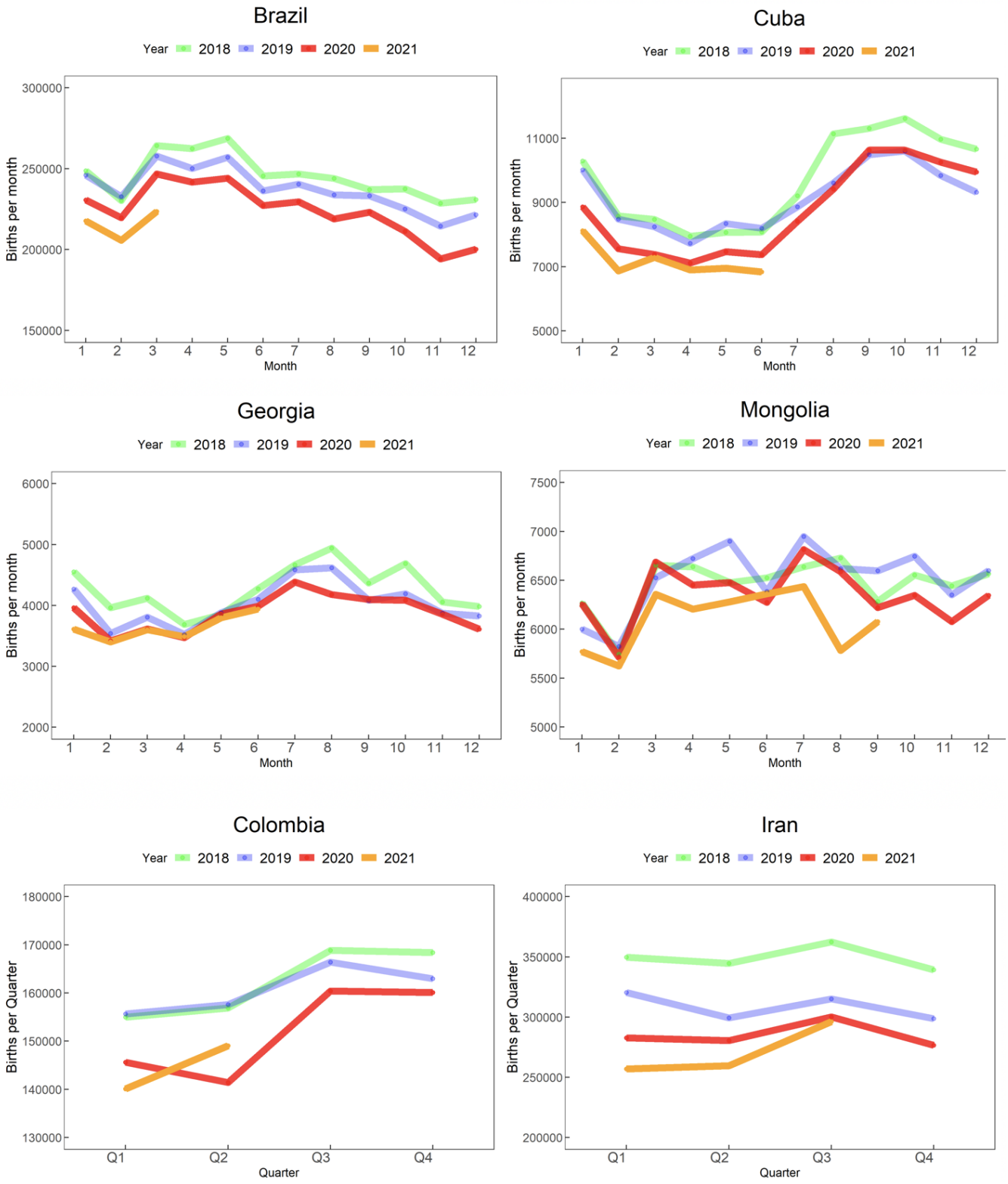
For many of the countries in the study, the numbers of births have been consistently falling each year, and they show consistent seasonal patterns over the past four years (2018-2021). Bangladesh and Bhutan, on the other hand, suggest an increasing number of births over the preceding four years.

6.a. Countries showing stable trends in monthly births, with no evident impact of the COVID-19 pandemic (Brazil, Cuba, Georgia, Mongolia, Colombia, and Iran)

This group of countries maintained consistent birth trends before and during the COVID-19 pandemic. The illustrations of birth trends of this country group are provided below (Figure 1 and Appendix A1).

Each of these countries illustrate a fairly consistent decline in the number of births since 2018. There are a few unusual data points in some countries, which may reflect irregularities in reporting or civil registration, during 2020 in particular. Nonetheless, the seasonality of births across the four years was notably consistent in all of the countries in this group.

Figure 1: Countries showing stable trends in monthly births, with no evident impact of the COVID-19 pandemic

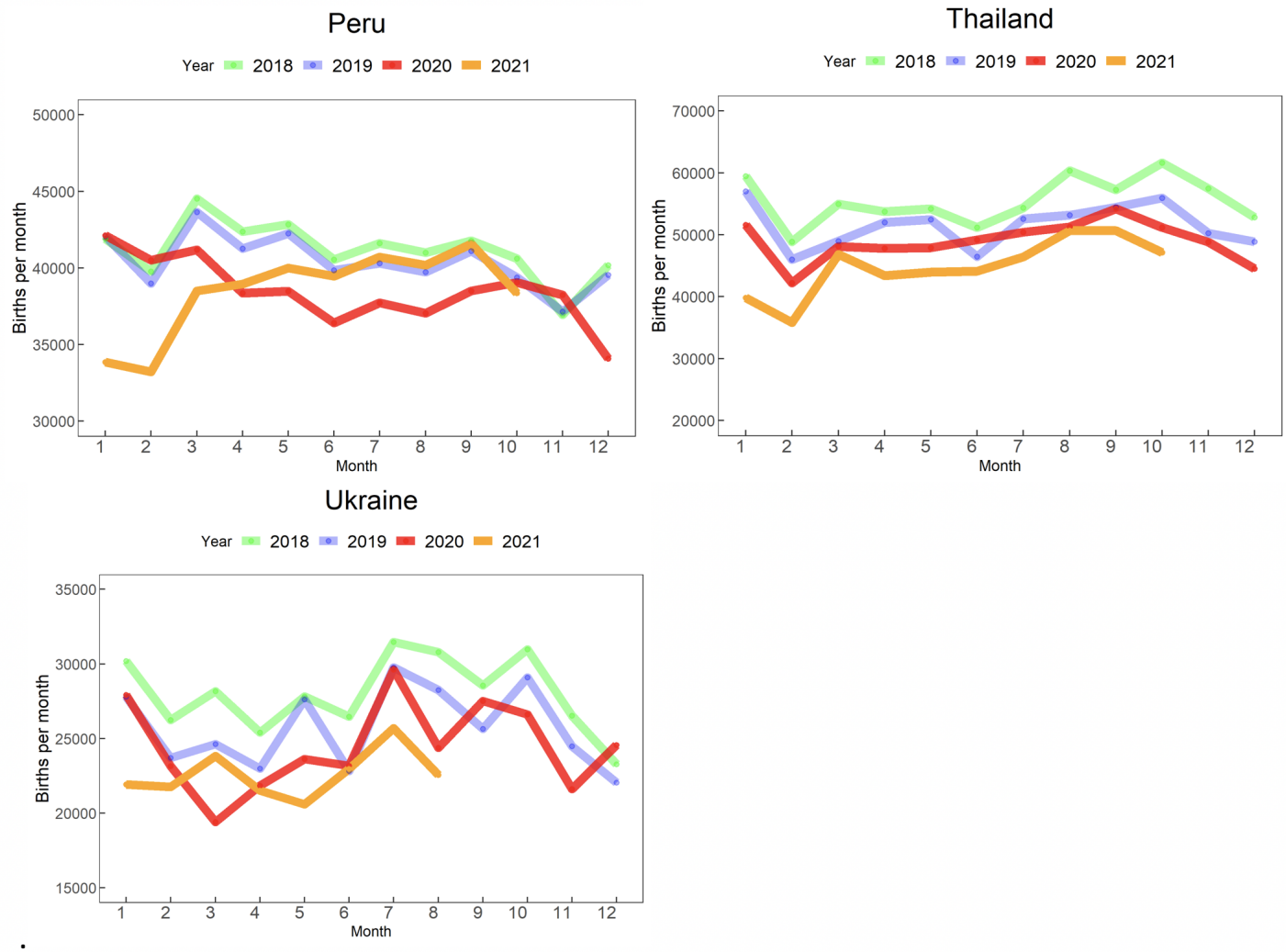


6.b. Countries showing a small decline in births in the beginning of 2021, then rebounding to the pre-pandemic trends (Peru, Thailand, Ukraine)

In Peru, Thailand, and Ukraine, a brief decrease in births was observed in the beginning of 2021, nine months after the beginning of the pandemic around March - May 2020, followed by a recovery to the pre-pandemic trend of each country (Figure 2 and Appendix A.2).

Births in Peru had dropped between December 2020 and May 2021 compared to the preceding years, then gradually recovered to the pre-pandemic levels by June 2021. In Thailand, the number of births dropped in January-February 2021 but reverted to the previous levels and remained stable soon thereafter. In Ukraine, while the number of births was already declining from 2018 to 2019, a brief notable decline was observed in January 2021, then by June 2021 it recovered to sustain the pattern from 2018 and 2019.

Figure 2: Countries showing a small decline in births in the beginning of 2021, then rebounding to the pre-pandemic trend

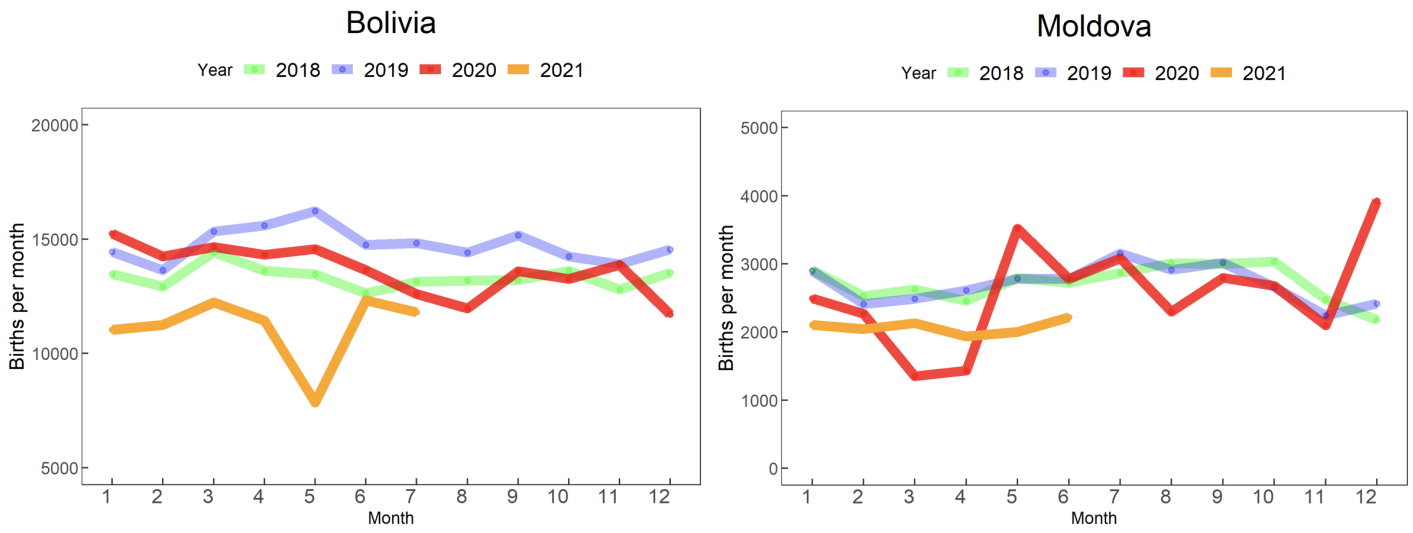


6.c. Countries showing a much greater decline in the number of births after COVID-19 pandemic started, compared to previous years (Bolivia and Moldova)

Bolivia and Moldova show a much greater decline in the number of births after the COVID-19 pandemic started (Figure 3 and Appendix A.3). As of the latest data, the birth trend in each country has not recovered to match pre-pandemic trends - unlike the other countries included in this study. Bolivia shows an interesting trend, where the increase in the number of births from 2018 to 2019 was not only halted, but births were diminished by the pandemic to a greater degree compared to the other countries included in this study. In the very beginning of 2020 (January, February), Bolivia showed a pattern consistent with the preceding years, where the numbers of births were higher than 2019, which was higher than 2018. But as the pandemic began in March, the number of births declined rapidly. The birth trend of 2021 follows the seasonal pattern of 2019, but the number of births in 2021 remained much lower than those in 2018 or 2019, (except for May 2021.) Moreover, births in 2020 show fluctuations unlike the seasonality of the previous years, which may be a sign of disruptions in birth registration in 2020, as these fluctuations are observed in quite a few of the 15 UNFPA programme countries. Continuous monitoring is required to assess this trend shift whether the birth trend will eventually recover to the pre-pandemic patterns.

Similarly in Moldova, the birth counts in 2021 remain much lower than in the immediate pre-pandemic period, when the number of births were decreasing very slowly up to the end of 2019. Note that there were very unusual fluctuations in 2020, which were quite different from the seasonality of the previous years. Given the current circumstances, the preliminary data from 2020 may be subject to retrospective assessment and possible changes over time. Therefore, further investigation will follow when Moldova releases officially confirmed birth data for 2020 and beyond.

Figure 3: Countries showing a much greater decline in the number of births after COVID-19 pandemic started, compared to previous years



6.d. Countries showing a temporary increase in births after the COVID-19 pandemic began, before reverting to pre-pandemic trends (Bangladesh, Benin, Bhutan, and Kosovo)

Bangladesh, Benin, Bhutan, and Kosovo display a temporary increase in births after the COVID-19 pandemic began, before reverting to pre-pandemic trends (Figure 4 and Appendix A.4).

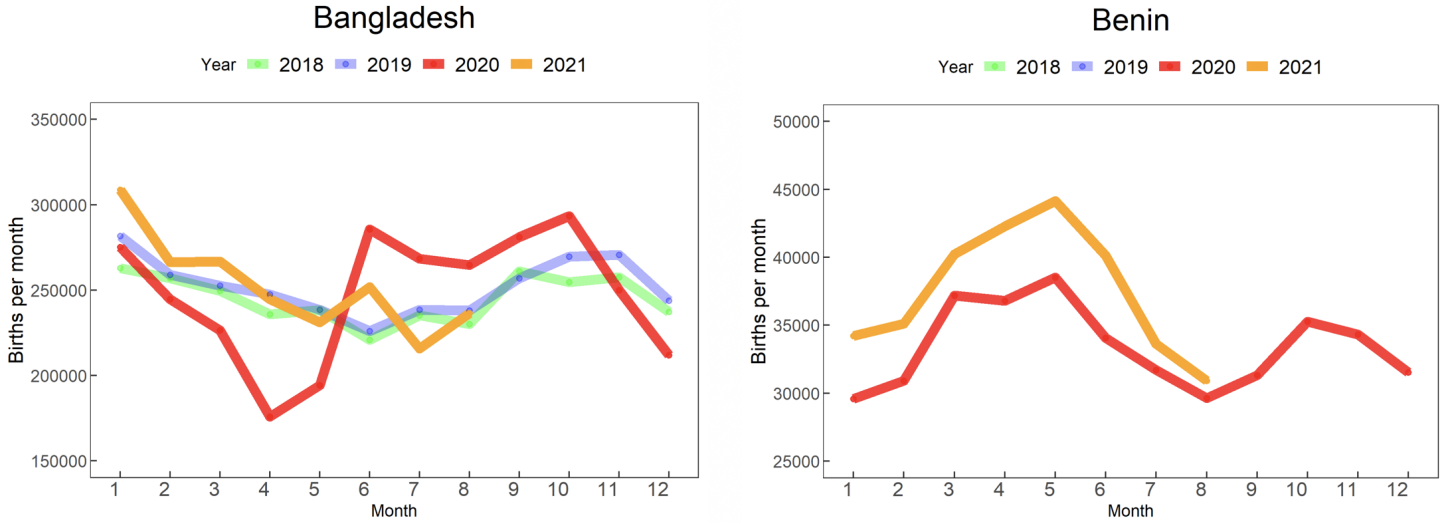
Bangladesh has shown a consistent birth trend throughout 2018-2021. There was a notable decrease in birth counts during March-May 2020, which might have contributed to the slightly elevated number of births in the beginning of 2021 before the birth counts revert to the pre-pandemic trends. But there are other factors which may have contributed to this phenomenon. See Text Box 1 for a case study on what happened in Bangladesh.

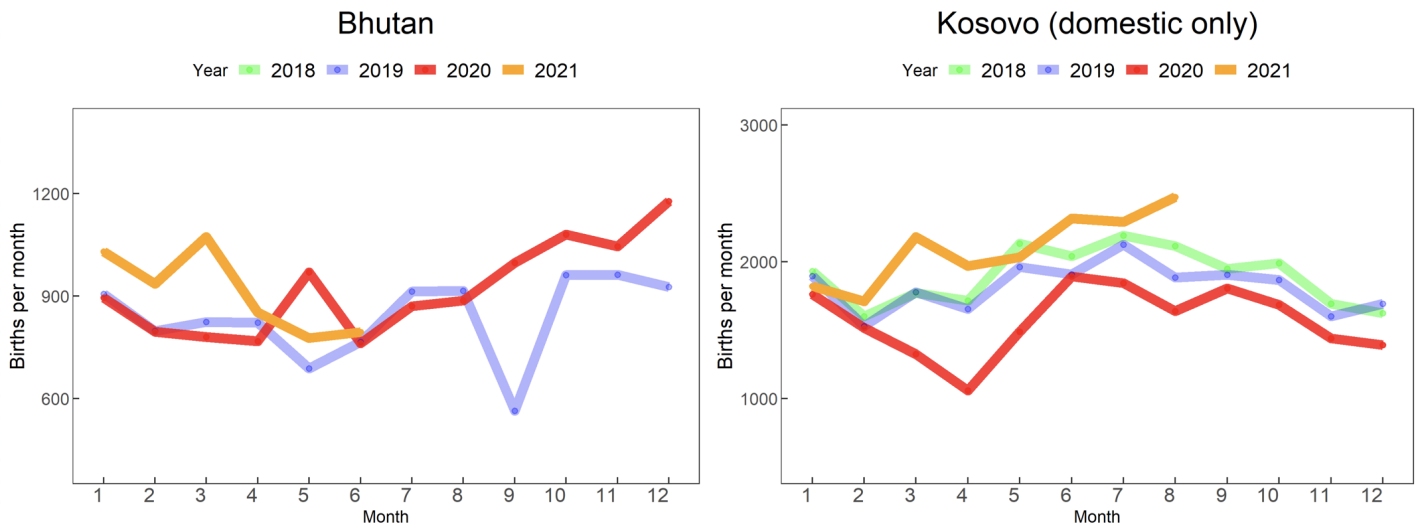
In Benin, the number of births in 2021 is higher compared to the same period in 2020. However, the pre-2020 birth data from Benin have not been available. Given the insufficient amount of data to make a sensible comparison between the years, the case of Benin demands very cautious interpretation. Despite the lack of pre-2020 data, these national data are the only data from Africa.

Bhutan shows a continuing upward trend in births throughout 2019, except a notable drop observed around September 2019. After the pandemic hit Bhutan, the number of births began to increase from December 2020 to March 2021. From April 2021, birth counts went down to the 2019 level and they have followed the 2019 trend since. The case of Bhutan shows a possible short-term increase in births due to the effect of the initial period of the pandemic. It should be noted that, according to the UNFPA Bhutan's report, Bhutan did not experience disruptions in access to health facilities.

In Kosovo, a notable upward trend was observed in early2021. From 2018 to 2020, the number of births in Kosovo has been declining steadily, except for the acute fluctuation around April 2020 when the pandemic began. However, from February 2021, the number of births began to exceed those from the preceding years (2018-2020), and increased up until July 2021.

Figure 4: Countries showing a temporary increase in births after the COVID-19 pandemic began, before reverting to pre-pandemic trends





7. Exploring Causes and Implications from countries

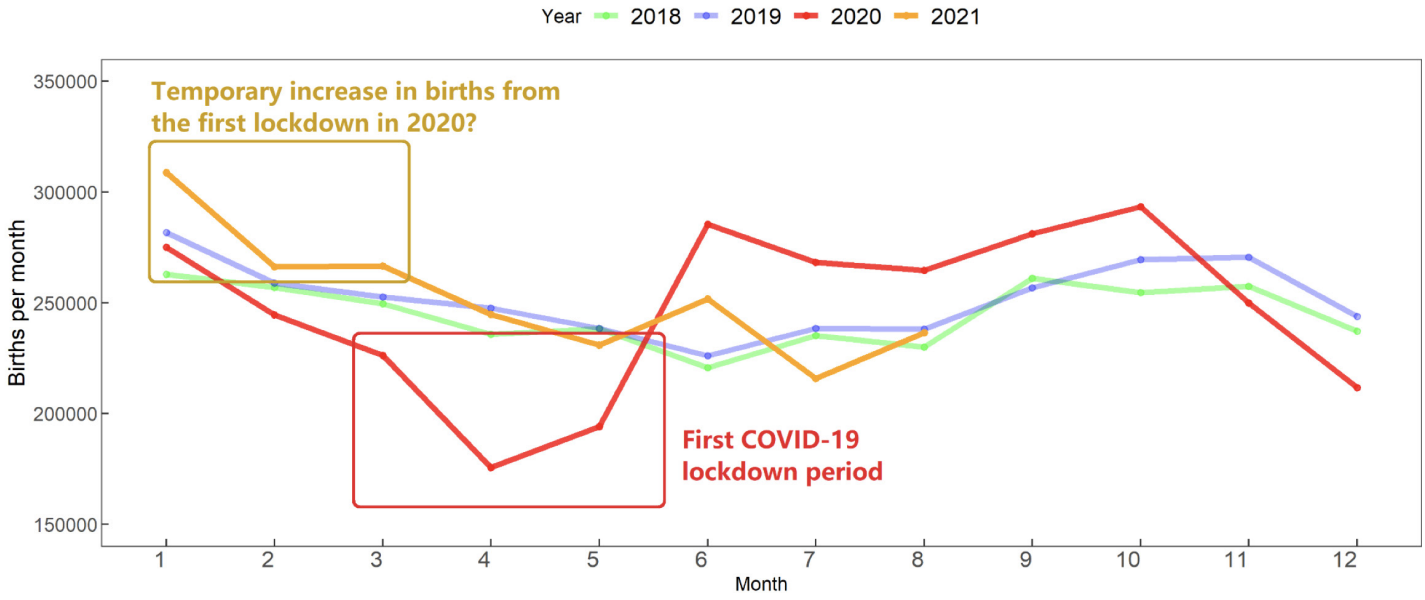
7.a. Case Study 1: Bangladesh

Bangladesh has experienced three COVID-19 peaks, occurring approximately in June 2020, April 2021, and August 2021. Policy responses to control the spread of COVID-19 hampered the delivery of health services, particularly in the initial period of the pandemic. For example, compared to 2019, the number of new acceptors for modern family planning methods decreased by as much as 41.4% in 2020, although there was no shortage of commodities. Similarly, compared to 2019, the number of facility deliveries plummeted in 2020 by as much as 46.5%.[15]

The disrupted health service delivery led to disrupted birth registration directly. The most reliable birth data in Bangladesh come from births registered by community health workers through the Expanded Programme on Immunization (EPI). During the acute phase of the pandemic in 2020, as the delivery of health services was severely disrupted, the number of births registered through EPI dropped by as much as 29.0% compared to 2019. This explains the drop in the number of births around April 2020 (Figure 5).

15 Mahnoob Alam, *Leveraging Birth Registration Data to Understand COVID-19 Effects on Fertility Outcomes*, Presentation given at the Expert Group Meeting on Civil Registration and Vital Statistics Systems on behalf of UNFPA Bangladesh on 6 December 2021

Figure 5: Monthly births in Bangladesh, 2018-2021



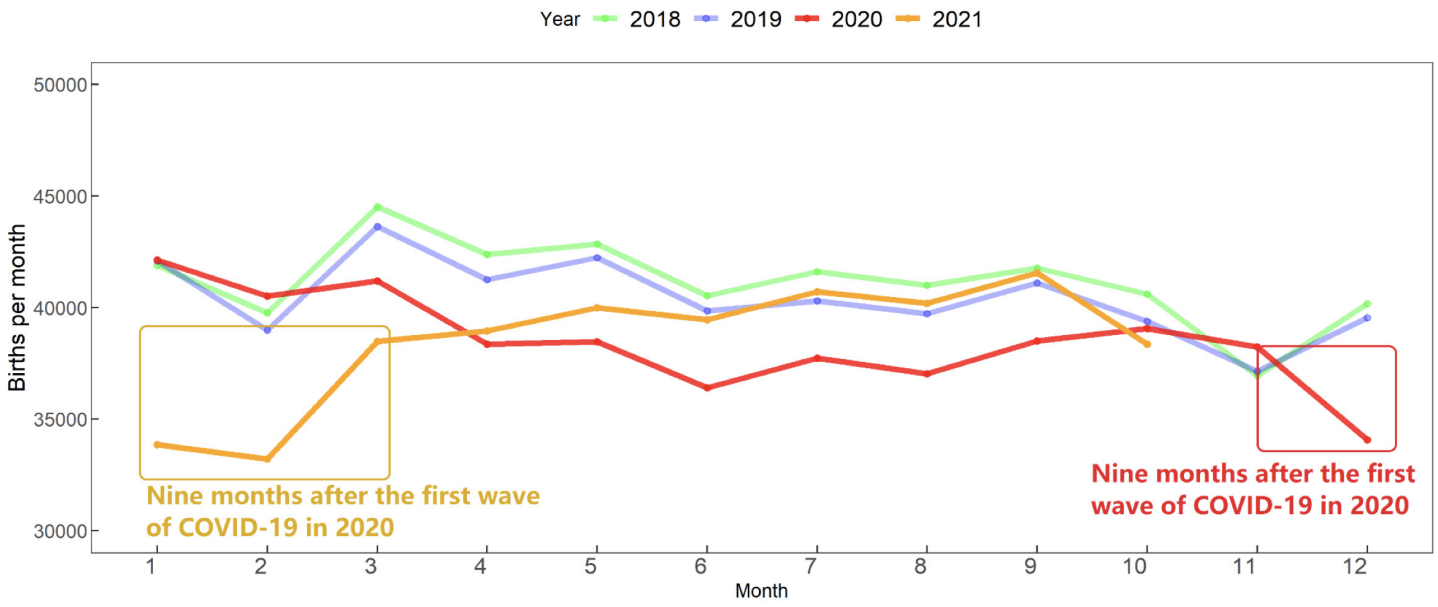
The total numbers of births during 2018-2020 seem to remain consistent: 2,939,886 (2018), 3,022,619 (2019), and 2,970,370 (2020). The 2021 trend seems to have recovered to the pre-pandemic trends. But it is important to note the increase in the number of births during January-March 2021. It is highly possible to speculate that these births are the result of the heavily disrupted sexual and reproductive health services during the initial lockdown in early 2020. Even though the data are preliminary, this is a phenomenon to note, and warrants further investigation in other locations.

7.b. Case Study 2: Peru

Peru has experienced two major waves of COVID-19 so far: the first wave between March and August 2020, and the second wave between January and May 2021. Considering the timing of the first wave and the duration of pregnancy, COVID-19 related effects on births would manifest themselves between November 2020 and February 2021, and possibly thereafter. If the first wave did not largely alarm people to alter their fertility intentions, then the second wave might have. If that is the case, it may be possible to observe the potential effect on births between the beginning September 2021 and January 2022 following from the second wave of COVID-19.

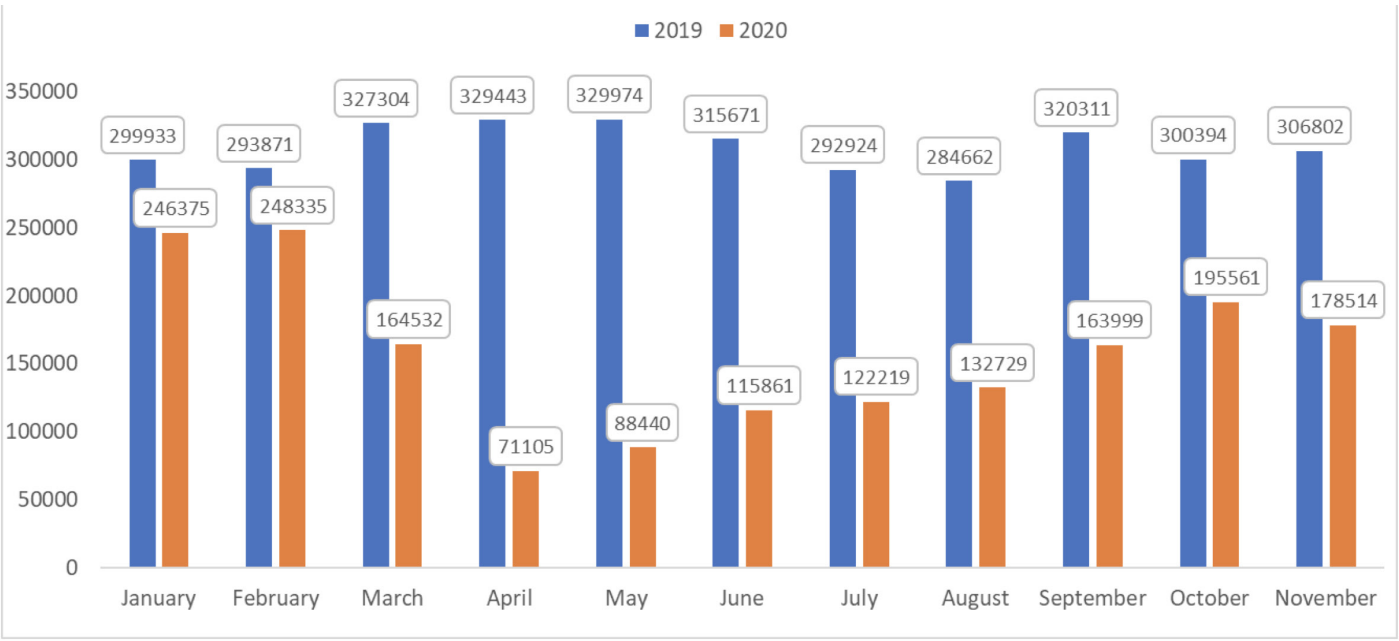
Figure 6 shows monthly births in Peru from 2018 to 2021. Clearly, we can see that about 9 months after the first wave, there was a dip in the number of reported births in Peru, running from December 2020 to February 2021. However, the number of births appears to have picked up again in the following months. Similarly, the number of births appear to decline again, 9 months after the second wave, but this coincides with the previous trend observed in the years prior to 2020. Considering the declining fertility trend in Peru, the number of monthly births reported in 2020 is on the lower side relative to the 2018-2019 numbers, but monthly births reported in 2021 have recovered to pre-pandemic levels.

Figure 6: Monthly births in Peru, 2018-2021



Disruptions in health services in Peru, including sexual and reproductive health services such as family planning, did not translate to increases in birth counts nine months following the disruptions. Figure 7 below shows that family planning services (counselling and orientation) were disrupted in 2020, especially during the first wave of COVID-19 and thereafter.

Figure 7: Monthly family planning services (counselling and orientation) in Peru, 2019 vs 2020



Source: Peru administrative records from the Ministry of Health[16]

16 https://webapp.minsa.gob.pe/dwcnv/dwterritorio.aspx

8. Conclusion

To complement the observations from developed countries, UNFPA has been tracking births across programme countries. To date, monthly birth data has been collected from 15 countries up until the third quarter of 2021. Based on available data, the following patterns emerge:

- Numerous countries indicate stable trends in monthly births, with no evident impact of COVID-19 (Brazil, Cuba, Georgia, Mongolia, Colombia, Iran);
- Several countries show a small decline in births in the beginning of 2021, followed by rebound to the pre-pandemic trend (Peru, Thailand, Ukraine) - similar to the observations in Europe and the USA;
- In Bolivia and Moldova births decreased dramatically in 2021, and further data will be needed to track a potential rebound or lack thereof;
- In Bangladesh, Benin, Bhutan, and Kosovo, births increased temporarily either at the end of 2020 and/or beginning of 2021, before reverting to pre-COVID trends in later 2021. In Bangladesh, the temporary rise in births was consistent with evidence that family planning services were temporarily disrupted during the pandemic.
- Overall, based on available data, changes in births associated with COVID-19 appear to be temporary. Also, delays in birth registrations may have occurred in some countries during imposed lockdowns - requiring longer-term tracking to affirm the fuller picture of how COVID-19 has affected fertility.

Across the developing world, it is important to note that COVID-19 may have interrupted the timely registration of births, possibly causing delays and under-reporting, particularly during 2020 when many lockdowns were implemented. In some countries fewer institutional births were reported during the pandemic; this would have delayed birth registration that normally take place in facilities, This and other factors call for caution in drawing simple, early conclusions about how COVID-19 is impacting fertility in developing countries.

Across Africa, there have been numerous reports of family planning service disruptions due to COVID-19. Unfortunately, the national civil registration and vital statistics (CRVS) in many African countries remain so incomplete that the impacts on births remain uncertain. Among many other inequalities exposed by COVID-19, this effort to track births in UNFPA programme countries, underscores the need for deep investments in population data systems, particularly in the Least Developed Countries. In this regard, it is necessary to stress the importance of a well functioning and robust and sustainable CRVS systems, and this project offers opportunities for capacity strengthening in CRVS operations and use of data, with relevant ministry staff, and UN partners[17].

17 The Centre of Excellence on CRVS Systems, now hosted at UNFPA, is dedicated to operational effectiveness of CRVS systems, and the use of data for planning, population projections and SDGs reporting at sub-national level. In partnership with WHO @ SDG3 Data and Digital Accelerator, digitization and cloud-based platforms should be prioritized to underpin system integrity.

9. Further work

The immediate next steps are to expand opportunities for additional countries to join in birth tracking, in order to better document the range of responses across populations and locations, and any likely long term implications for fertility trends.

Once the general global trends can be confirmed with a wider pool of data and participating countries, the study can then be expanded into analyzing disaggregated data to show differentials by various factors e.g. maternal age, place of registration, marital status, employment and household income etc. In the earlier case, we will be able to disaggregate our analysis by age-specific births between maternal age-groups, which is important since births are concentrated at young ages in most countries. However, this will depend on availability of data with such disaggregations and quality thereof.

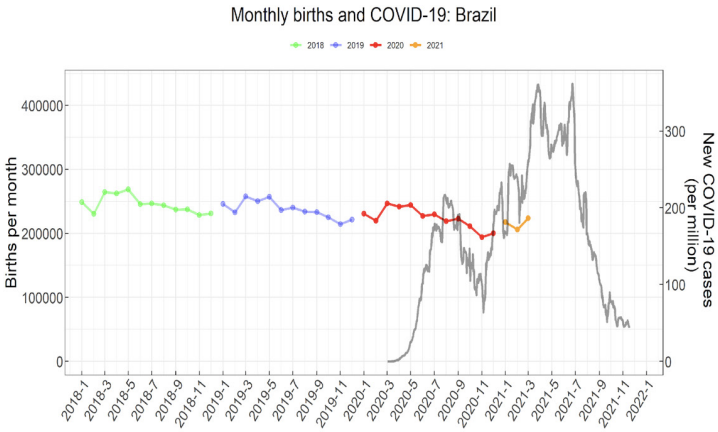
In this report, we only used data from 15 countries which were able to provide the most recent monthly data until 2021. Our next iteration will include additional countries e.g. Mexico, South Africa, Turkey, Sri Lanka, Iraq, Costa Rica, Panama and Ecuador which have only published data until 2019 or 2020 so far. With more countries and more populations to include in our analysis, the effects of the COVID-19 pandemic on birth will become much clearer. More countries from sub-Saharan Africa and Gulf Cooperation Council countries are participating in this project, which will increase representation of this region in our analysis.

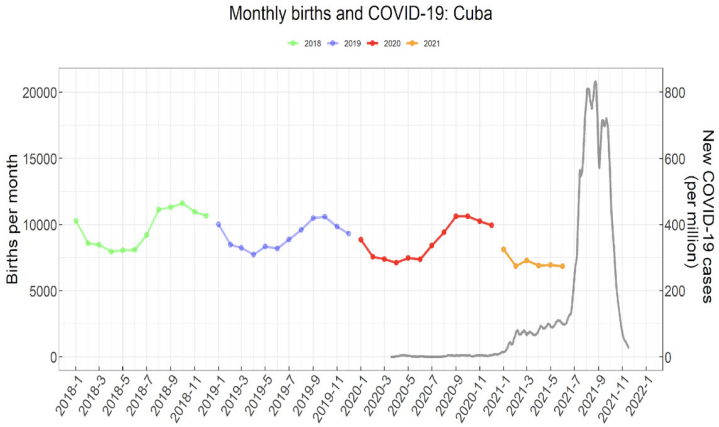
Last, the project is enabling an ongoing dialogue with countries to document how civil registration systems performed during the acute phase of the pandemic, documenting specific vulnerabilities in CRVS systems, defining intervention efforts that may address shortfalls, and help to modernize CRVS systems to digitize, rely on cloud-based platforms, and maintain secure data without disruptions, even during an acute crisis.

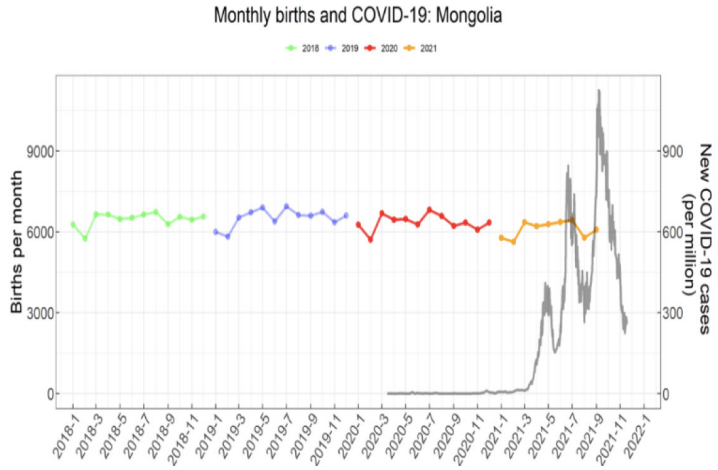
Appendix A: Times series on birth by country

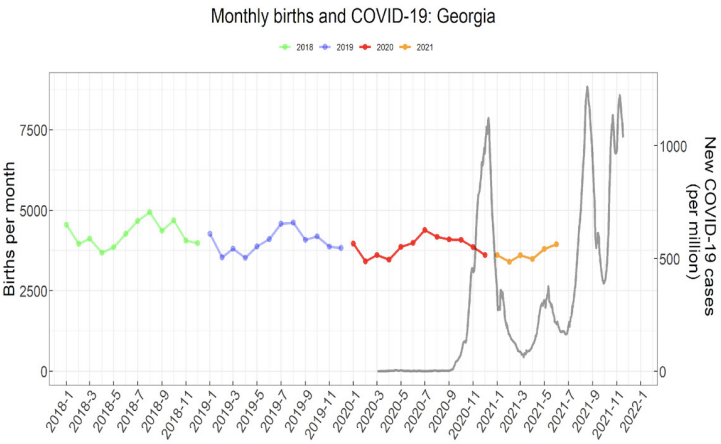
Below, A1 through A4 are the time series graphs of birth trends and the intensity of the COVID-19 pandemic based on the birth data from 13 countries who provided monthly data (two provided quarterly data). Time series graphs for Colombia and Iran are not presented here, because Colombia and Iran do not provide all of their birth data in monthly intervals. In each graph, the left vertical axis indicates the number of births per month, and the right axis indicates the number of new COVID-19 cases per million population per day.

A.1 Countries showing stable trends in monthly births, with no evident impact of COVID-19 pandemic

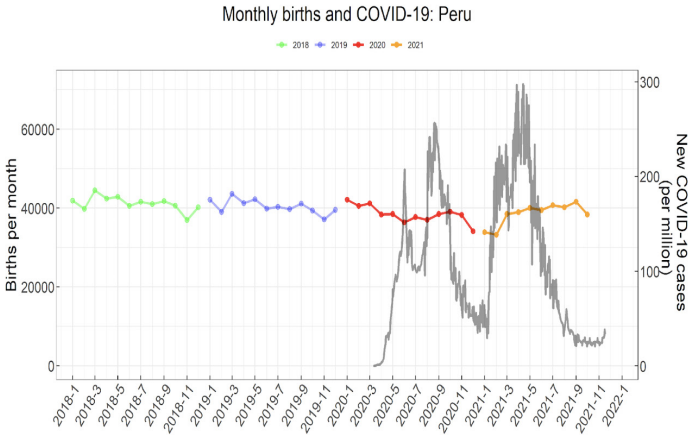


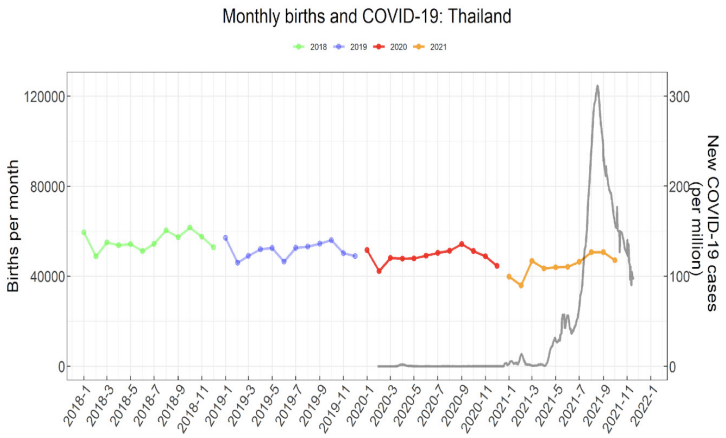


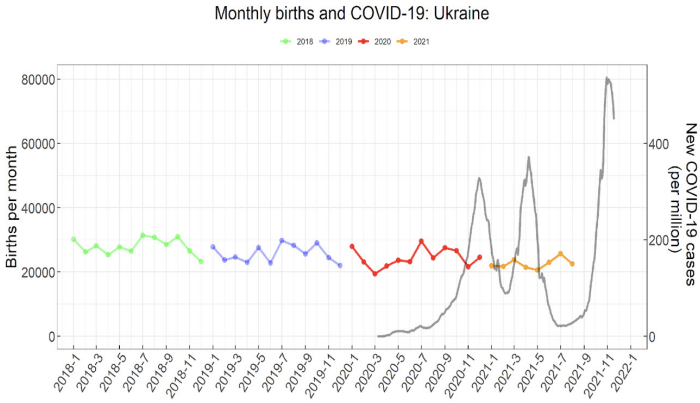




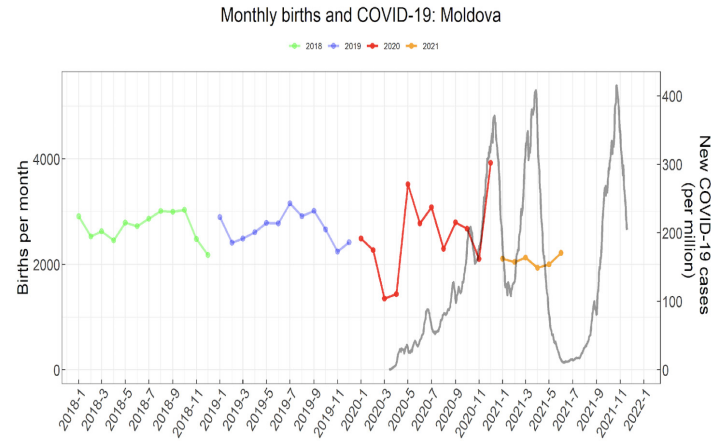
A.2 Countries showing a small decline in births in the beginning of 2021, followed by rebound to the pre-pandemic trend

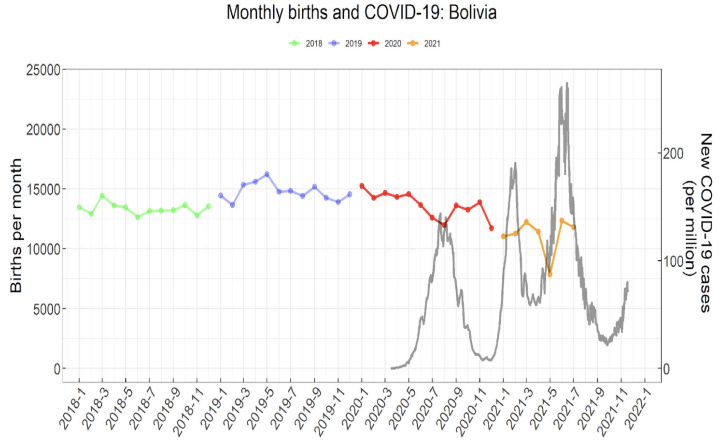






A.3 Countries showing notable changes in birth due to the pandemic





A.4 Countries showing a temporary increase in births after the COVID-19 pandemic began, before reverting to pre-pandemic trends