Report on the number of births during the COVID-19 pandemic in the Philippines, January 2020 to May 2021

Briones, Kristine Joy and Del Mundo, Michael Dominic

August 2021

Report on the number of births during the COVID-19 pandemic in the Philippines, January 2020 to May 2021[1]

By Kristine Joy S. Briones and Michael Dominic C. Del Mundo

31 August 2021

Abstract

One of the effects of the COVID-19 pandemic in the decrease in the number of births in the country. In 2020, there were 1.53 million registered births, down 8.3% from 2019. There were 117 thousand registered births in December 2020, 18% lower than the same month the previous year. From January to May 2021, there were 461 thousand registered births in the country, down 24% from 2020 and 31% from 2019. Home births increased during the pandemic. On the other hand, births from women aged 20 and below decreased from December 2020 to February 2021. Assuming that current trends continue, projections show that births in 2021 will go down by 521 thousand births. This is equivalent to 1.16 million registered births in 2021, down 24% from 2020.

Introduction

At the start of the COVID-19 pandemic, many believed that lockdowns would fuel a baby boom. A significant increase in unintended pregnancies and unplanned births was feared in many developing countries, including the Philippines, as disruptions in family planning and health services are expected to arise. However, previous studies have shown that long-lasting and large-scale disruptions negatively impact women's reproductive lives. Evans' et al. (2010) showed that, in the U.S., while low-severity storm advisories have a significant positive fertility effect, high-severity advisories lead to a decline in fertility. Research also saw women's fertility preferences change during the 2008 Great Recession, with a majority of the women interviewed saying that they "can't afford to have a baby

[1] This paper is part of the United Nations Population Fund Philippines Country Office project on estimating excess deaths, births, and migration in the Philippines during the COVID-19 pandemic. The authors would like to thank the Philippine Statistics Authority and Dr. Claire Dennis S. Mapa for serving as technical advisor. All remaining errors are authors' own. Corresponding author: kjsbriones@gmail.com

right now" because of the recession (Gold, 2010). A 2020 U.S. survey on the emerging impact of the COVID-19 pandemic on women's sexual and reproductive health revealed that more than a third of women interviewed wanted to get pregnant later or wanted fewer children because of the pandemic as they worry about their ability to pay for health care services (Lindberg et al., 2020). Women and couple's reasons why they would forego or delay pregnancy during the COVID-19 pandemic include (1) concerns about their own and their infant's wellbeing, (2) prolonged economic uncertainty due to the risk of being unemployed, and (3) increased childcare and child's education demands for women who already have children, among others.

This report uses birth registration data from the Philippine Statistics Authority (PSA) to investigate the impact of the COVID-19 pandemic on the number of births in the country. The provisional number of births in the Philippines in 2020 was 1.53 million, down 8.3% from the number in 2019 and down 8.7% from the average births since 2017. On the other hand, births registered from January to May 2021 were 461 thousand, down 24% from the same months in 2019 and down 42% from the average births since 2017. Furthermore, the percentage of home deliveries has been increasing since the start of pandemic, while first-time births have decreased. Births from mothers aged 20 and below have also reduced nine months after the beginning of the pandemic. Assuming that current trends continue, initial projections show that births in 2021 will go down by 521 thousand births, and this is equivalent to 1.16 million registered births in 2021, down 24% from 2020.

Data

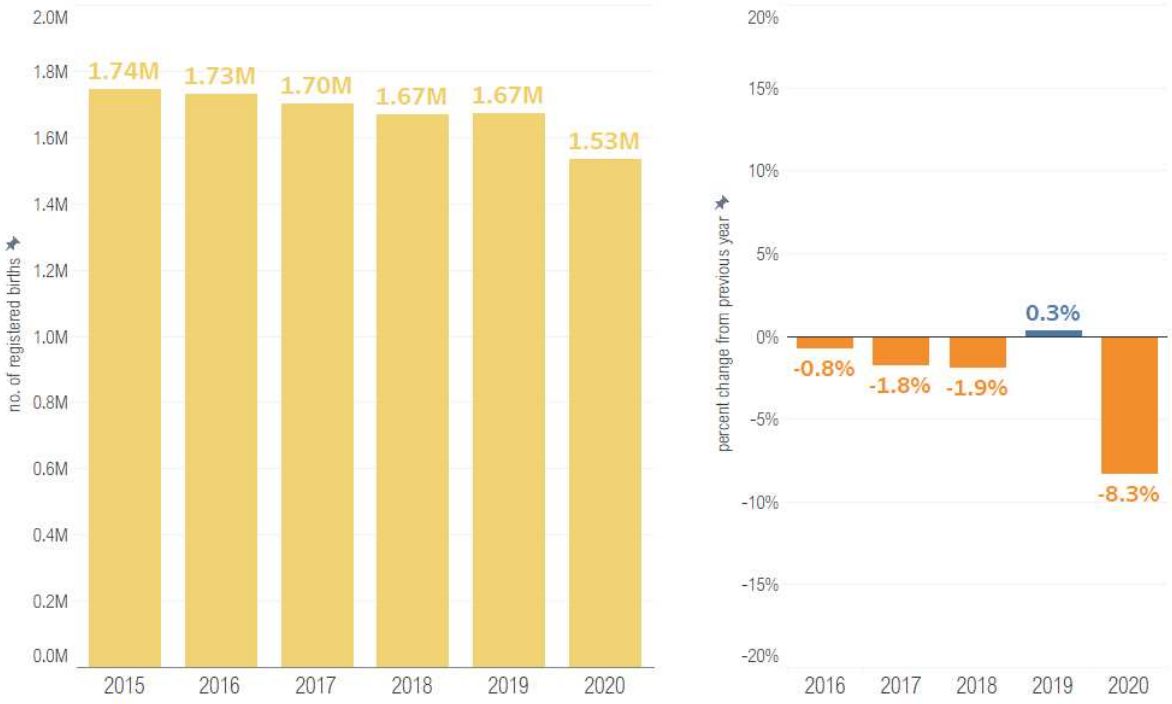
This report uses January 2017 to May 2021 data from civil registry documents or birth certificates issued by the PSA. A birth certificate shows information about a live birth and includes several demographics about the newborn. Data used in this report are from birth certificates compiled by the PSA up to 5 August 2021. However, 2020 and 2021 figures are provisional and may change when more birth certificates for these years are registered.

The number of registered births in the Philippines in 2020 was 1.53 million, down 8.3% from the number in 2019 (figure 1). The decline was highest in December, with total births registered at 117 thousand, down 18% from 2019. With 633 suspected COVID-19 cases on 1 March 2020, the Philippine government placed the National Capital Region in lockdown in the middle of March. Lockdowns were

extended to other regions in the following weeks. Effects of the pandemic on births would thus be expected nine months later, that is, beginning in December 2020. As seen in figure 2, low births continued in 2021. From January to May 2021, there were 461 thousand registered births in the country, down 24% from 2020 and down 31% from the same period in 2019. This decline in births since December 2020 is evident in all regions of the country (see annex 1).

A decline in births was also evident even before December 2020. Due to strict lockdowns, particularly in March, April, June, and August, local civil registration offices operated on a skeletal workforce and limited daily transactions. Additionally, the fear of acquiring the virus might have discouraged people from registering births as well. A concern raised was whether home births are now not being registered as the process to obtain a birth certificate from home deliveries could be difficult and tedious during the pandemic than hospital deliveries. However, as data suggests, while home deliveries have declined since 2017, more women decided to deliver at home during the pandemic (see figures 3 and 4). The increase is felt particularly in the National Capital Region (NCR). The percentage of home births in NCR started to increase at the start of the pandemic, reaching as high as 5.4 % in January 2021 from its lowest in November 2019 (1.9%).

Figure 1. Annual number of registered births and percentage change, 2015 to 2020[2]



[2] 2020 data is provisional.

Figure 2. Monthly number of registered births, January 2017 to May 2021[3]

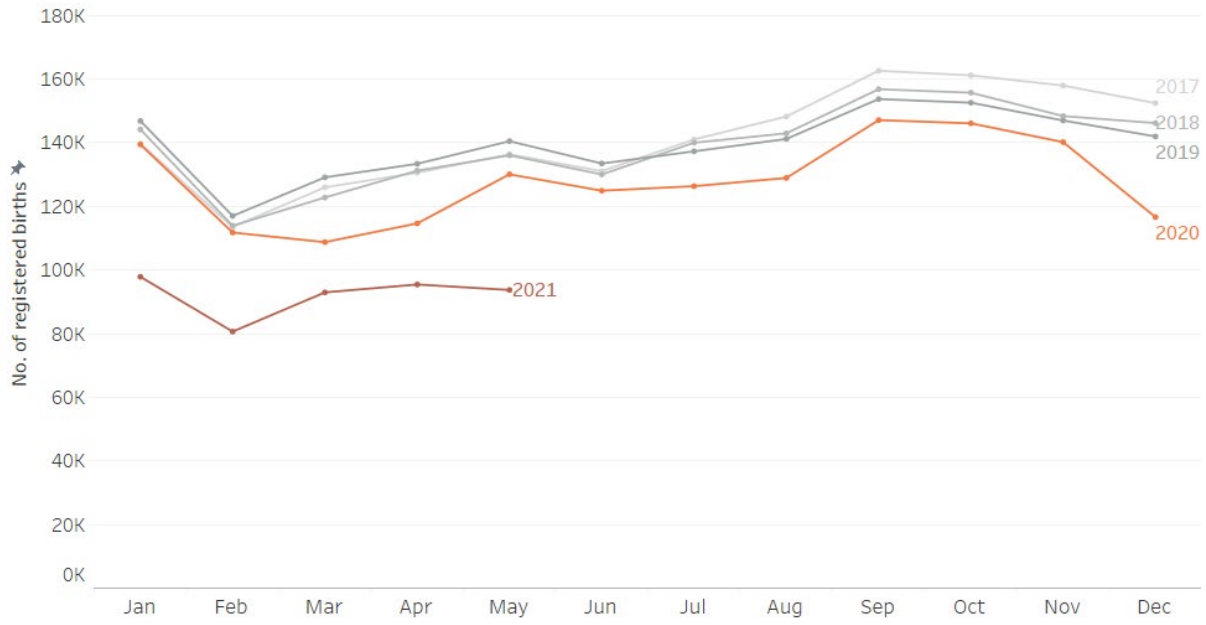
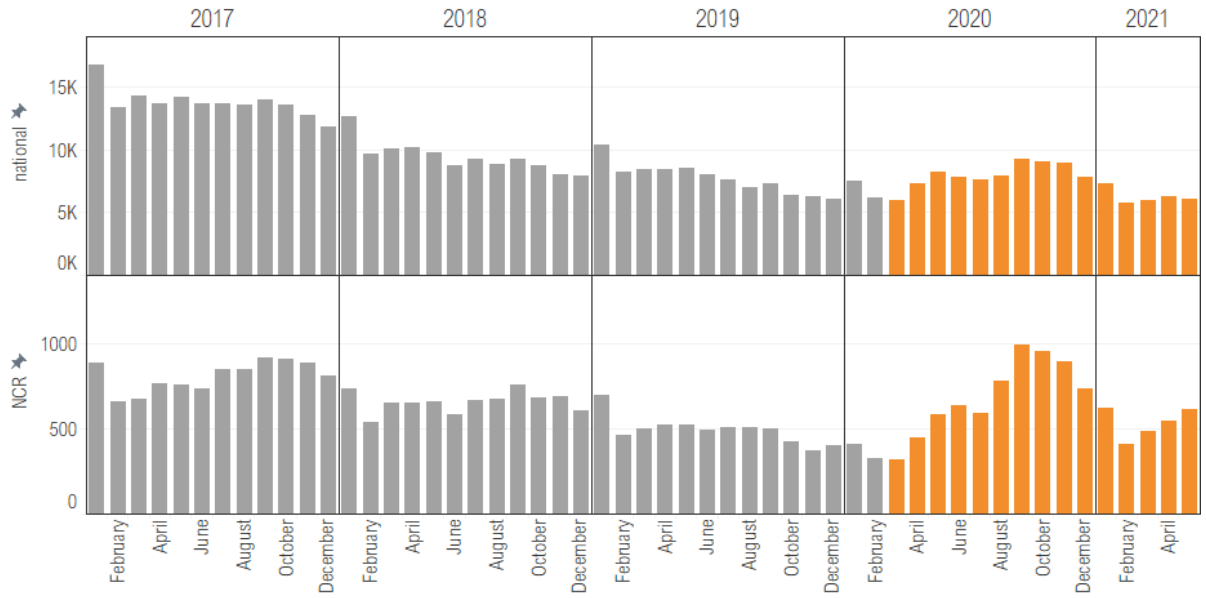


Figure 3. Monthly number of home births, national and NCR, January 2017 to May 2021



[3] 2020 and 2021 data is provisional.

Figure 4. Percentage of home births to total births, national and NCR, January 2017 to May 2021

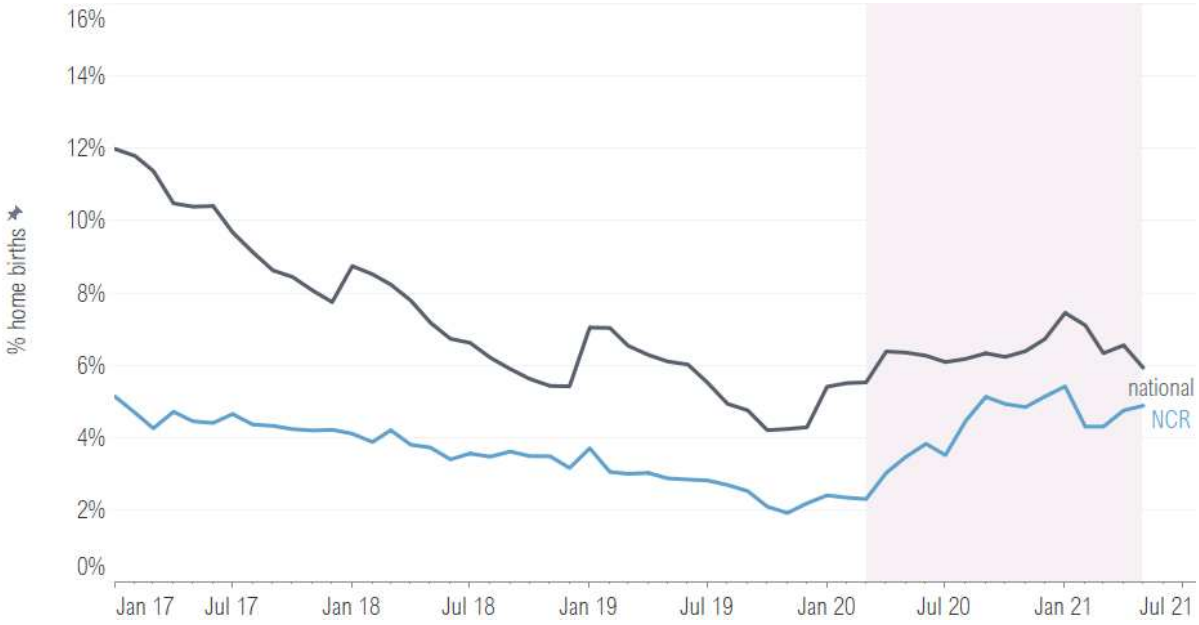


Figure 5. Monthly number of first births, national and NCR, January 2017 to May 2021

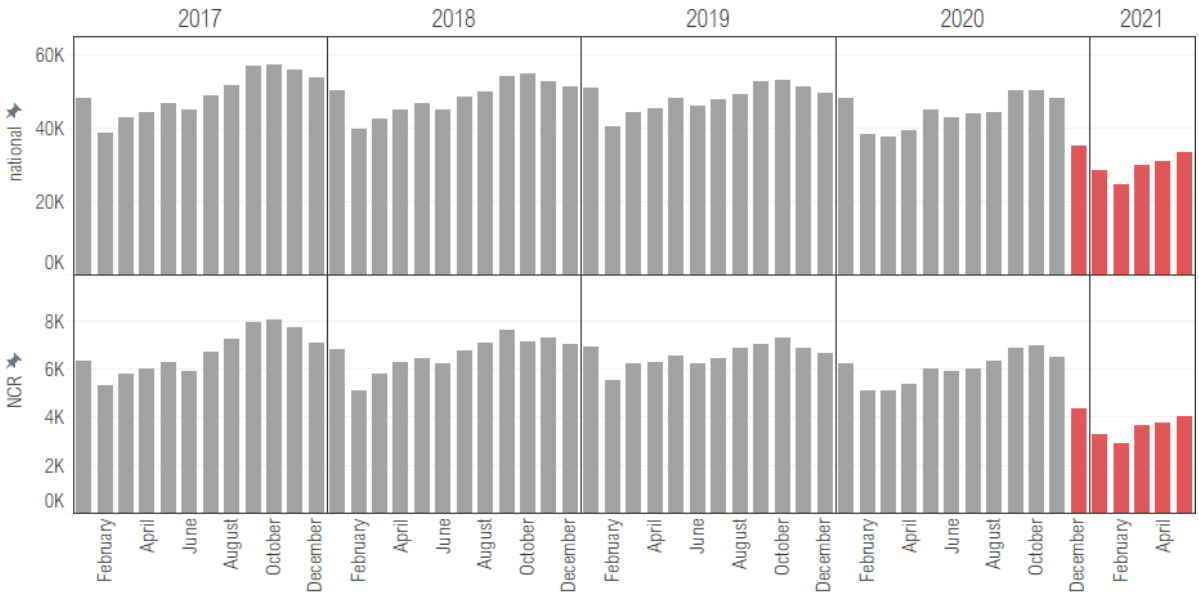


Figure 6. Percentage of first births to total births, national and NCR, January 2017 to May 2021

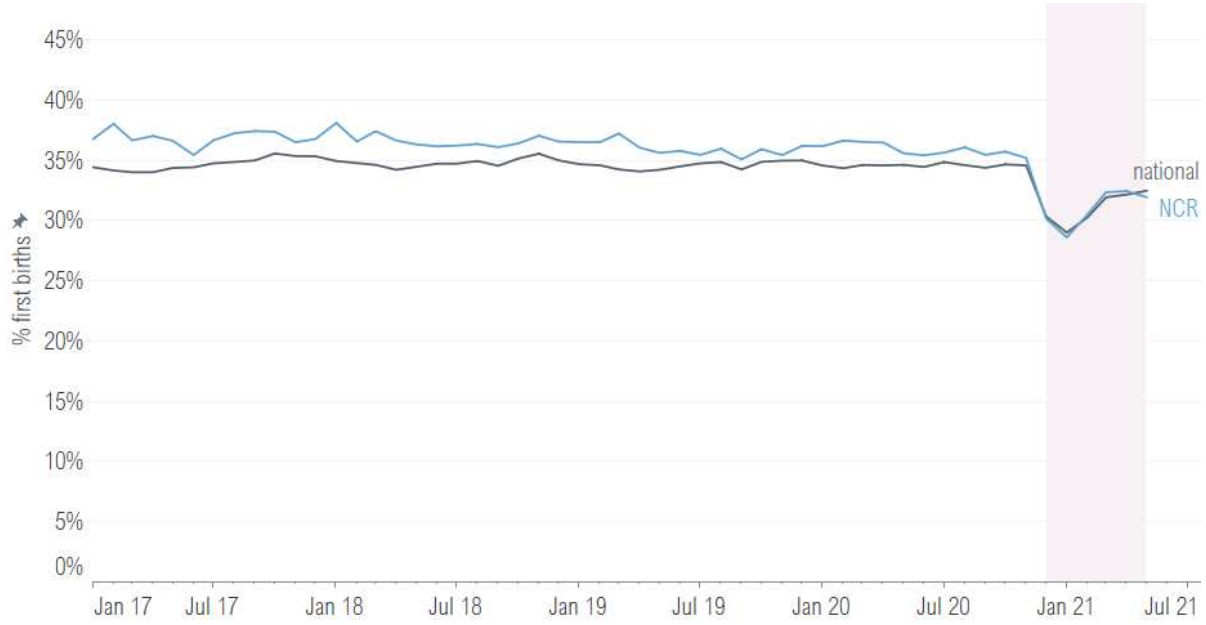


Figure 7. Monthly number of births from women aged 20 years and below, national and NCR, January 2017 to May 2021

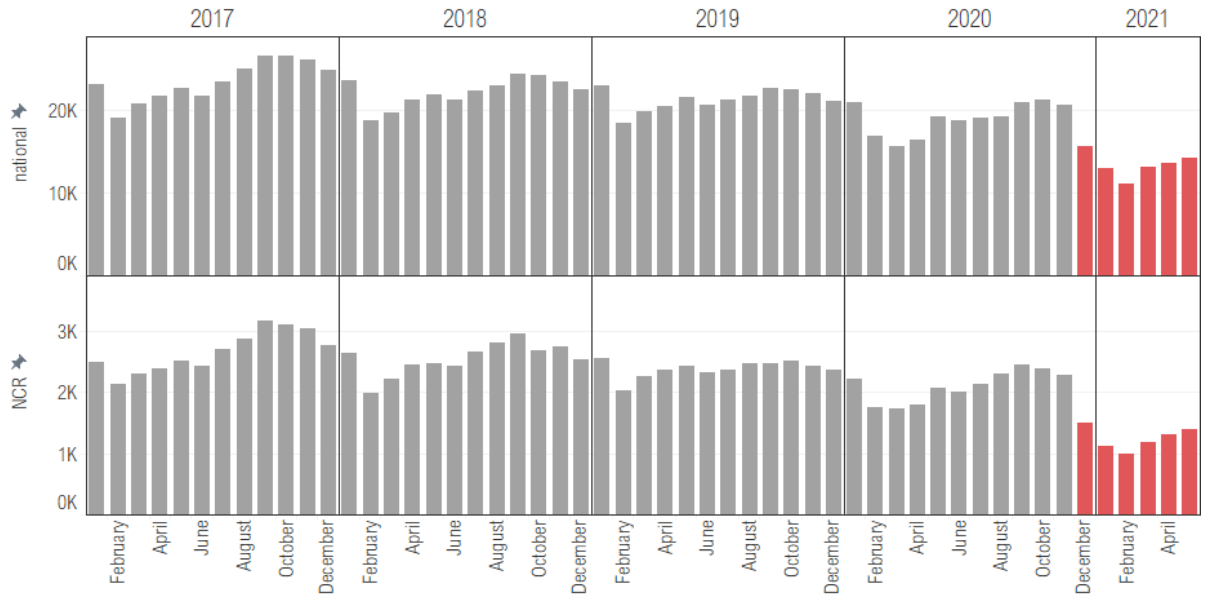
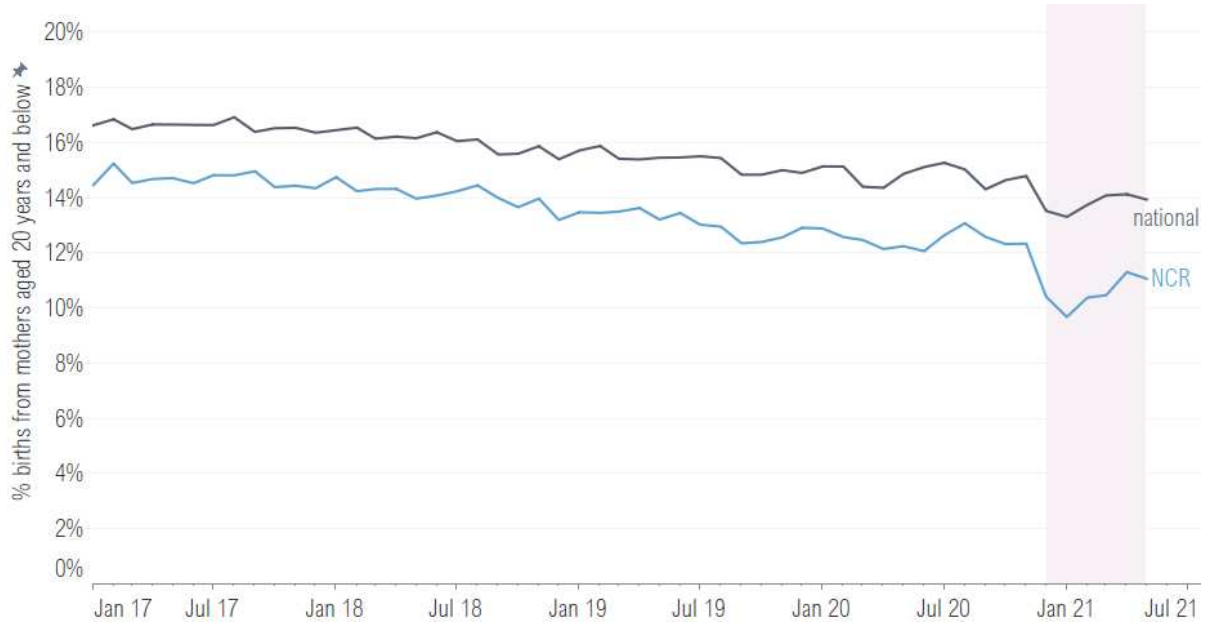


Figure 8. Percent of births from women aged 20 years and below, national and NCR, January 2017 to May 2021



The number and percentage of first-time births also went down during the pandemic. Since 2017, the percentage of first-time births in the country has been consistently at around 35%. In January 2021, it went down to 29%, possibly due to the strict lockdown and mobility restrictions in April of the previous year. First-time births went up again the following months to 32%. It would seem that this value is the "new normal" percentage of first-time births as women and couples delay their decision to start having children because of the pandemic.

The number and percentage of births of women aged 20 years and below have been declining in the country even before the pandemic. However, as a probable impact of the pandemic, there was a significant drop in births from this age group in December 2020 and January 2021. It then started to increase again and followed its usual trend. This significant decrease in the percentage of births from women aged 20 years and below could indicate a drop in the number of unplanned pregnancies of young women when the government imposed strict lockdown measures at the beginning of the pandemic, which disallowed teenagers to go out of their homes.

Estimating deviation in births

Using the definition of excess deaths by Checchi & Roberts (2005), deviation in births can be defined as the number of births during a crisis above and beyond what we would have expected to see under "normal" conditions. This can be estimated using a similar methodology for measuring excess deaths (Roser et al., 2020). The calculation of the deviation in births during the pandemic will utilize weekly births data from the vital registration:

$$Deviation\ in\ Births\ _{2020week05} = Births_{2020week05} - Average\ Births_{2017-2019week05}$$

It is expected that data on births will still be incomplete in the weeks, and even months, after birth occurs due to delays in reporting. To avoid using incomplete data, information on births in the most recent weeks was excluded from the study. Only the birth counts until week 52 of 2020 were used for the estimation of the deviation in births.

Figure 9. Monthly number of registered births from January 2020 to May 2021 against the pre-pandemic monthly average

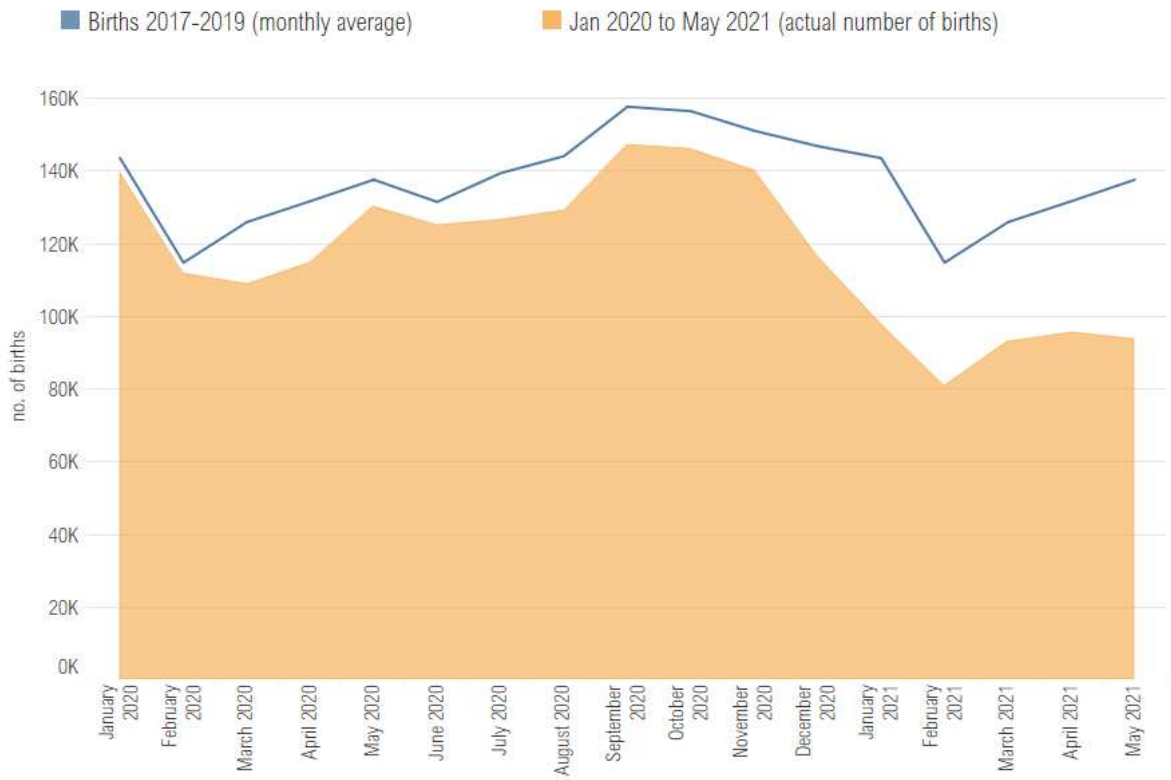


Figure 10. Deviation from expected births, count and percentage change, January 2020 to May 2021

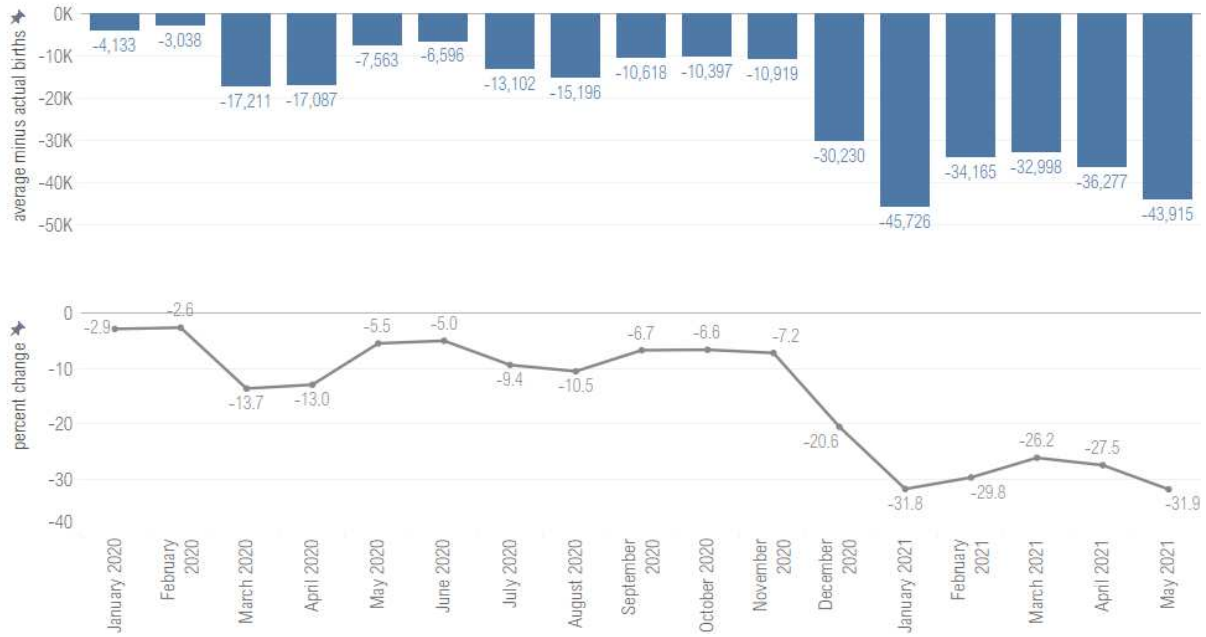


Figure 11. Percentage deviation from expected births, by region, January 2020 to May 2021

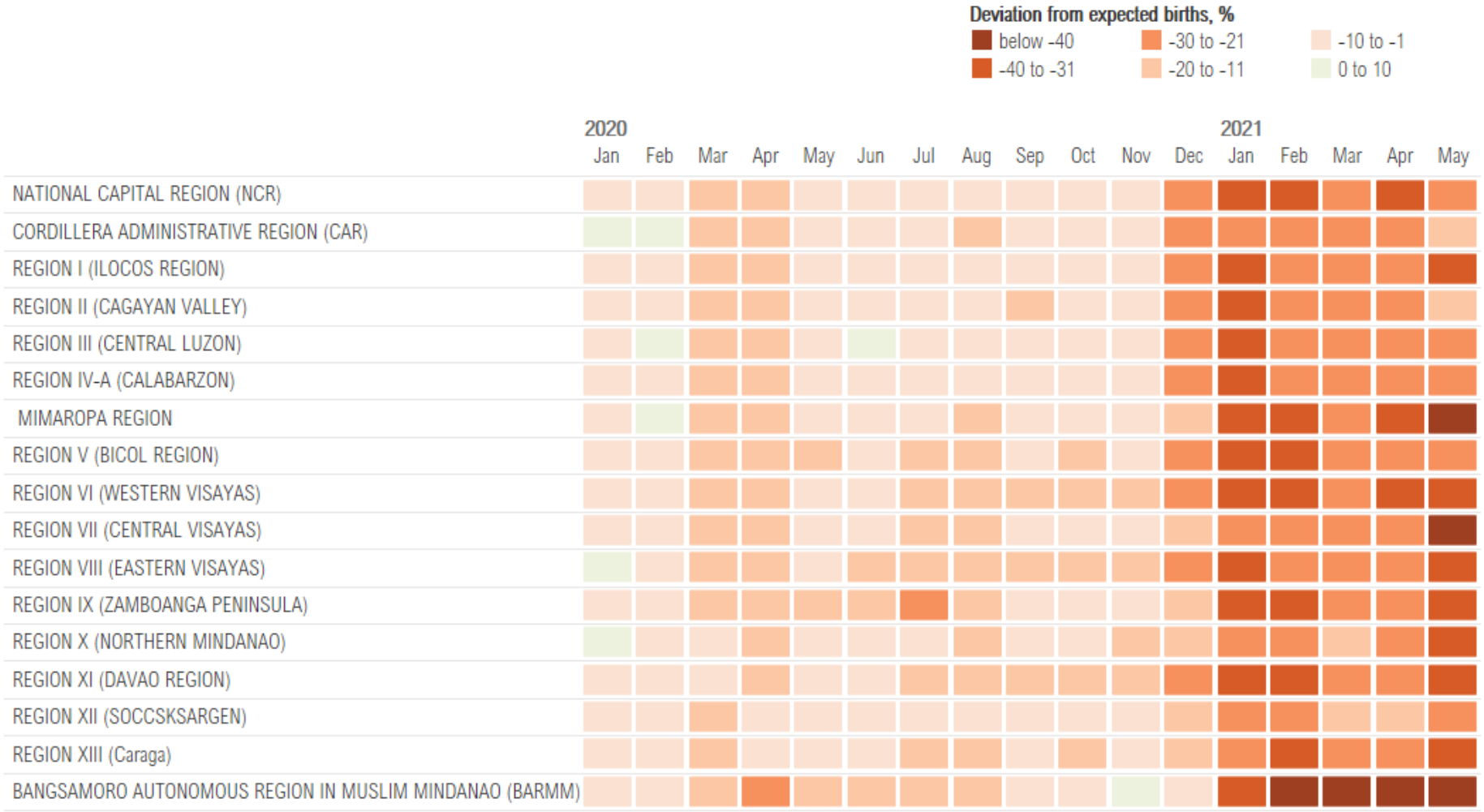


Figure 9 presents the actual monthly number of registered births from January 2020 to May 2021 (orange area) and the average monthly births from 2017 to 2019 (blue line). The blue line represents the expected number of births for each month if the pandemic did not happen. Thus, the area between the blue line and the orange area is the deviation in births due to the pandemic. The blue line was higher than the orange area throughout the period, indicating fewer births were registered during the pandemic. The number and percentage deviation from pre-pandemic levels are presented in figure 10. There was a significant decline in births beginning December 2020. The biggest percentage drop was recorded in January 2021, with births registered 32% lower than pre-pandemic levels. Regional data, presented in figure 11, shows that this decline in registered births started in December 2020 and was evident in most regions.

Deviation in births projection

Similar to the methodology for forecasting excess deaths, Exponential Smoothing was used to project the deviation in births to June 2022:

$$x_{t+j} = (\mu_t + \beta_j) + S_{t+j} + \epsilon_{t+j}$$

where x_t is the time series of deviation in births, μ_t is the time-varying average at time t, β is a parameter, S_t is the seasonal component, and ϵ_t is the idiosyncratic error.

Figure 12 shows the estimated and projected deviation in births during the COVID-19 pandemic in the country. Estimated change in births from 2020week5 to 2021week20 was calculated using actual births data from the vital registration, while the deviation in births from 2021week21 to 2022week26 are forecasted using exponential smoothing. The figure shows that the estimated deviation in births is in the negative region with an evident downward trend since February 2020. This implies fewer births recorded from February 2020 onwards, the onset of the pandemic, compared to the past years (pre-pandemic). In summary, there were no excess births during the pandemic. Instead, the data shows an accelerated decline in fertility.

There is a strong downward spike in the deviation of births during the latter part of 2020, suggesting a shift in the number of births that continued through the first half of 2020. This is expected since the actual effect of the COVID-19 pandemic on fertility will only be measured starting December 2020, 9

months after the first cases of COVID-19 infections in the country. It seems that the pandemic has resulted in a structural shift in fertility as reflected in the number of births for the first half of 2021 and onward. In addition, the forecast also shows a continuous decline in the number of births until June of 2022 primarily due to the already strong downward trend, which started in 2020 and strengthened in the first half of 2021.

Figure 12. Actual and Forecasted Deviation in Births, Feb 2020 to June 2022

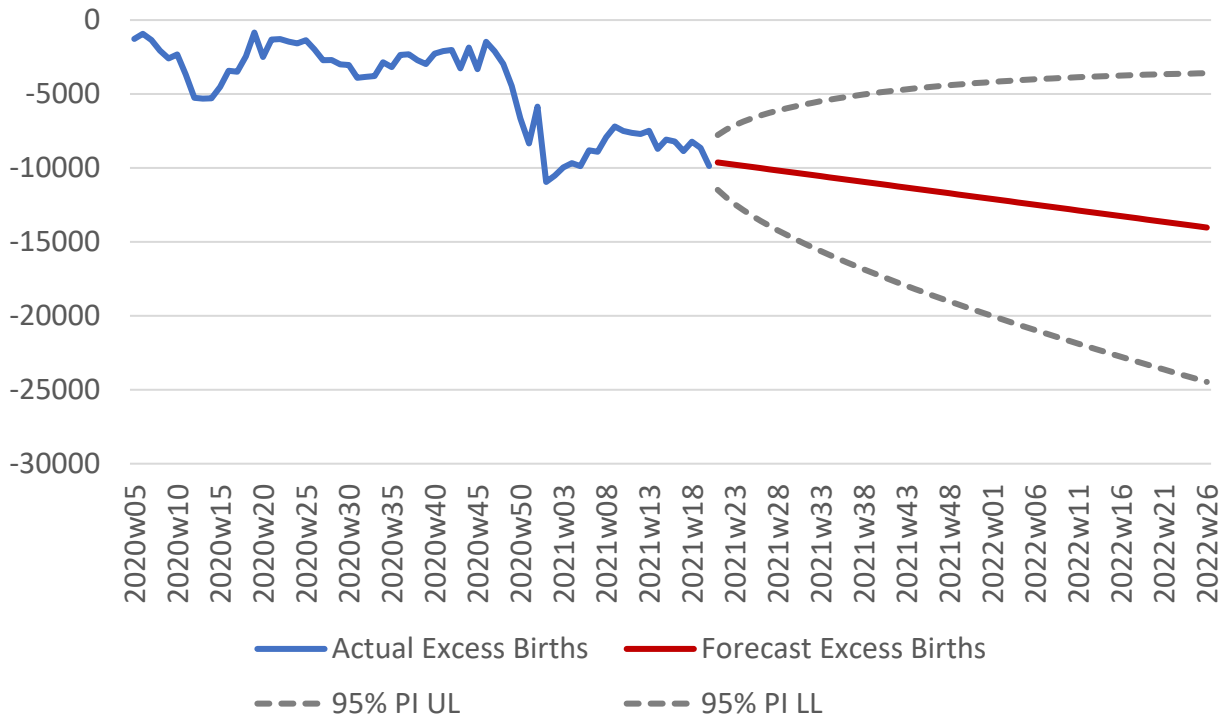


Table 1. Actual and forecasted deviation in births from pre-pandemic levels

	Deviation Births
2020[a]	-142,361
2021[b]	-521,151
2022[c]	-339,712

Notes:

[a] estimate of excess births from 2020w05 to 2020w52

[b] estimate and forecast of excess births from 2021w01 to 2021w52

[c] forecast of excess deaths from 2021w01 to 2020w26

In summary, the estimated excess births for the entire population in 2020 is -142,361, while the projected excess births for 2021 is -521,151. This result implies that the number of births in 2021 will be reduced by approximately 30 percent compared to the pre-pandemic birth counts in the past years. More so, the projected excess births from January to June 2022 is -339,712.

Conclusions

One of the effects of the COVID-19 pandemic in the decrease in the number of births in the country. In 2020, there were 1.53 million registered births, down 8.3% from 2019. There were 117 thousand registered births in December 2020, 18% lower than the same month the previous year. From January to May 2021, there were 461 thousand registered births in the country, down 24% from 2020 and 31% from 2019. Home births increased during the pandemic. On the other hand, births from women aged 20 and below decreased from December 2020 to February 2021. Assuming that current trends continue, projections show that births in 2021 will go down by 521 thousand births. This is equivalent to 1.16 million registered births in 2021, down 24% from 2020.

At the start of the COVID-19 pandemic, many believed that lockdowns would fuel a baby boom. A significant increase in unintended pregnancies and unplanned births was feared in many developing countries, including the Philippines, as disruptions in family planning and health services are expected to arise. However, data suggests that the Philippines is currently experiencing a decline in births during the pandemic.

The accelerated decline in fertility that can be observed during this pandemic maybe due to a couple of factors. First, this could be a result of poor birth registration during the pandemic because of the lockdowns and restrictions that closed or limited civil registration offices. Second, the Philippines during the past years before the pandemic has been experiencing a steady decline in its total fertility rate, the pandemic may have hastened this as the population adapts to the new normal with new behaviors. Third, families may have been discouraged to have additional children due to the economic and livelihood effects of the covid-19 pandemic.

While women seem to have delayed their decision to have children in the short term, there is a need to investigate women's and families' longer-term fertility preferences to help the government and the health sector prepare for a possible trend reversal after the pandemic. Efforts should also be placed to find and register those births which have not been registered during the pandemic.

References

Checchi, F., & Roberts, L. (2005). Interpreting and using mortality data in humanitarian emergencies. *Humanitarian Practice Network*, *52*.

Evans, R., Y. Hu, & Z. Zhao (2010). The fertility effect of catastrophe: U.S. hurricane births. Journal of Population Economics, 23:1-36.

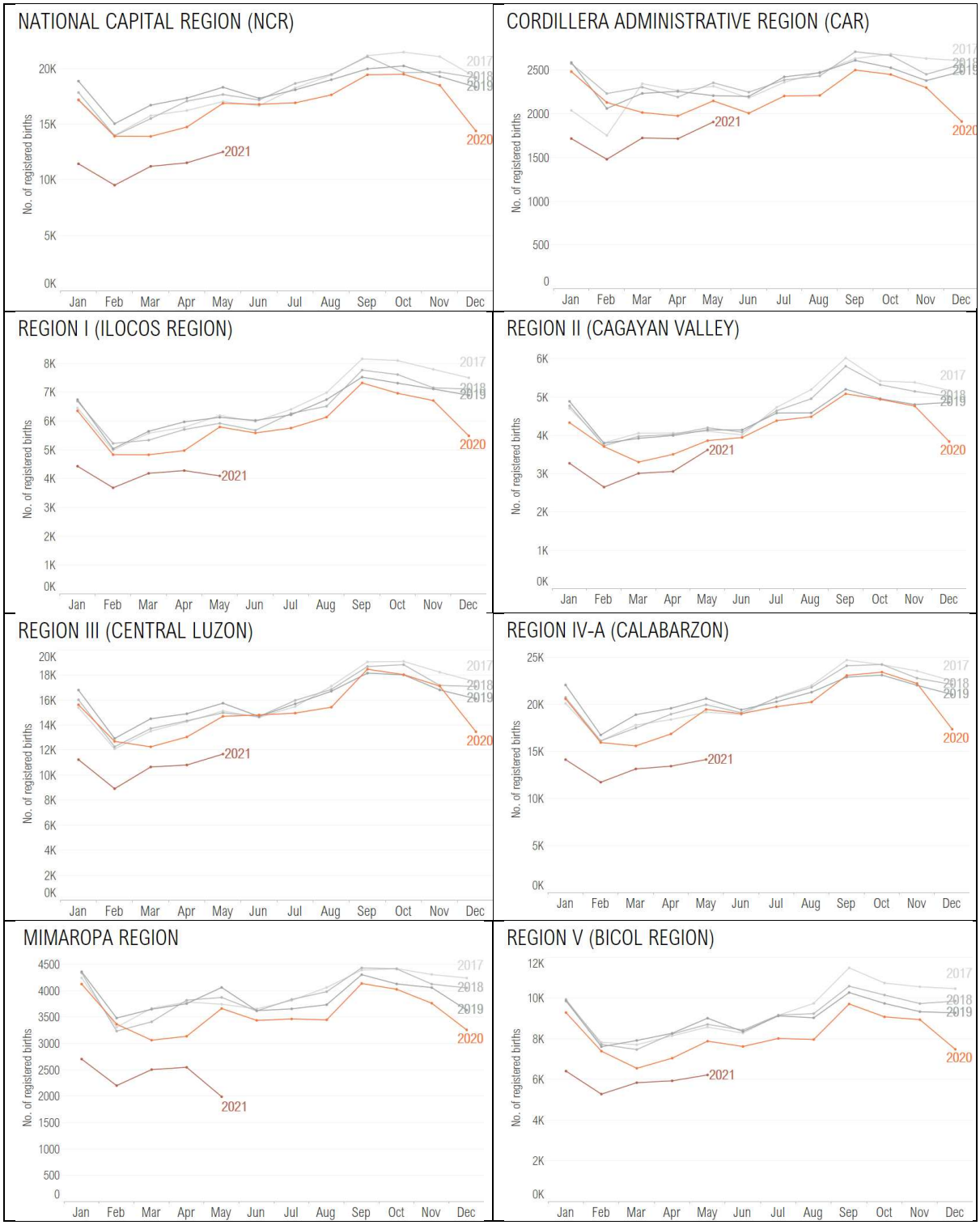
Gold, R. (2010). Recession taking its toll: family planning safety net stretched thin as service demand increases. Guttmacher Institute Volume 13, Issue 1.

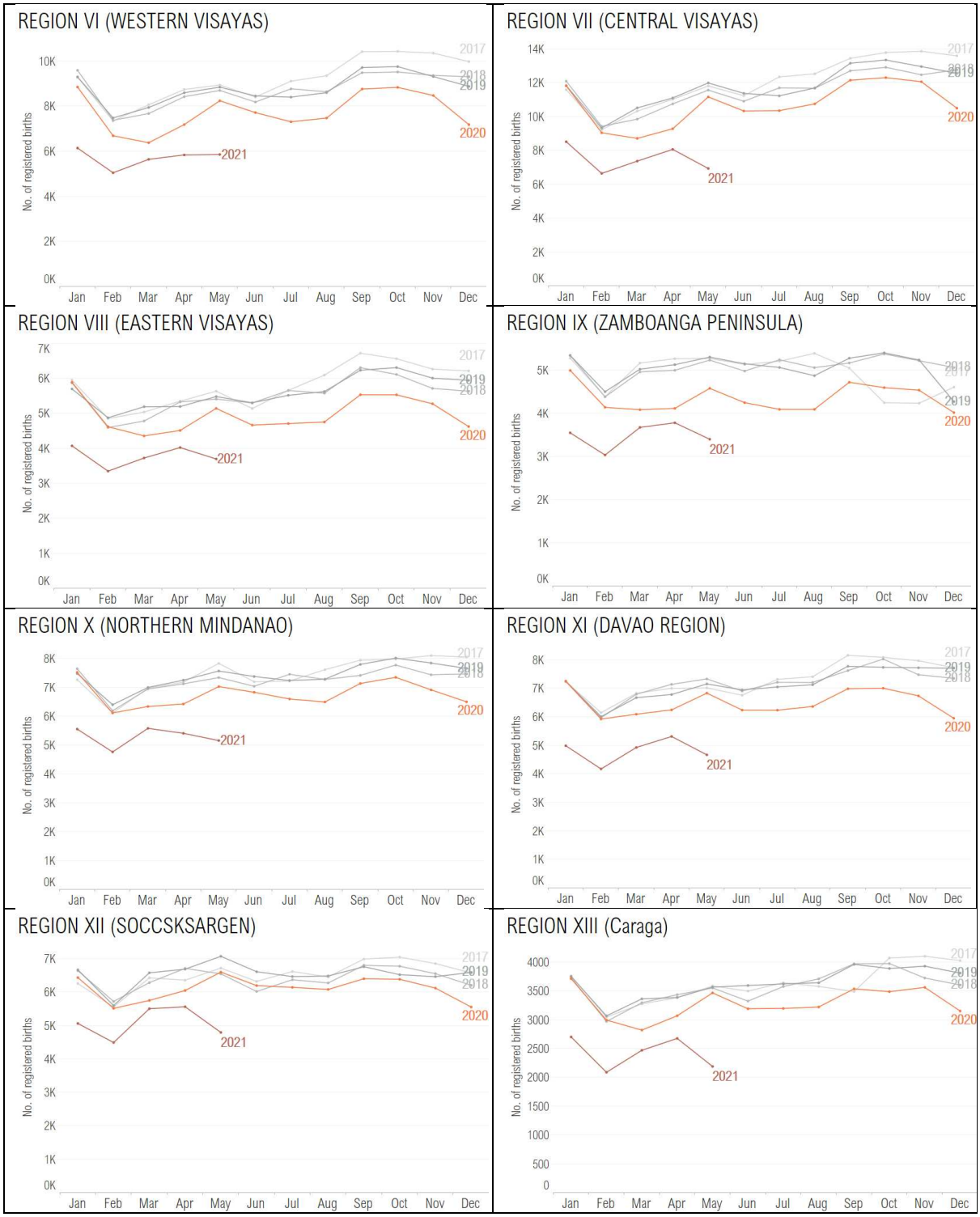
Lindber, L., A. VandeVusse, J. Mueller, & M. Kirstein (2020). Early impacts of the COVID-19 pandemic: findings from the 2020 Guttmacher Survey of Reproductive Health Experiences. Guttmacher Institute Report.

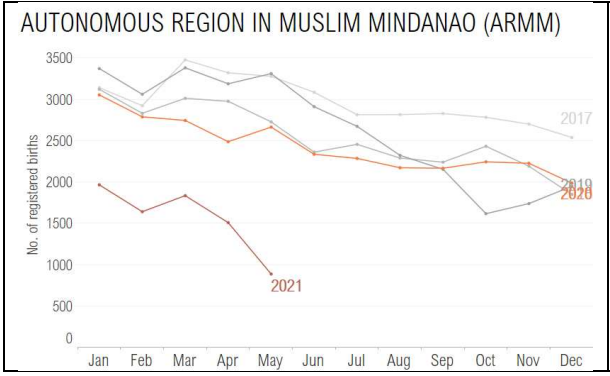
Roser, M., H. Ritchie, E. Ortiz-Ospina & J. Hasell (2020) - "Coronavirus Pandemic (COVID-19)". *Published online at OurWorldInData.org.* Retrieved from: 'https://ourworldindata.org/coronavirus'

Appendices

Appendix 1. Monthly number of registered births, by region, January 2017 to May 2021




REGION VI (WESTERN VISAYAS)
No. of registered births
10K
8K
6K
4K
2K
0K
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
2017
2018
2019
2020
2021
REGION VII (CENTRAL VISAYAS)
No. of registered births
14K
12K
10K
8K
6K
4K
2K
0K
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
2017
2019
2020
2021
REGION VIII (EASTERN VISAYAS)
No. of registered births
7K
6K
5K
4K
3K
2K
1K
0K
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
2017
2019
2018
2020
2021
REGION IX (ZAMBOANGA PENINSULA)
No. of registered births
5K
4K
3K
2K
1K
0K
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
2018
2017
2019
2020
2021
REGION X (NORTHERN MINDANAO)
No. of registered births
8K
7K
6K
5K
4K
3K
2K
1K
0K
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
2017
2019
2018
2020
2021
REGION XI (DAVAO REGION)
No. of registered births
8K
7K
6K
5K
4K
3K
2K
1K
0K
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
2017
2019
2018
2020
2021
REGION XII (SOCCSKSARGEN)
No. of registered births
7K
6K
5K
4K
3K
2K
1K
0K
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
2017
2019
2018
2020
2021
REGION XIII (Caraga)
No. of registered births
4000
3500
3000
2500
2000
1500
1000
500
0
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
2017
2019
2018
2020
2021



Appendix 2. Point Forecast and 95% Prediction Interval for Excess Births (2021w21 to 2022w26)

	Point Forecast	95% PI LL	95% PI UL
2021w21	-9,628	-11,483	-7,773
2021w22	-9,705	-12,006	-7,405
2021w23	-9,783	-12,455	-7,110
2021w24	-9,860	-12,859	-6,861
2021w25	-9,937	-13,230	-6,644
2021w26	-10,014	-13,577	-6,451
2021w27	-10,092	-13,906	-6,278
2021w28	-10,169	-14,218	-6,120
2021w29	-10,246	-14,518	-5,974
2021w30	-10,323	-14,807	-5,840
2021w31	-10,401	-15,086	-5,716
2021w32	-10,478	-15,356	-5,599
2021w33	-10,555	-15,620	-5,490
2021w34	-10,632	-15,877	-5,388
2021w35	-10,710	-16,127	-5,292
2021w36	-10,787	-16,373	-5,201
2021w37	-10,864	-16,613	-5,115
2021w38	-10,941	-16,850	-5,033
2021w39	-11,019	-17,081	-4,956
2021w40	-11,096	-17,309	-4,882
2021w41	-11,173	-17,534	-4,812
2021w42	-11,250	-17,755	-4,746
2021w43	-11,328	-17,973	-4,682
2021w44	-11,405	-18,188	-4,622
2021w45	-11,482	-18,400	-4,564
2021w46	-11,559	-18,610	-4,509
2021w47	-11,637	-18,817	-4,456
2021w48	-11,714	-19,022	-4,405
2021w49	-11,791	-19,225	-4,357
2021w50	-11,868	-19,426	-4,311
2021w51	-11,946	-19,625	-4,267
2021w52	-12,023	-19,822	-4,224
2022w01	-12,100	-20,017	-4,184
2022w02	-12,177	-20,210	-4,145
2022w03	-12,255	-20,402	-4,108
2022w04	-12,332	-20,592	-4,072
2022w05	-12,409	-20,780	-4,038
2022w06	-12,486	-20,967	-4,006
2022w07	-12,564	-21,153	-3,974

	Point Forecast	95% PI LL	95% PI UL
2022w08	-12,641	-21,337	-3,945
2022w09	-12,718	-21,520	-3,916
2022w10	-12,795	-21,702	-3,889
2022w11	-12,873	-21,883	-3,863
2022w12	-12,950	-22,062	-3,838
2022w13	-13,027	-22,240	-3,814
2022w14	-13,104	-22,417	-3,792
2022w15	-13,182	-22,593	-3,770
2022w16	-13,259	-22,769	-3,749
2022w17	-13,336	-22,943	-3,730

	Point Forecast	95% PI LL	95% PI UL
2022w18	-13,413	-23,116	-3,711
2022w19	-13,491	-23,288	-3,694
2022w20	-13,568	-23,459	-3,677
2022w21	-13,645	-23,630	-3,661
2022w22	-13,722	-23,799	-3,646
2022w23	-13,800	-23,968	-3,632
2022w24	-13,877	-24,136	-3,618
2022w25	-13,954	-24,303	-3,606
2022w26	-14,031	-24,469	-3,594

Appendix 3. Monthly number of registered marriages in the Philippines, January 2017 to May 2021