

Socioeconomic differences in the association between national measures taken to mitigate the COVID-19 pandemic and the number of births in the Netherlands

Lizbeth Burgos Ochoa (1); Márta K. Radó (2-3), Joaquim Vidiella Martin (4-5), Jasper V. Been (2-3).

1. Department of Obstetrics and Gynaecology, Erasmus MC Sophia Children's Hospital, University Medical Centre Rotterdam, Rotterdam, Netherlands; 2. Division of Neonatology, Department of Paediatrics, Erasmus MC Sophia Children's Hospital, University Medical Centre Rotterdam, Rotterdam, Netherlands; 3. Department of Public Health, Erasmus MC, University Medical Centre Rotterdam, Rotterdam, Netherlands; 4. Centre for Health Service Economics and Organisation, Nuffield Department of Primary Health Care Sciences, University of Oxford; 5. Erasmus School of Economics and Tinbergen Institute, Erasmus University Rotterdam, Netherlands

BACKGROUND

- The COVID-19 pandemic and its associated policy responses drastically redraw the world's demographics.
- Little is known on how fertility changed during this pandemic.
- Baby boom vs baby bust.
- Fertility trends during the COVID-19 pandemic might differ between socioeconomic groups within a country.

OBJECTIVES

- 1) Investigate whether the national implementation of COVID-19 mitigation measures in the Netherlands was associated with changes in the incidence of conceptions.
- 2) Investigate whether the association between the national implementation of COVID-19 mitigation measures and changes in the incidence of conceptions varied according to neighbourhood socioeconomic status (SES).
- 3) Investigate whether the national relaxation of COVID-19 mitigation measures in the Netherlands was associated with changes in the incidence of conceptions

METHODOLOGY

Data sources

- **Monthly live births** in the Netherlands dataset by Statistics Netherlands (CBS).
- **Praeventis**: national database containing for babies having undergone neonatal blood spot screening (>99% of live births). **Variables**: date of birth, gestational age, and postcode.
- The Netherlands Institute for Social Research **neighbourhood SES scores** calculated for four-digit postcode areas.

Outcome

Weekly total incidence of conceptions, which will be approximated by the weekly number of conceived live births that underwent neonatal blood spot screening.

Exposure

- **Primary**: Dutch "intelligent lockdown" implemented in the Netherlands on 15th of March 2020, with easing of restrictions per 1st of July 2020.
- **Secondary**: Release of restrictions on 1st of July 2020.

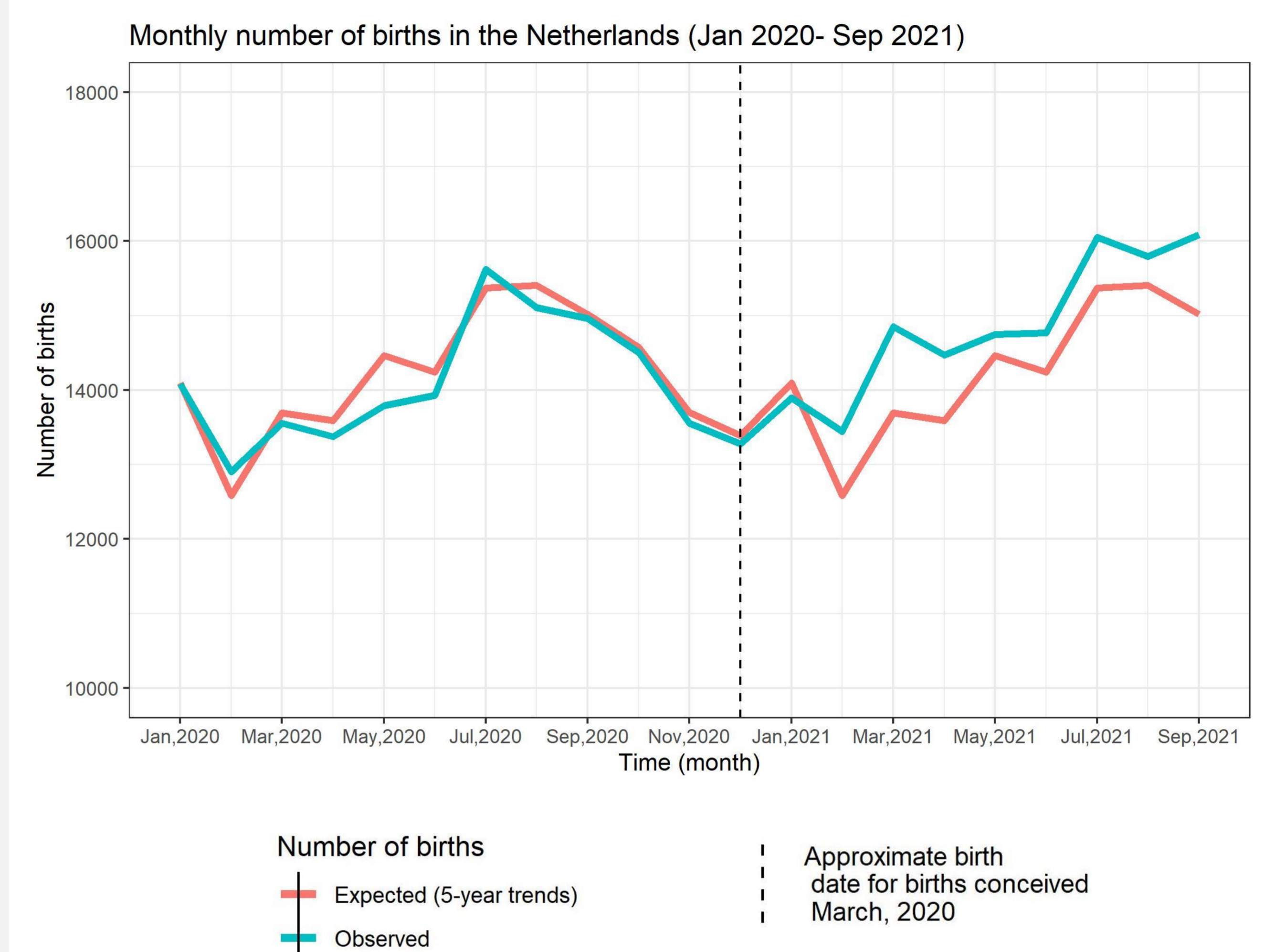
Statistical analysis

- Description of trends in monthly live births in NL.
- Interrupted time series analysis.
 - Step and trend change.
 - Interaction term for SES groups.
 - Harmonic term to account for seasonality.

EARLY-STAGE RESULTS

A higher number of number of (live) births was observed in the Netherlands from February 2021 compared to the trends observed in the previous 5 years (Figure 1).

Figure 1



Data source: Statistics Netherlands (CBS)

STRENGTHS AND LIMITATIONS

Strengths

- National-level weekly data.
- Gestational age available in Praeventis dataset. Preterm births can be taken into account.

Limitations

- Dataset does not contain early pregnancy losses, stillbirths, and very early neonatal deaths.
- Only possible to link records to area-level SES (using postcode). Individual-level SES measures not available.

NEXT STEPS

- Use Praeventis database to investigate whether there was a change in the incidence of conceptions after "intelligent lockdown" (and the release of measures).
- Investigate any potential differences across SES groups.

CONTACT

Lizbeth Burgos Ochoa MSc
Email: l.burgoschoa@erasmusmc.nl