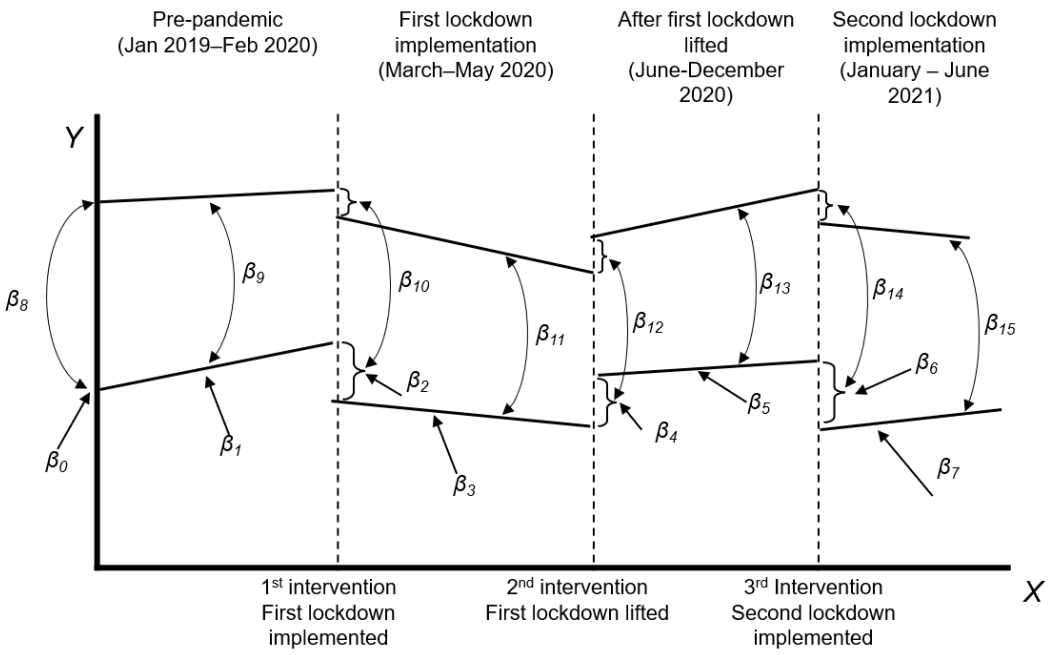

Supplementary Figure 1: Visual depiction of a single group (lower line) and multiple group (upper and lower lines) interrupted time series

Single-group time series analysis

The regression model for single-group time series analysis assumes the following formula:

$$Y_t = \beta_0 + \beta_1 T_t + \beta_2 X_t + B_3 X_t T_t + \beta_4 S_t + B_5 S_t T_t + \beta_6 Z_t + B_7 Z_t T_t + \epsilon_t$$

where;

Y_t is the aggregated outcome variable measured at each equally spaced time point *t*

β_0 represents the estimated outcome variable at the beginning of the pre-pandemic period

β_1 is the slope (trend) of the outcome variable over the pre-pandemic period

T_t represents the time since the start of the study

β_2 represents the level of change in the outcome variable immediately after the implementation of the first lockdown in March 2020, which is represented by X_t

X_t is the indicator variable representing the first intervention

β_3 represents the difference in slopes of the outcome variable between the pre-pandemic and first lockdown period

X_tT_t is an interaction term (first intervention)

β_4 represents the level of change in the outcome variable immediately after the lifting of the first lockdown in June 2020, which is represented by S_t

β_5 represents the difference in slopes of the outcome variable between the pandemic period during the first lockdown period and after lifting of the first lockdown period

S_t is the indicator variable representing the second intervention

S_tT_t is an interaction term (second intervention)

B_6 represents the level of change in the outcome variable immediately after the implementation of the second lockdown in January 2021, which is represented by Z_t

β_7 represents the difference in slopes of the outcome variable between the pandemic period after lifting of the first lockdown and the second lockdown period

Z_t is the indicator variable representing the third intervention

Z_tT_t is an interaction term (third intervention)

ϵ_t represents the error term

Multiple-group (urban-rural) time series analysis

The regression model for multiple-group time series analysis assumes the following formula:

$$Y_t = \beta_0 + \beta_1 T_t + \beta_2 X_t + B_3 X_t T_t + \beta_4 S_t + B_5 S_t T_t + \beta_6 Z_t + B_7 Z_t T_t + \beta_8 Q + \beta_9 Q T_t + \beta_{10} Q X_t + B_{11} Q X_t T_t + \beta_{12} Q S_t + B_{13} Q S_t T_t + \beta_{14} Q Z_t + B_{15} Q Z_t T_t \epsilon_t$$

Where;

The variables Y_t until Z_tT_t are similar to previously described in single-group analysis, for rural areas

Q is a dummy variable to denote the cohort assignment of urban group

β_8 represents the difference in the level (intercept) of the outcome variable between urban and rural areas prior to intervention

β_9 represents the difference in the slope (trend) of the outcome variable level between urban and rural areas over the pre-pandemic period

β_{10} represents the difference in level of change in the outcome variable between urban and rural areas immediately after the implementation of the first lockdown in March 2020

β_{11} represents the difference between urban and rural areas in the slope (trend) of the outcome variable after implementation of first lockdown in March 2020, compared with pre-pandemic period

β_{12} represents the difference in level of change in the outcome variable between urban and rural areas immediately after the lifting of the first lockdown in June 2020

β_{13} represents the difference between urban and rural areas in the slope (trend) of the outcome variable after the lifting of first lockdown in June 2020, compared with when first lockdown was implemented

β_{14} represents the difference in level of change in the outcome variable between urban and rural areas immediately after the implementation of second lockdown in January 2021

β_{15} represents the difference between urban and rural areas in the slope (trend) of the outcome variable after the implementation of second lockdown in January 2021, compared with when first lockdown was lifted