COVID-19: Period shock or new mortality regime?

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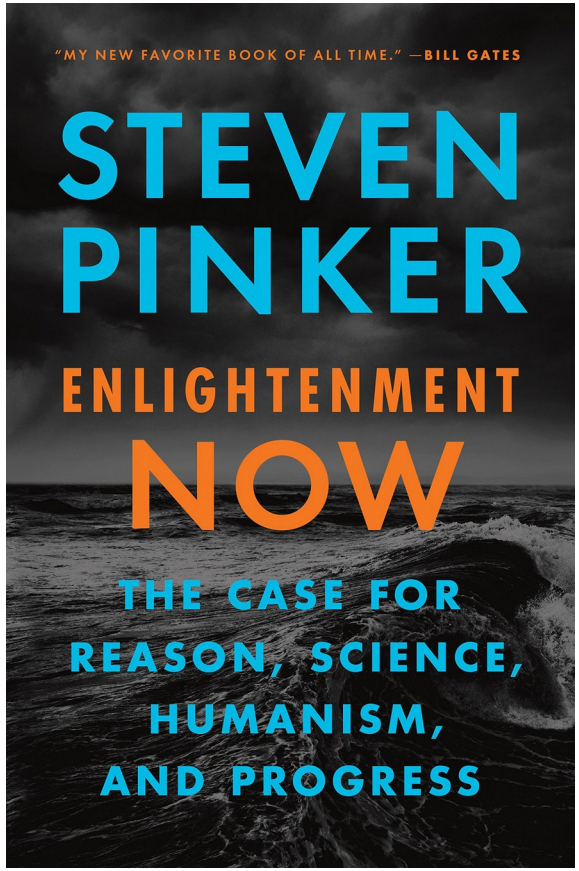
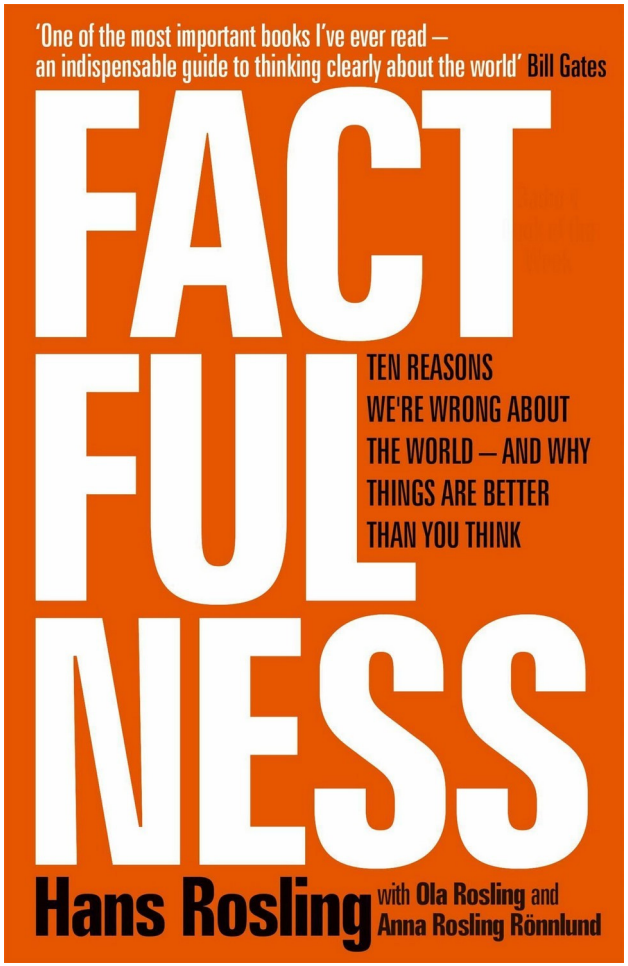
FOR DEMOGRAPHIC RESEARCH

e0 as a measure of current population health

Schöley & Aburto etal. (2021). Quantifying impacts of the COVID-19 pandemic through life expectancy losses. 10.1093/ije/dyab207

Increasing e0 as socio-political legitimizer



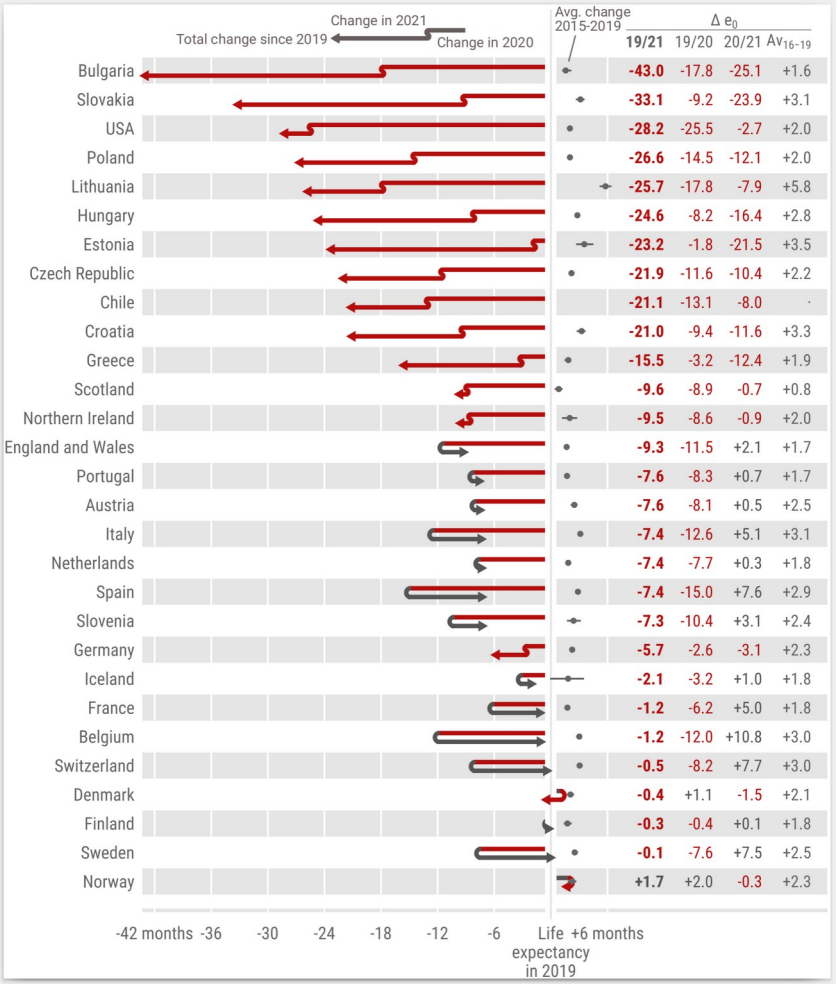


Max Rosling (1948-2017)

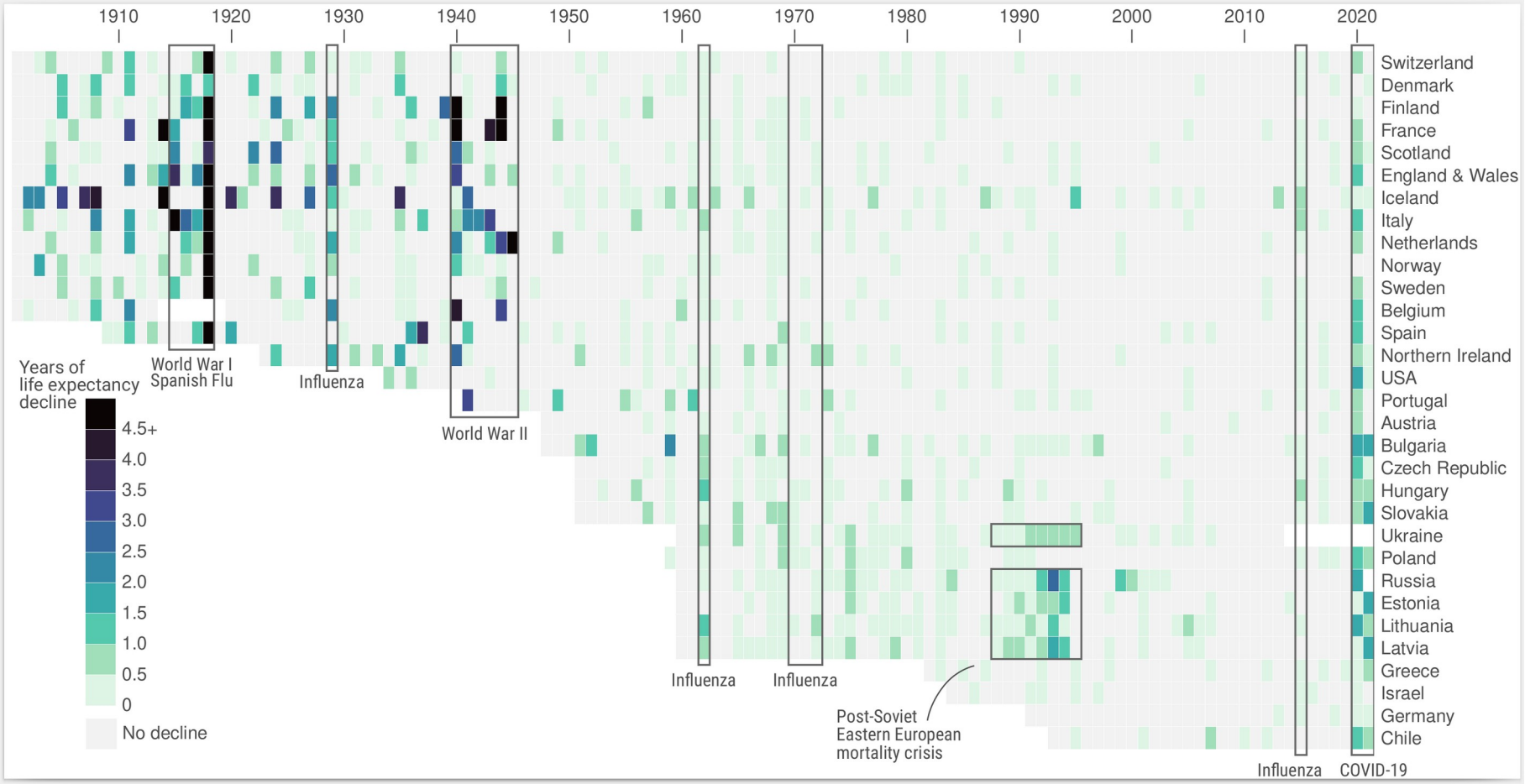
Mortality drops and bounce-backs

Life expectancy changes since 2019

Schöley etal. (2022). Life expectancy changes since COVID-19. 10.1038/s41562-022-01450-3



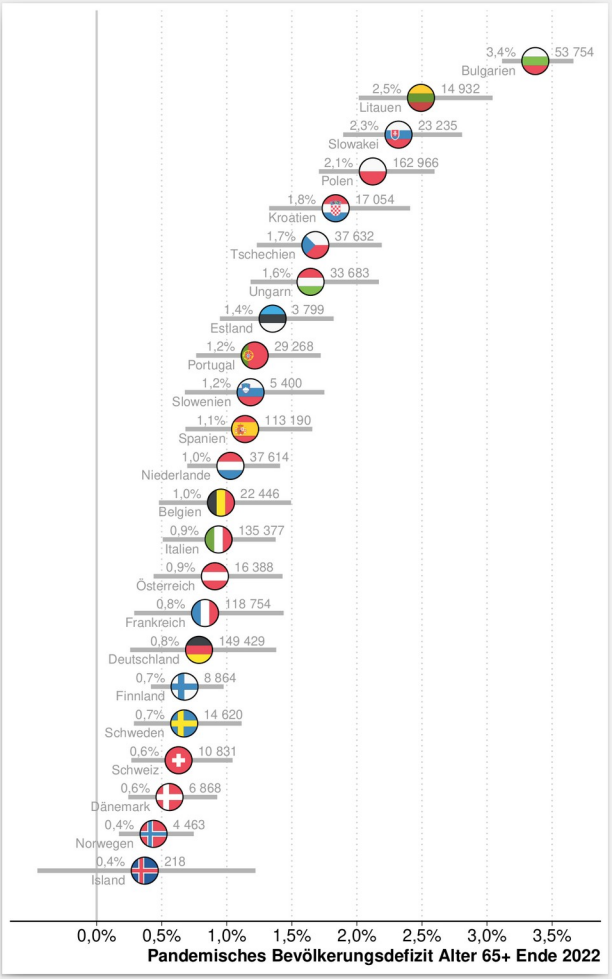
Mortality drops and bounce-backs



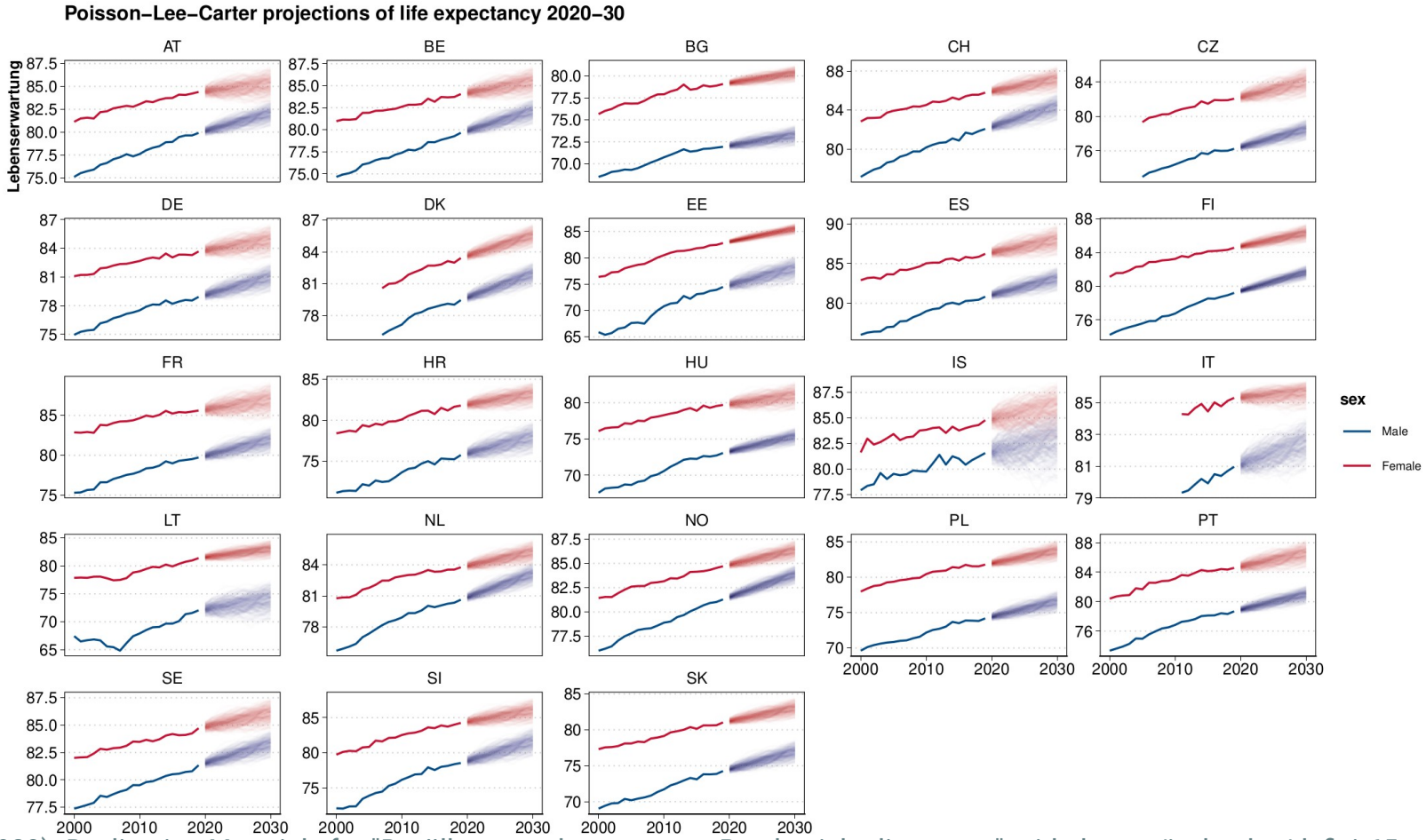
Schöley etal. (2022). Life expectancy changes since COVID-19. 10.1038/s41562-022-01450-3

Mortality drops and bounce-backs

Schöley (2023). Bevölkerungsalterung unter Pandemiebedingungen. 10.2478/wd-2023-0038



Deviations from trends



Schöley etal. (2023). Replication Materials for "Bevölkerungsalterung unter Pandemiebedingungen". github.com/jschoeley/deficit65

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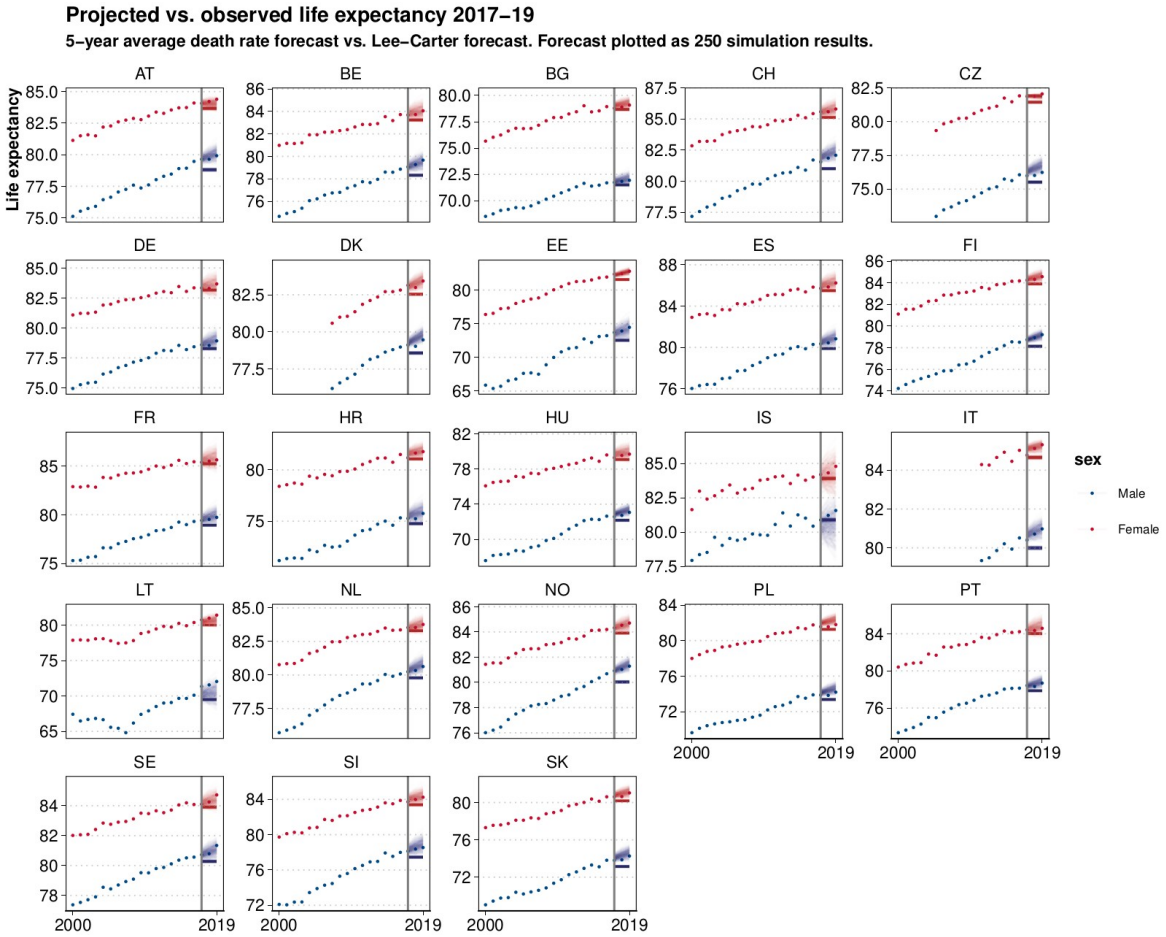

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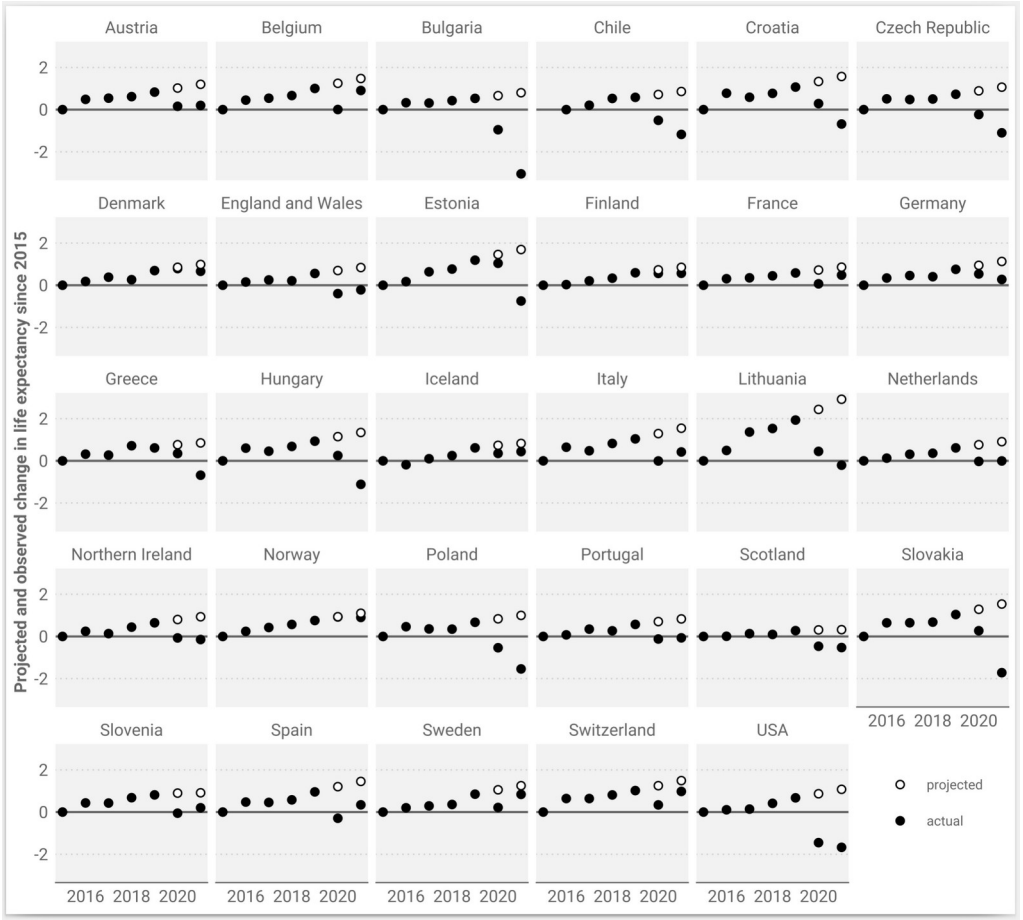
Deviations from trends

Life expectancy deficits
observed vs. forecast
life expectancy

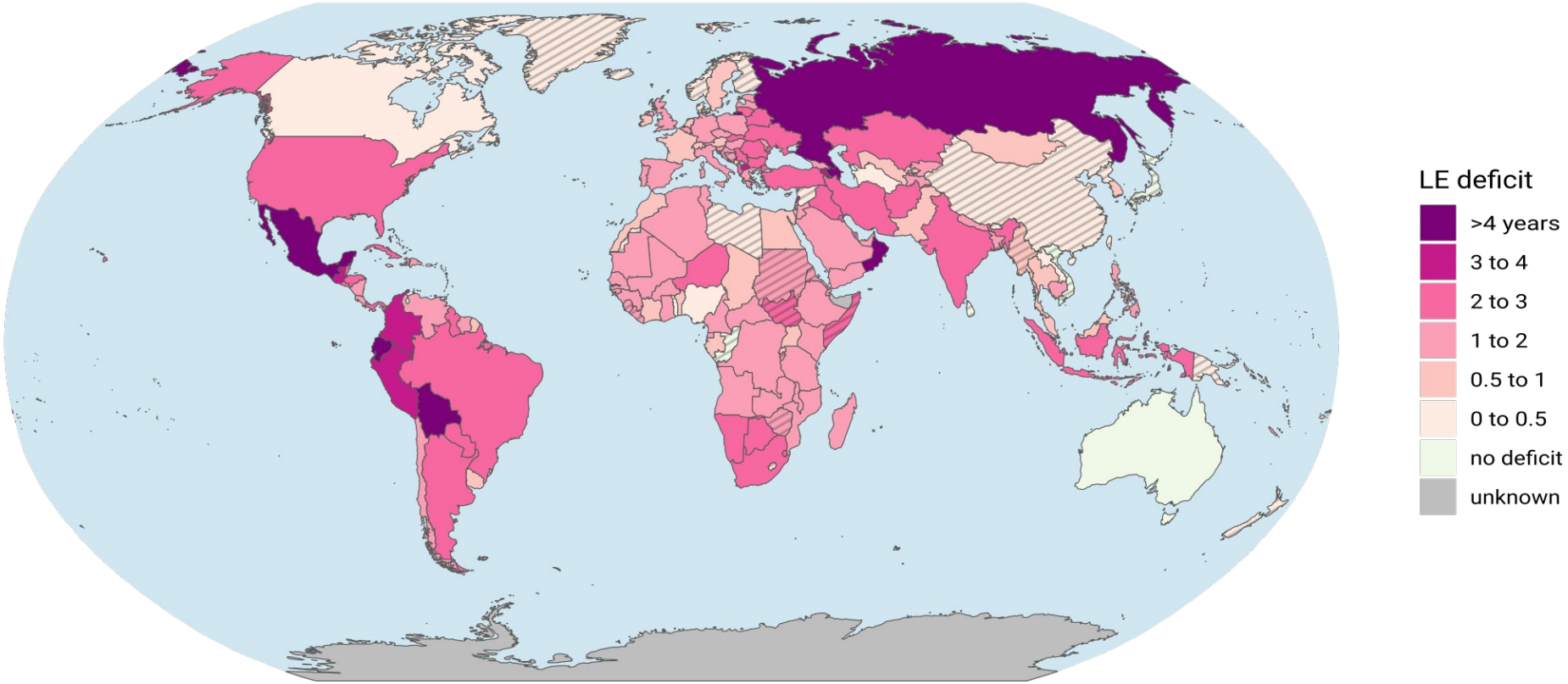


Schöley etal. (2022). Life expectancy changes since COVID-19. 10.1038/s41562-022-01450-3

Deviations from trends

Life expectancy deficits 20/21

Derived from WPP2022 via Poisson-Lee-Carter counterfactual. Hatching indicates non-significant deficit.



Schöley (2023). Global life expectancy deficits 20/21. github.com/jschoeley/lifetablesglobal

Deviations from trends

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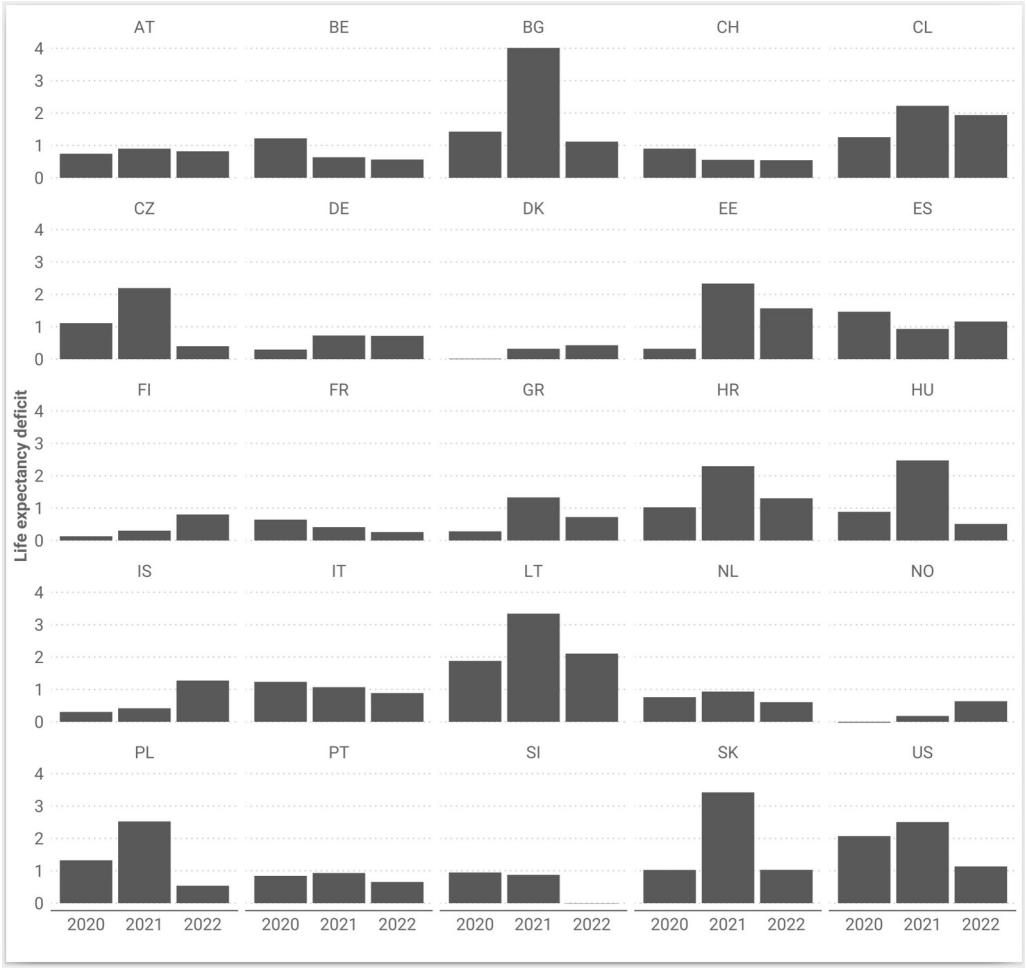
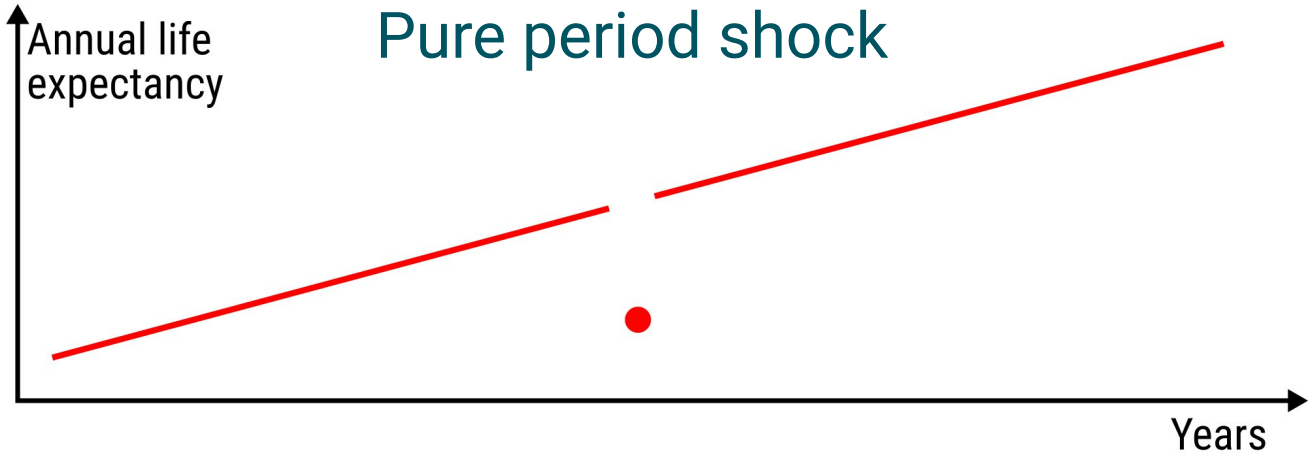


Signatures of mortality regime changes



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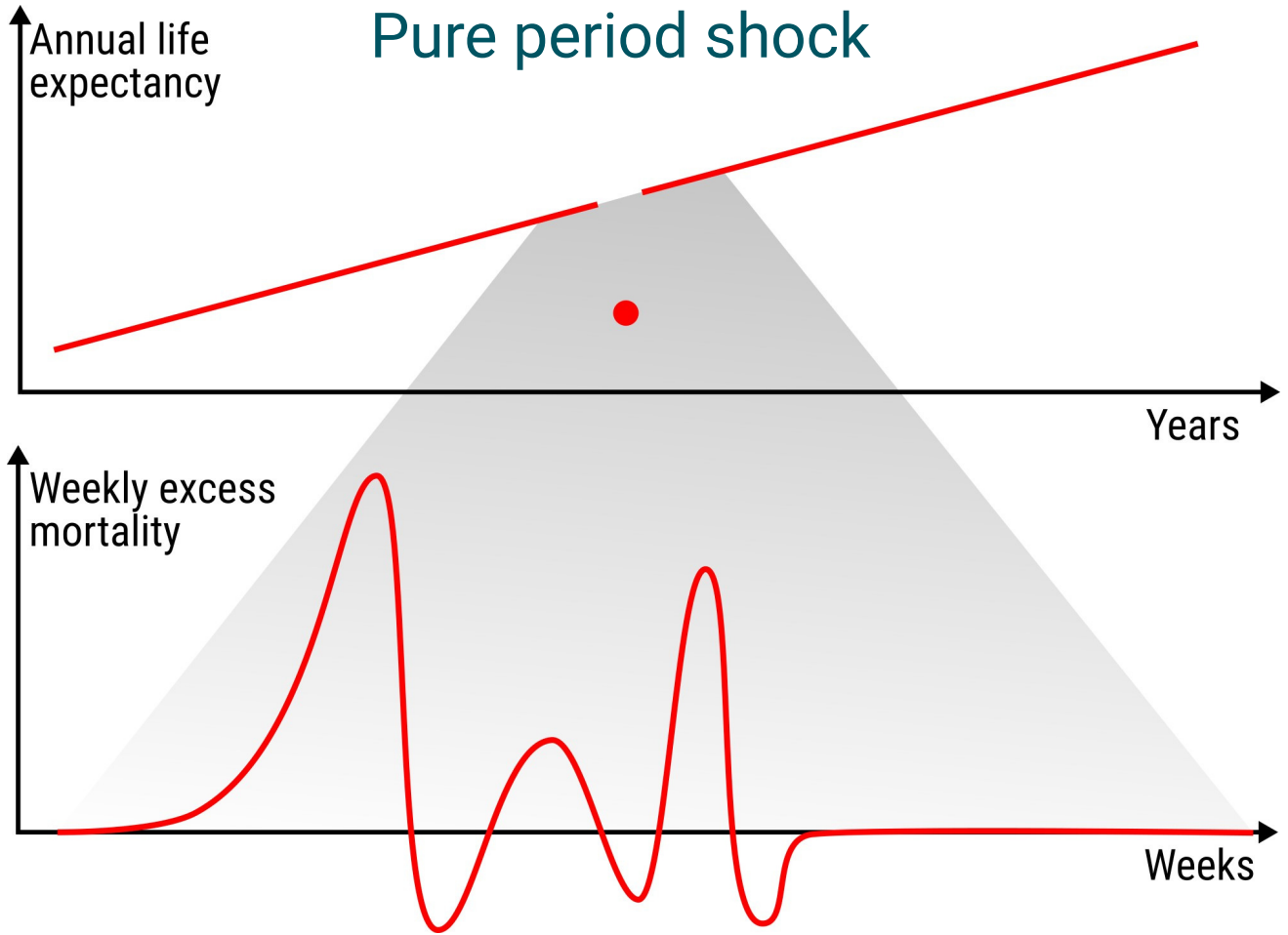

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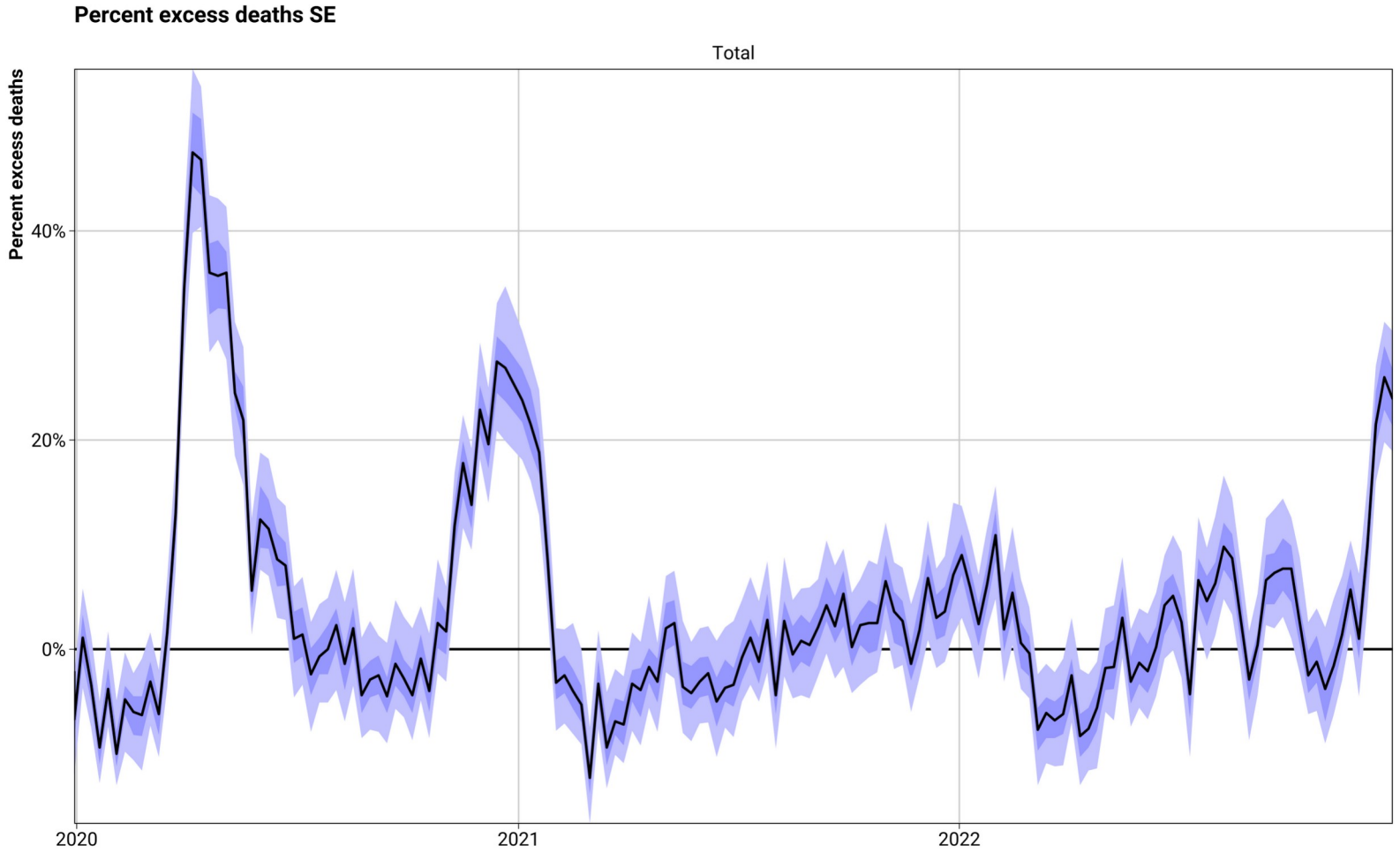

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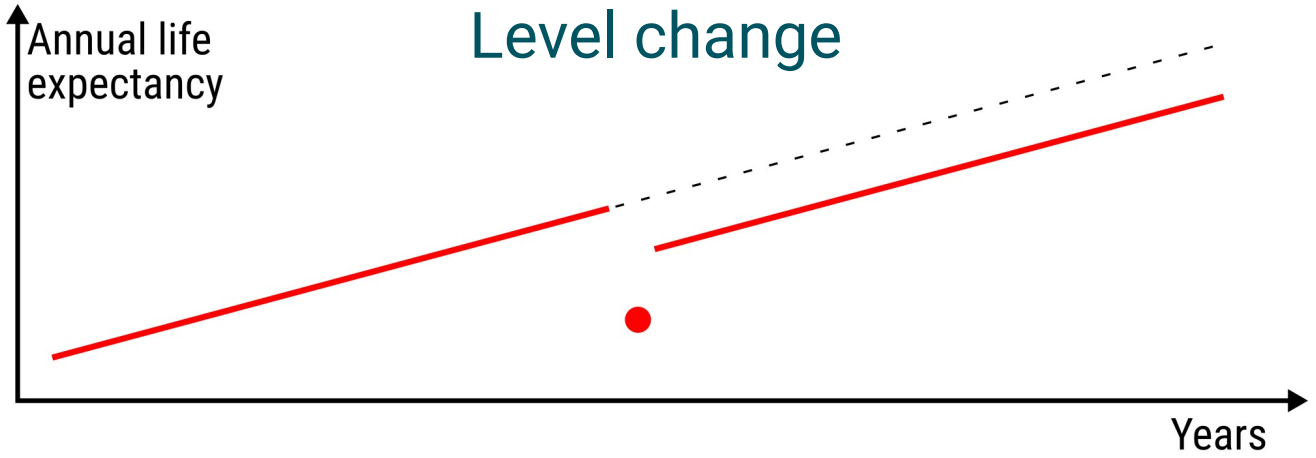

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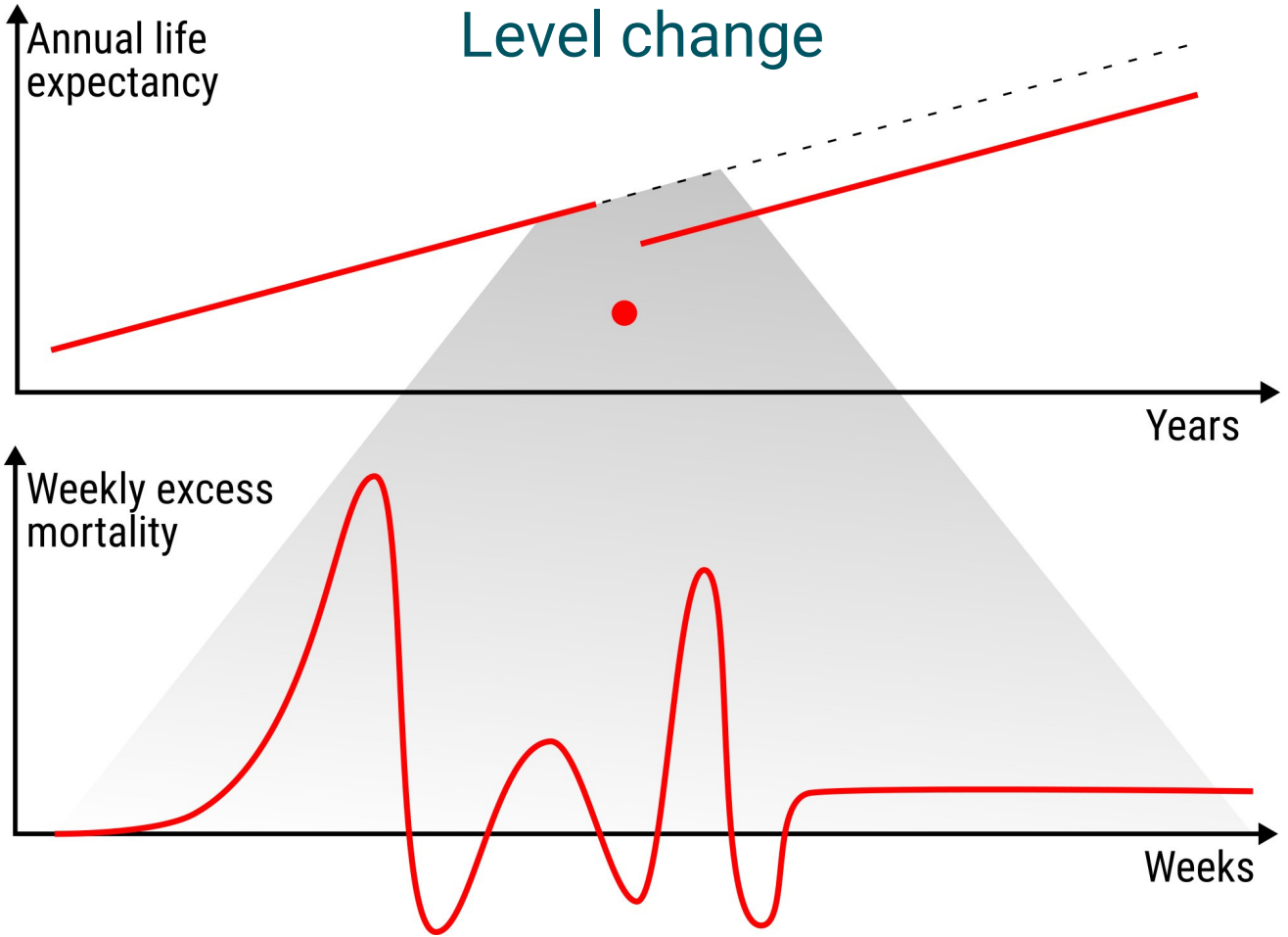

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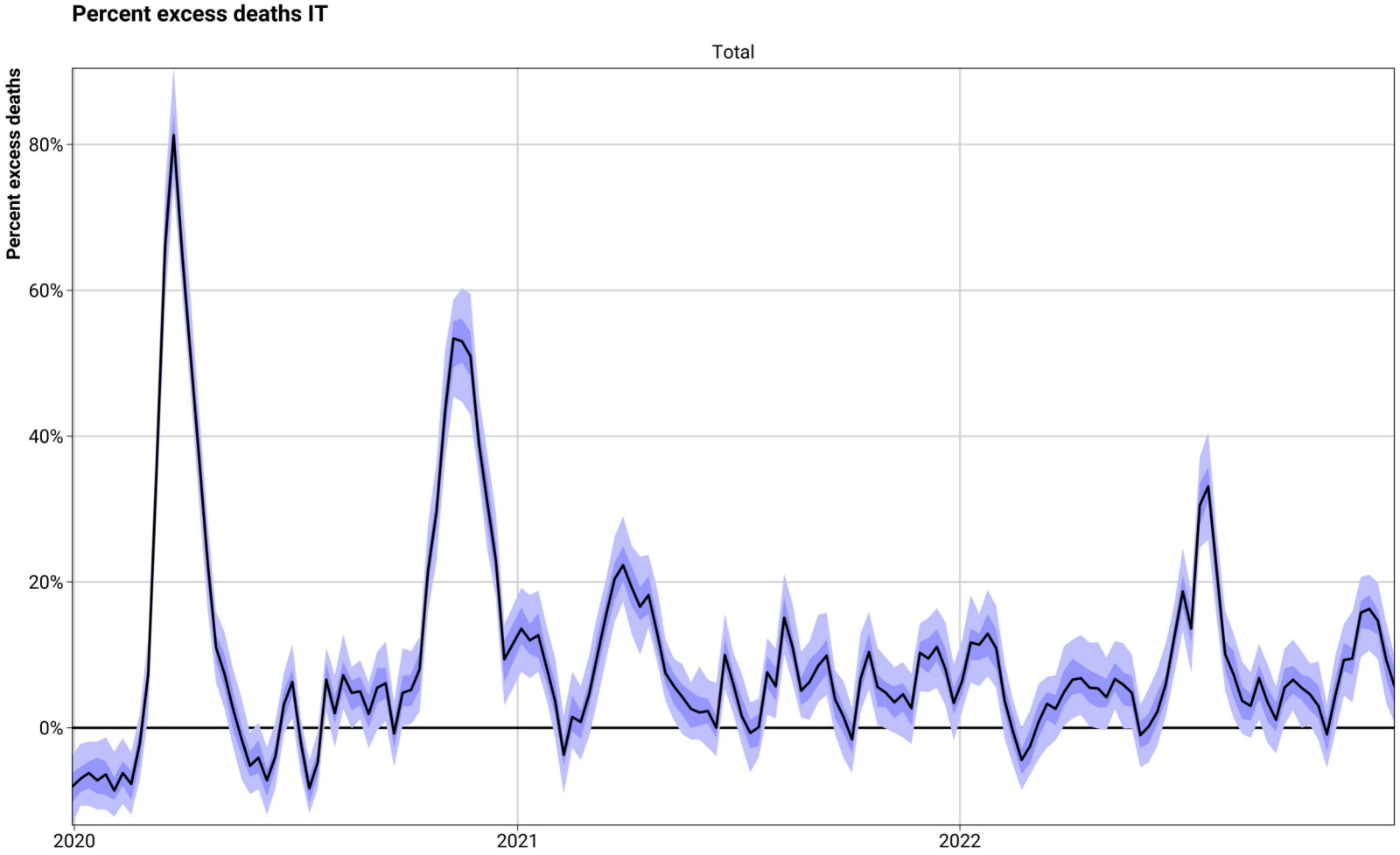

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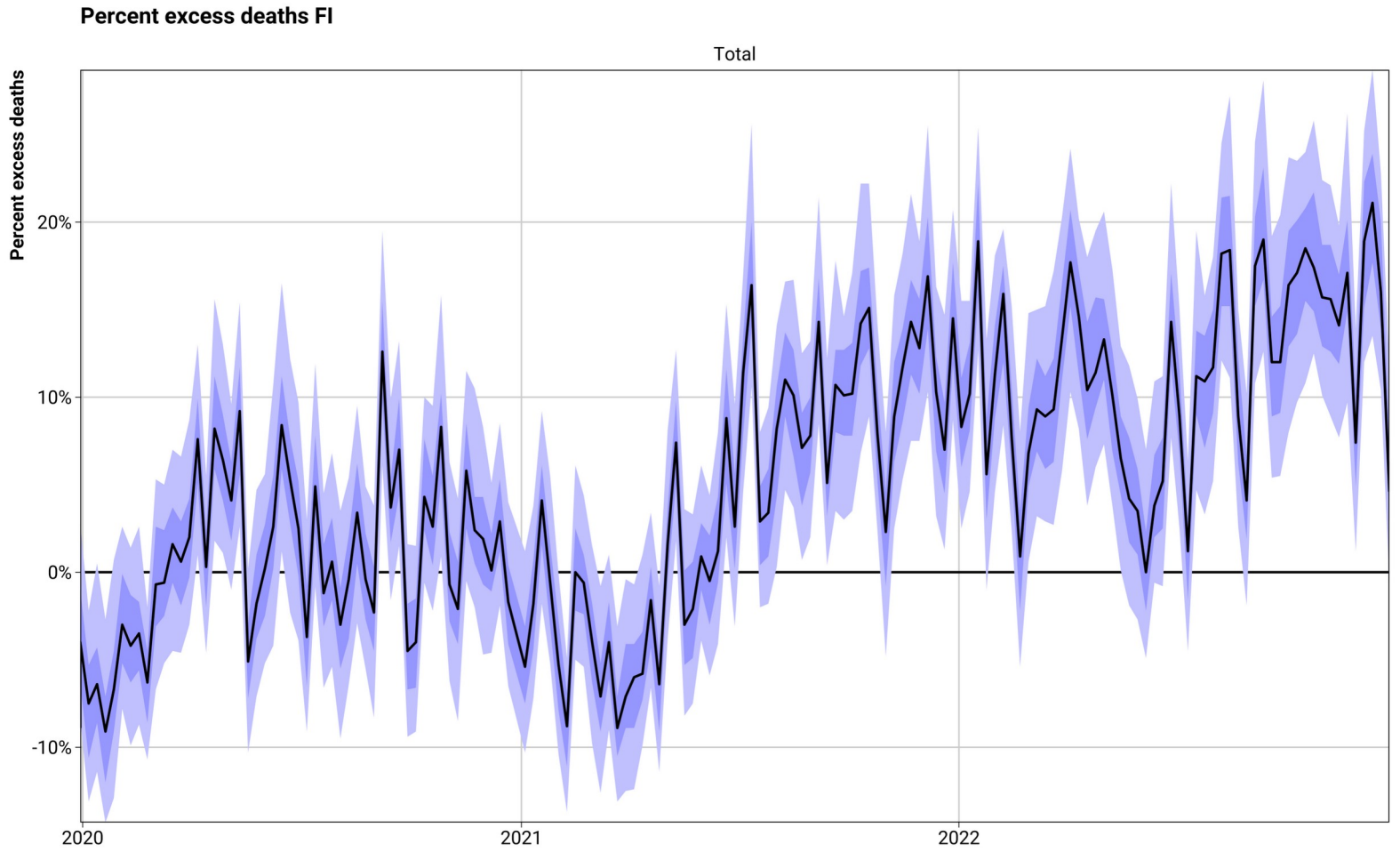

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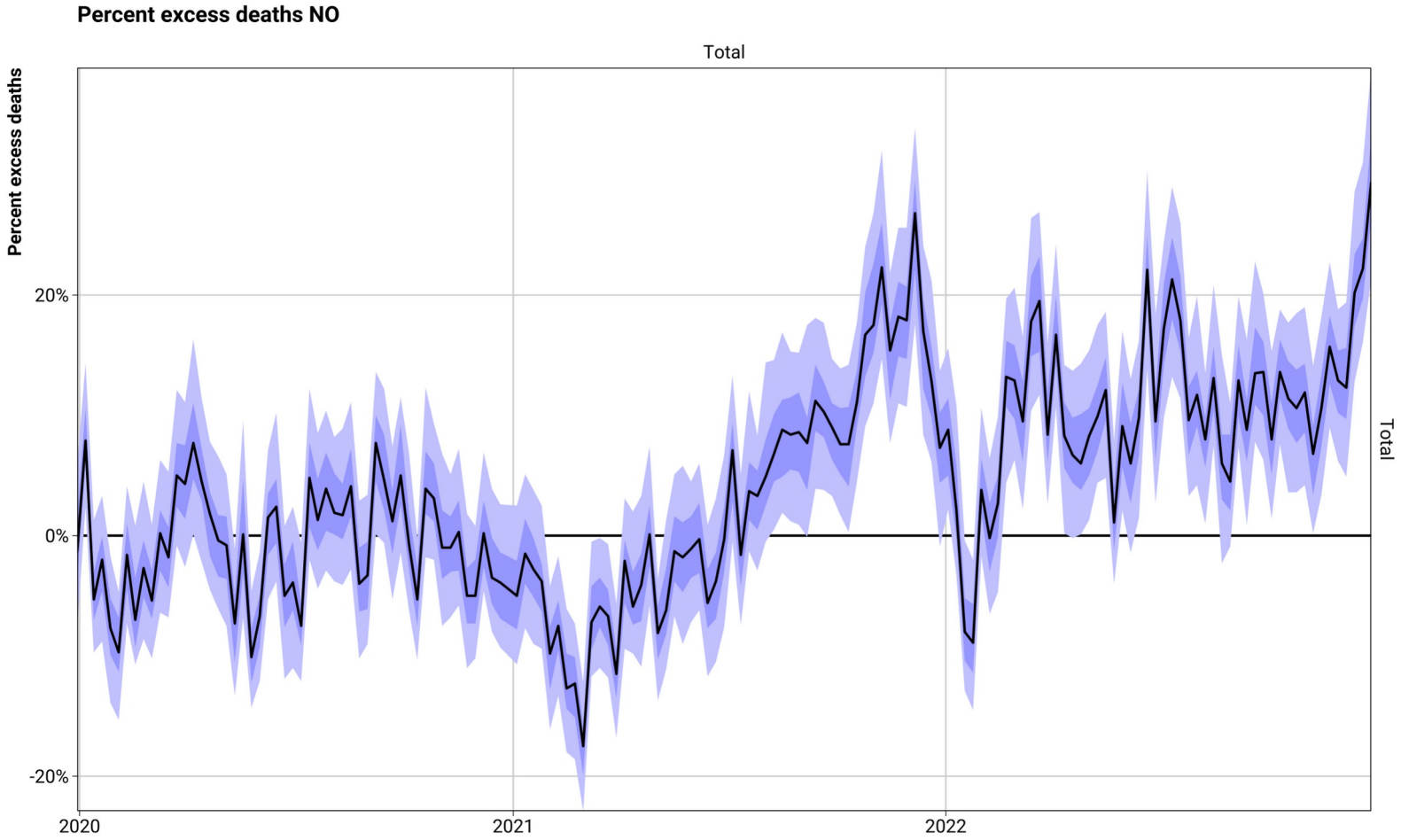

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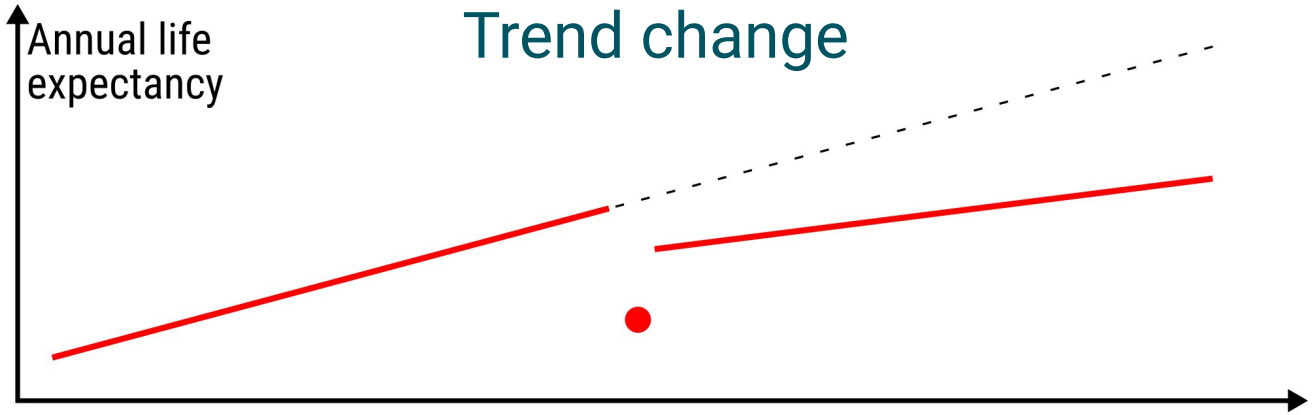

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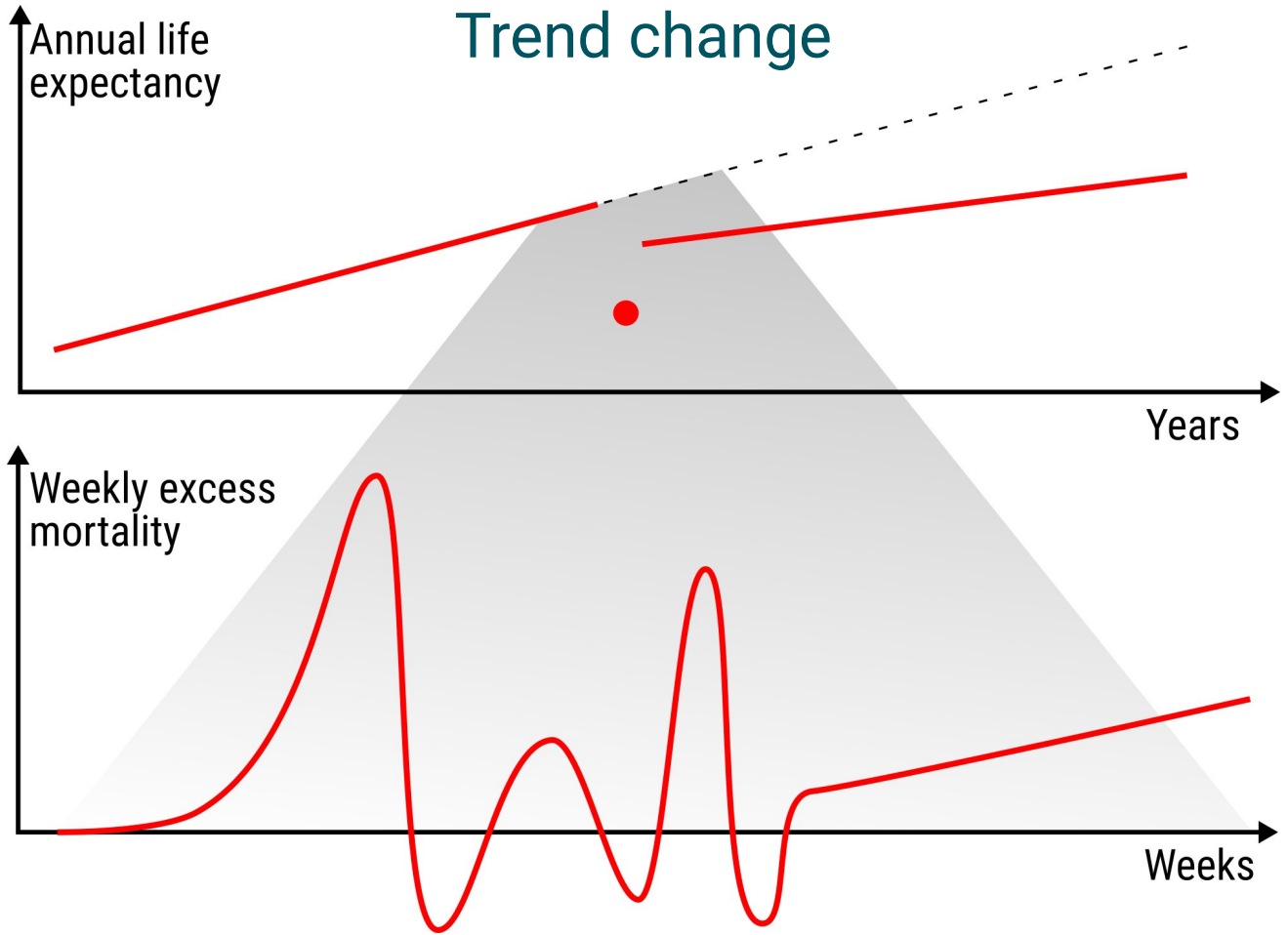

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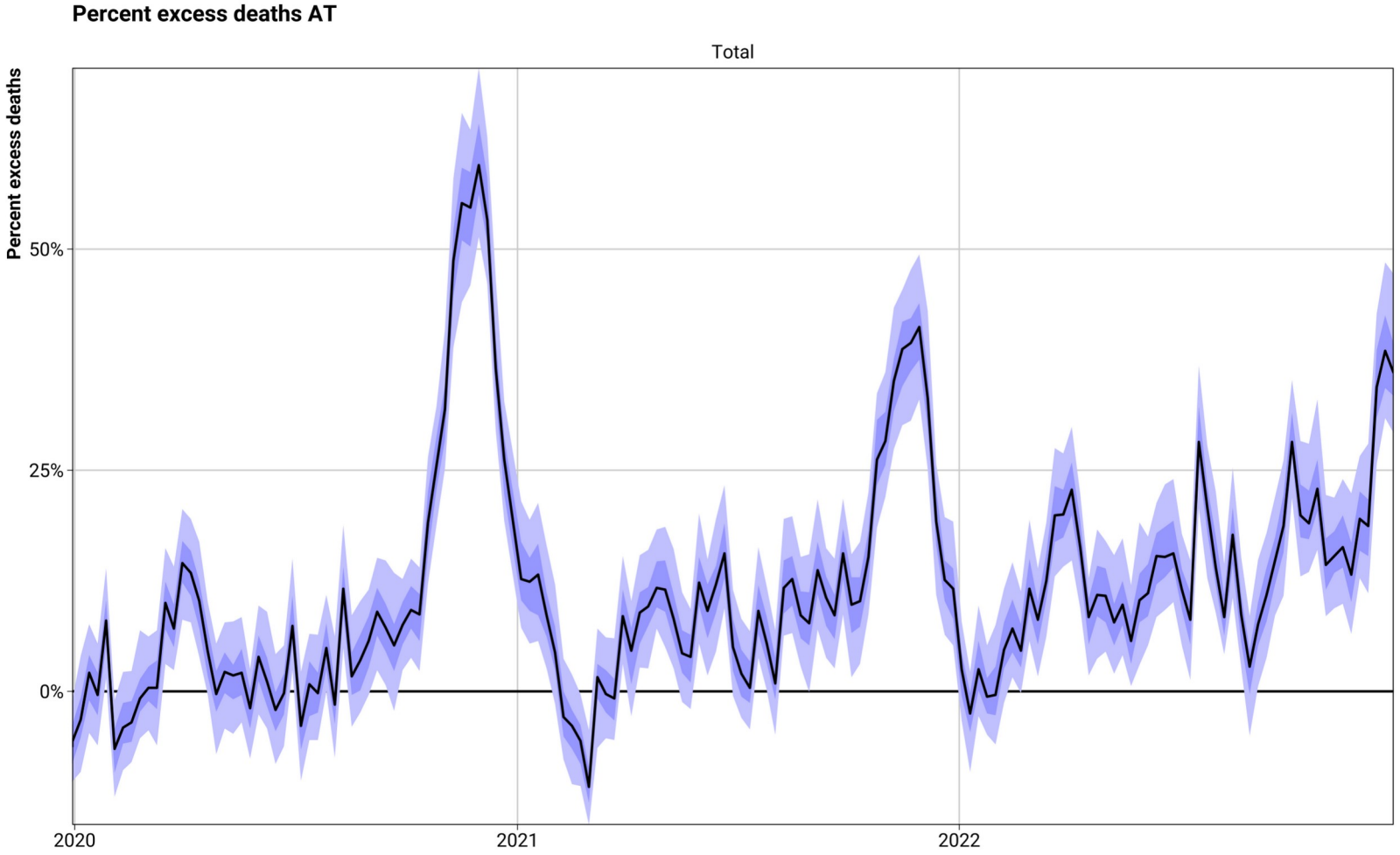
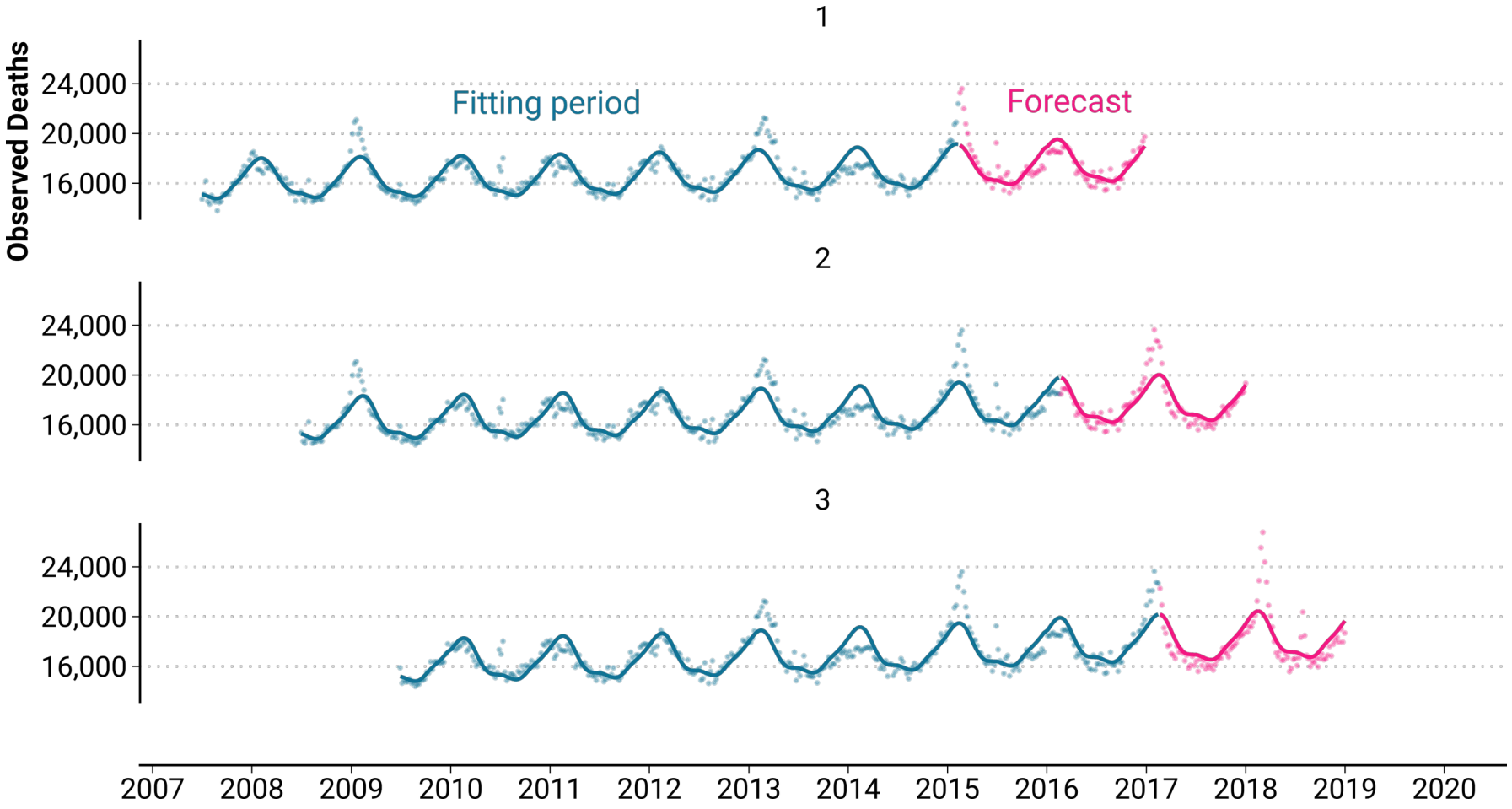


Can we detect a 10% excess 3 years into C19?



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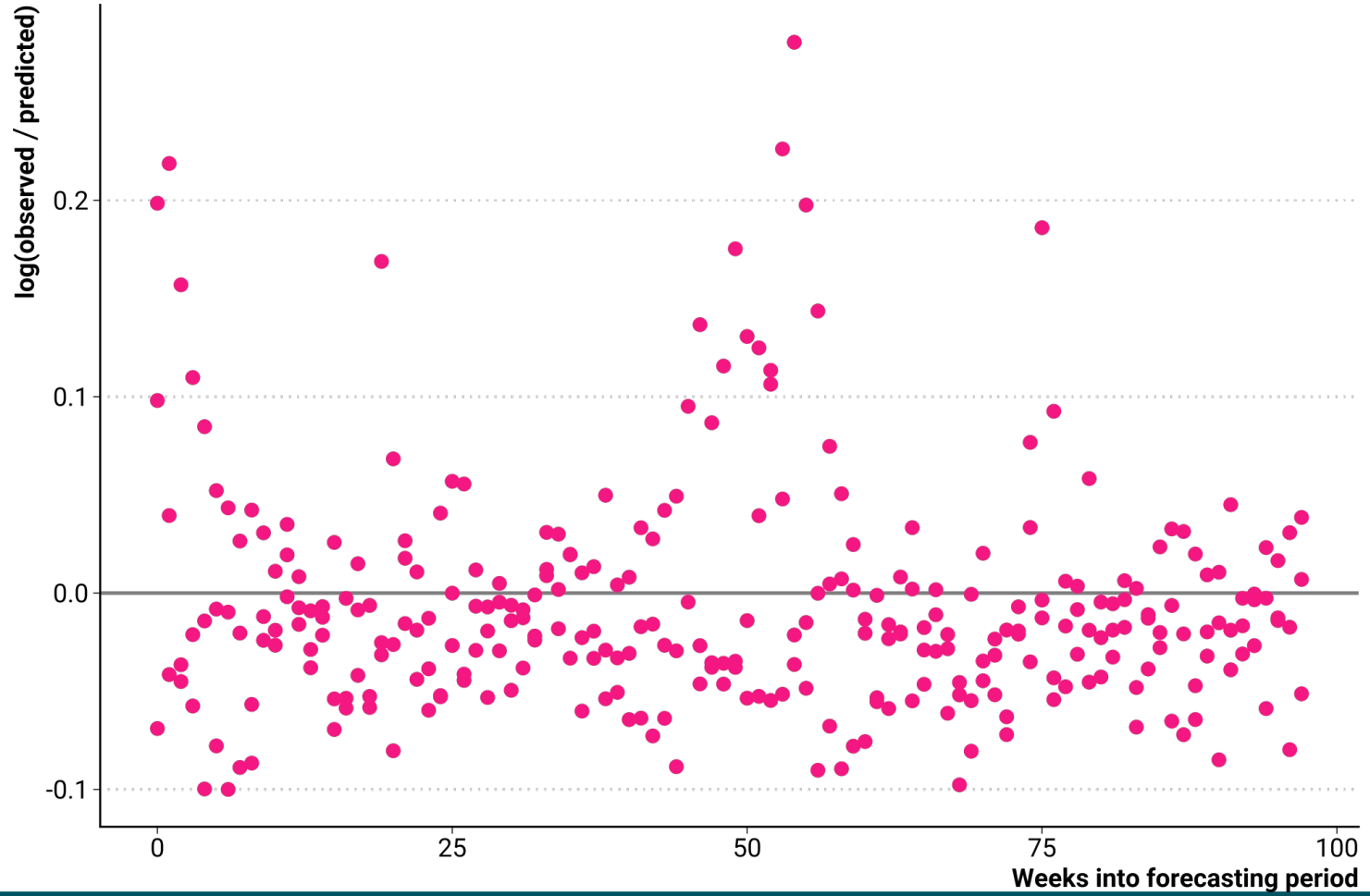

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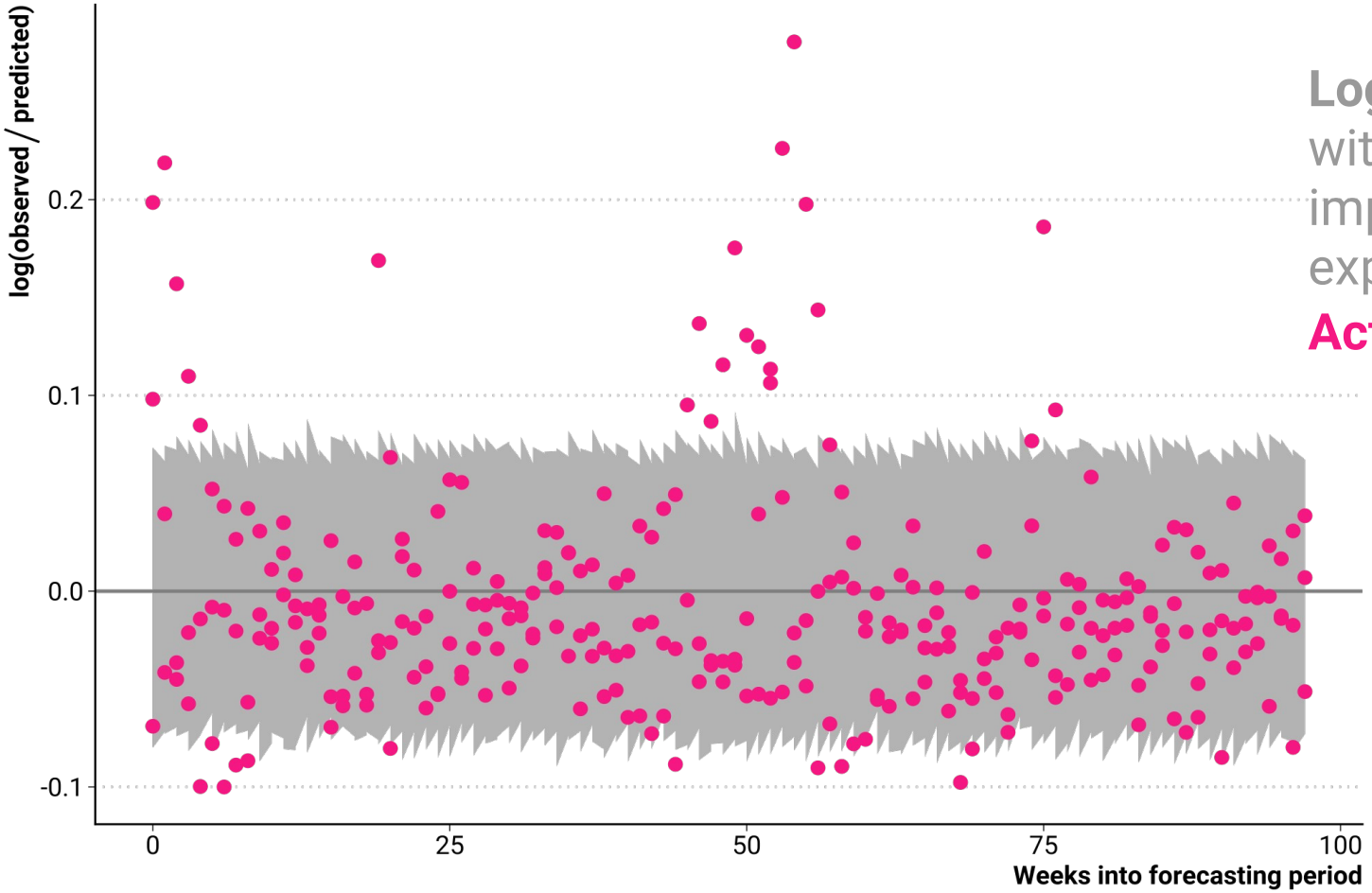
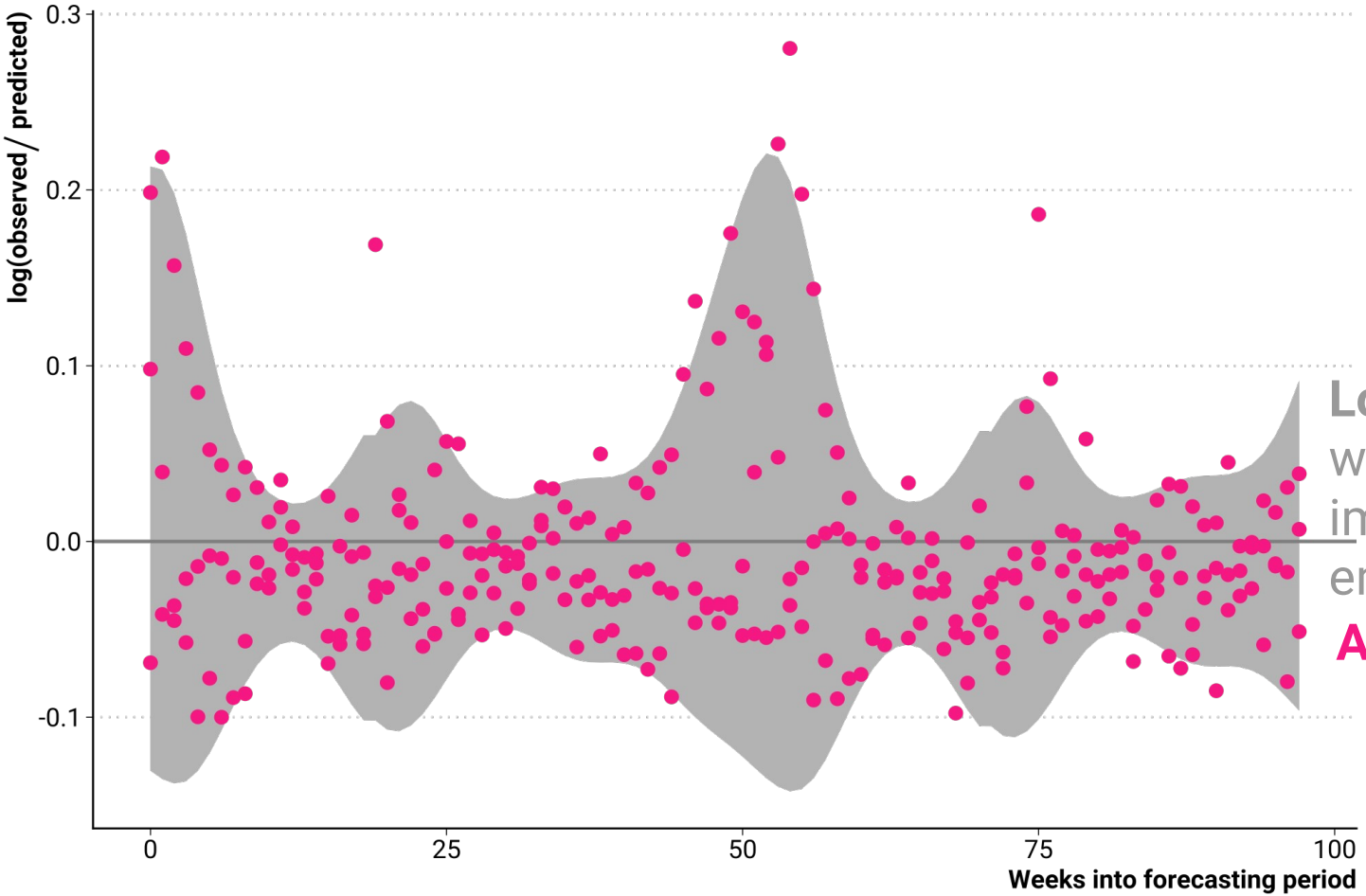


Log prediction error region with **90% nominal coverage** implied by NegBin-GAM expected deaths model

Actual coverage ~87%

Can we detect a 10% excess 3 years into C19?



log (observed/predicted) ~ Skewed-Normal(μ_t, σ_t, v_t)

$\mu_t = b_{\mu 0}$

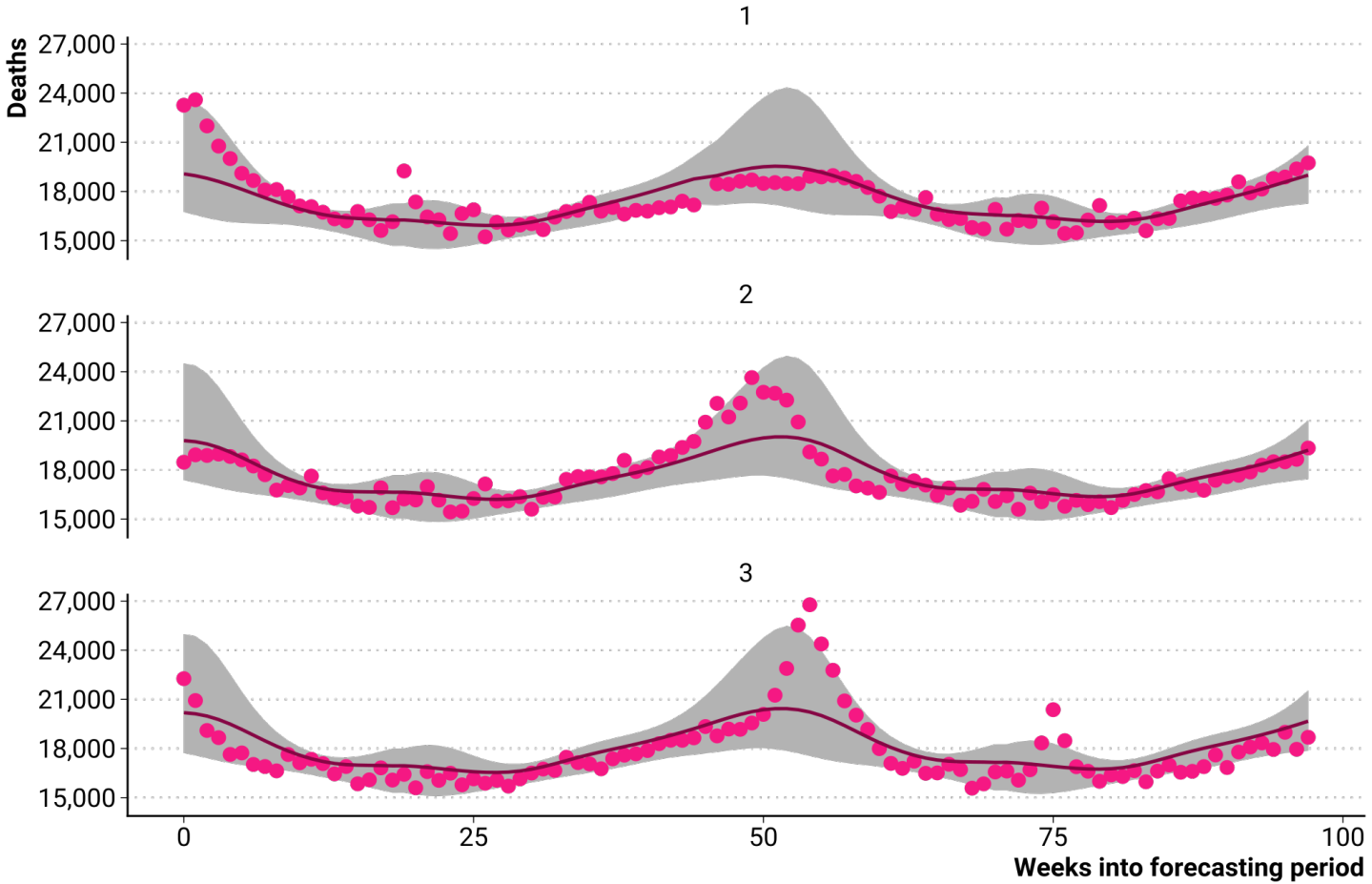
$\sigma_t = \exp(b_{\sigma 0} + b_{\sigma t} t + s_\sigma(t))$

$v_t = b_{v0} + s_v(t)$

Log prediction error region with **90% nominal coverage** implied by Skewed-Normal empirical prediction intervals

Actual coverage ~92%

Can we detect a 10% excess 3 years into C19?



Prediction interval with **90% nominal coverage** via Skewed-Normal empirical error model

Actual coverage ~92%

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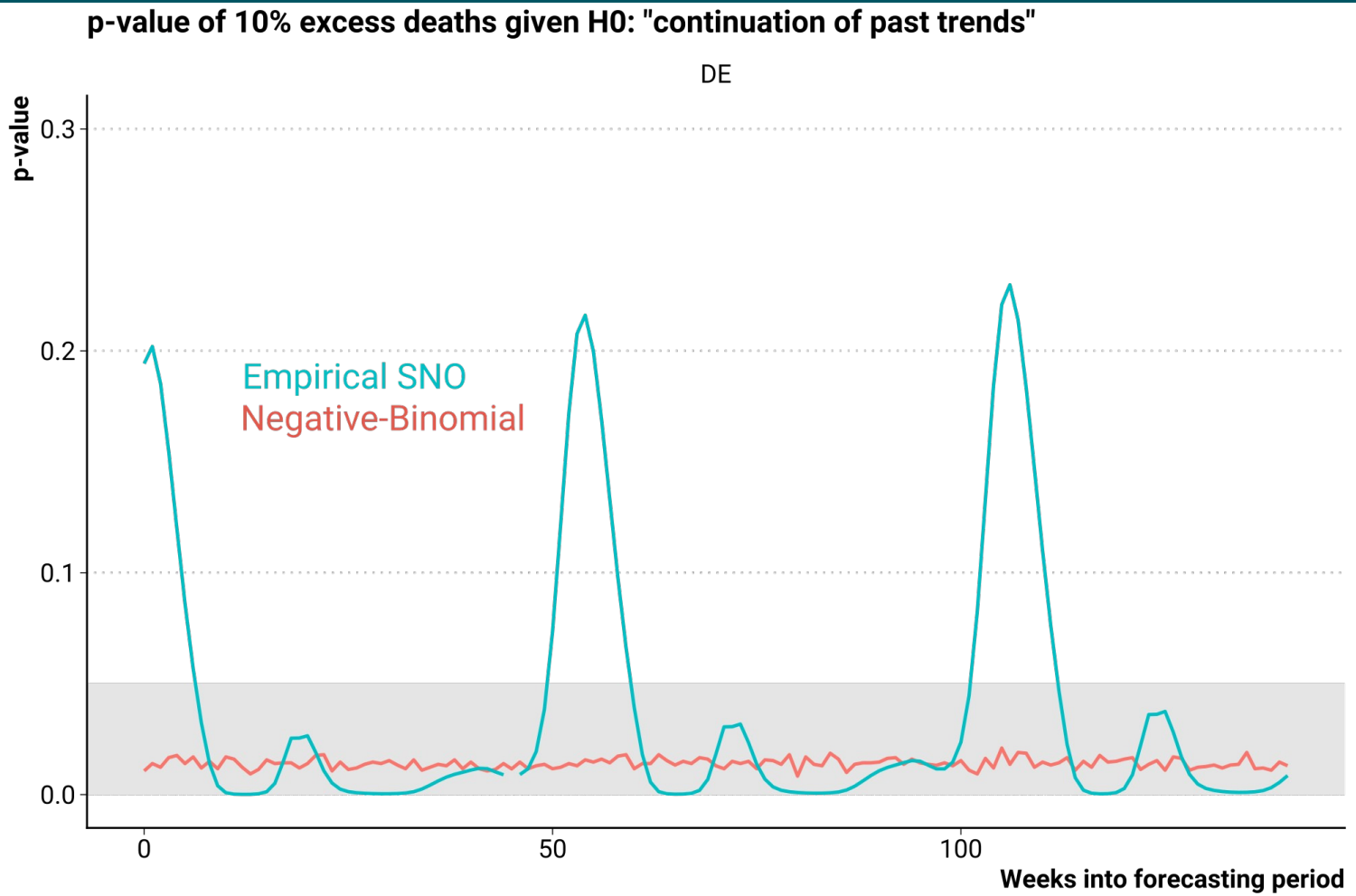
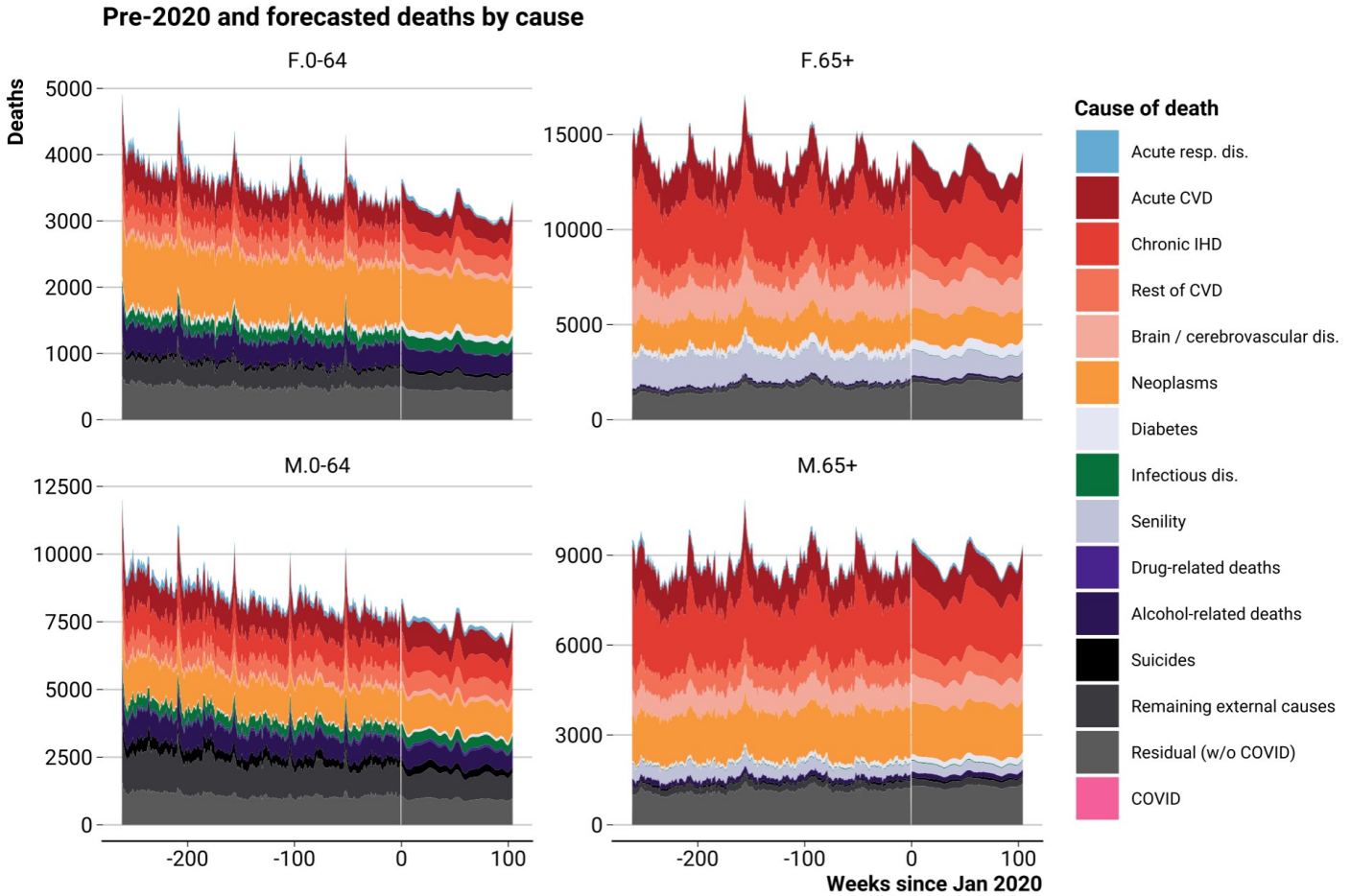


Can causes of death be informative of trend changes?



Schöley (2023). XCOD: coherent prediction of expected deaths by cause. github.com/jschoeley/xcod

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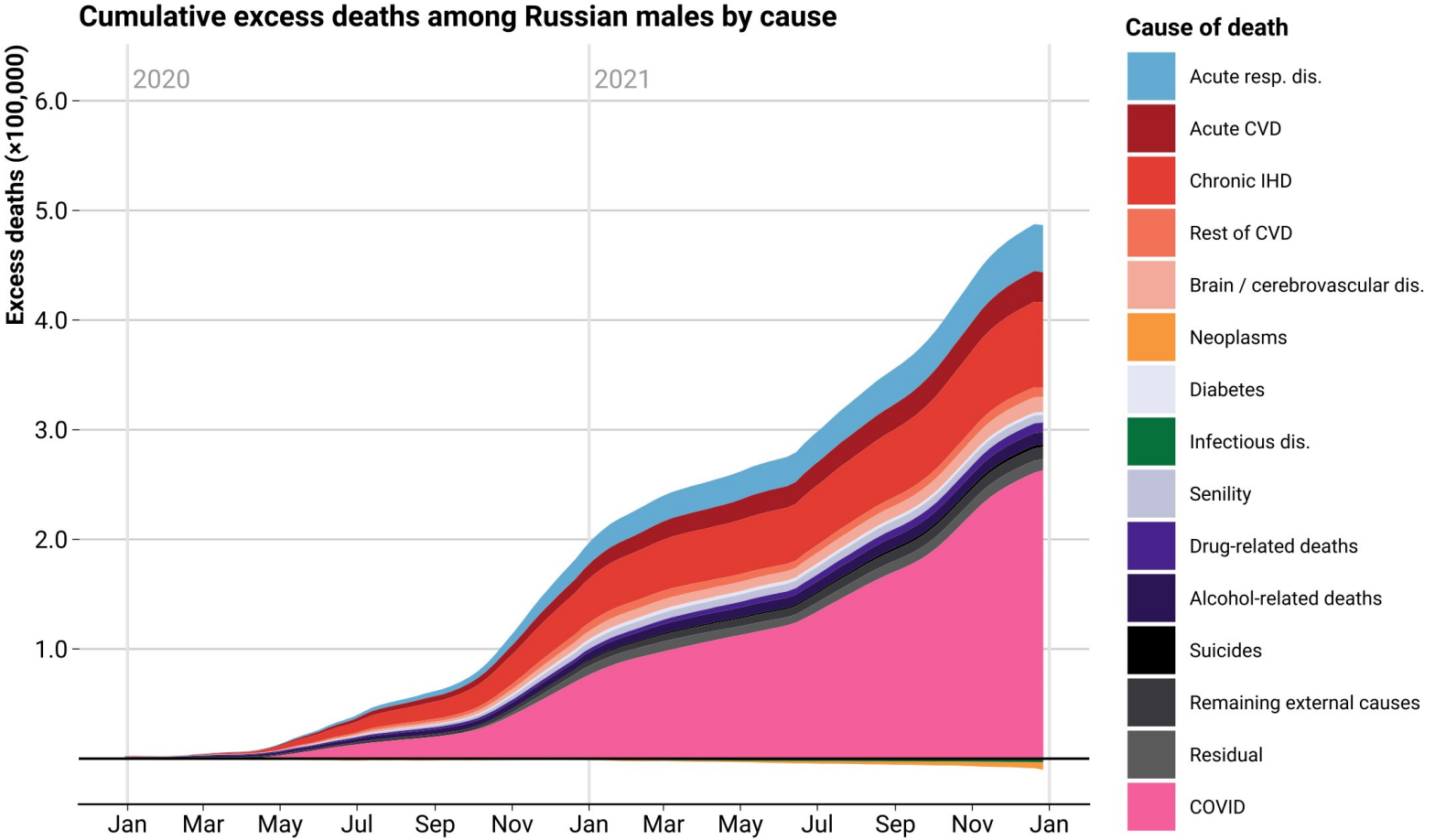

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