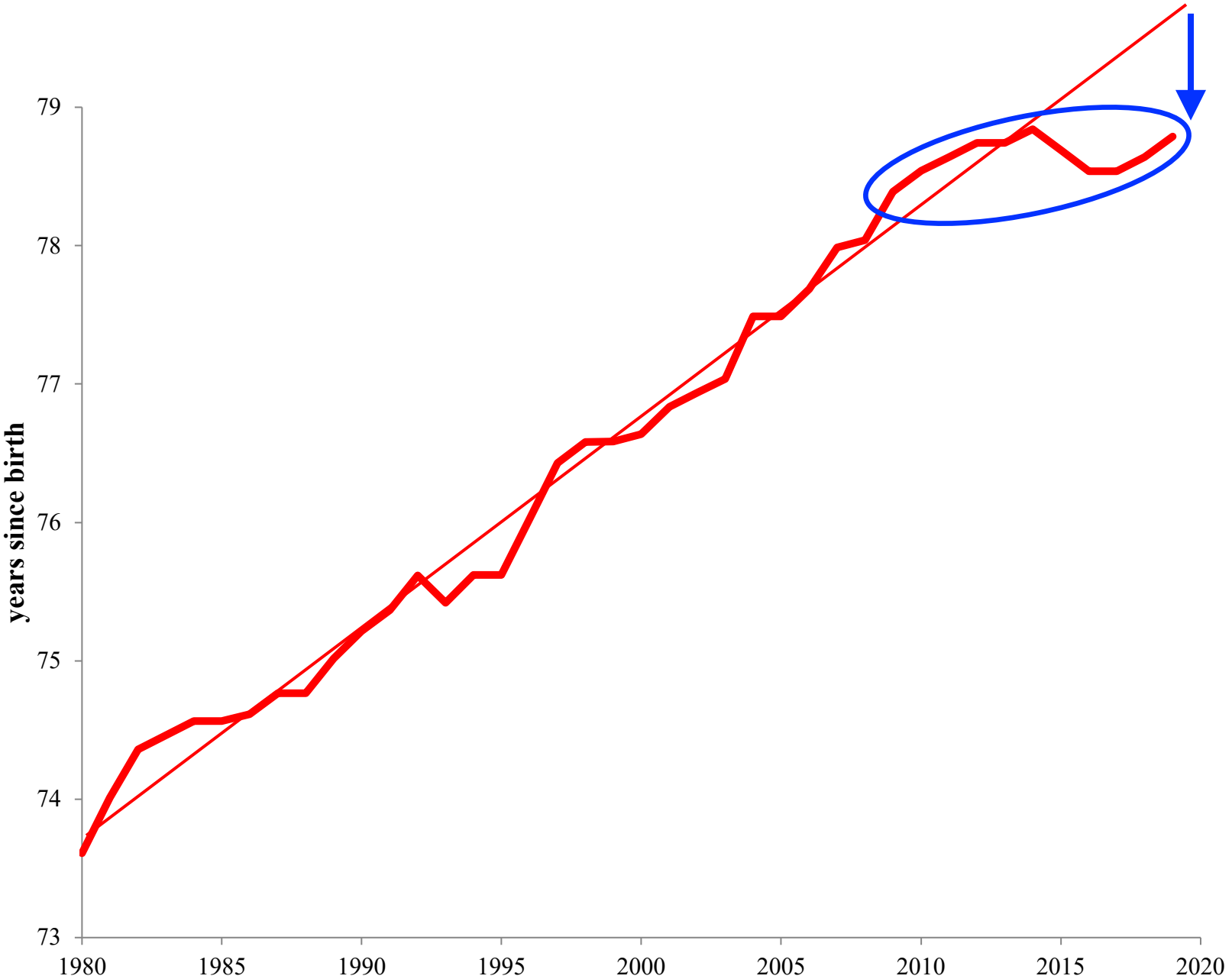
Opioid Prices and the Dynamics of Public Health

January 2023

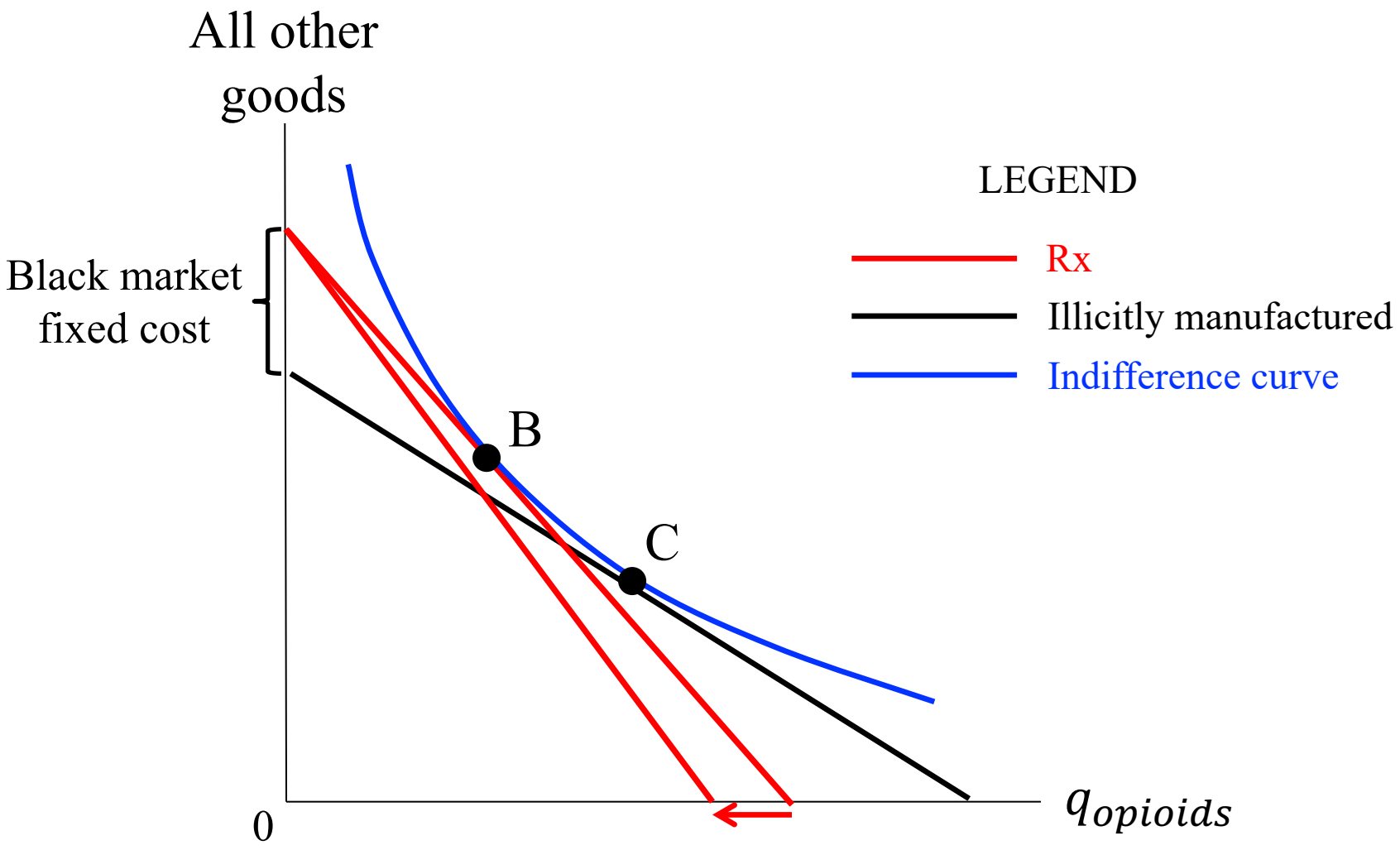
U.S. Life Expectancy through 2019



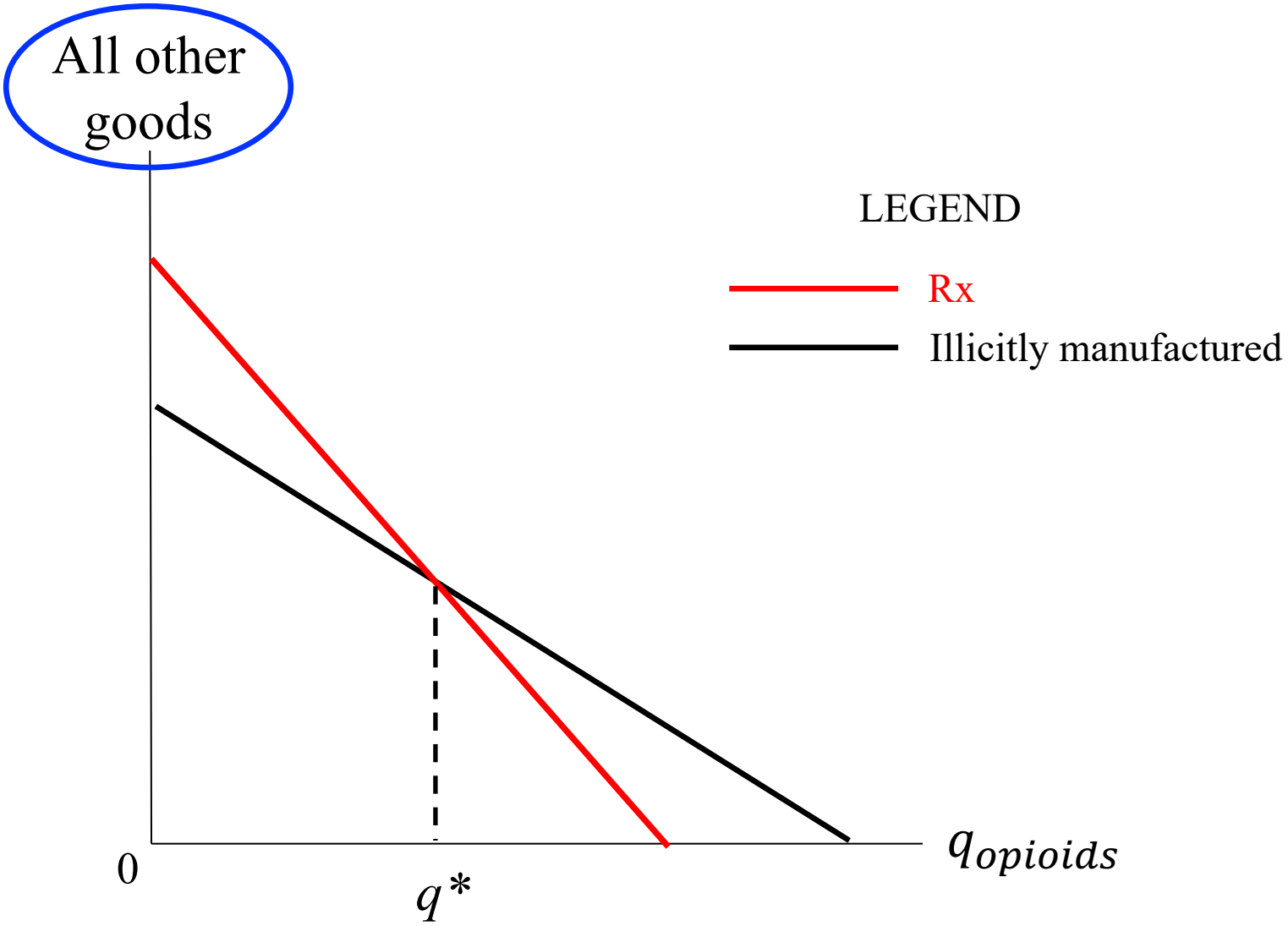
Increasing returns in opioid consumption helps explain:

- Why the time series of opioid deaths resemble an "epidemic"
  - Even if nothing is "contagious"
- When, and why, the opioid demand curve appears to slope the "wrong" way
  - The mortality effects of opioid Rx prices and prices change sign
  - The race gap in opioid mortality changes sign
- Why fatality rates diverge for youth and adults

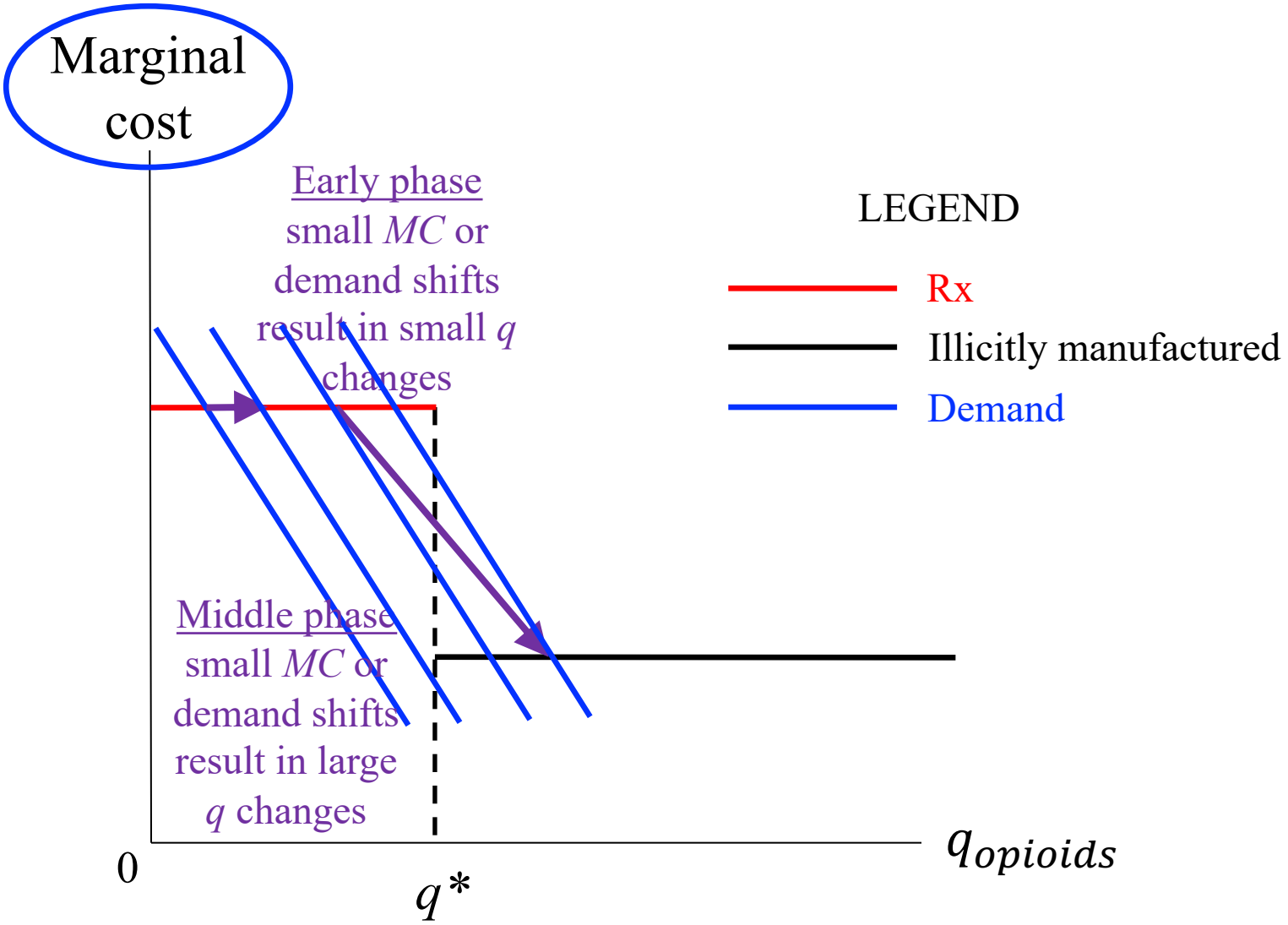
Consumption responses when Im marginal prices are low



Quantity-quantity space



Quantity-price space: nonlinear dynamics



Price changes for selected consumer goods,

adjusted for quality and general inflation

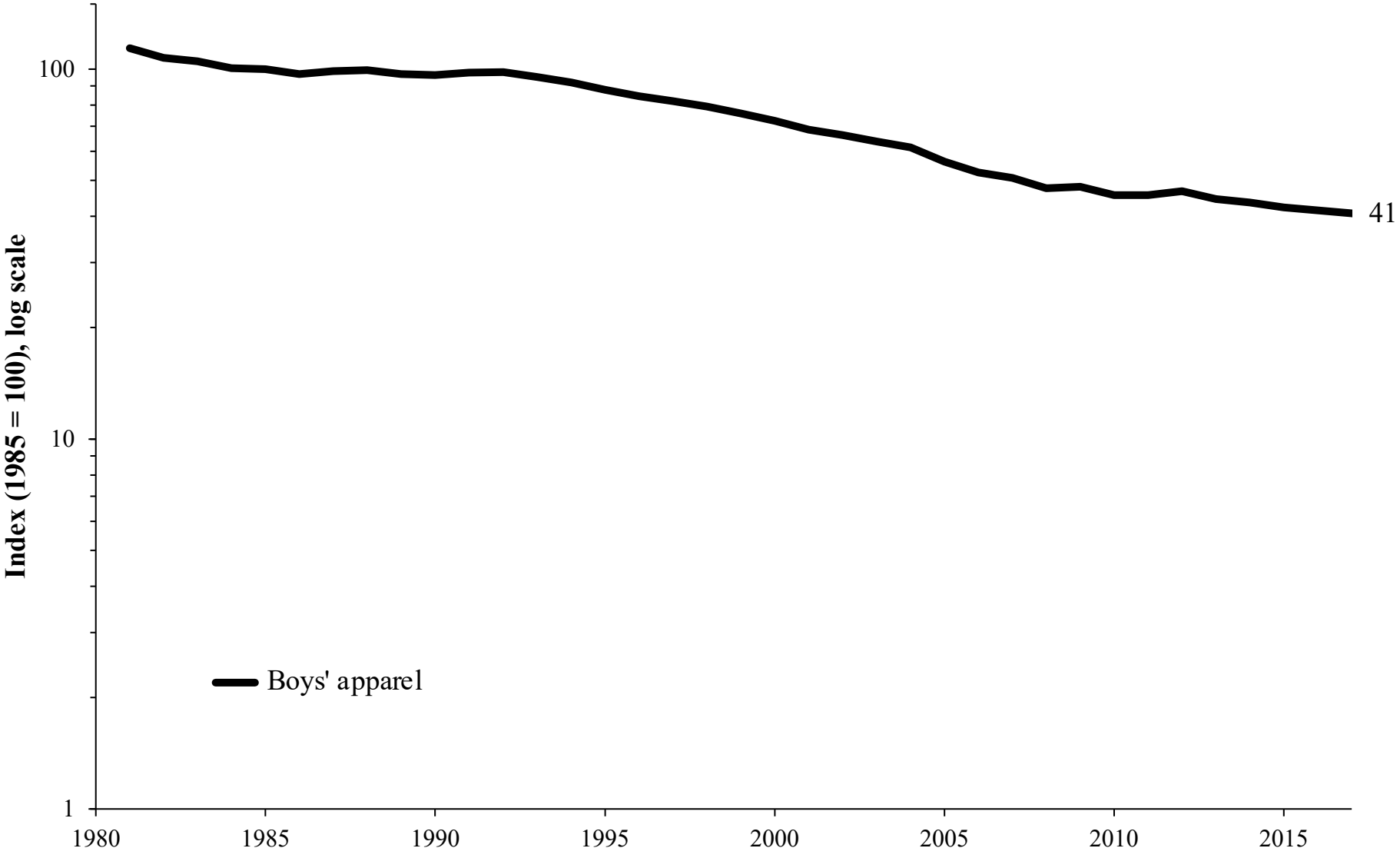
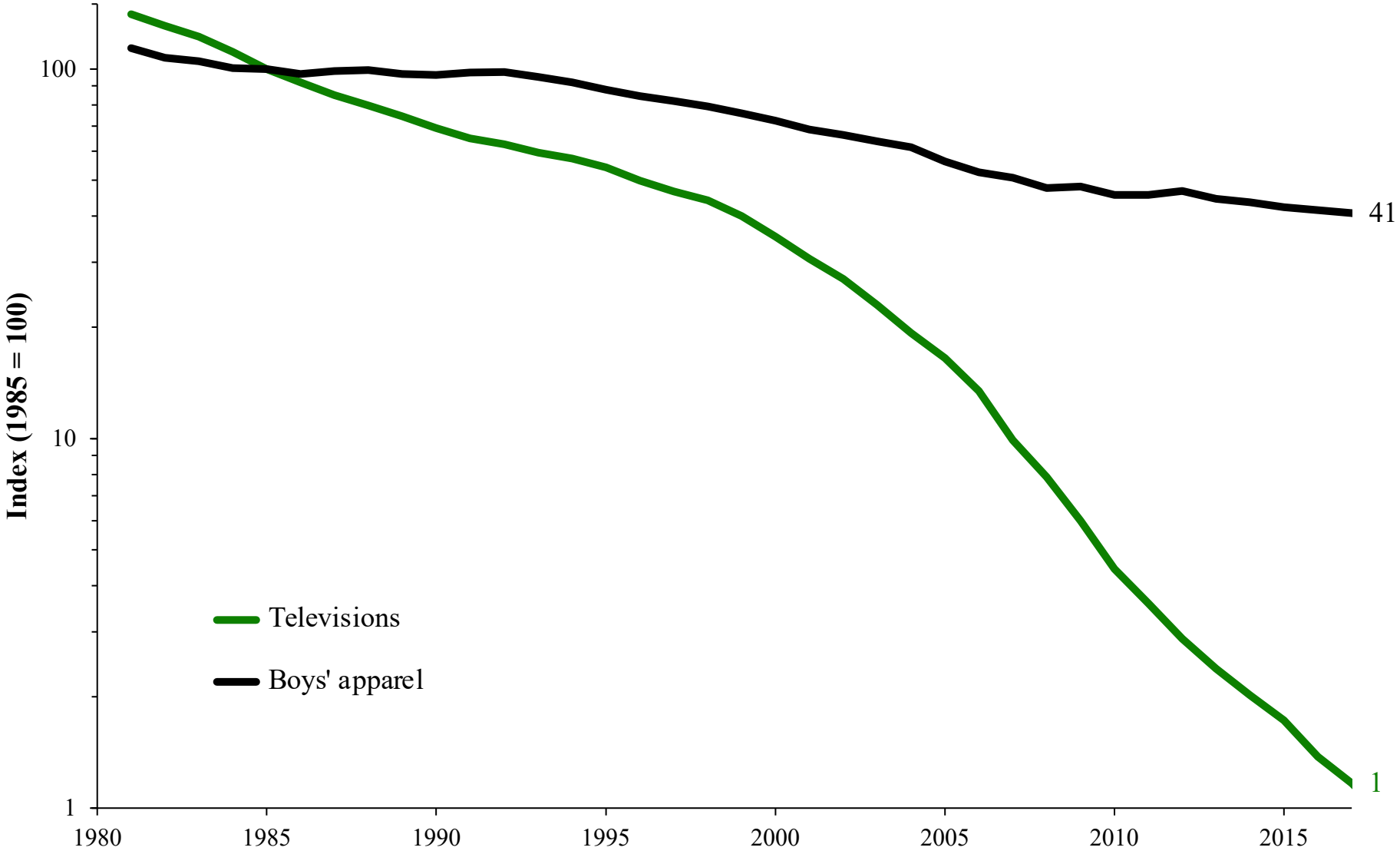


Figure 1. Price changes for selected consumer goods,

adjusted for quality and general inflation



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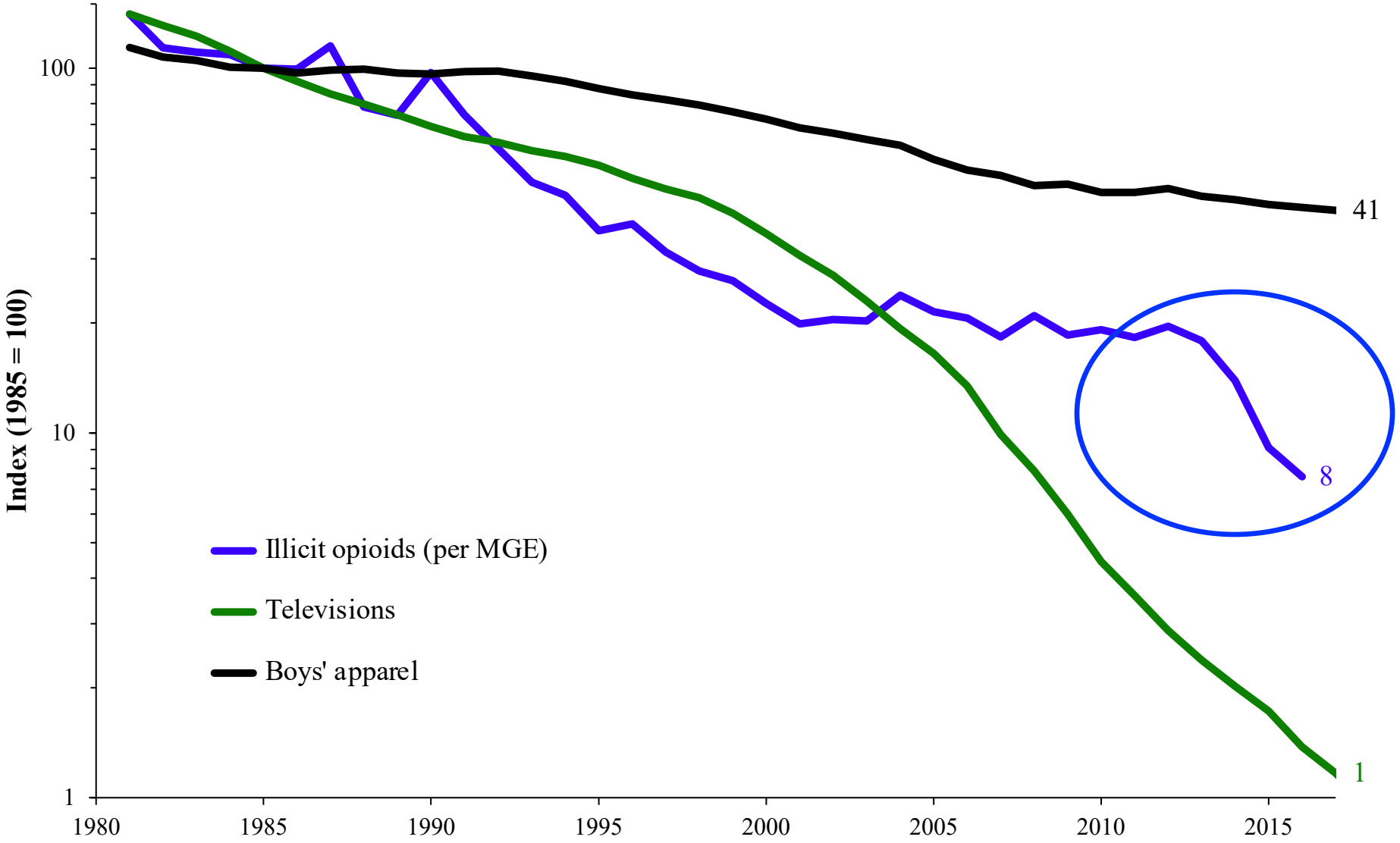

Note: A fentanyl-content adjustment is applied only after 2007.

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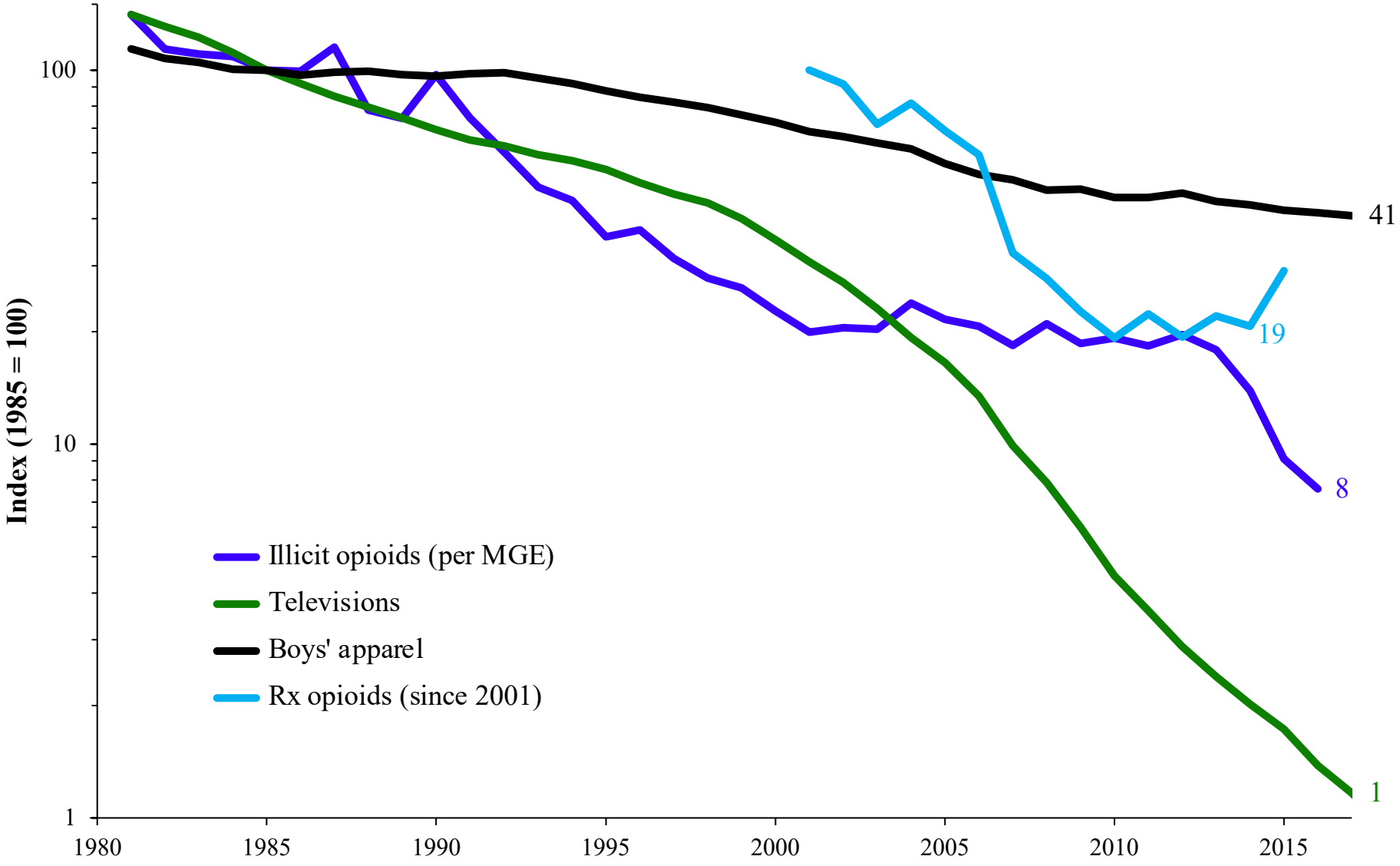

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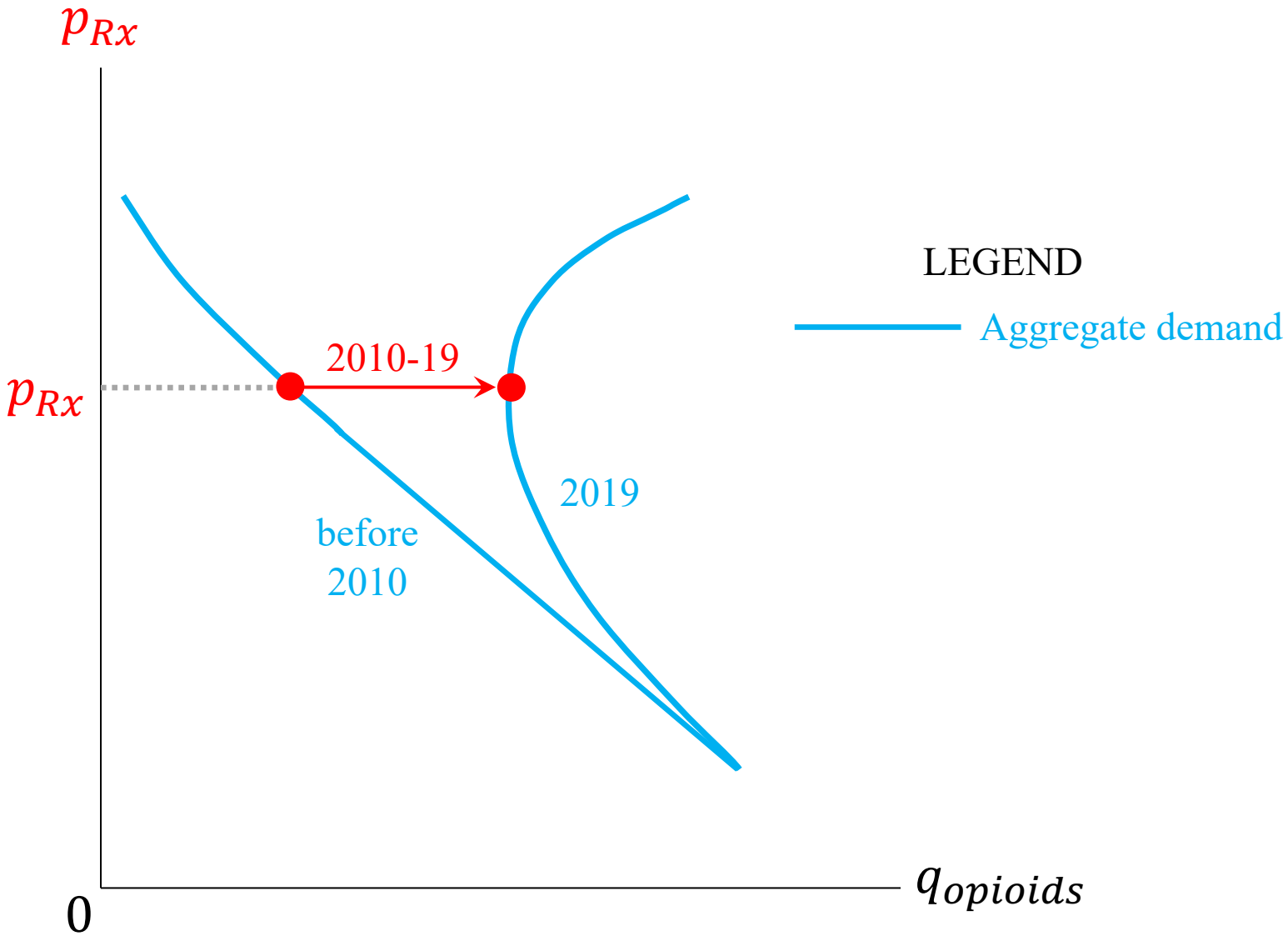
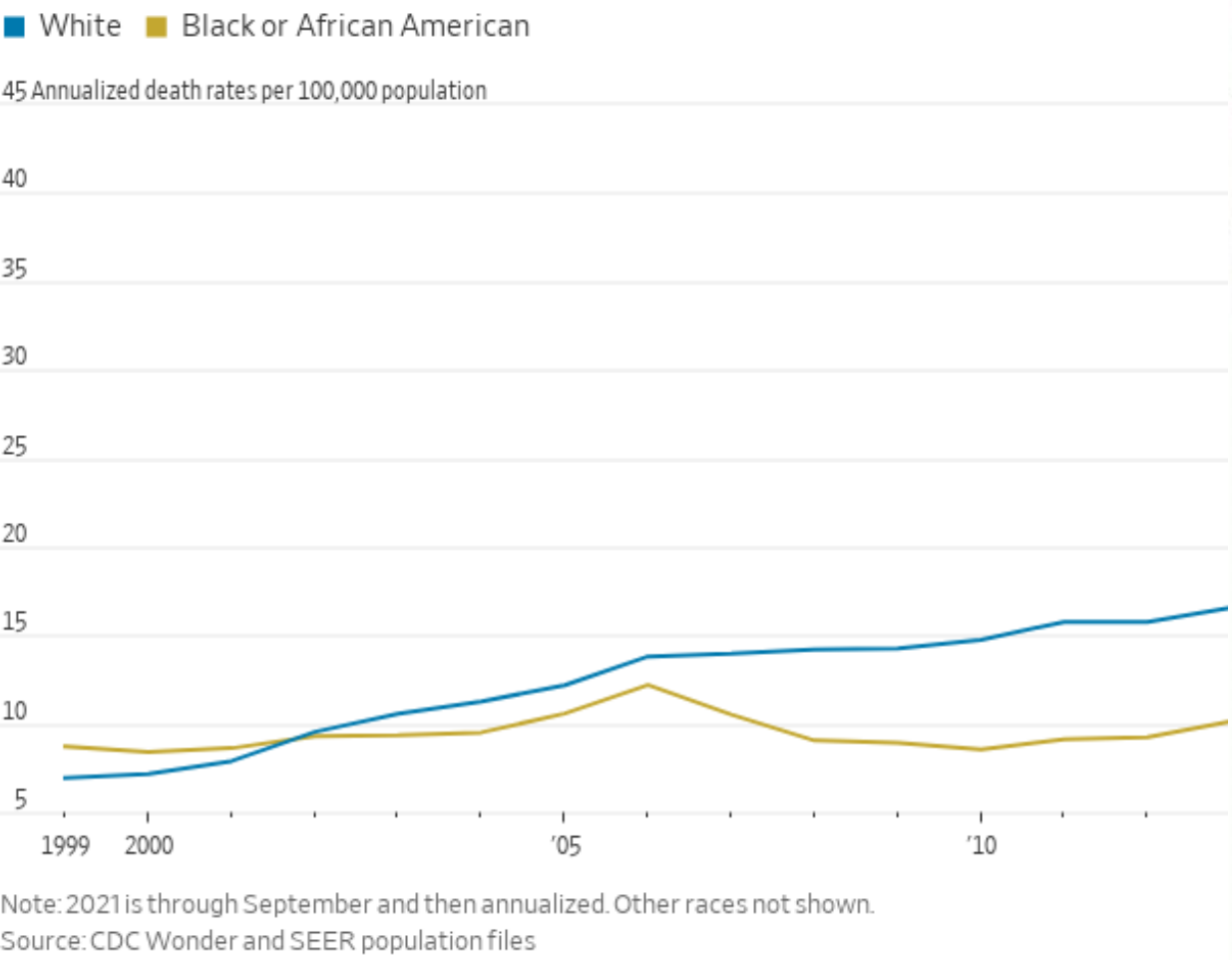
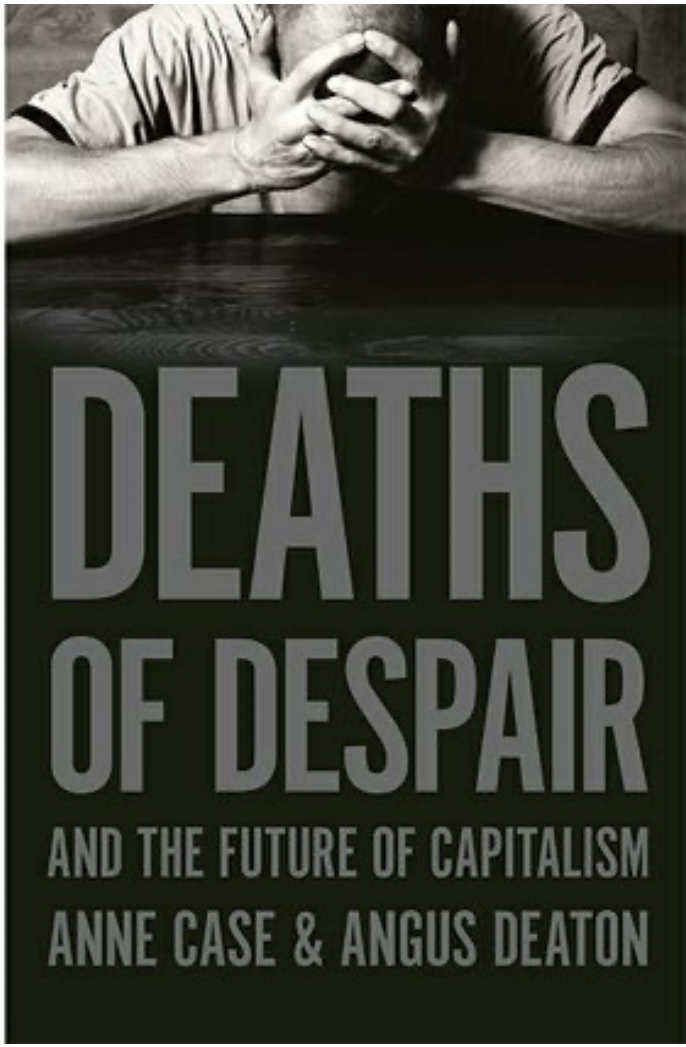
Policy “brake pedal” becomes the accelerator pedal



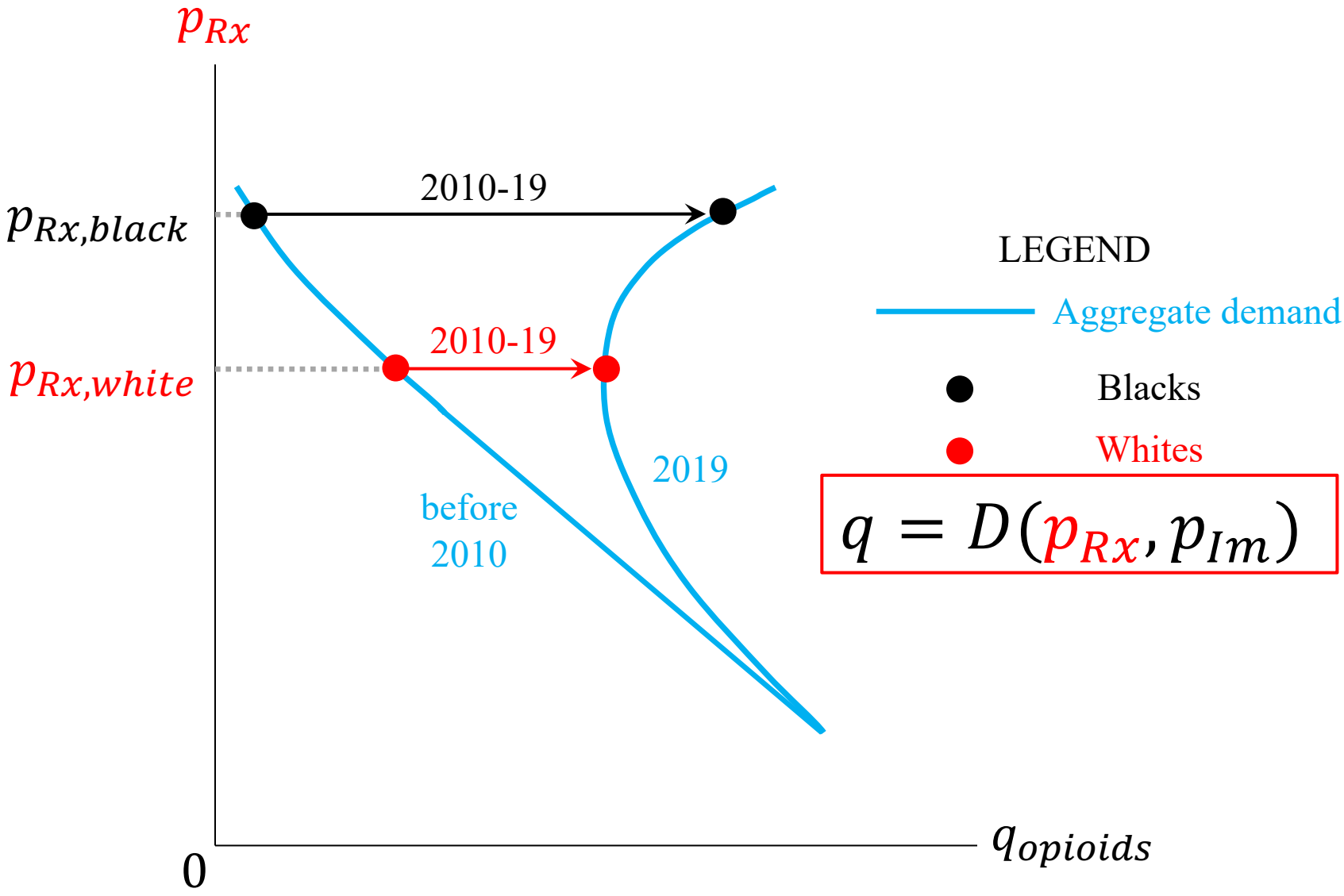
Deaths from Drug-Induced Causes by Race





Race gap changes sign due to falling price

(both races face the same p_{Im}, which falls over time)



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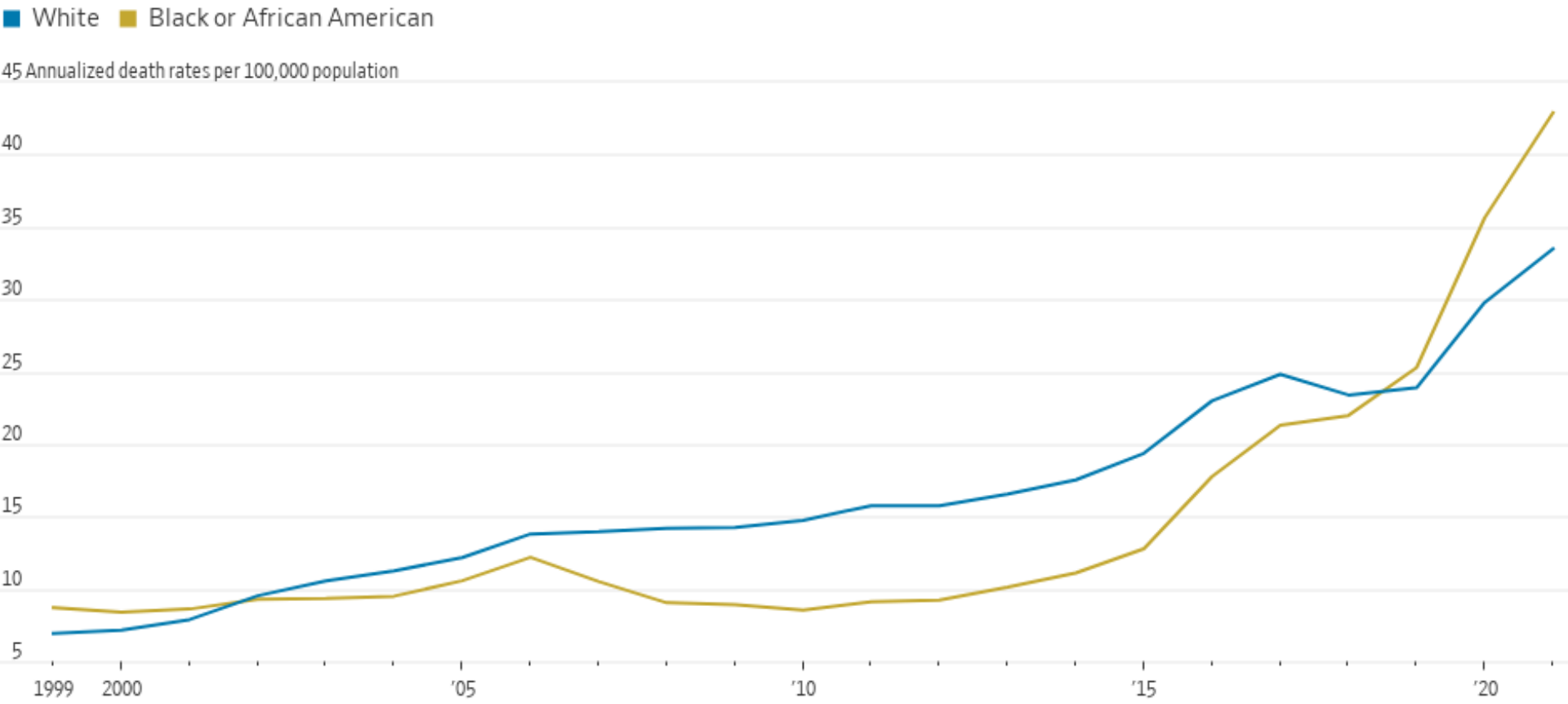
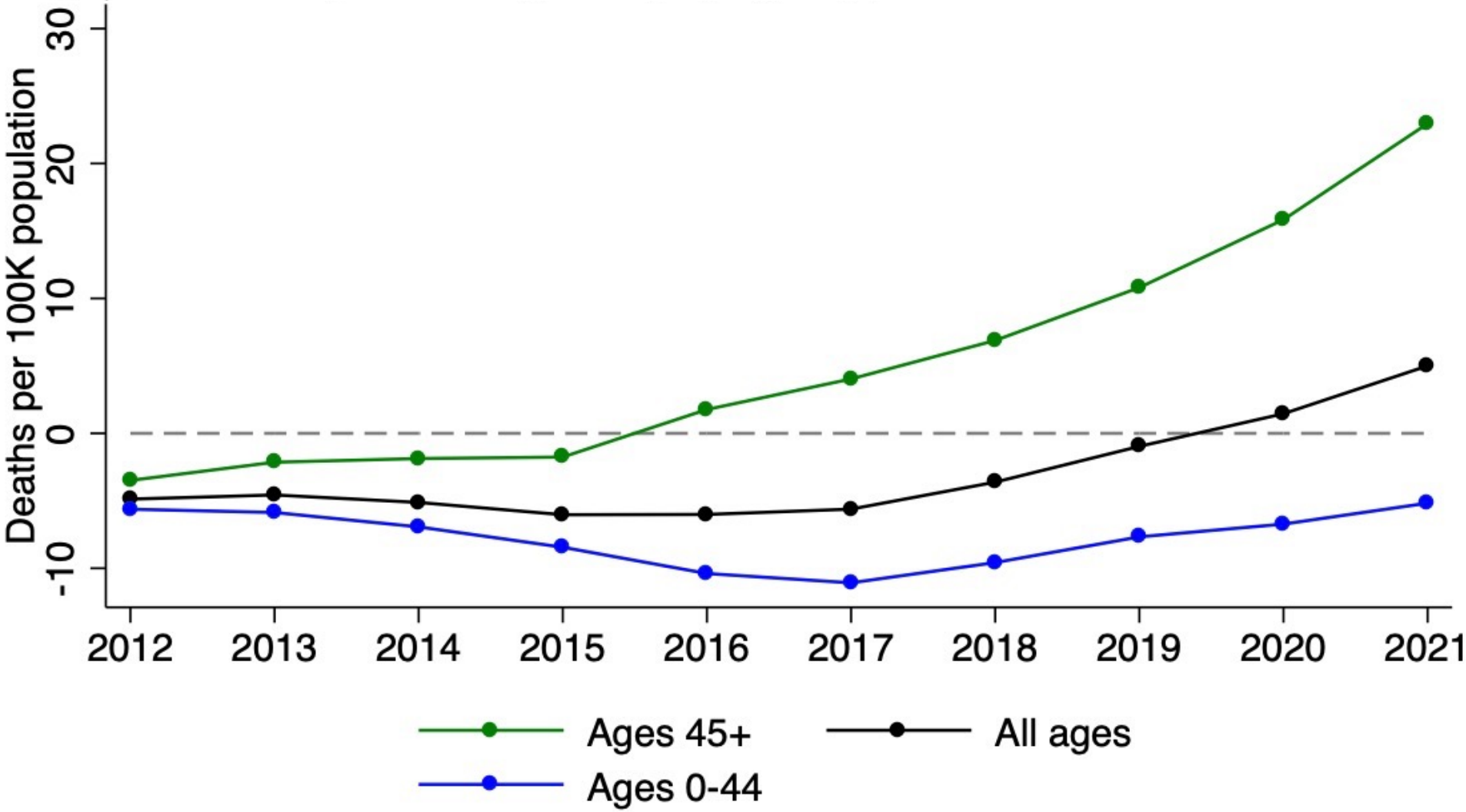


Note: 2021 is through September and then annualized. Other races not shown.
Source: CDC Wonder and SEER population files

Black-white gaps in opioid fatality rates

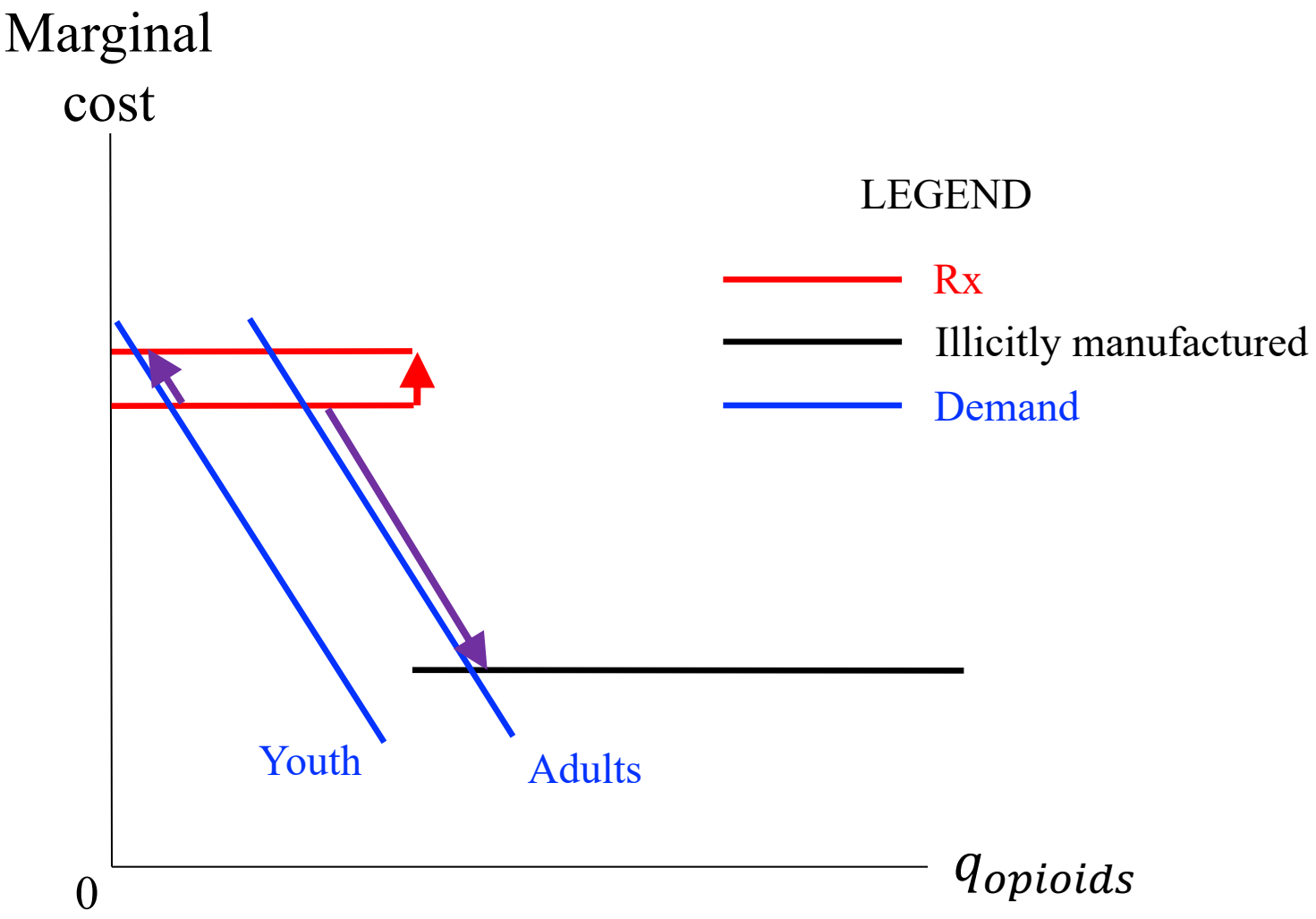
adjusted for gender, age group, and Census division



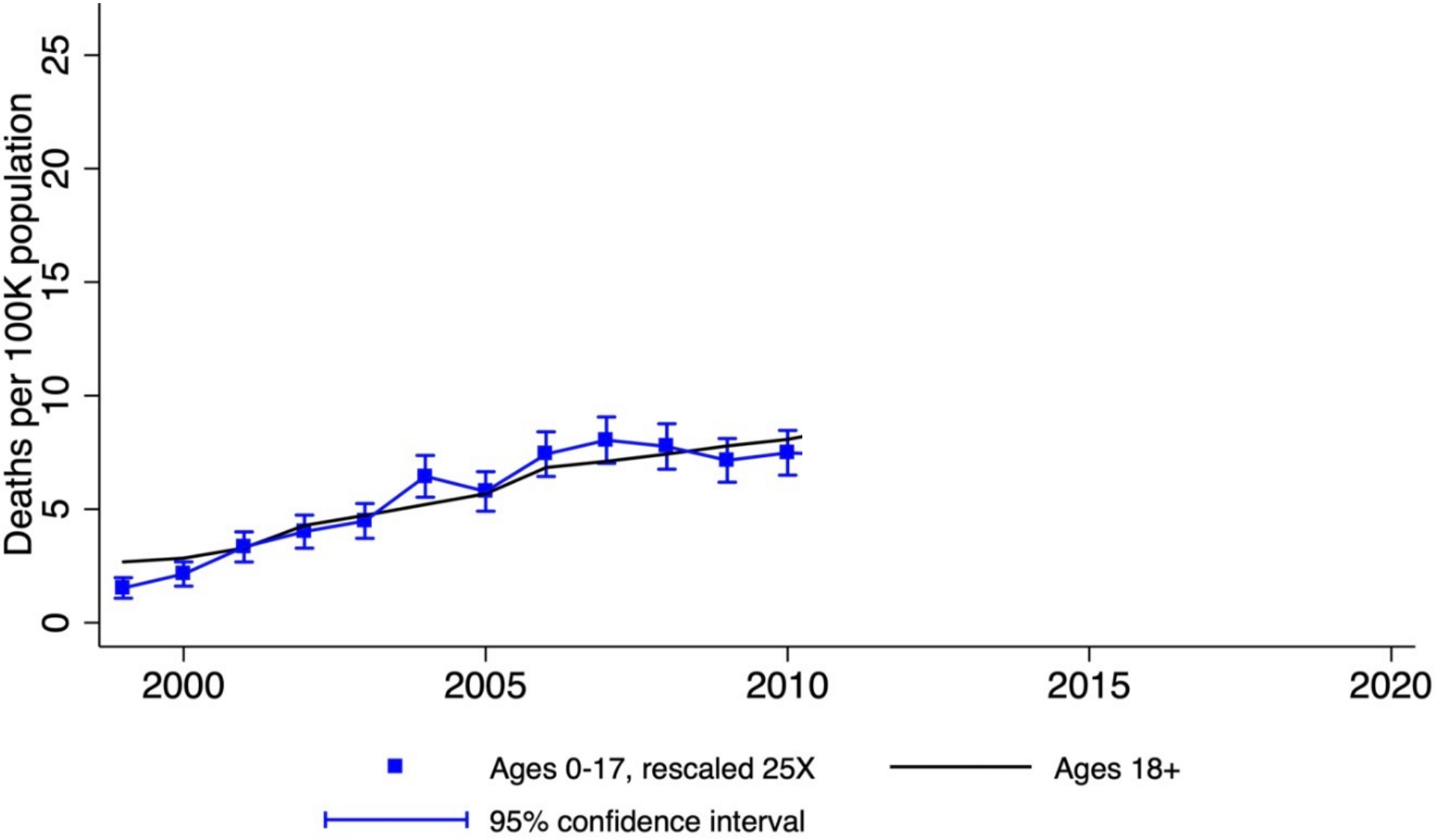
Notes: For each year an opioid death indicator is regressed on indicators for race, gender, age group, and Census division, with 100K times the black coefficient shown in the figure. A regression observation is a black or white U.S. resident alive January 1. Gap confidence intervals (not shown) are less then 0.5 per 100K population. Population and mortality source: CDC Wonder.

Quantity-price space: young and old diverge

beginning in 2010 when Rx is reformulated to impede abuse



Opioid fatality rates among minors and adults



Note: Death rate for children is multiplied by 25 to show on the same scale with adults.
Adult confidence intervals are not shown because they are less than 0.5 per 100K
Population and mortality source: CDC Wonder.

Supply shifts against a stable demand system

- Rx prices declined, then Im prices
- Explains much of the increased consumption and its incidence
- Why did prices fall?
  - Most Rx paid with new government money: Part D
  - The synthetic revolution reached illicit markets
  - Relaxed law enforcement?