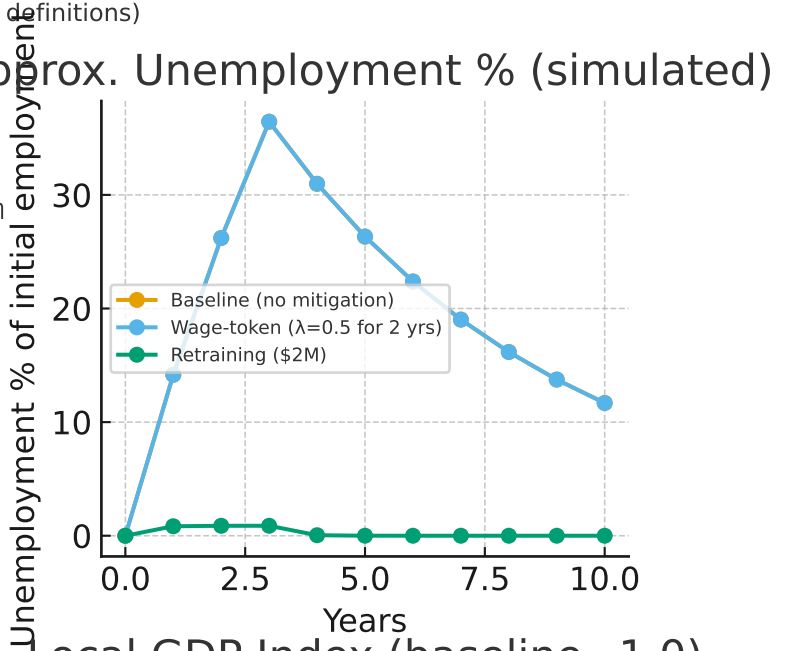
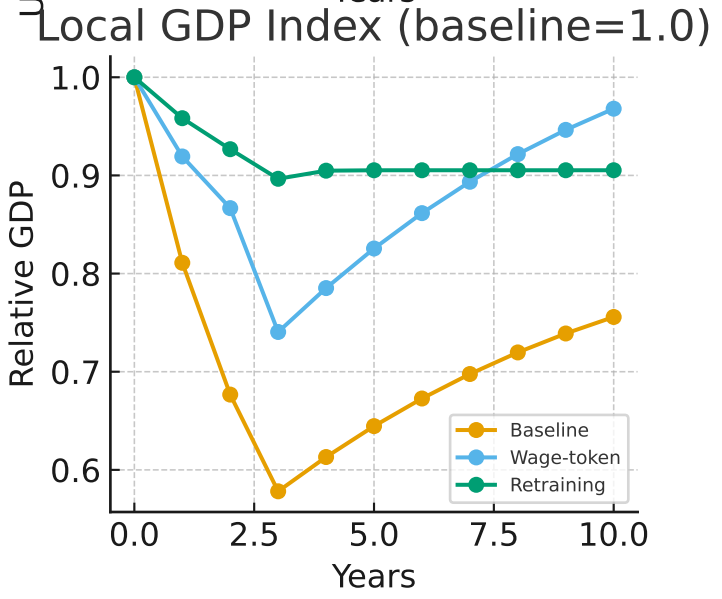
Appendix: Mathematical Kernel & Scenario Simulations
Automation → Local Displacement (Town level)

Equations (key):
1) $\Delta Y \approx \kappa \cdot \mu \cdot \Delta W$
2) $\Delta L^{avoided} = \varphi \cdot \Delta K$ 3) $H_t = \eta \cdot U_t$
(see text for definitions)

Model snapshot (discrete time, annual): Firm shock -> avoided hires: ΔL_t Local wage loss: $\Delta W_t = w \cdot \Delta L_t$ Consumption drop: $\Delta C_t = \mu \cdot \Delta W_t + \mu \cdot S^{token}_t$ Local GDP change: $\Delta Y_t \approx \kappa \cdot \Delta C_t$ Unemployed pool: $U_{t+1} = U_t + \Delta L_t - \eta \cdot U_{t+1}$ Re-employment: $H_t = \eta \cdot U_{t+1}$ (re-employed wage fraction ρ) Policy levers: - Wage tokens S^{token} (fraction λ of lost wages) - Retraining increases η ($\eta = \eta 0 + \beta \cdot$Spending)





Calibration (selected)
Initial local employment L0: 4000
Avg annual wage (w): 35000
Total avoided hires (ΔL_{total}) over 3 yrs: 2000
Years: 10
MPC (μ): 0.5
Local multiplier (κ): 1.3
Local tax rate (τ): 0.2
Baseline matching rate ($\eta 0$): 0.15
Retraining effectiveness (β) per $1k: 0.0004
Wage-token fraction (λ) in token scenario: 0.5
Profit-share to locals (g): 0.0

Notes: This one-page appendix presents a compact discrete-time kernel. Scenarios: Baseline (no mitigation); Wage-token replaces 50% lost wages for 2 years; Retraining: $2M one-time program that raises re-employment rate. Parameters should be re-calibrated with local data. See main text for full model.