

Escape from the Malthusian trap: When does innovation outpace resource depletion?

- What biological and social factors affect whether improving agricultural technology can obviate food limitation of growing human populations?
- Previous work assumes innovation is a function of population size, N , but data shows crop yield changing linearly with time, t

	Slow	Intermediate	Fast
t	Population limitation by food; low food per capita	Linear population growth, but low food per capita	Initial exponential growth, high per-capita food; eventually linear growth and low food
N	Linear growth, low food	Exponential growth, high food	Exponential growth, very high food

Standard assumptions about innovation (second row) yield population release from food limitation, but not assumptions matching observations (first row)

Innovation can affect crop yield or base lifespan separately or simultaneously. How would these differ or interact?

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