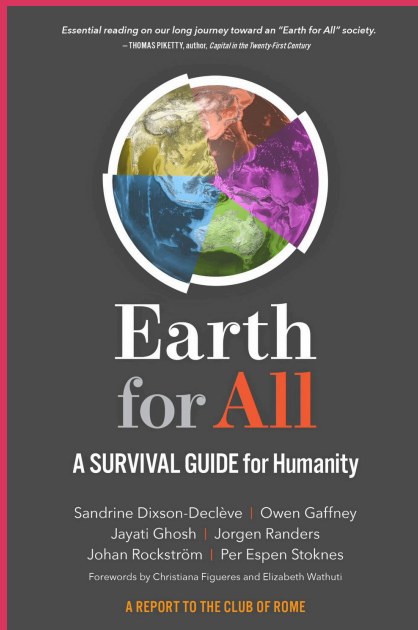


Toward an economy that serves *social well-being within planetary boundaries?*



The new world systems model, findings and policy proposals for moving 'Beyond GDP' to 'wellbeing economics'.

Per Espen Stoknes

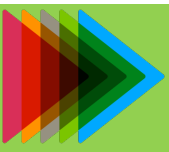
Co-lead Earth4All

Ass. Professor at BI Norwegian Business School

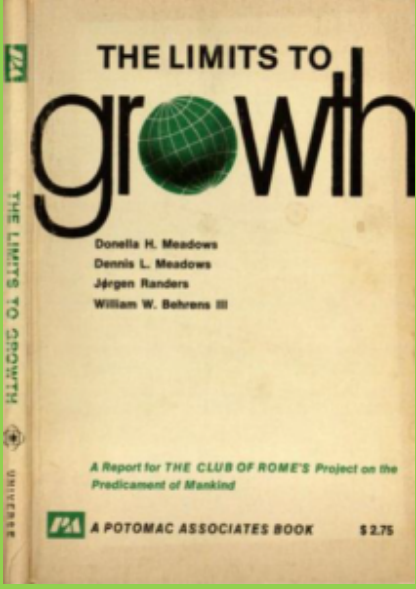


Agenda

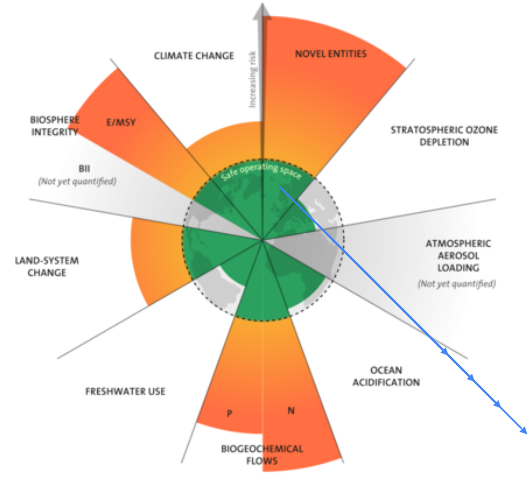
- 1) Background Earth4All project
- 2) Overview E4A global model including “global guides”
- 3) Beyond GDP: *Wellbeing*-index?
- 4) *Resilience* in the E4A model
- 5) The 5 turnarounds and the *Giant Leap* scenario



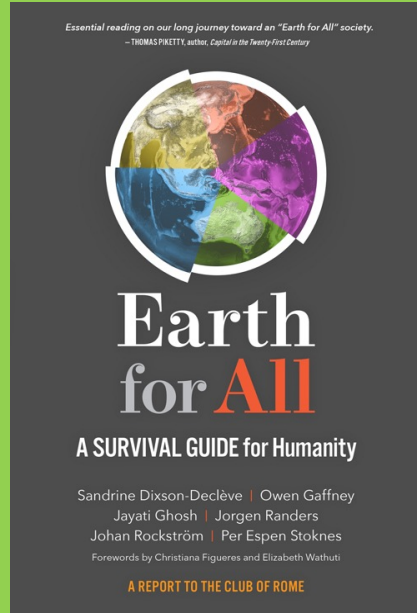
1972



2009



2022



2023-24

United Nations
A NEW GLOBAL DEAL

POLICY STUDY
September 2023

**SDGS FOR ALL:
STRATEGIC SCENARIOS**
EARTH4ALL SYSTEM DYNAMICS
MODELLING OF SDG PROGRESS

Working Paper version 1.0

Earth4All | Johannah Bernstein, David Colliste,
Sandrine Dixon-Declève, Nathalie Spittler

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Earth4All

FEPS
FOUNDATION FOR ENVIRONMENTAL
POLICY RESEARCH



Convened by



POTSDAM INSTITUTE FOR
CLIMATE IMPACT RESEARCH



Norwegian
Business School

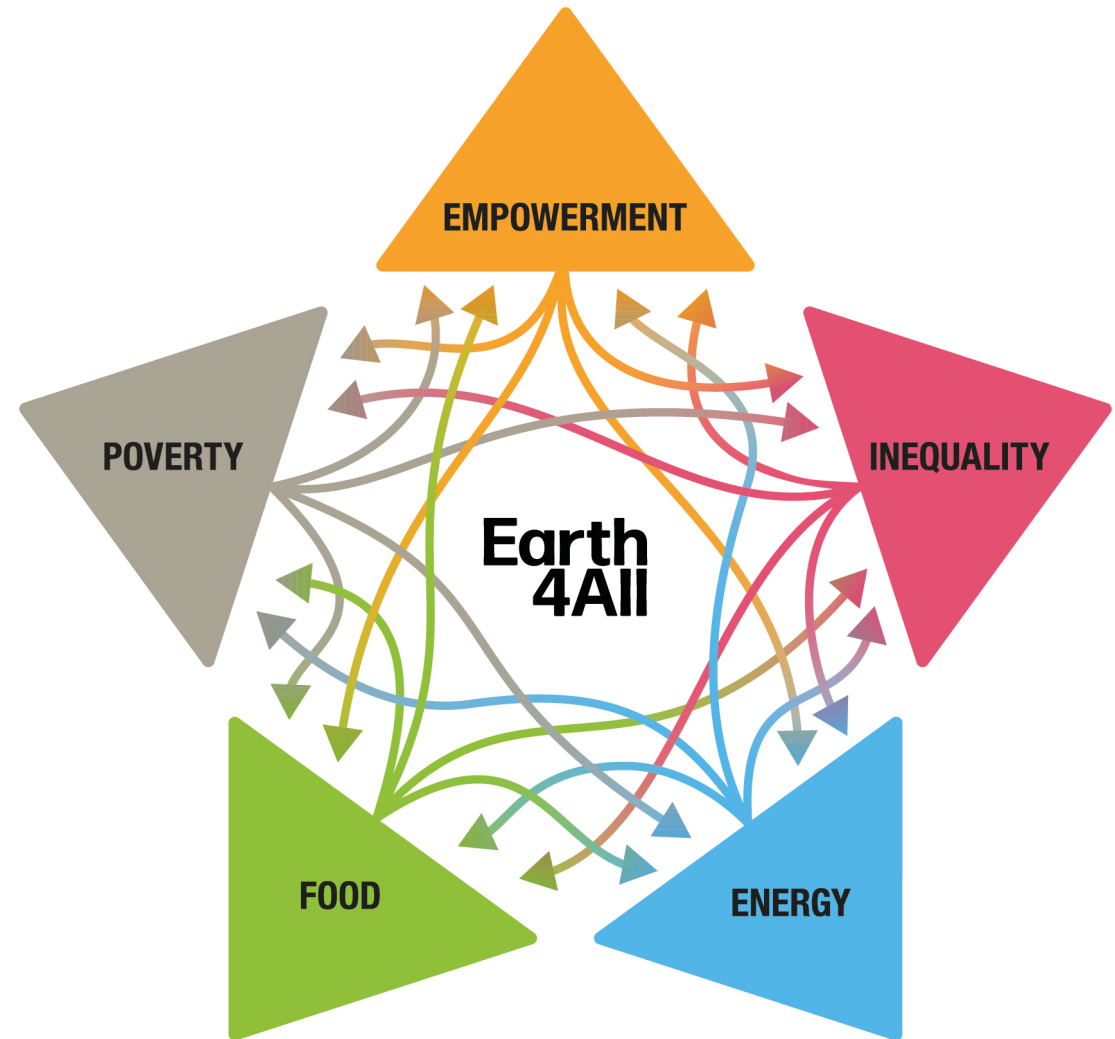
Stockholm
Resilience Centre



Funding: **Angela Wright Bennett Foundation**,
the **Generation Foundation**, the **Global Challenges Foundation**,
the **Laudes Foundation & Partners for a New Economy**.

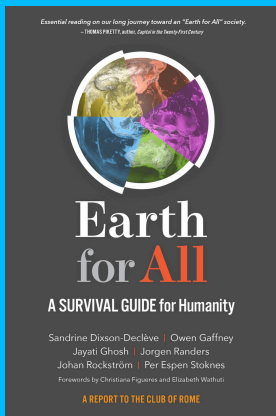
Combining 21st century transformational economics with global and regional system dynamic modelling...

a 50-year anniversary report after the *Limits to Growth*

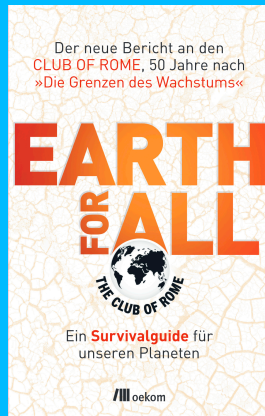


EARTH4ALL IS A GLOBAL NETWORK AND FACILITATED BY:

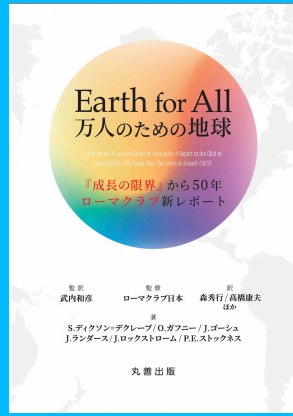




English



German



Japanese



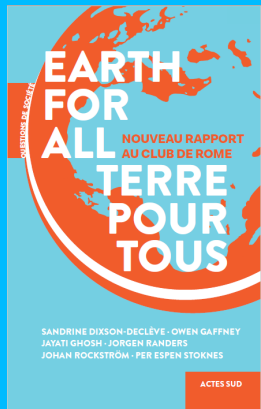
Italian



Swedish



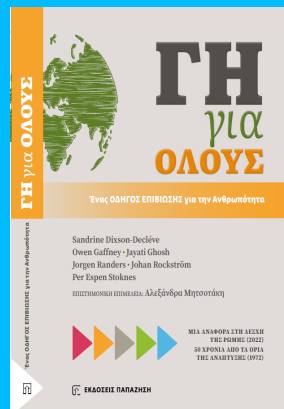
Chinese



French



Korean



Greek

Coming up soon:

Spanish

Hebrew

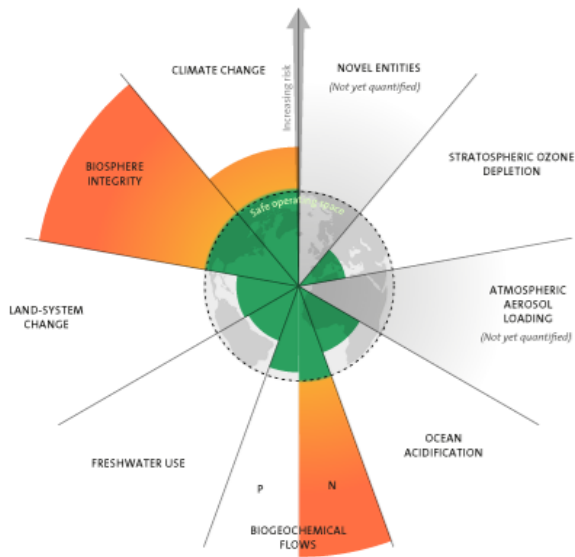
Romanian

Slovenian

Arabic

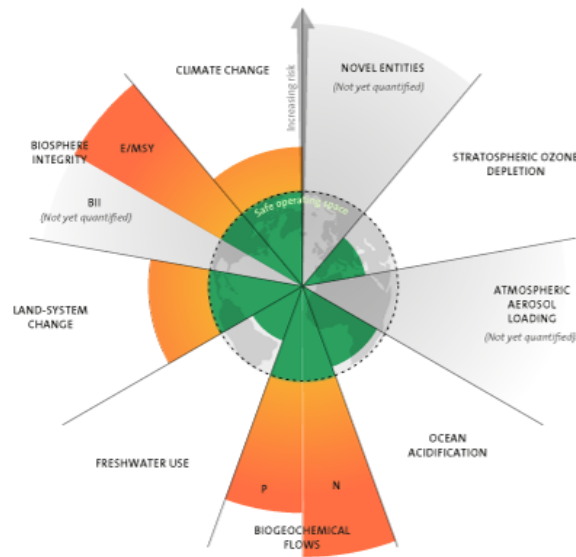


2009



3 boundaries crossed

2015



4 boundaries crossed

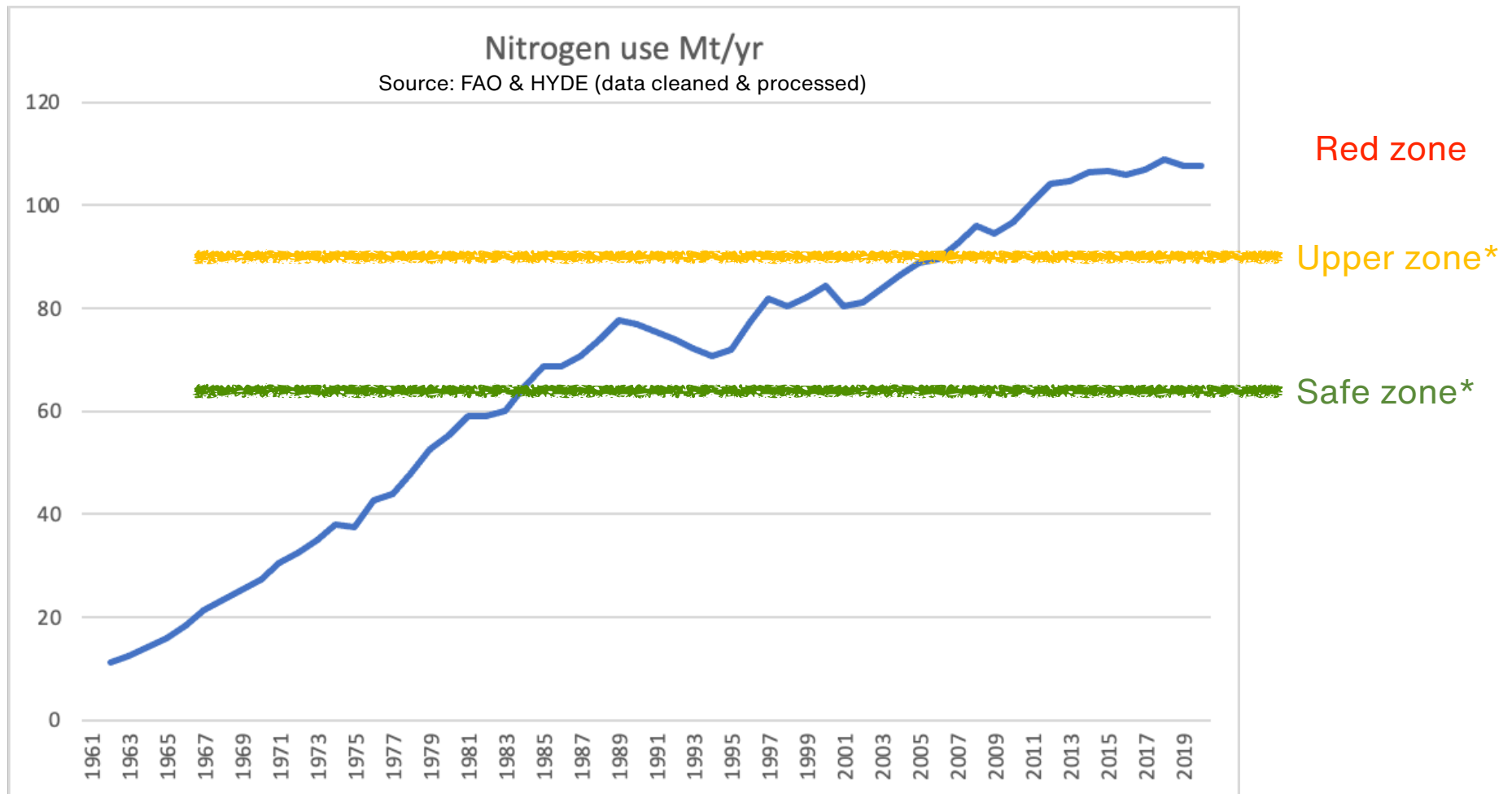
2023



6 boundaries crossed

Stockholm Resilience Centre 2023 from Rockström *et al.* 2009, Steffen *et al.* 2015, Richardson *et al.* 2023

Historic Global Fossil Bioactive Nitrogen fertilizer



* Sources: de Vries W., Kros J., Kroeze C., Seitzinger S. P., (2013) Assessing planetary and regional nitrogen boundaries related to food security and adverse environmental impacts. *Curr. Opin Environ. Sust.* 5, 392–402.

* Richardson, Katherine, Will Steffen, Wolfgang Lucht, Jørgen Bendtsen, Sarah E. Cornell, Jonathan F. Donges, Markus Drüke, et al. "Earth beyond Six of Nine Planetary Boundaries." *Science Advances* 9, no. 37 (September 15, 2023): eadh2458. <https://doi.org/10.1126/sciadv.adh2458> .

2) Quick dive into the E4A global model

Why yet another model?

Most IAMs don't include societal response to crises:

- “**Unequal** costs and benefits of climate policies accrue to different economic, racial and religious groups, which can affect policies’ moral and political acceptability.
- **Public opinion / trust** might facilitate stronger / weaker action to tackle climate change.
- **Resilience / Confidence** in political institutions or lack of it can influence the public’s willingness to support actions that reduce emissions.”

Peng et al “Climate Policy Models Need to Get Real about People – Here’s How.”

Nature 594, no. 7862 (June 10, 2021): 174–76.

<https://doi.org/10.1038/d41586-021-01500-2>.

Setting the agenda in research

Comment



A worker tends to a floating solar-panel farm off the northern coast of Singapore.

Climate policy models need to get real about people – here’s how

Wei Peng, Gokul Iyer, Valentina Bosetti, Vaibhav Chaturvedi, James Edmonds, Allen A. Fawcett, Stéphane Hallegatte, David G. Victor, Detlef van Vuuren & John Weyant

To predict how society and political systems might actually respond to warming, upgrade integrated assessment models.

Political support for decarbonizing the global economy is at an all-time high. The good news is that about two-thirds of carbon emissions come from countries that have committed to reach ‘net zero’ by mid-century – they aim to cut their greenhouse-gas outputs and capture as much as they emit¹. The bad news? The computer

models that analysts use to assess routes to achieve such goals are missing a crucial factor: politics.

These ‘integrated assessment models’ (IAMs) combine insights from climate science and economics to estimate how industrial and agricultural processes might be transformed to tackle global warming. They’re encoded with knowledge about technologies, such as pollution-free power plants and the cost of electric vehicles. Thus IAMs enable researchers to probe, for example, how a carbon tax might induce big cuts in emissions², or how a drive to decarbonize the transport sector could shift investments towards greener fuels and electricity.

Yet the models are overly abstract. They don’t characterize the difficult trade-offs that politicians face when they must respond

to constituencies, or corporate leaders who must woo investors. In France, for example, a proposed increase to the fuel tax in 2018 was among the triggers of large protests. These saw the government backtrack on a key element of its climate policy. Fearing electoral consequences, many politicians around the world now shy away from carbon taxes and other market-based strategies. They instead rely heavily on regulatory instruments – such as fuel-economy standards – that make the cost of such policies less visible to the public and give politicians more control over who foots the bill³.

The story of politics isn’t just one of conservatism and evasion. Support for action can change radically on the back of success. Current IAMs can’t capture this dynamism either. Subsidies for wind and solar energy,

Several ongoing attempts “to rebuild macro-economic theory”




[Home](#) » [News and events](#) » [Podcasts](#) » [Audio](#) » » Rebuilding macroeconomic theory

Rebuilding macroeconomic theory



▶ 00:00

00:00  

 [Download audio file \(MP3, 64 MB\)](#)

In this talk David Vines describes the Rebuilding Macroeconomic Theory Project, which led to a number of papers in the *Oxford Review of Economics Policy*, by authors including Paul Krugman, Olivier Blanchard, Joe Stiglitz and Simon Wren Lewis.

Vines, David, and Samuel Wills. “The Rebuilding Macroeconomic Theory Project: An Analytical Assessment.” *Oxford Review of Economic Policy* 34, no. 1–2 (2018): 1–42.

Quantifying Global System Dynamics - Scope

Three separate pillars of action and analysis  GLOBAL SYSTEMS MODEL

Global economy

10 different regions with different productive assets



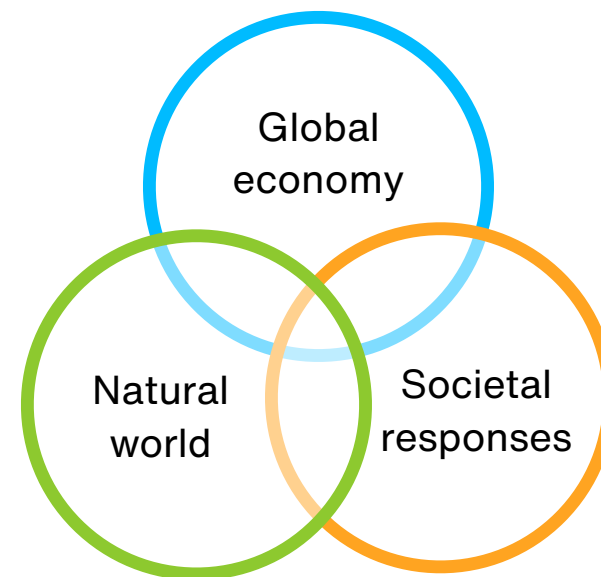
Natural world

9 planetary boundaries



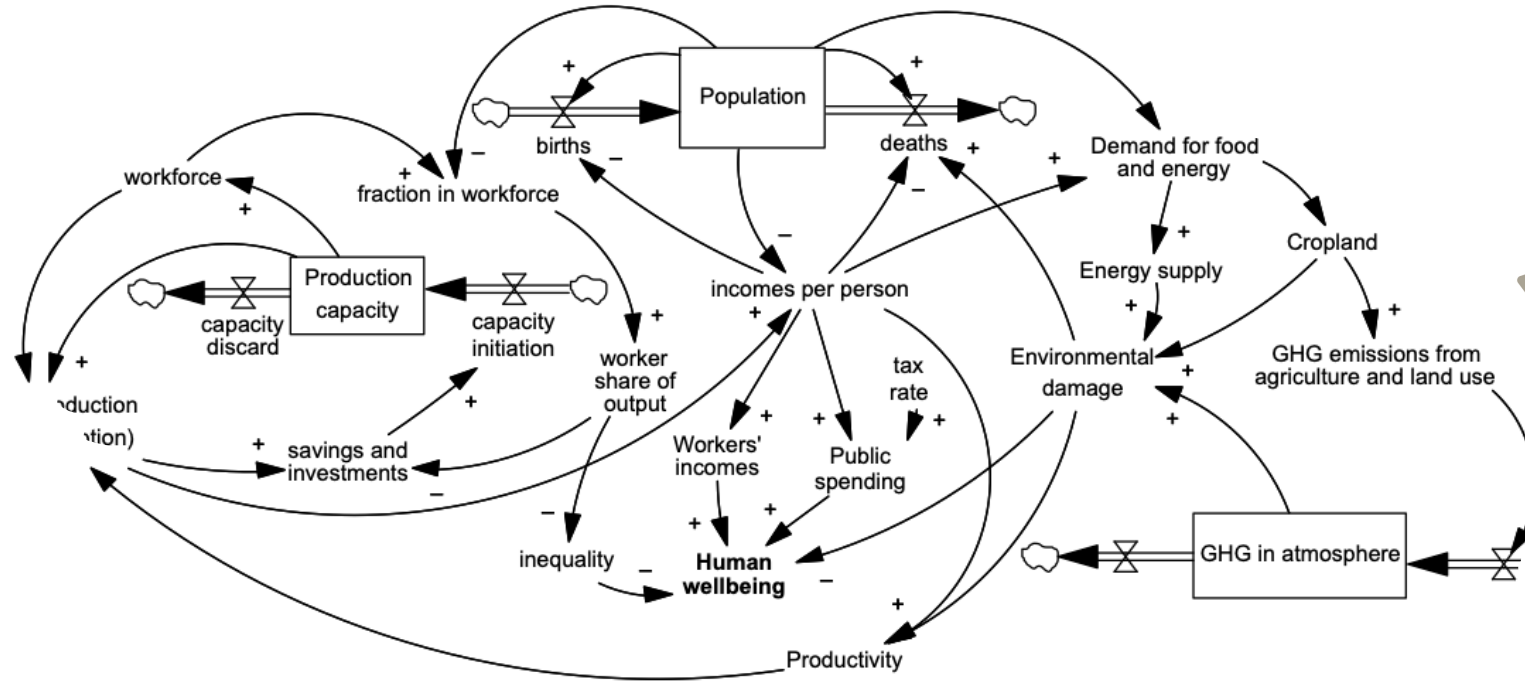
Societal responses

wellbeing, public spending, social capital

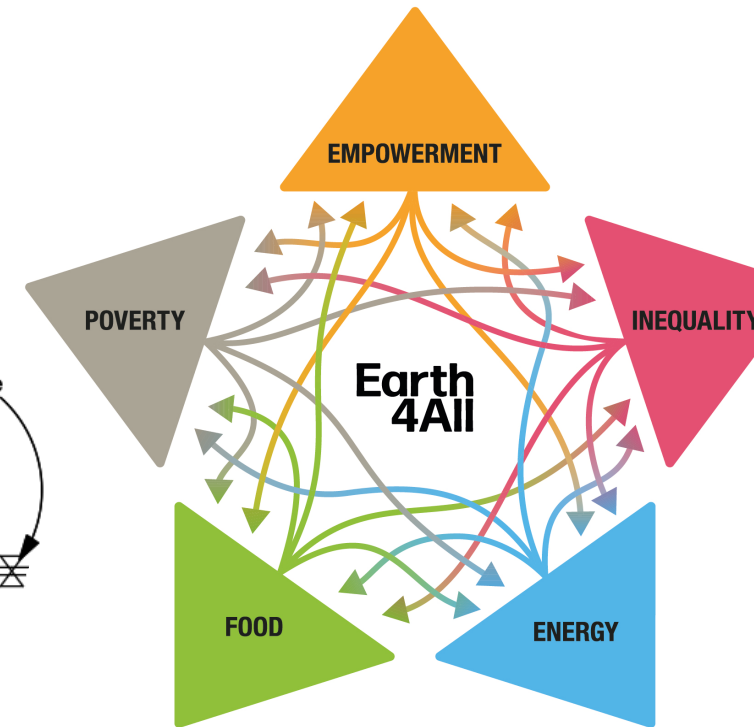


The Earth4All model contains

Sectors



Levers



A tool to consistently ASSESS and QUANTIFY the *econ-socio-bio-system* dynamics and the impacts of 5 extraordinary actions/levers

E4A “Global Guides”: GDPpp - Births

Population birth rates

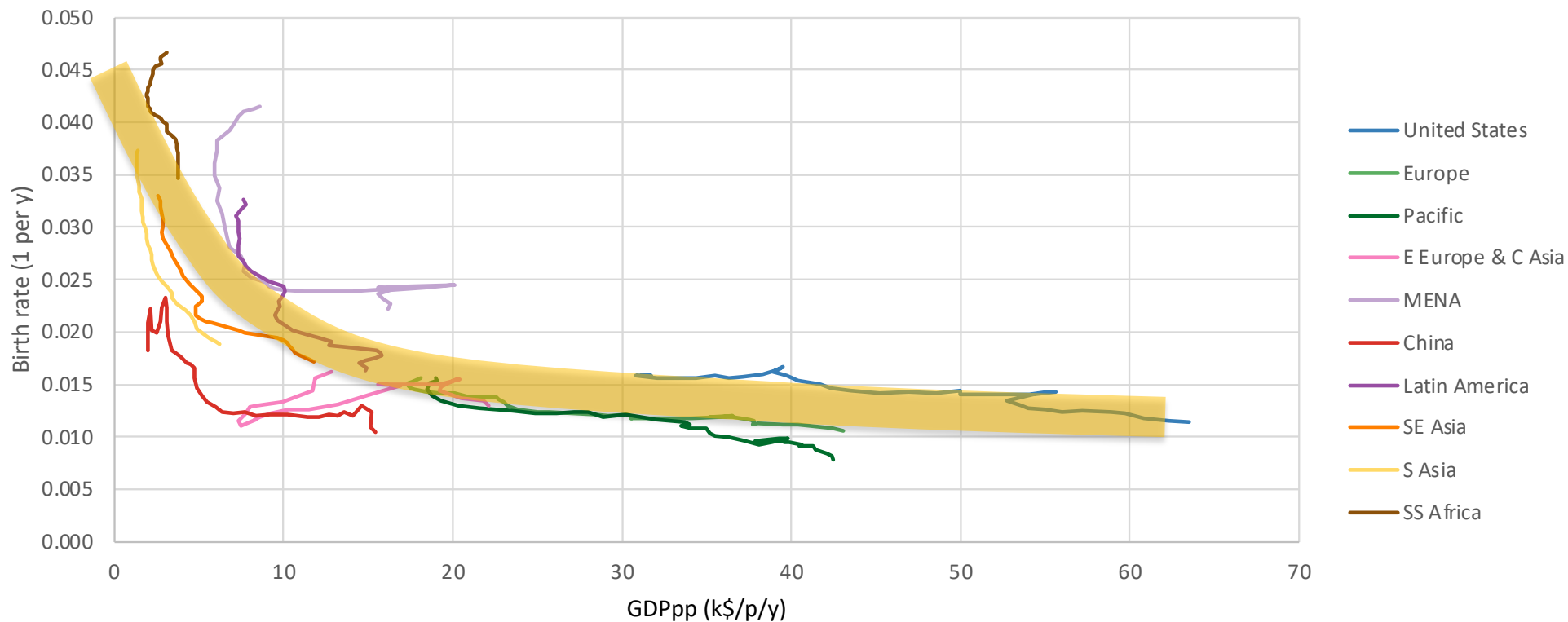


Figure 8: Birth rates decline with rising income.

Source: United Nations population statistics and Penn World Tables

E4A “Global Guides”: Capital-Labor ratio

Capital-labor ratio

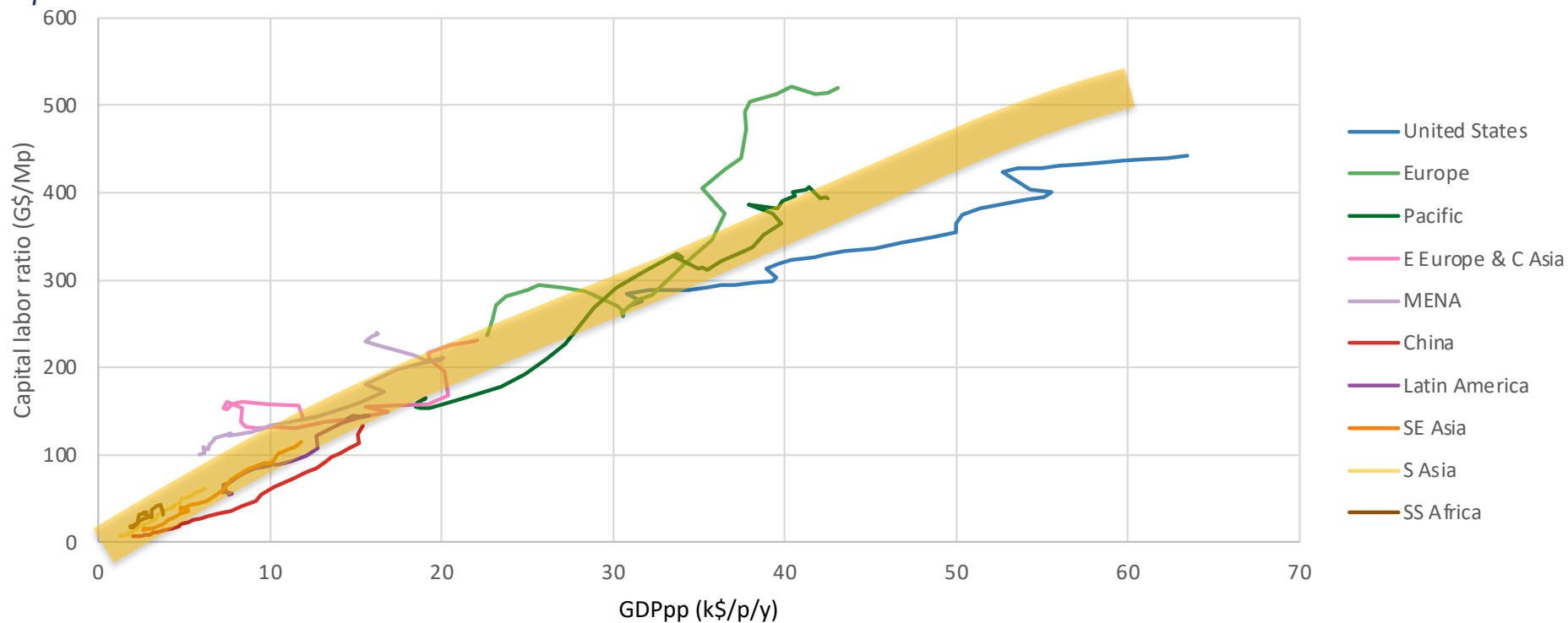
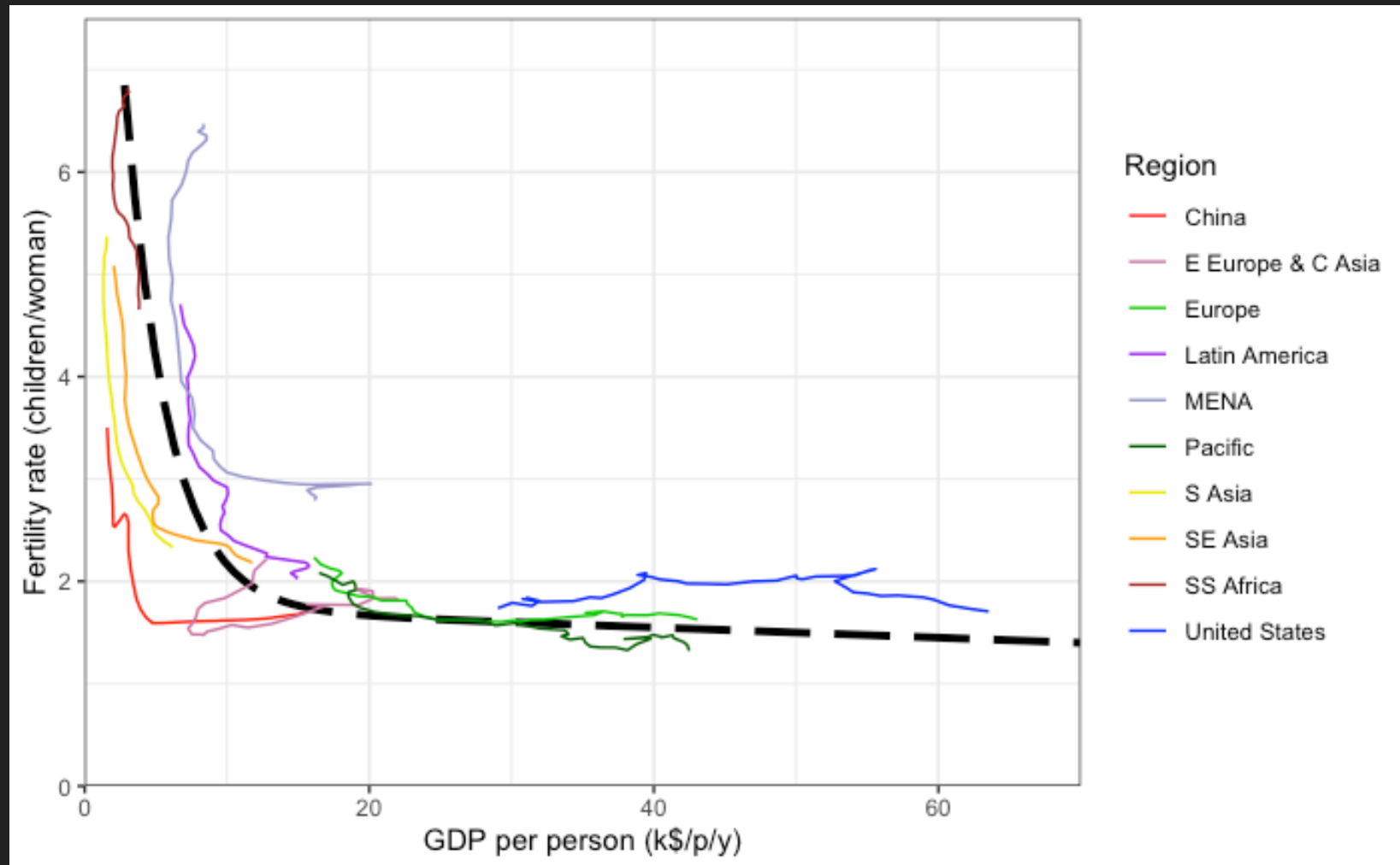


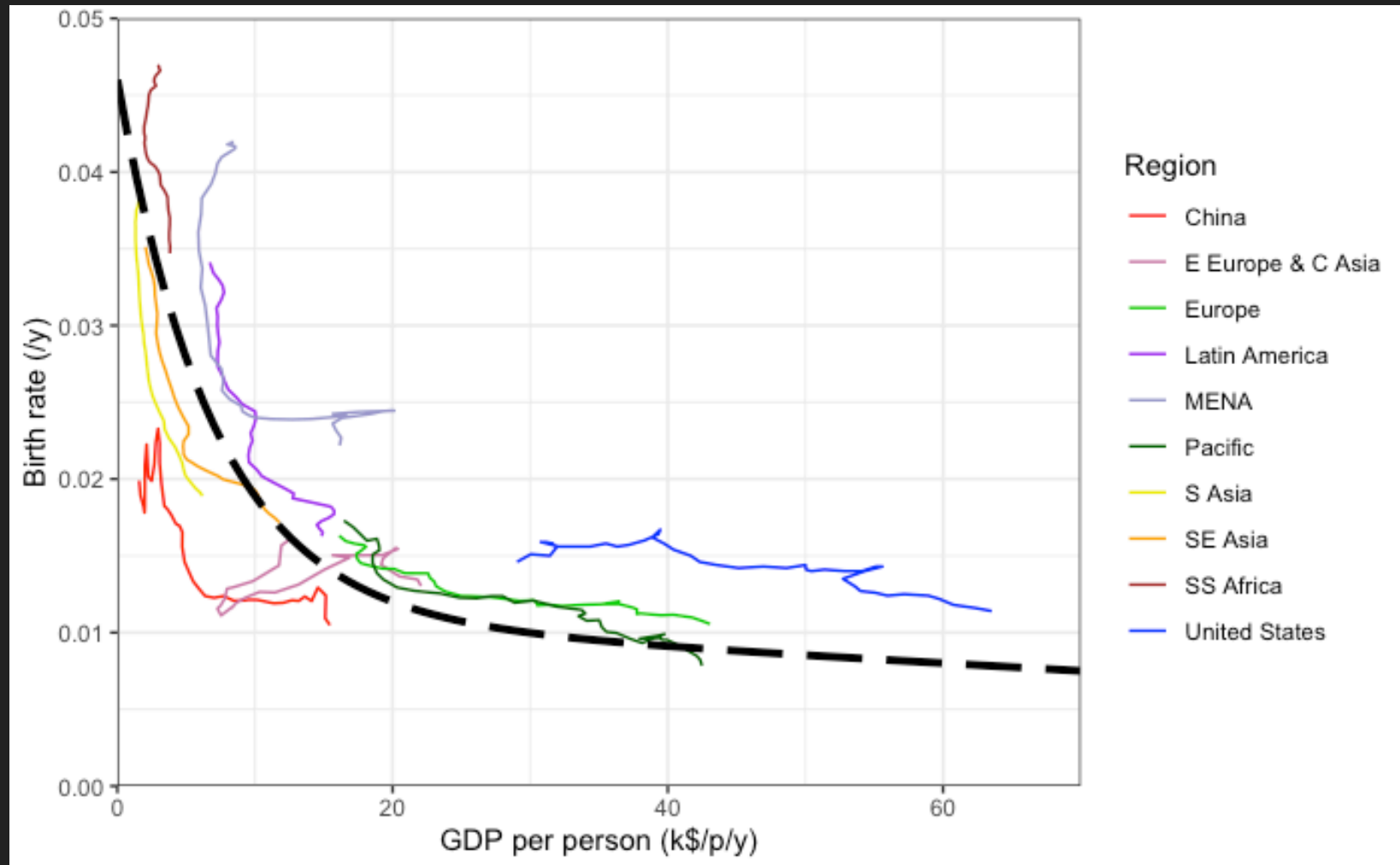
Figure 11: The capital labor ratio increases with rising income.

Source: UN Population statistics and Penn World Tables

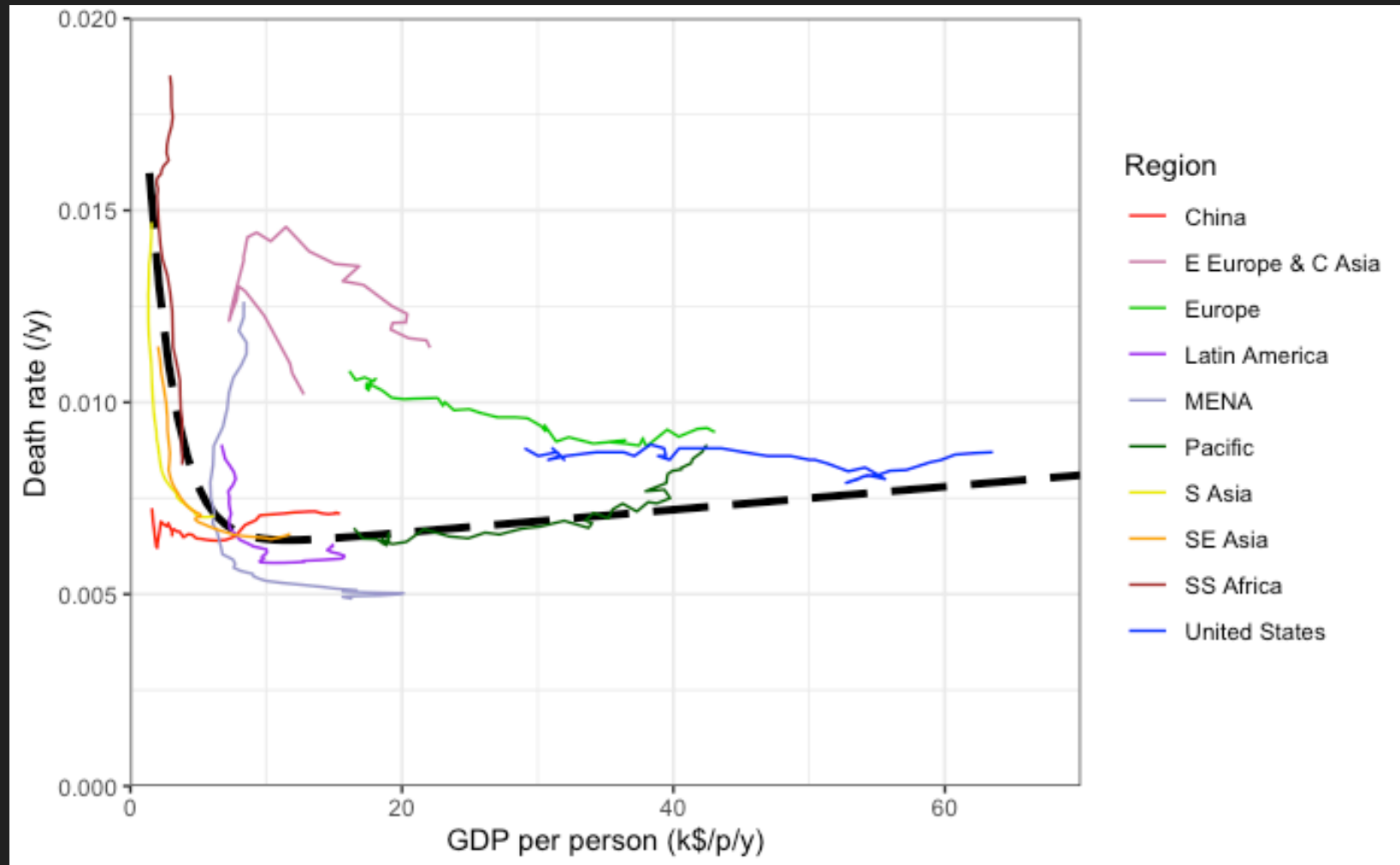
Fertility rate drops until basic needs are met



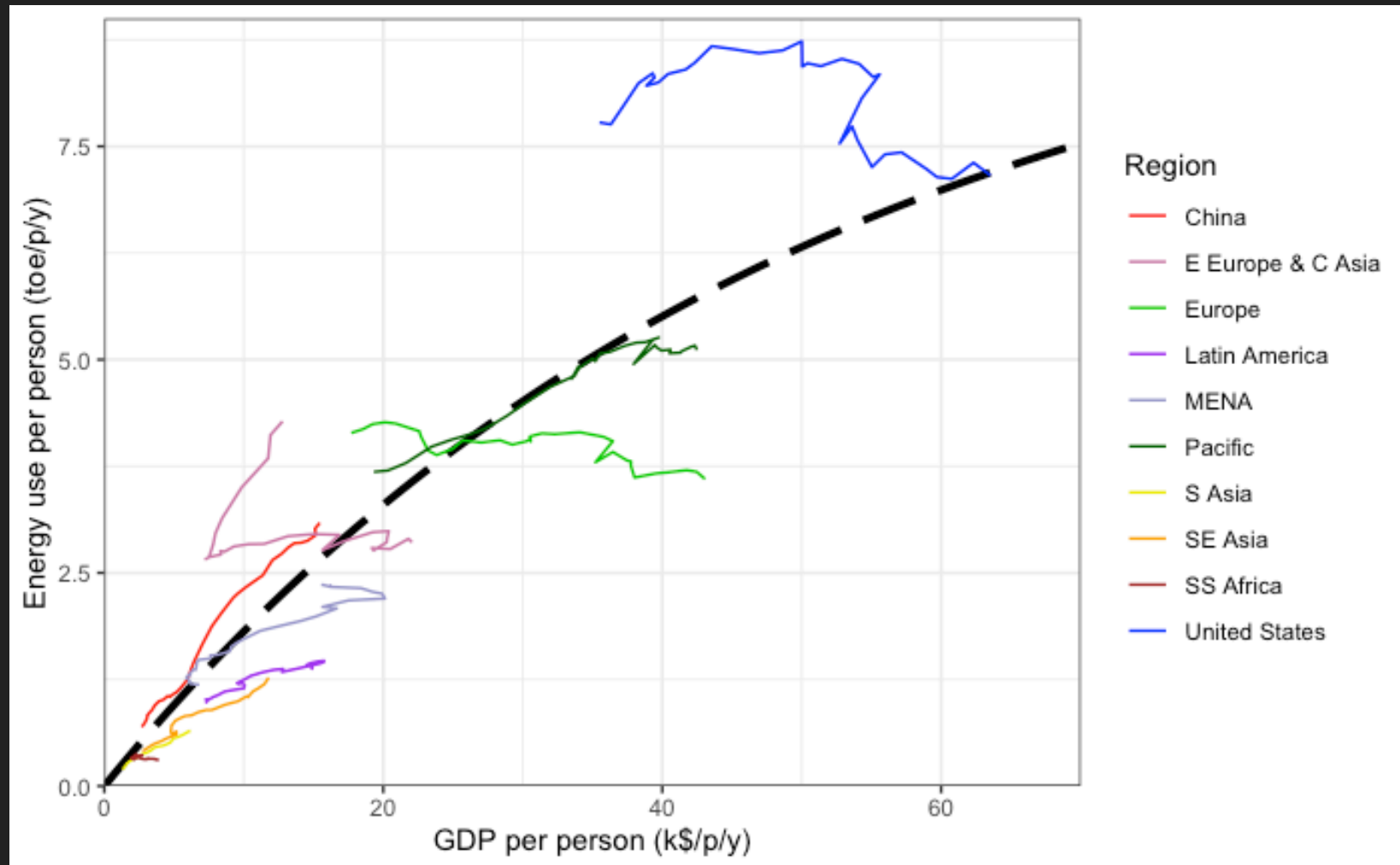
But how low will birth rates go in the long run?



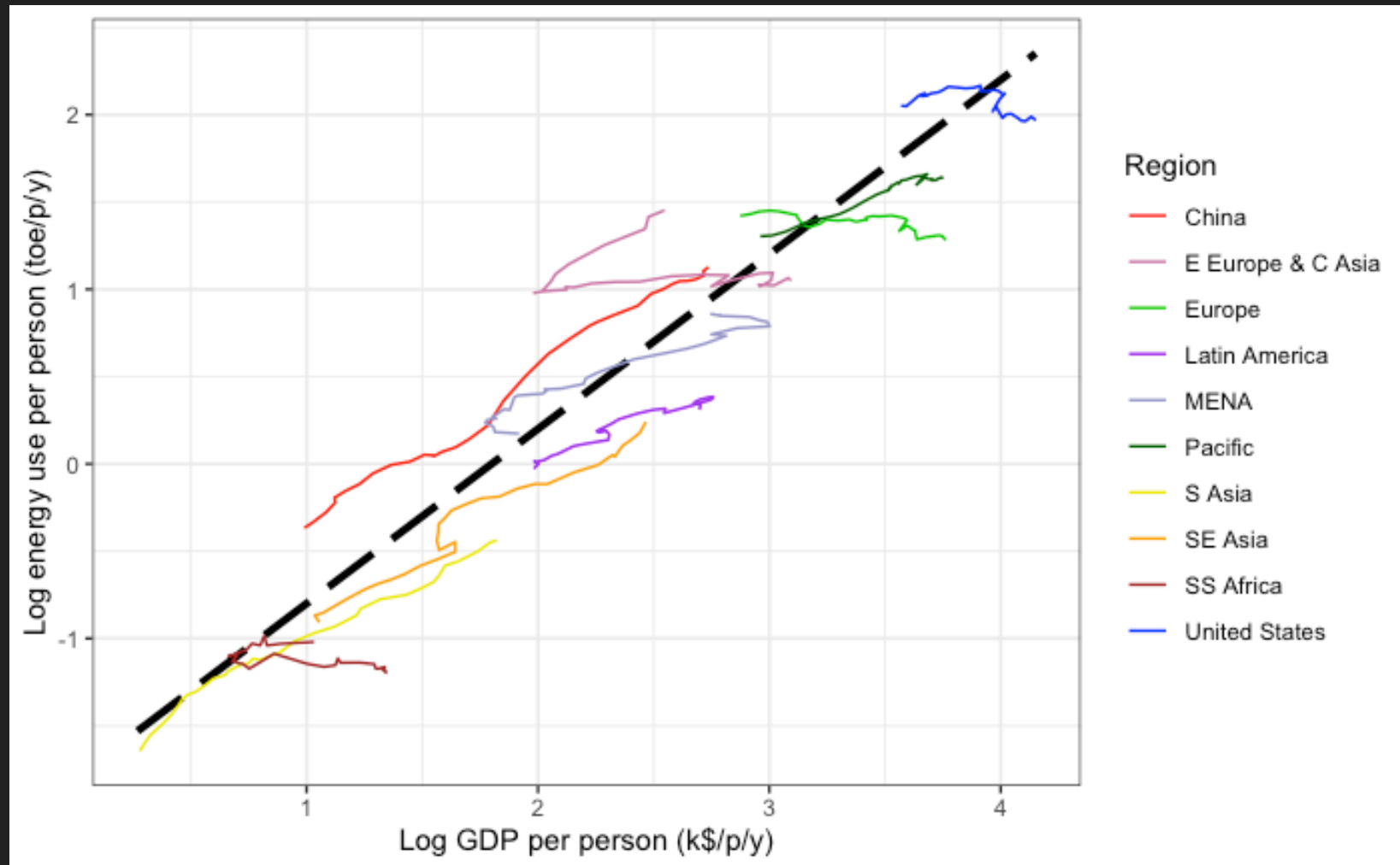
Death rate slowly rises at high GDP



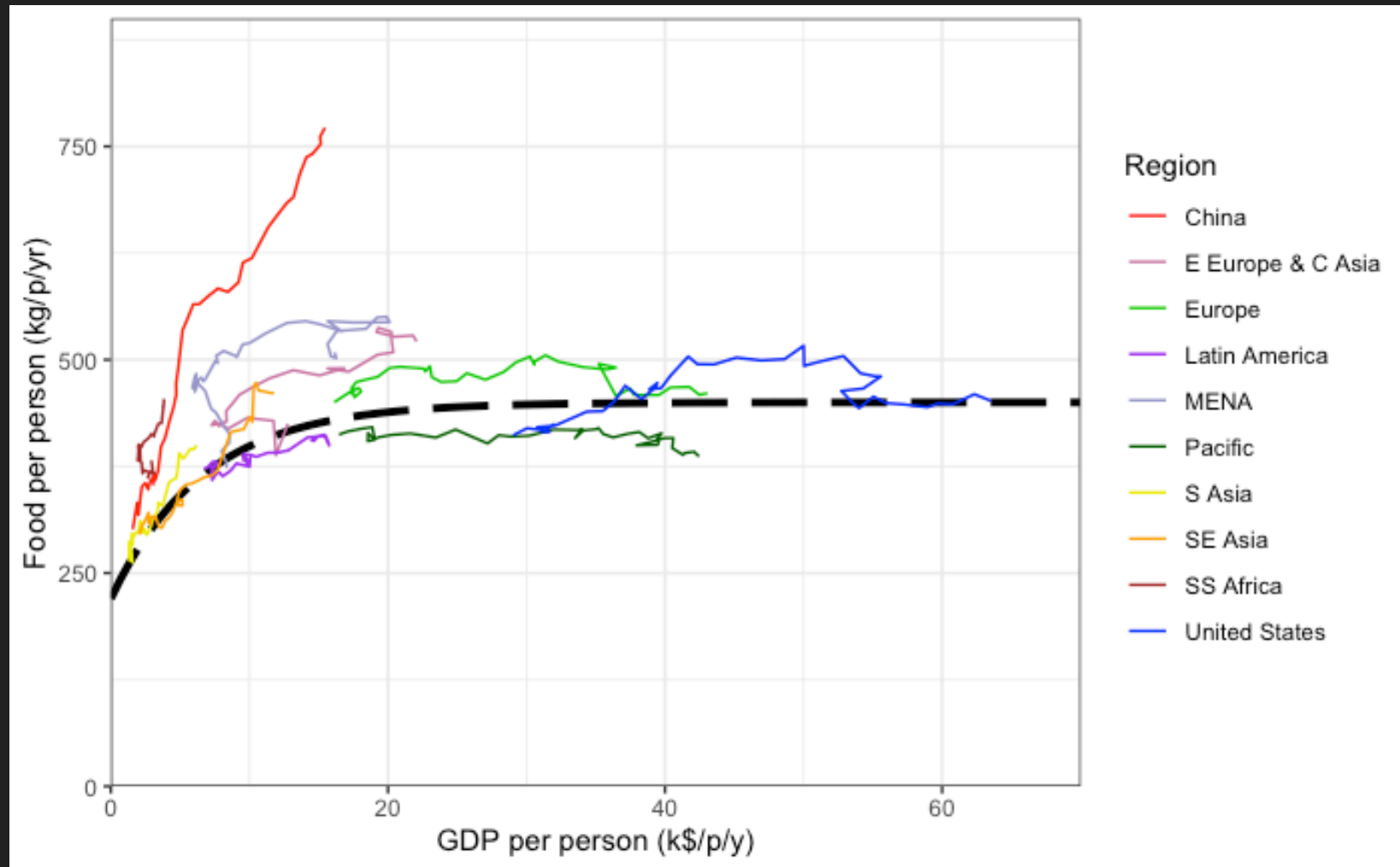
Final energy use rises with GDP



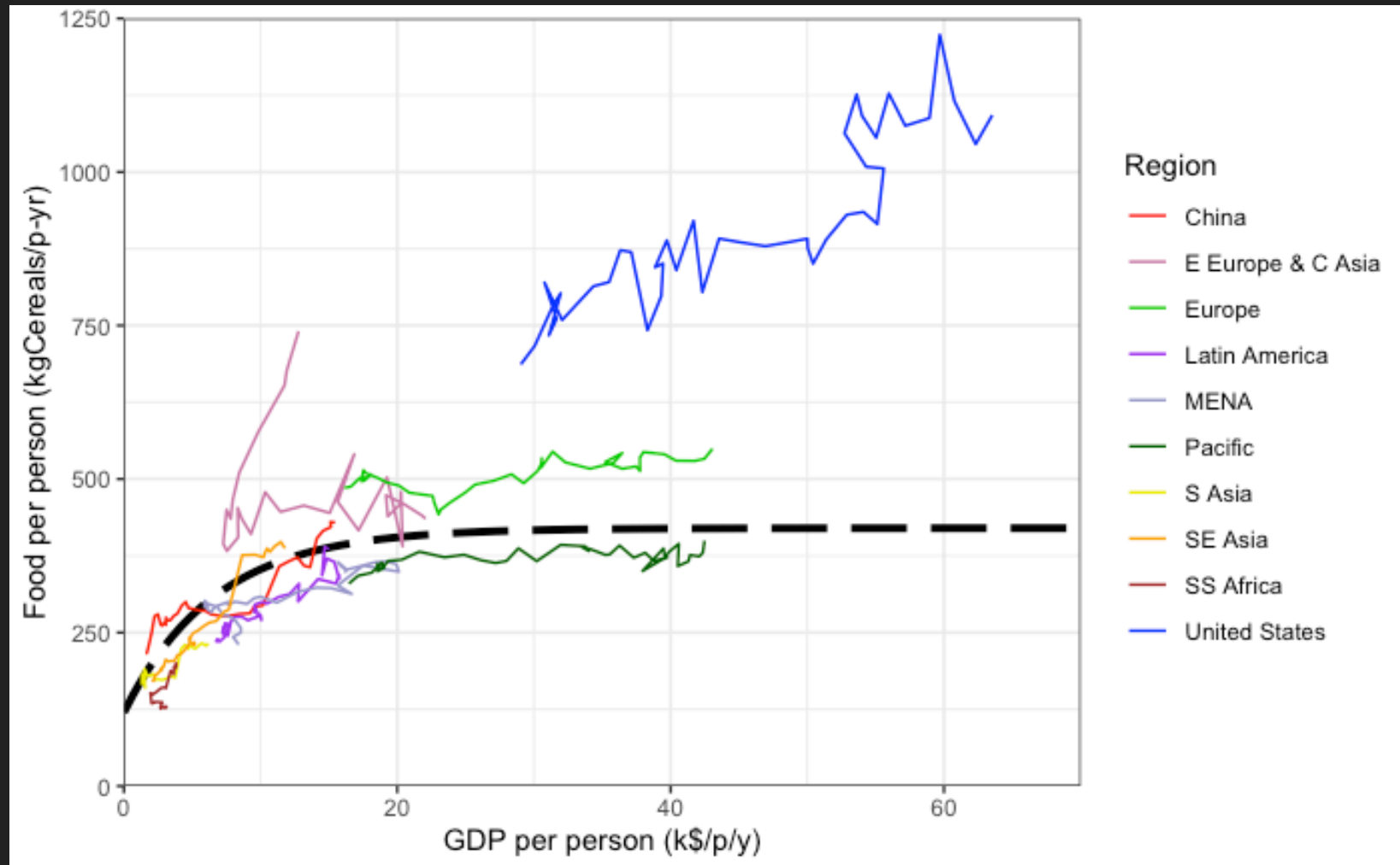
Income elasticity of energy ~1



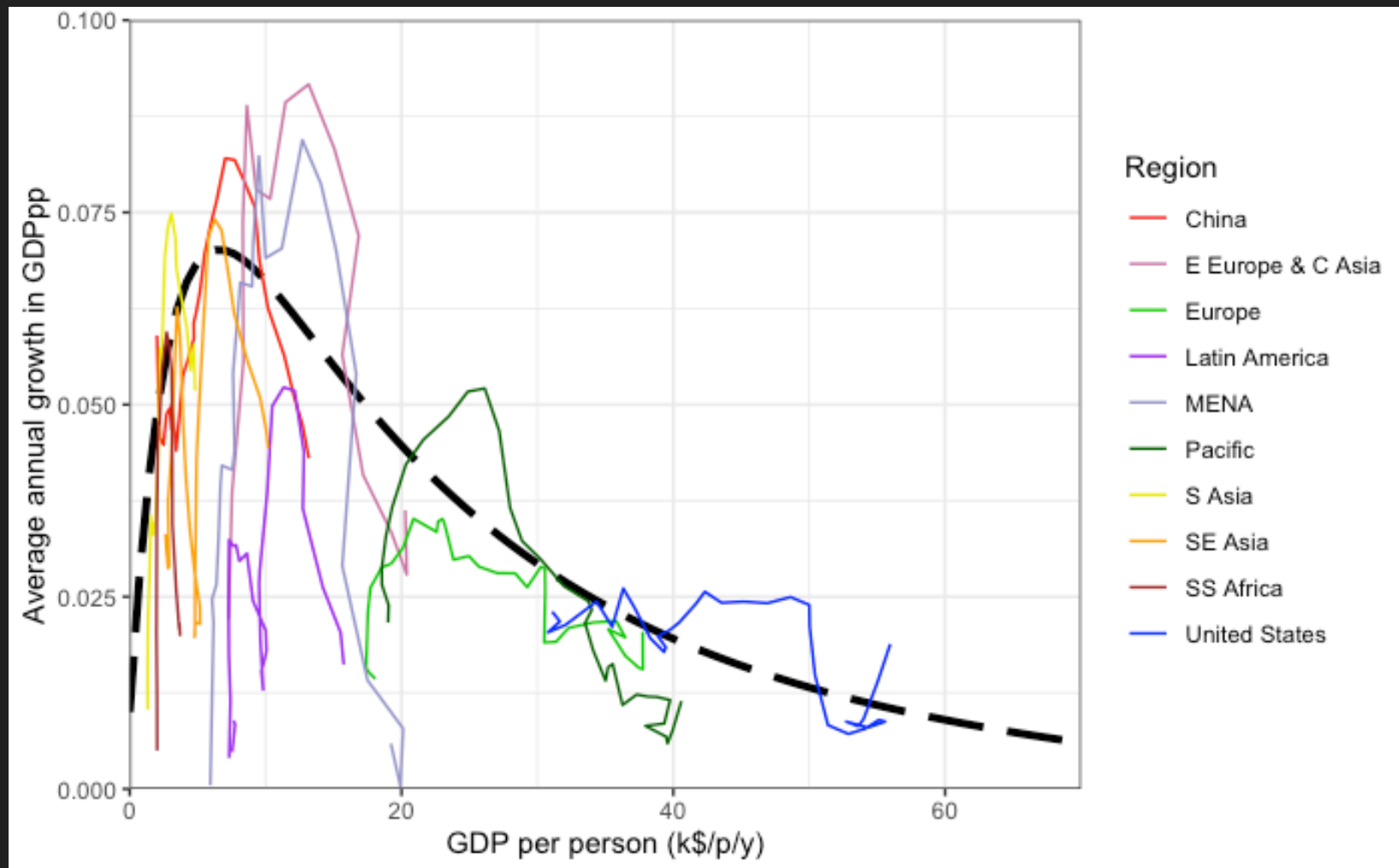
Food consumption levels off ~\$15,000 pp (PIK calc)



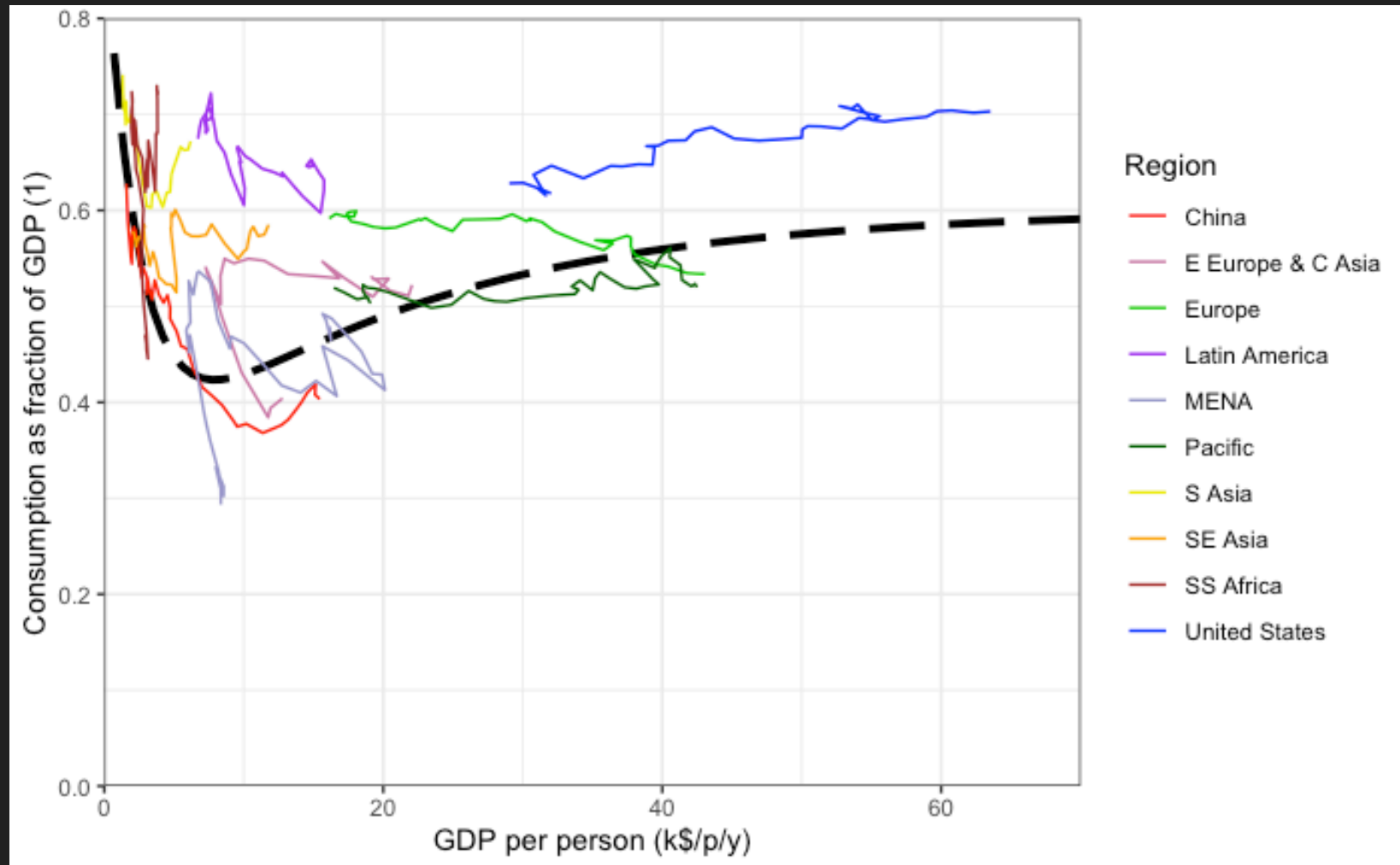
Food consumption levels off ~\$15,000 pp (Ulrich's calc)



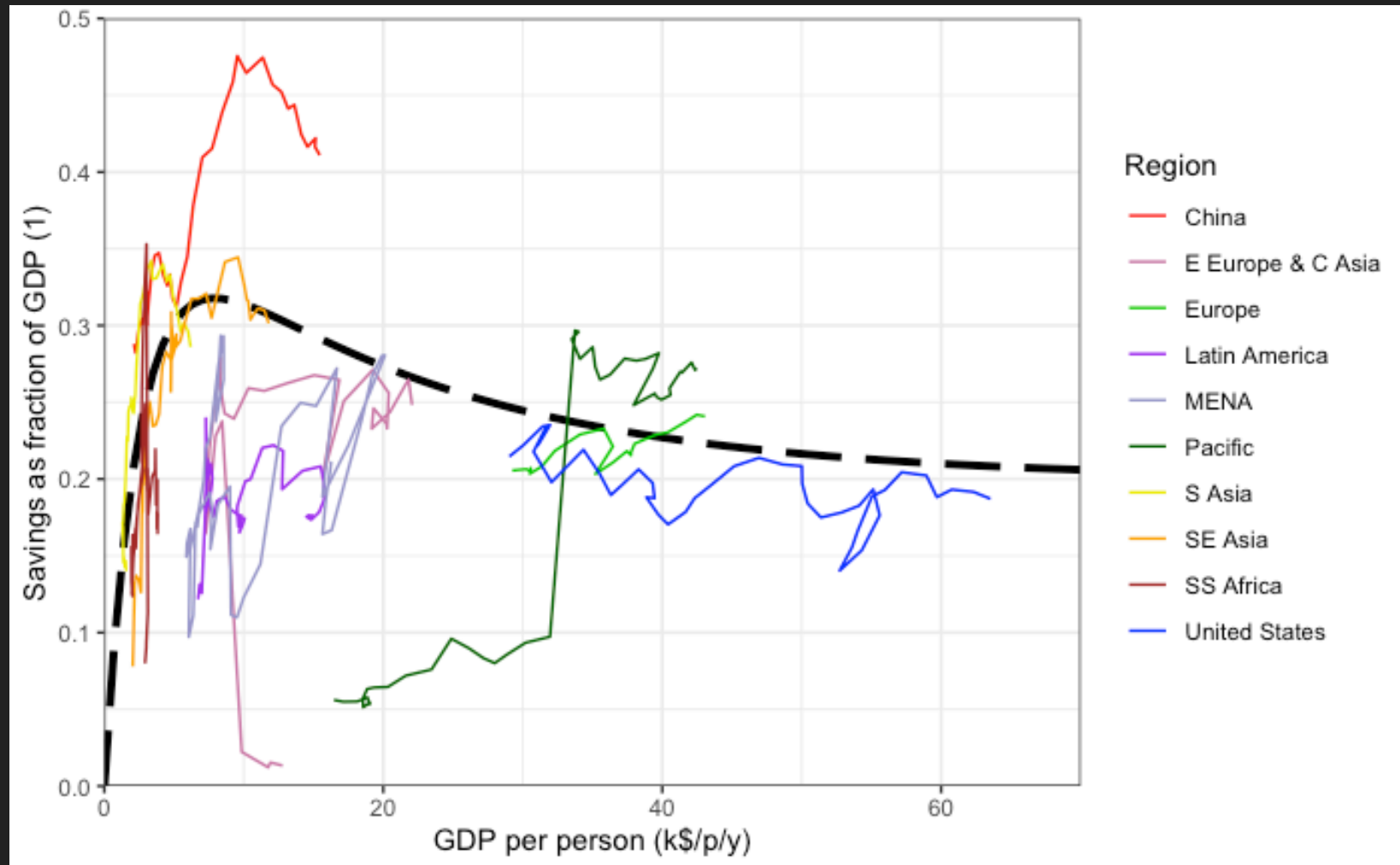
GDP growth rate rises rapidly then declines



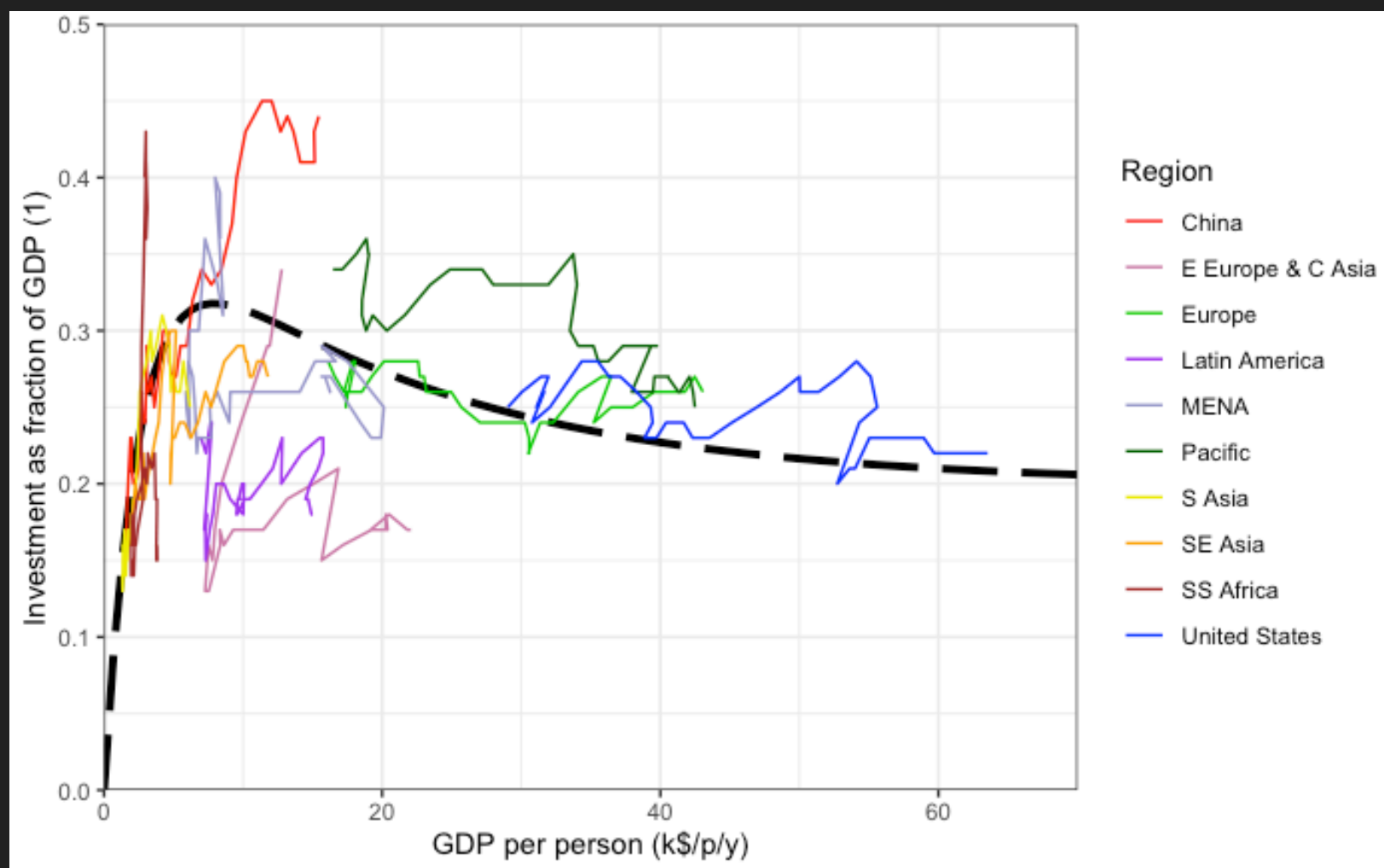
Most income spent on essentials at low GDP



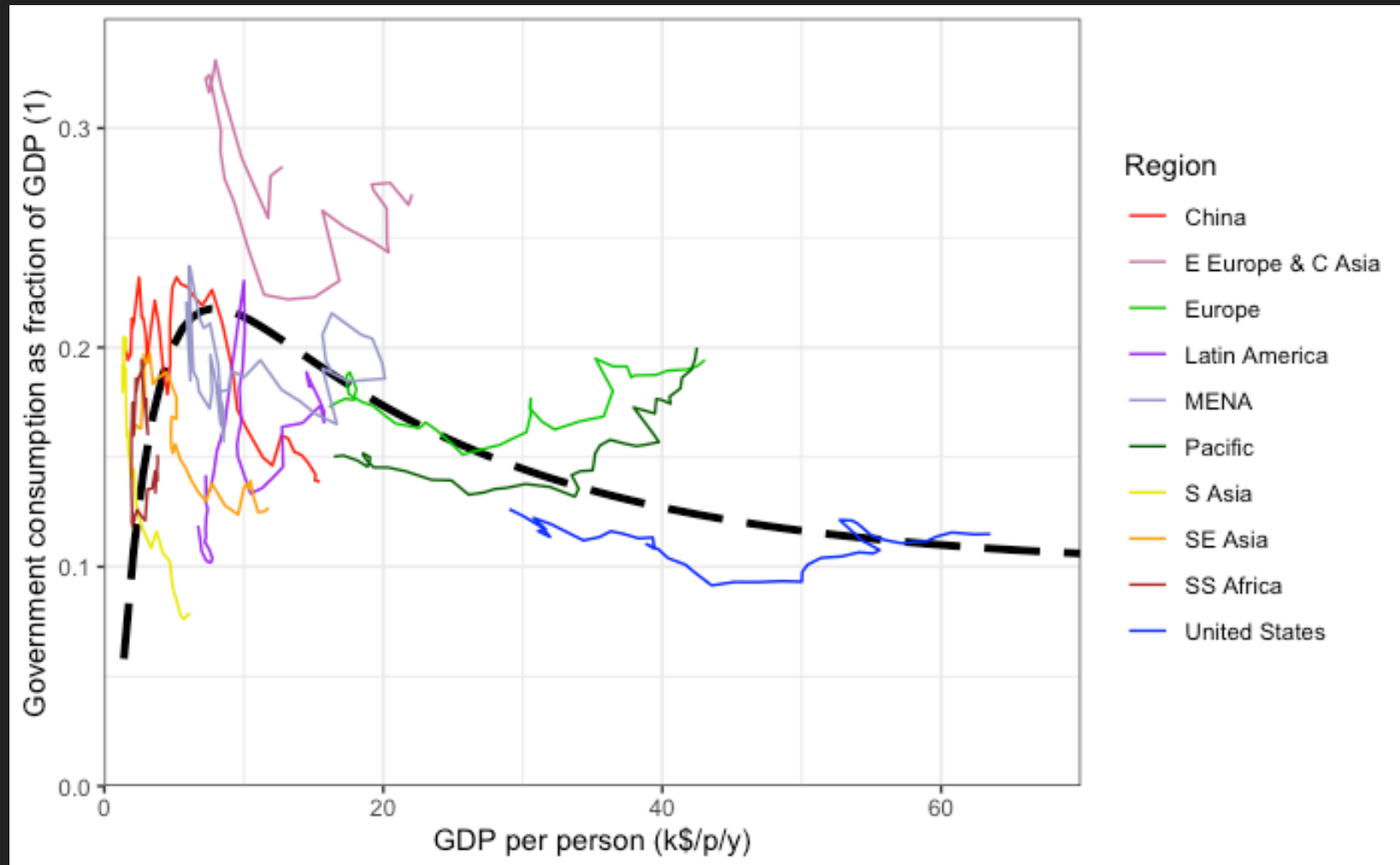
Savings follows inverse of consumption



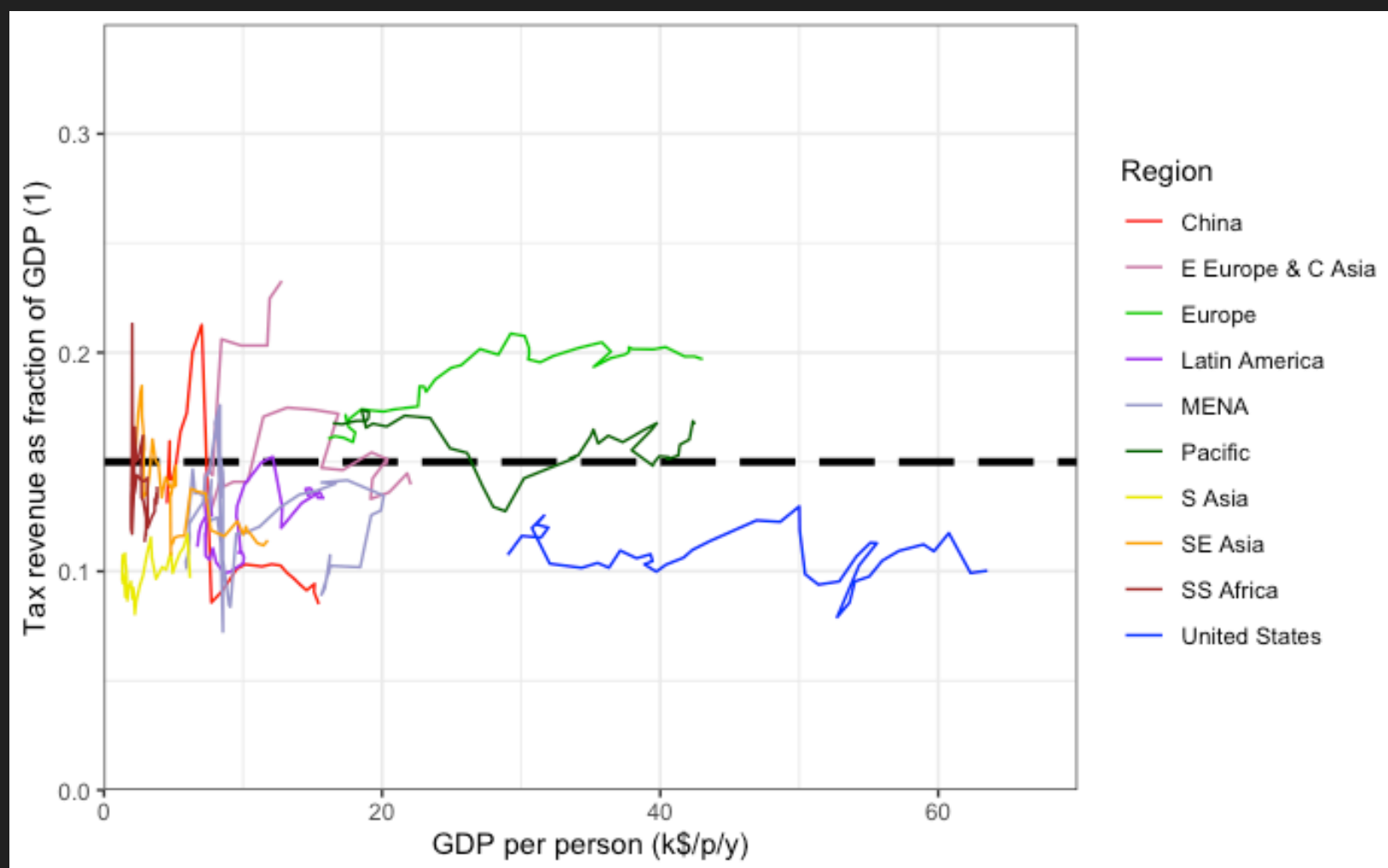
Investment trend is similar to savings



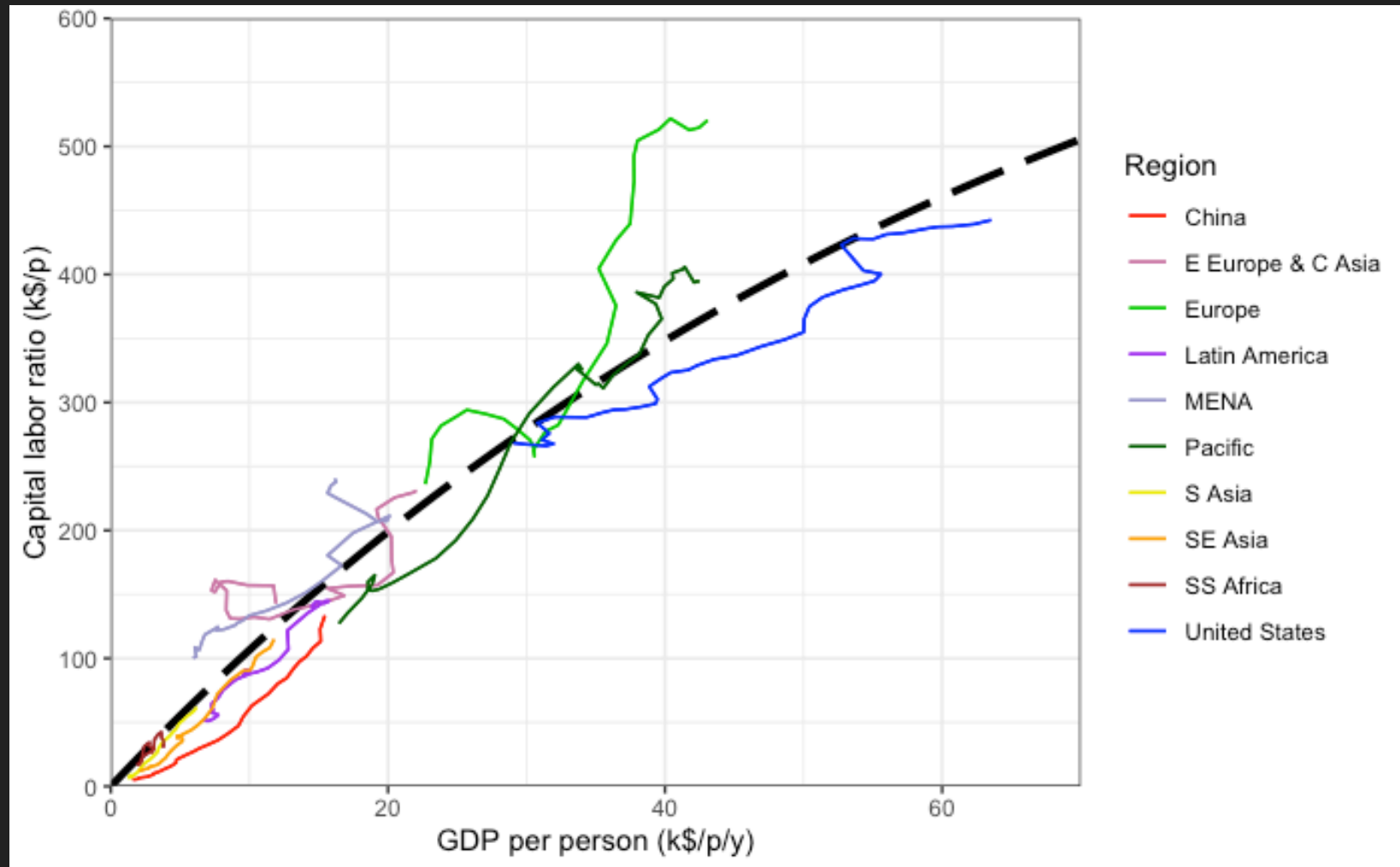
Gov consumption trends complicated by neoliberalisation



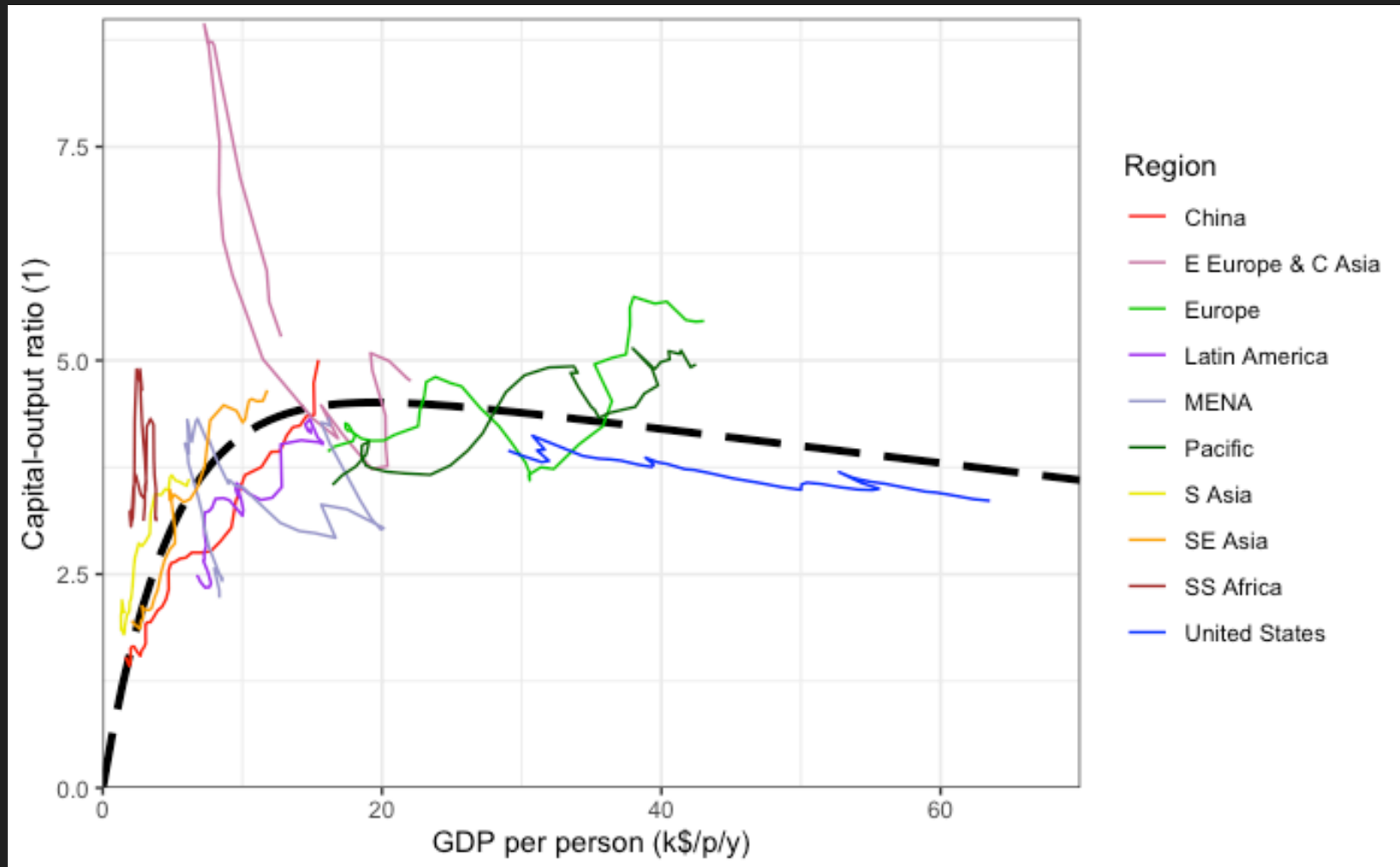
Tax rate fairly constant around regionally-dependent rate



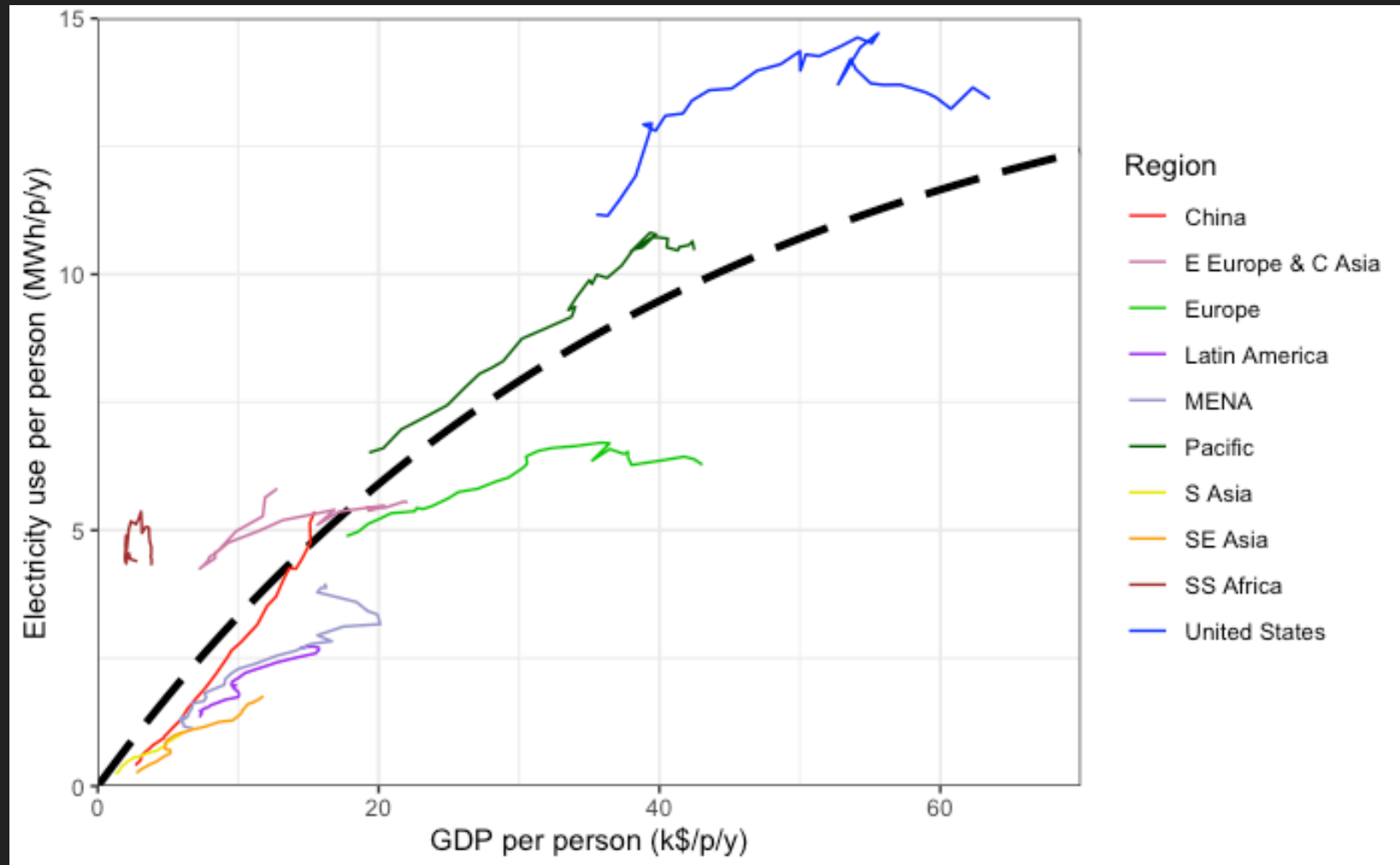
Bigger GDP → more capital stock



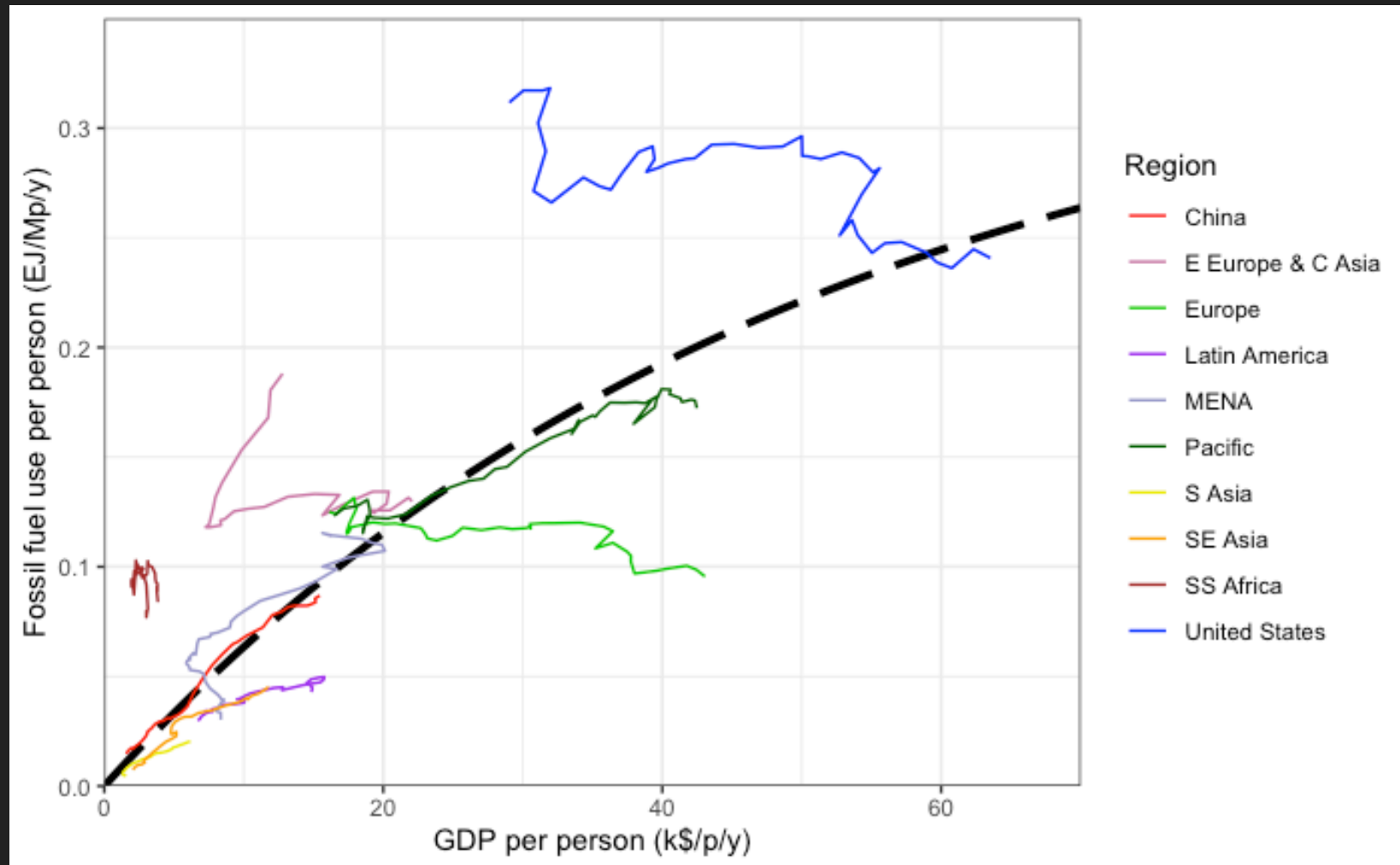
Capital-output ratio: diminishing marginal utility of capital



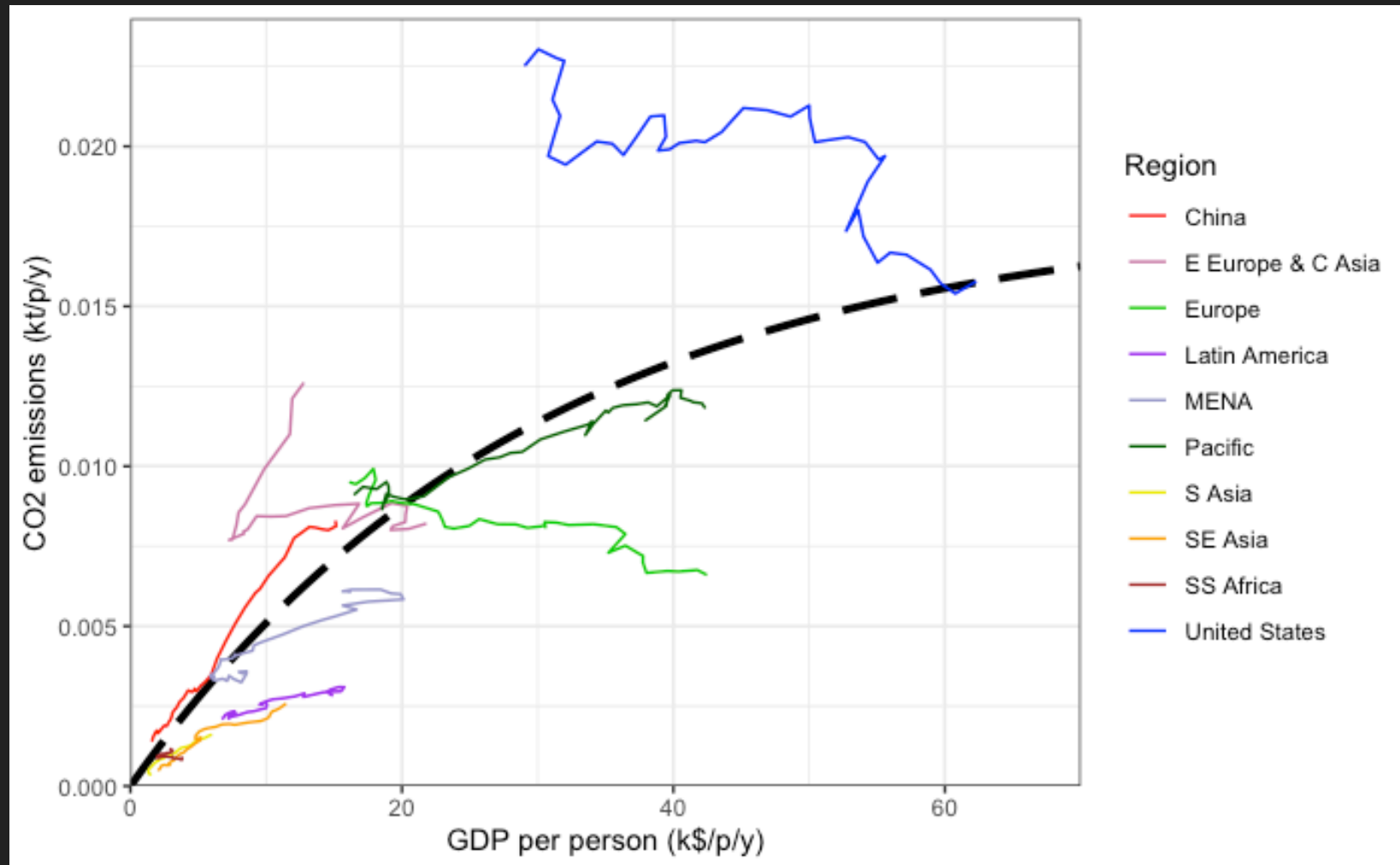
Electricity use rises with GDP



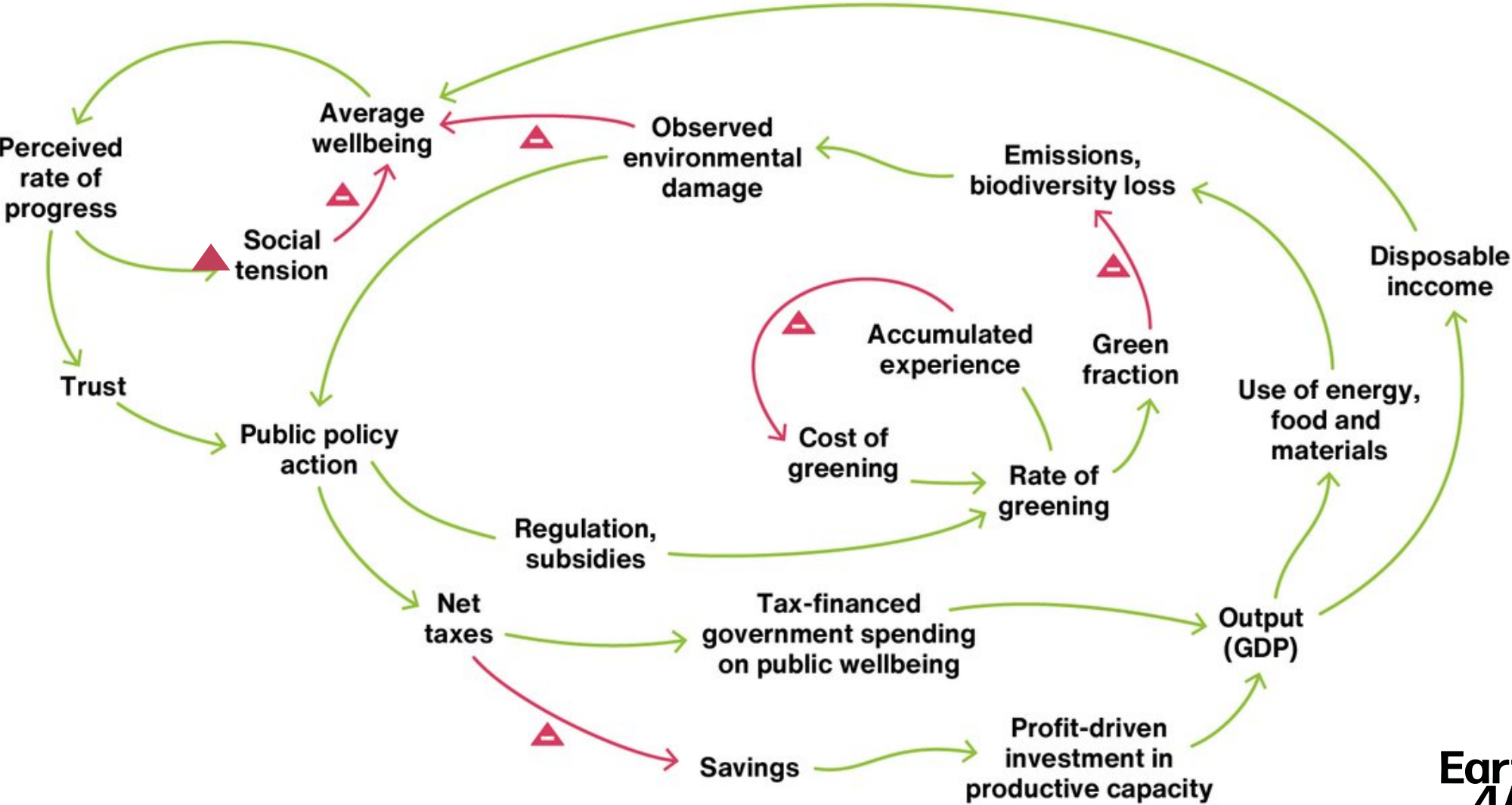
Fossil fuel use rises with GDP



CO₂ emissions rise with GDP



Main causal loops linking economy, society and planet

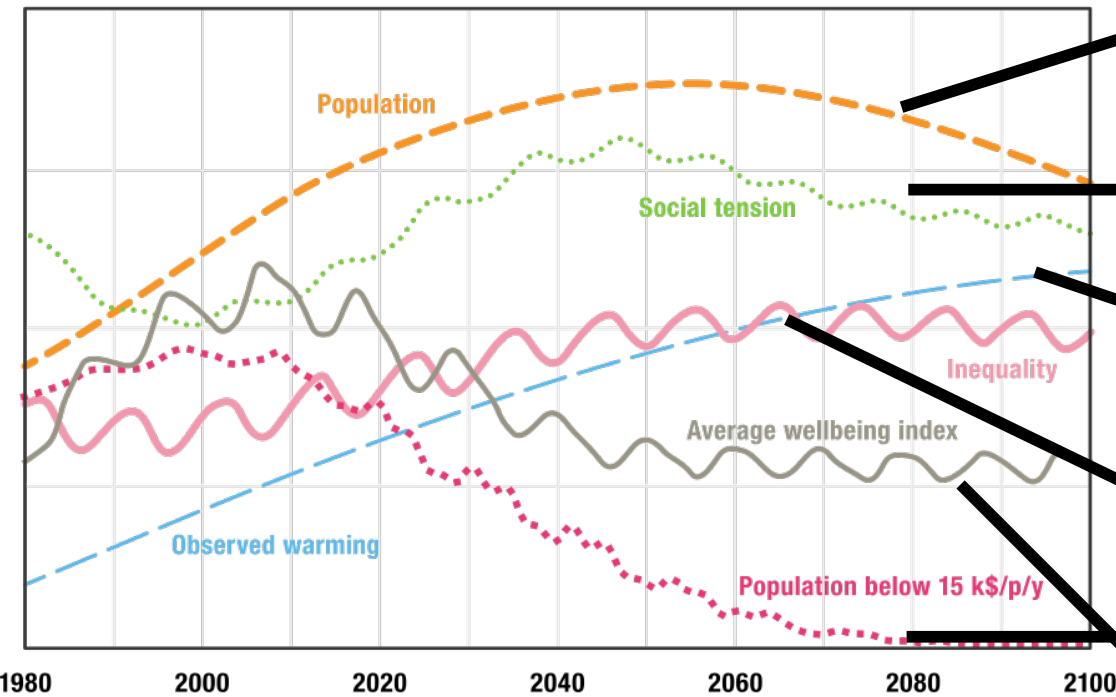


Main results

from decision-making-as-usual:

- 1) Population peaks 9bn in 2050s, then slow decline to 7bn
- 2) Social tensions rise to 2050, then decline.
- 3) Global warming rise to ~2.4C in 2100
- 4) Inequality worsens to 2060.
- 5) Poverty eradicated in 2080
- 6) Average wellbeing gets worse to 2060, then oscillates.

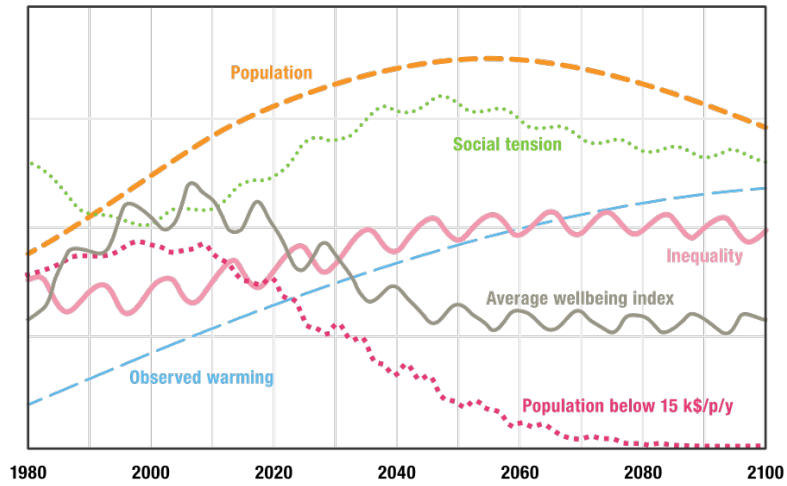
Too little too late scenario



Source: Dixon-Decleve et al (2022) *Earth for All: A Survival Guide for Humanity*, <https://www.amazon.com/Earth-All-Survival-Guide-Humanity/dp/0865719861/>

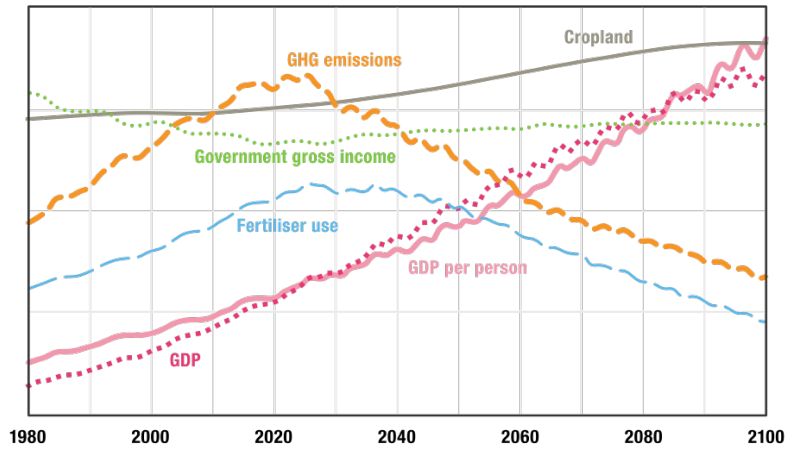
1. Main trends

Too little too late scenario



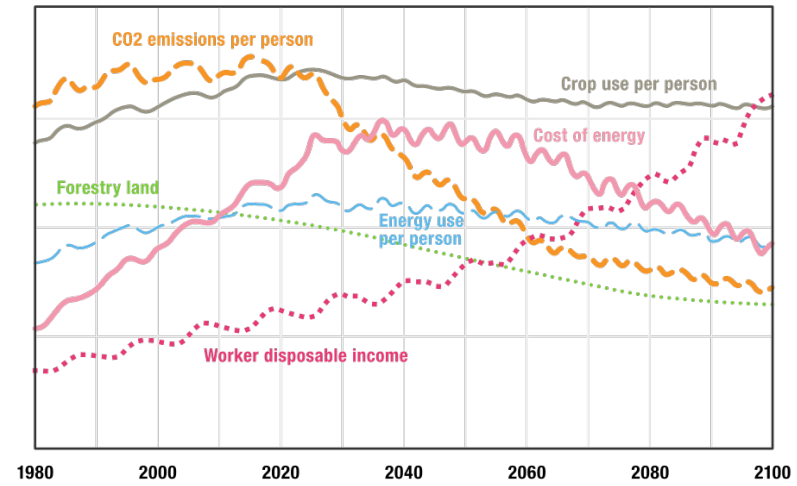
2. Human footprint

Too little too late scenario



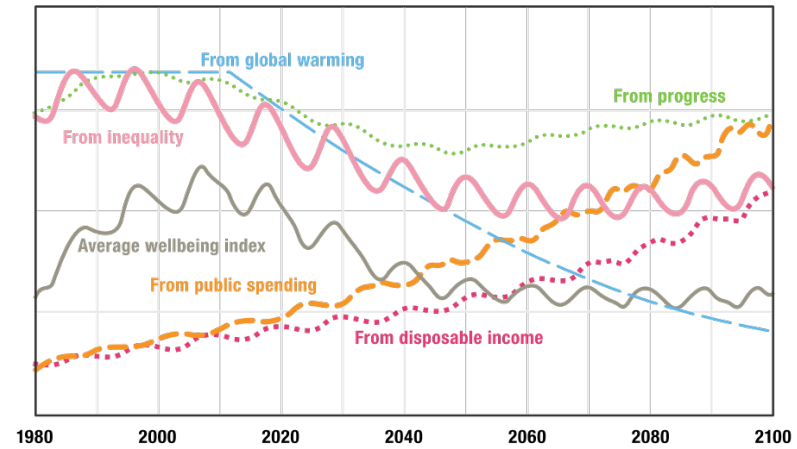
3. Consumption

Too little too late scenario



4. Wellbeing

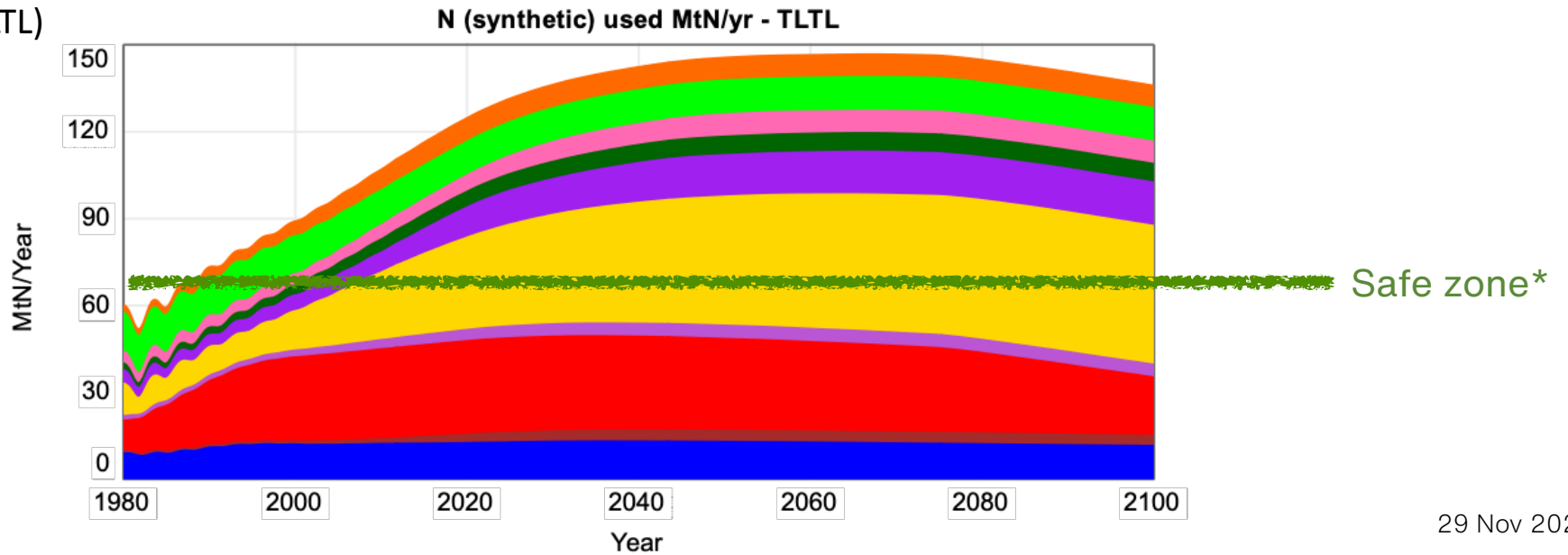
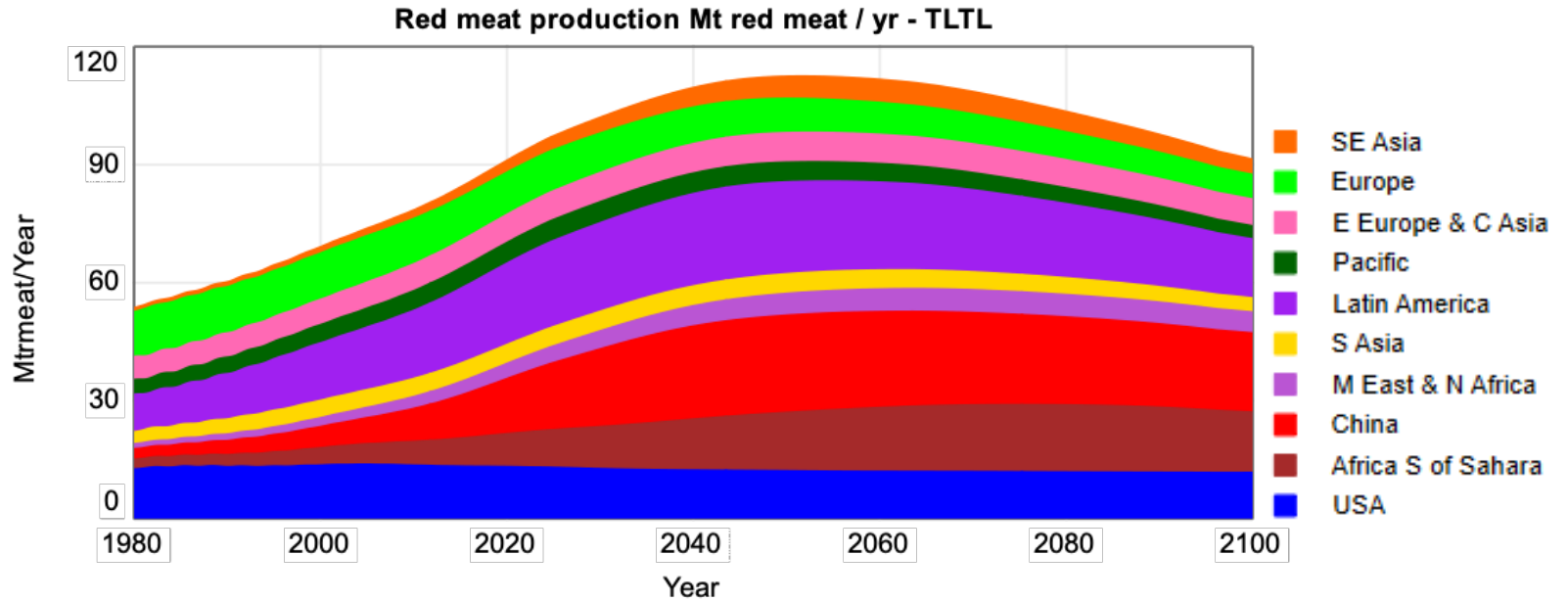
Too little too late scenario





10 region model
breakdown

Scenario 1:
Too Little Too Late (TLTL)





Red meat & nitrogen per region

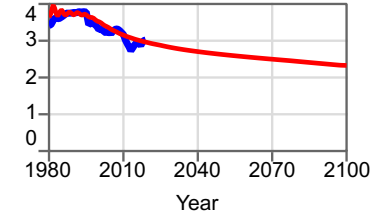
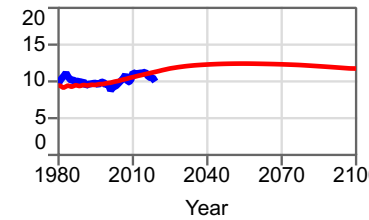
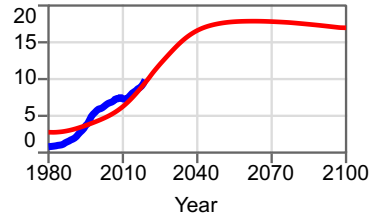
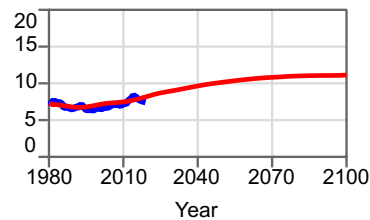
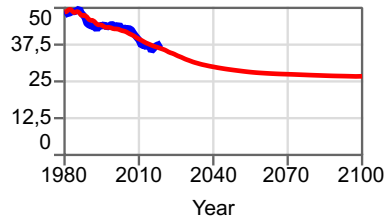
US

Africa S of Sahara

China

M East N Africa

S Asia



— red meat demand pp H[us] (kgmeat/(y*p))
 — red meat demand pp H[af] (kgmeat/(y*p))
 — red meat demand pp H[cn] (kgmeat/(y*p))
 — red meat demand pp H[me] (kgmeat/(y*p))
 — red meat demand pp H[sa] (kgmeat/(y*p))
— red meat demand pp[us] (kgmeat/(y*p))
 — red meat demand pp[af] (kgmeat/(y*p))
 — red meat demand pp[cn] (kgmeat/(y*p))
 — red meat demand pp[me] (kgmeat/(y*p))
 — red meat demand pp[sa] (kgmeat/(y*p))

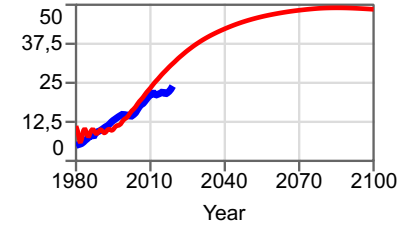
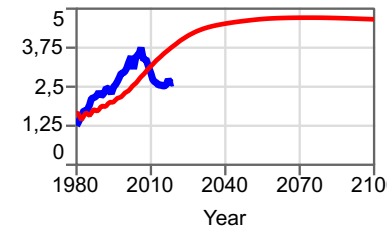
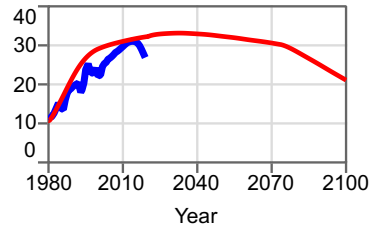
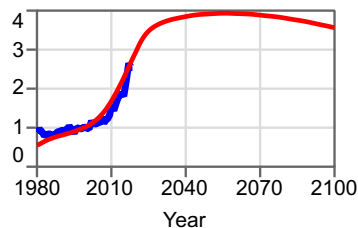
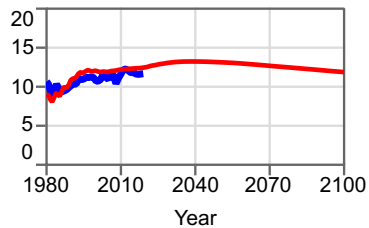
US

Africa S of Sahara

China

M East N Africa

S Asia



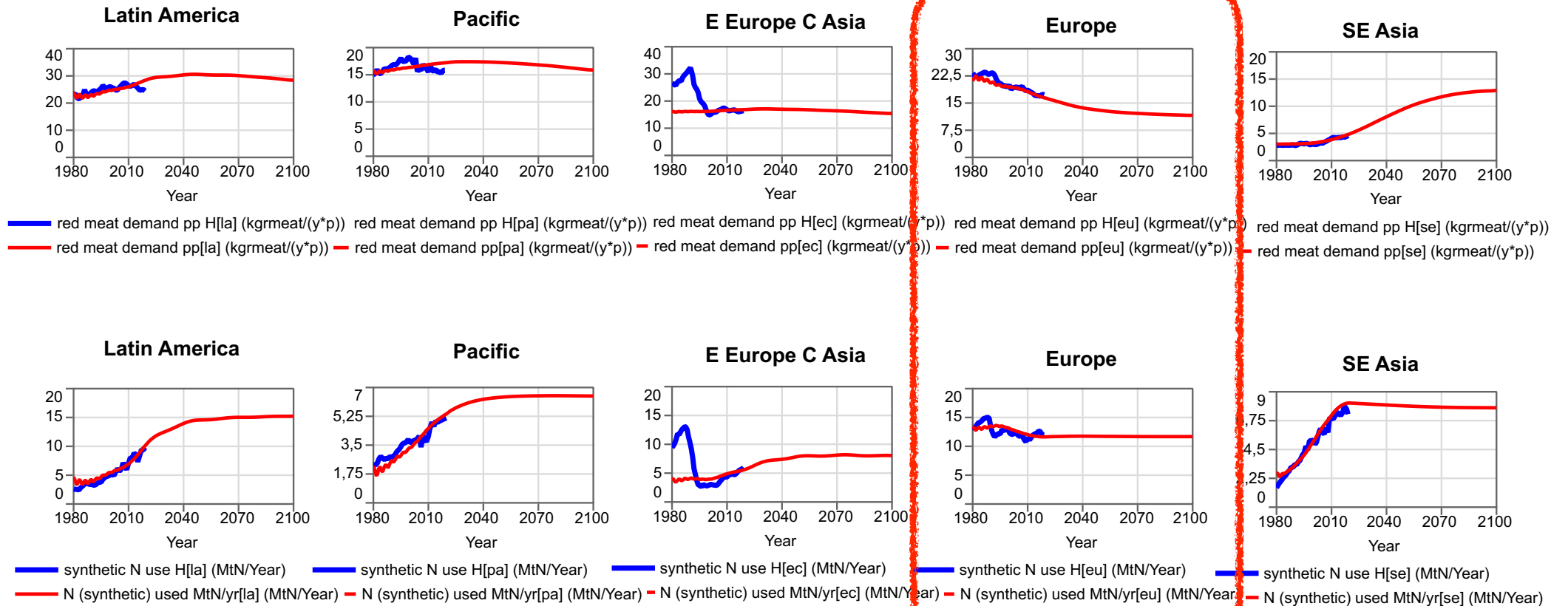
— synthetic N use H[us] (MtN/Year)
 — synthetic N use H[af] (MtN/Year)
 — synthetic N use H[cn] (MtN/Year)
 — synthetic N use H[me] (MtN/Year)
 — synthetic N use H[sa] (MtN/Year)
— N (synthetic) used MtN/yr[us] (MtN/Year)
 — N (synthetic) used MtN/yr[af] (MtN/Year)
 — N (synthetic) used MtN/yr[cn] (MtN/Year)
 — N (synthetic) used MtN/yr[me] (MtN/Year)
 — N (synthetic) used MtN/yr[sa] (MtN/Year)

Scenario 1:
Too Little Too Late (TLTL)

Source: FAO & HYDE (data cleaned & processed) 24 Nov 2022



Red meat and nitrogen per region



Scenario 1:
Too Little Too Late (TLTL)

Source: FAO & HYDE (data cleaned & processed) 24 Nov 2022

3) Well-being



Quantifying the *future* average wellbeing??



Dignity	Fundamental needs must be met	Worker disposable income k\$/p/y
Nature	People safe and healthy in their communities	Global warming in C
Connection	Institutions focused on delivering shared wellbeing	Public spending k\$/p/y
Fairness	Fair distribution of the commons and wealth	Owner incomes after tax / worker income after tax
Participation	Citizens actively engaged in economy & communities	People's observed progress (previous levels of wellbeing) + labour particip.



The E4A Average Wellbeing Index depends on

- 1. Worker disposable income per person – after tax**
(in 2017 PPP \$ per person per year)
- 2. Public spending per person** (in 2017 PPP \$ per person per year)
- 3. The level of inequality** (Owner disposable income divided by worker disposable income)
- 4. Observed global warming** (Degrees C above preindustrial)
- 5. Perceived progress** (rate of change in wellbeing during last 5 years)

The AWI is calculated as follows, relative to value in 1980:

1. **Worker disposable income** (Measured in thousand 2017PPP\$/p/y)
= (GDP * Worker share ("wso") * (1-Worker tax rate) + Transfers to workers) / Workforce (Mp)

2. **Public spending per person** (Measured in thousand 2017PPP\$/p/y)
= (National income ("NI") * Govmnt gross income as share of NI) / Population (Mp)

3. **Inequality** (Measured as a ratio)
= Owner income after tax (G\$/y) / Worker income after tax (G\$/y)

4. **Environmental damage** (Measured in degrees C relative to 1850)
= Observed global warming = a function of man-made GHG emissions from energy and food use

5. **Perceived progress** (Measured in 1/y)
= Rate of change in the Average Wellbeing Index

The current summary formula and weighting is:

AWI (in any year) = (0.5 * "Average wellbeing from disposable income (1)" + 0.5 * "Average wellbeing from public spending (1)") * "Average wellbeing from inequality (1)" * "Average wellbeing from global warming (1)" * "Average wellbeing from progress (1)"

Questions about Earth4All Wellbeing index:

1. When calculating well-being; relative to what?
to 1980 or the moving previous 5 (or 20?) years as we move into the future?
2. Should we put equal weighting of the five components?
we now have equal weighting on economic * inequality * nature * psychology factors
3. Does adding further complexity to sub-units add to usefulness?
(ie all 9 planetary boundaries or focus on climate? incl. labor participation in progress?)

The current summary formula and weighting is:

$$\text{AWI (in any year)} = (0.5 * \text{"Average wellbeing from disposable income (1)"} + 0.5 * \text{"Average wellbeing from public spending (1)"}) * \text{"Average wellbeing from inequality (1)"} * \text{"Average wellbeing from global warming (1)"} * \text{"Average wellbeing from progress (1)"}$$

Source: Earth4all Methodological Note, <https://www.earth4all.life/the-science>



SOME 'NOVELTIES' OF THE EARTH4ALL MODEL

- 1 INEQUALITY**

We investigate the **distributional effects** in terms of owner & worker share of output from both private investment and public sector activities, confirming the preliminary evidence in favor of the relevance of distributional patterns for the determination of sustainable policy-making (Rao et al, 2017)
- 2 ECOLOGY**

We include the wider effect of the human economy on the main **planetary boundaries** (climate, nutrients, forests, biodiversity), the impact of the natural boundaries on economic development and their complex feedback effects (Harfoot et al., 2014)
- 3 PUBLIC SECTOR**

We model an active public sector with **public infrastructure capacity**, welfare policies and an active climate-change mitigation policy stance (Mazzucato, 2021)
- 4 FINANCE**

We include the effects from **debt and money supply**, central bank interest rates and corporate capital costs, addressing the call for further integration of financial mechanisms with IAMs (Battiston et al, 2021)
- 5 LABOR**

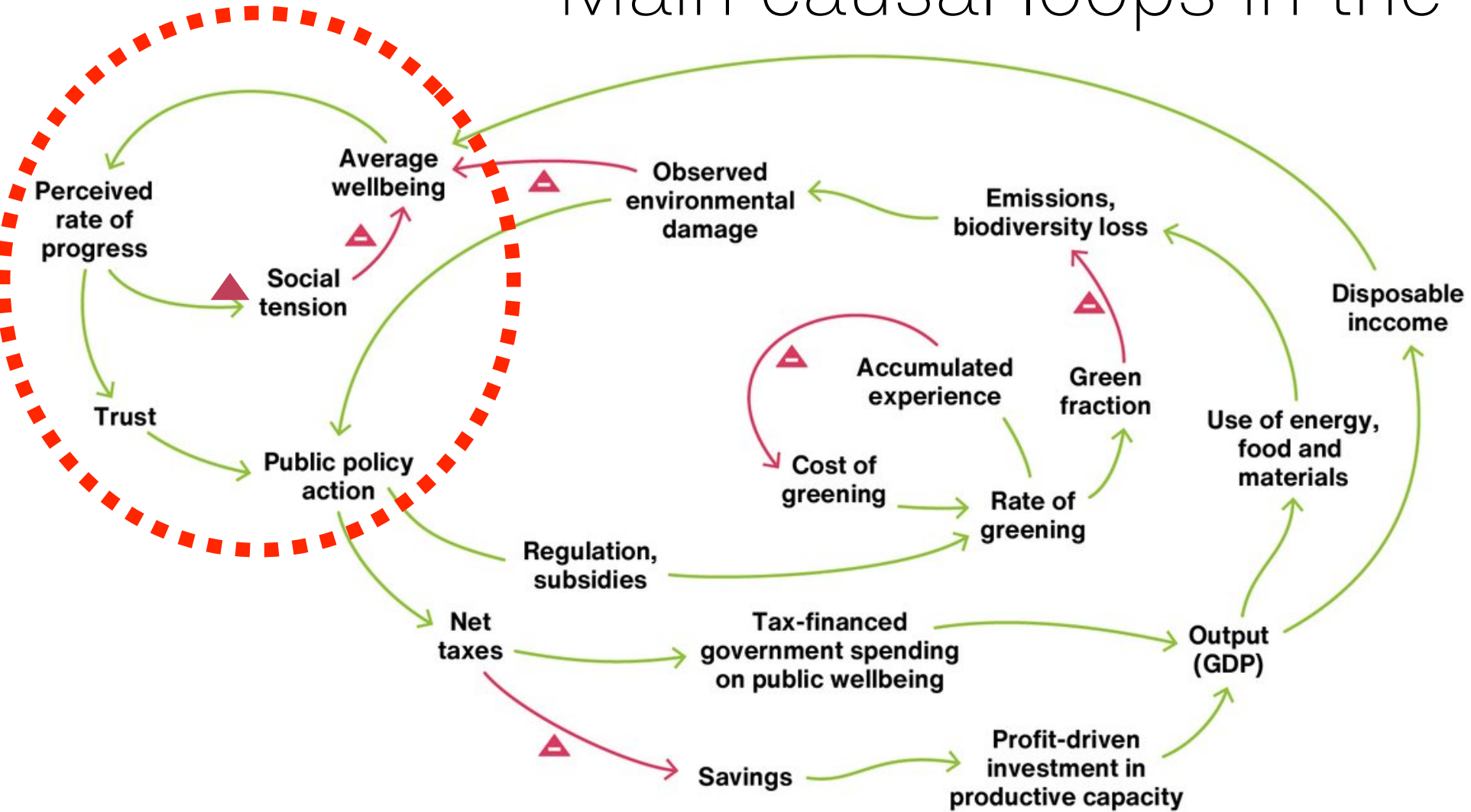
We are able to simulate a recurrent 10-year **unemployment cycle** and its macroeconomic consequences, a global first (Ciarli & Savona, 2019)
- 6 POPULATION**

In contrast to UN's statistical approach, we have **endogenous population dynamics** affected by investment levels in public spending, education and income levels, improving on existing IAM with demographic sectors (McIsaac, 2020)
- 7 WELLBEING**

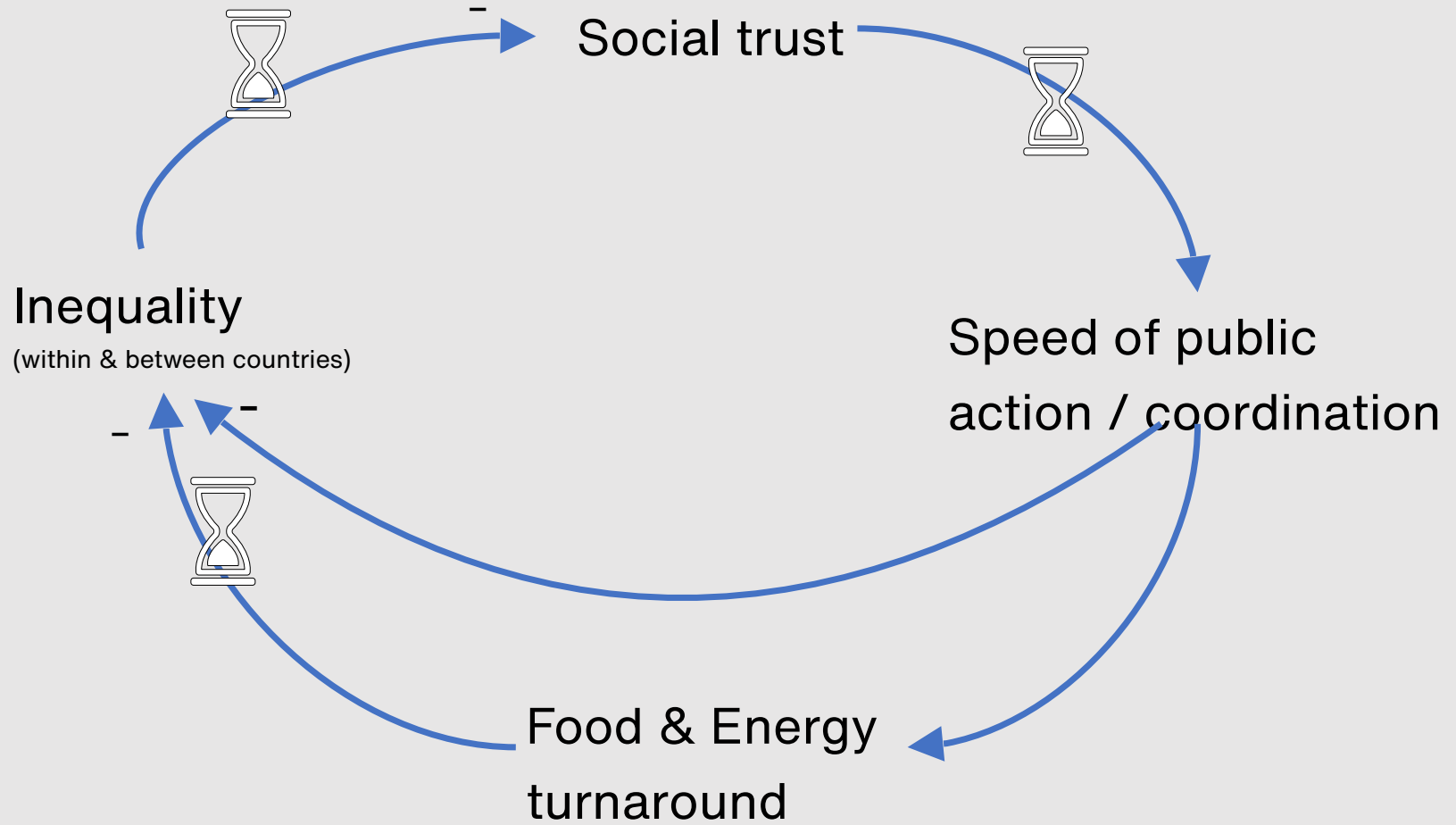
We integrate a **wellbeing index**, and social tension index (as a function of GDPpp, unemployment, income inequality, debt burden, government services, local/regional pollution, perceived global warming), illustrating the connection between environmental and social sustainability and integrating the latter within a IAM for the first time (Eizenberg & Jabareen, 2017)

4) Resilience and Inequality

Main causal loops in the model



The deep social dynamic in E4A-model



5) THE POLICY AGENDA

and the “Giant Leap” scenario

What if we do a “Giant Leap” now, how much change to 2050 and 2100?



Too Little Too Late (TLTL)
(decision-making as usual)

?

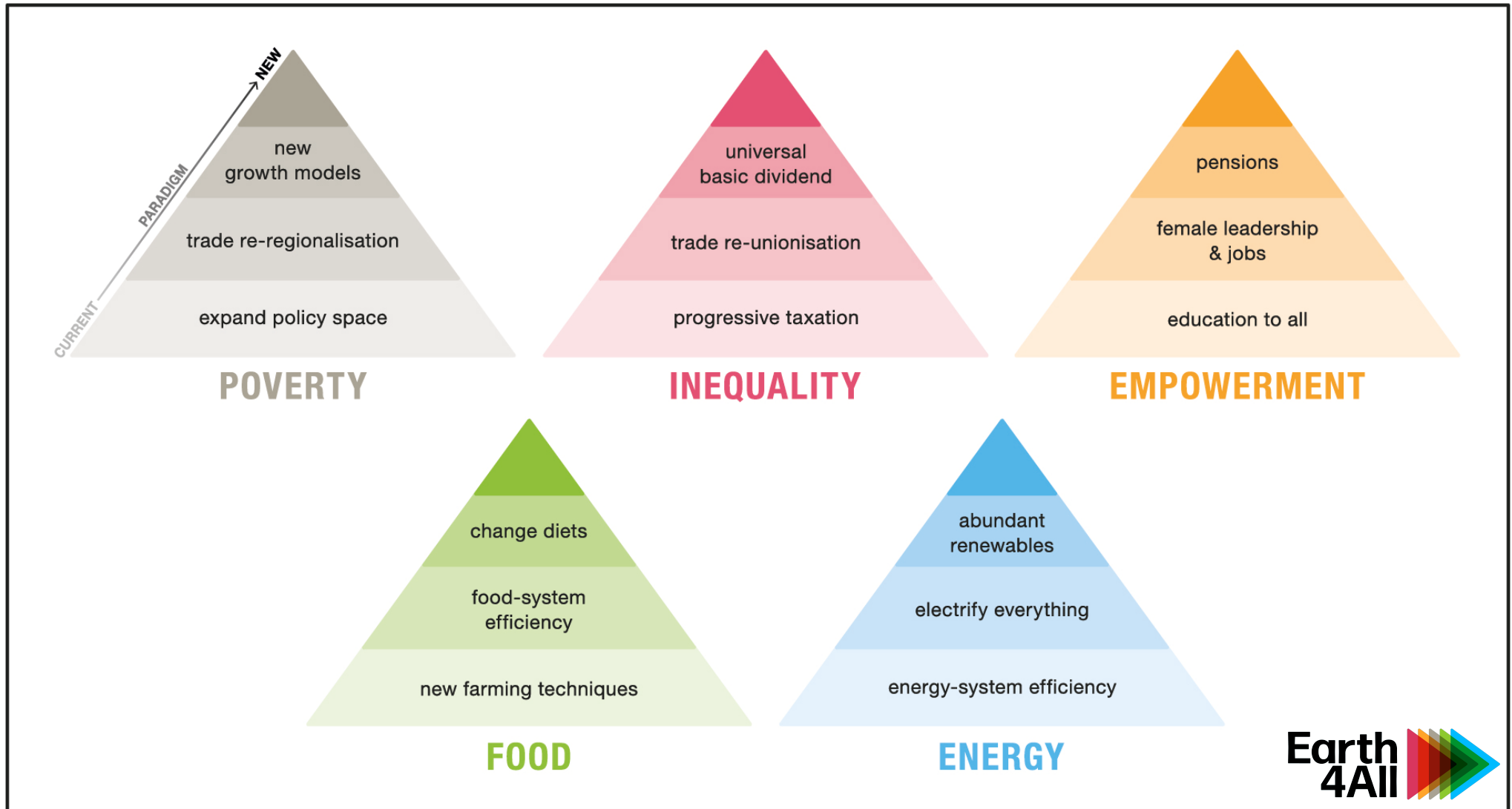


Giant Leap (GL)
(extraordinary turnarounds)

FIVE GLOBAL TURNAROUNDS ARE NEEDED

- 1 **Ending poverty.** All low-income countries have a GDP growth rate of at least 5% per year until GDP per person is greater than USD15,000.
- 2 **Addressing gross inequality.** The wealthiest 10% should take less than 40% of national incomes.
- 3 **Transforming gender equity** globally by 2050.
- 4 **Transforming the food system** to regenerative and sustainable agriculture and providing healthy diets for people within planetary boundaries.
- 5 **Transitioning to clean energy** on a “Carbon Law” pathway of cutting fossil fuels and other greenhouse gases 50% every decade to reach net zero emissions by 2050

THE ACTIONS TO ACHIEVE THE TURNAROUNDS





Quantifying the turnarounds

Earth4All turnaround levers with variables		Updated by JR 220501	
Policy description in report	Policy handles in Earth4All model	Parameter values in two scenarios	
		Too Little	Too Late
			Giant Leap
Poverty			
Expand policy space	Fraction of govmt debt cancelled in 2022 1/y	0	0,1
Trade reregionalisation	Unconventional stimulus in PIS from 2022 (share of GDP)	0	0,01
New growth models	Unconventional stimulus in PUS from 2022 (share of GDP)	0	0,01
	Max imported ROTA from 2022 1/y	0	0,005
Inequality			
Progressive taxation	Extra general tax rate from 2022 (1)	0	0,01
	Fraction of extra taxes paid by owners (1)	0,5	0,8
Strengthen unions	Extra transfer of govmt budget to workers (1)	0	0,2
Universal Basic Dividend	Goal for extra income from commons (share of NI)	0	0,02
Empowerment			
Education to all	Goal for extra fertility reduction (1)	0	0,2
female leaderships	Extra empowerment tax from 2022 (share of NI)	0	0,02
Pensions to all	Extra pension tax from 2022 (share of NI)	0	0,02
Food			
Food-system efficiency	ROC in food sector productivity from 2022 1/y	0,002	0,002
	Goal for crop waste reduction (1)	0,05	0,2
New farming techniques	Goal for fraction regenerative agriculture (1)	0,1	0,5
Change diets	Goal for fraction new red meat (1)	0,1	0,5
Energy			
Energy-system efficiency	Extra ROC in energy productivity after 2022 1/y	0,002	0,004
Electrify everything	Goal for fraction new electrification (1)	0,5	1
Abundant renewables	Goal for renewable el fraction (1)	0,5	1
	Goal for fraction of CO2-sources with CCS (1)	0,2	0,9
	Direct air capture of CO2 in 2100 GtCO2/y	0	8
Other			
	Extra rate of decline in CH4 pr kg fertilizer 1/y	0	0,01
	Extra rate of decline in N2O pr kg fertilizer 1/y	0	0,01
	Crop yield in reg ag t-crop/ha/y	5	5
	Time to implement new taxes y	5	5
	Natural N2O emissions GtNO2/y	Reduced from 0.009 in 2022 to 0 in 2100	Reduced from 0.009 in 2022 to 0 in 2101

THE FIVE TURNAROUNDS, detailed changes:



Turnaround 1) Poverty

- Allow the International Monetary Fund to allocate over \$1 trillion annually to low-income countries for green jobs— creating investments through so-called Special Drawing Rights.
- Cancel all debt to low-income countries (<\$10,000 income per person).
- Protect fledgling industries in low-income countries and promote South-South trade between these countries. Improve access to renewables and health technologies by removing obstacles to technology transfer, including intellectual property constraints.

Turnaround 2) Inequality

- Increase taxes on the 10% richest in societies until they take less than 40% of national incomes by 2030. The world needs more progressive taxation; and closing international loopholes is essential to deal with destabilizing inequality and luxury carbon and biosphere consumption.
- Legislate to strengthen worker's rights. In a time of deep transformation, workers need economic protection.
- Introduce Citizens Funds to give all citizens their fair share of the national income, wealth, and the global commons through fee and dividend schemes.

Turnaround 3) Gender Equity

- Provide access to education for all girls and women.
- Achieve gender equity in jobs and leadership.
- Provide adequate pensions.

Turnaround 4) Food system

- Legislate to reduce food loss and waste.
- Scale up economic incentives for *regenerative agriculture* and *sustainable intensification* (shift subsidies).
- Promote healthy diets that respect planetary boundaries.

Turnaround 5) Energy system

- Immediately phase out fossil fuels and scale up energy efficiency and renewables. Triple investments immediately to >\$1 trillion per year in new renewables.
- Electrify everything.
- Invest in energy efficiency and storage at scale.

Source: Dixson-Decleve et al (2022) *Earth for All, A Survival Guide for Humanity*, Forthcoming, p. 170.

What future do we co-create to 2050 and 2100?



Too Little Too Late (TLTL)
(decision-making as usual)

?



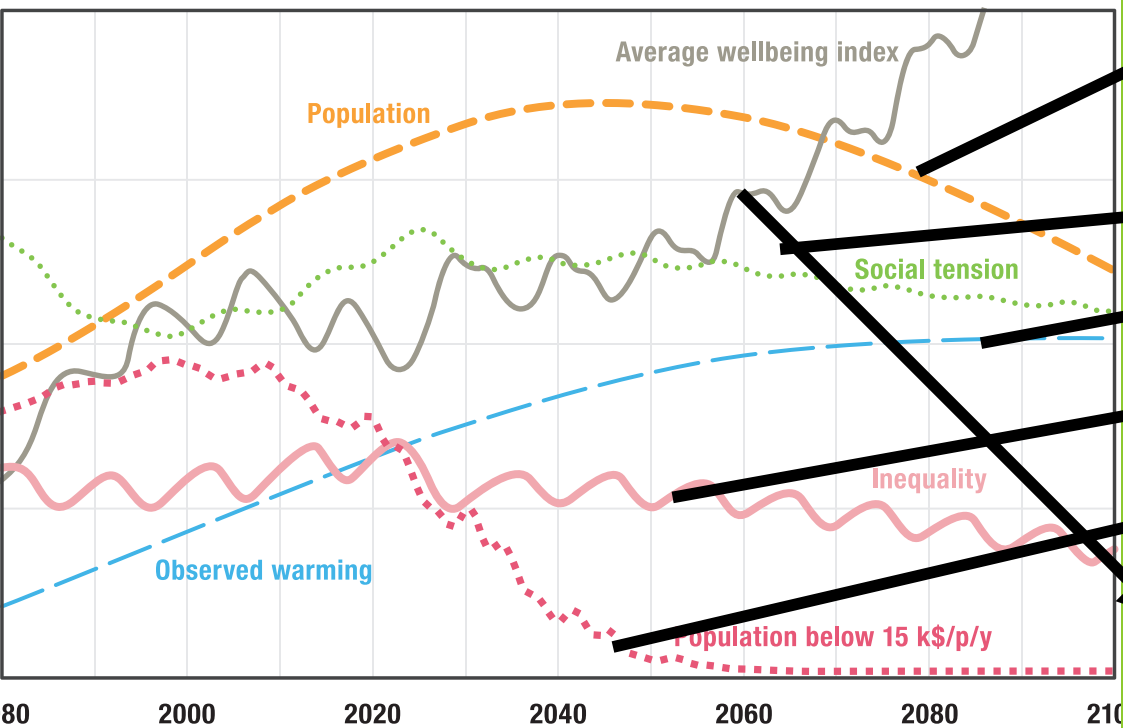
Giant Leap (GL)
(extraordinary turnarounds)

Main results

from five turnarounds:

- 1) Population peaks 9bn in 2050s, then decline to <6bn in 2100
- 2) Social tensions decline from 2025
- 3) Global warming stays below 2C
- 4) Inequality declines from 2025.
- 5) Poverty eradicated in 2045
- 6) Average wellbeing improves throughout century.

Giant leap scenario



Source: Dixon-Decleve et al (2022) *Earth for All: A Survival Guide for Humanity*, in press <https://www.amazon.com/Earth-All-Survival-Guide-Humanity/dp/0865719861/>

Scenario Comparison

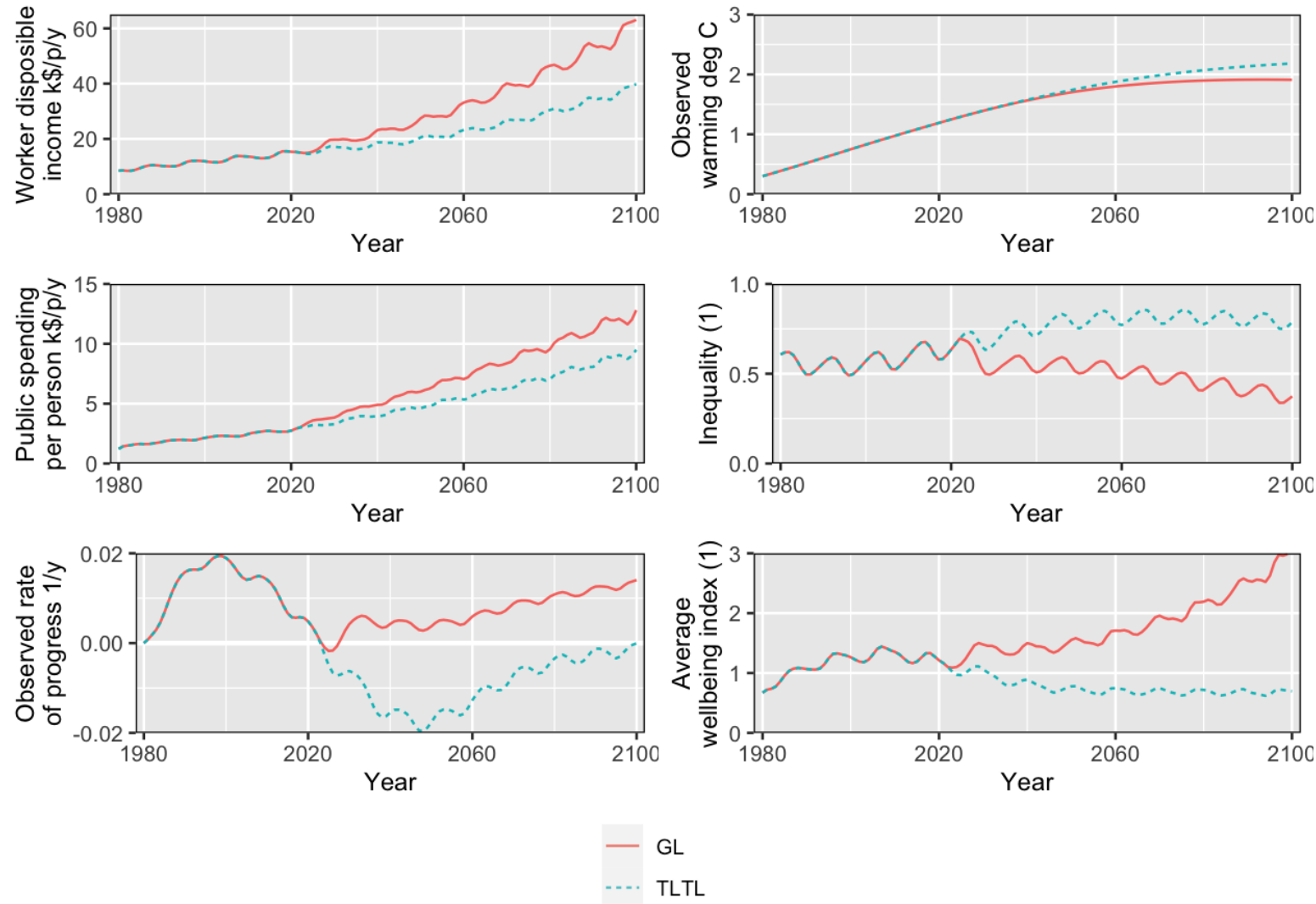
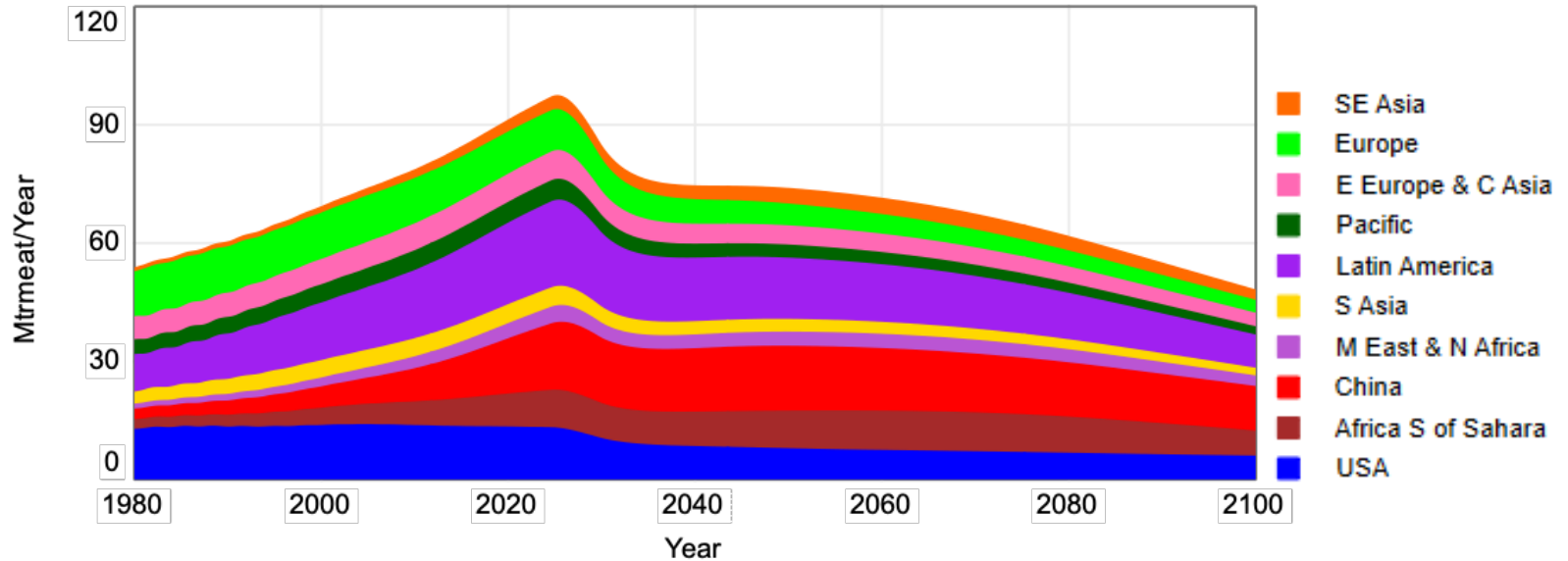


Fig. 4: Scenario results for the five selected components of global average wellbeing: disposable income, global warming, public spending per person, inequality, and observed rate of progress in wellbeing. The last graph shows the resulting average wellbeing index. GL - red solid line, and TLTL - turquoise dotted line.

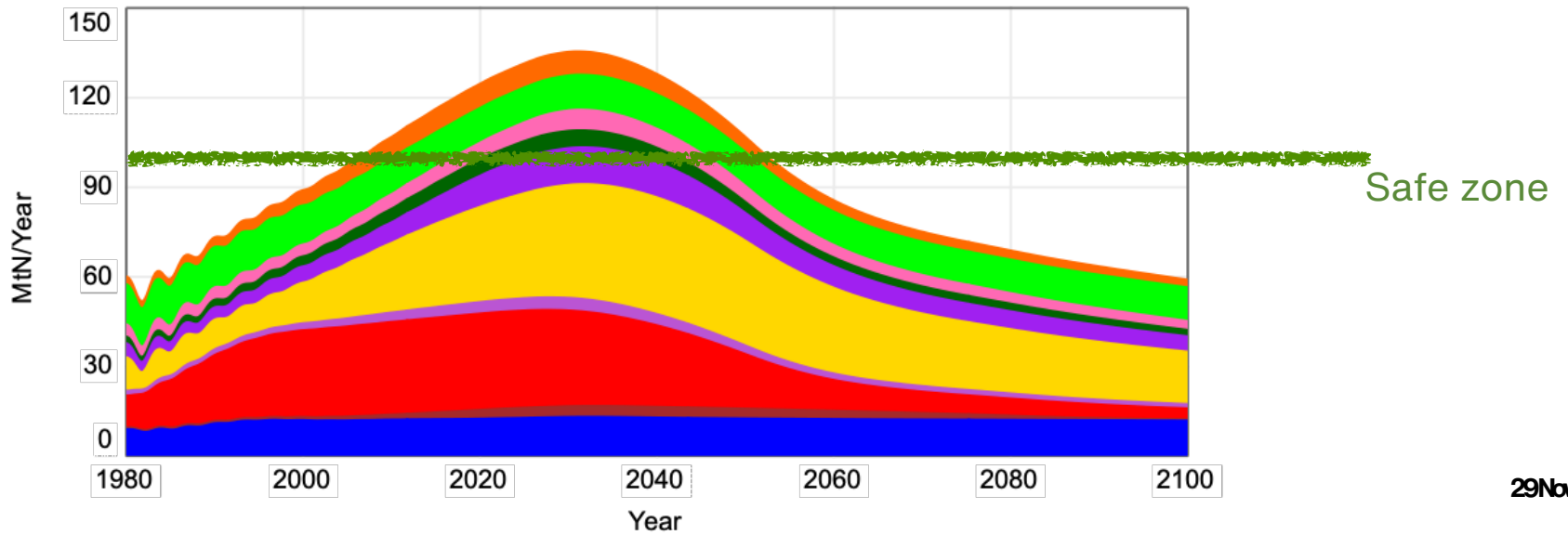
Scenario: GL =
Giant Leap



Red meat production Mt red meat / yr - GL

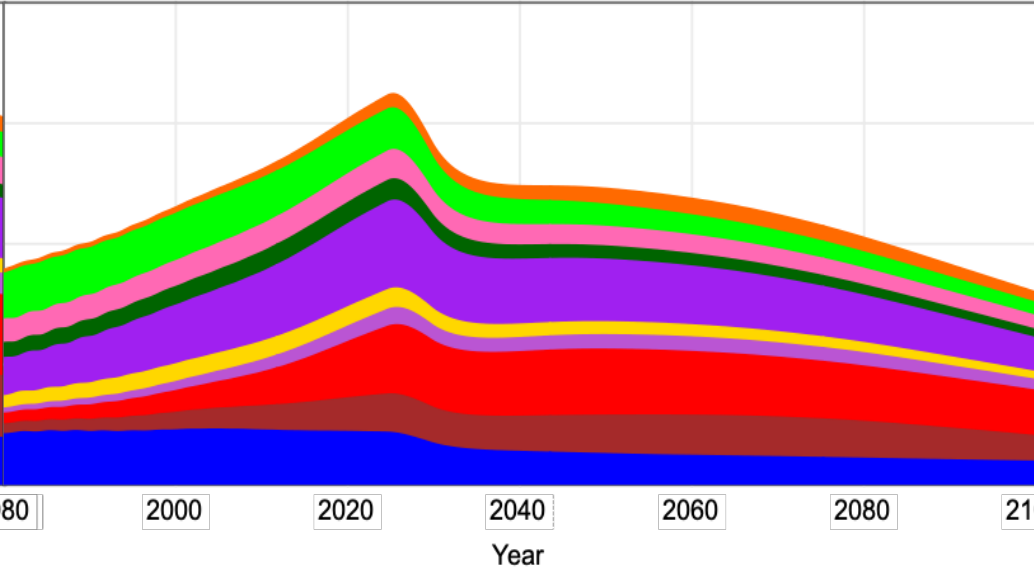
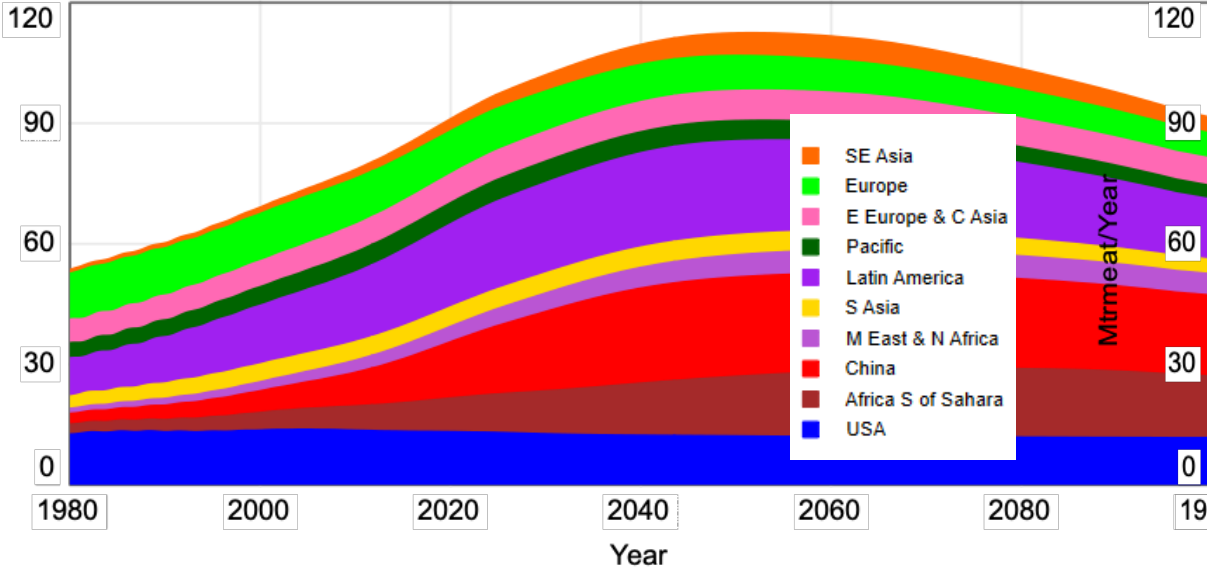


N (synthetic) used MtN/yr - GL



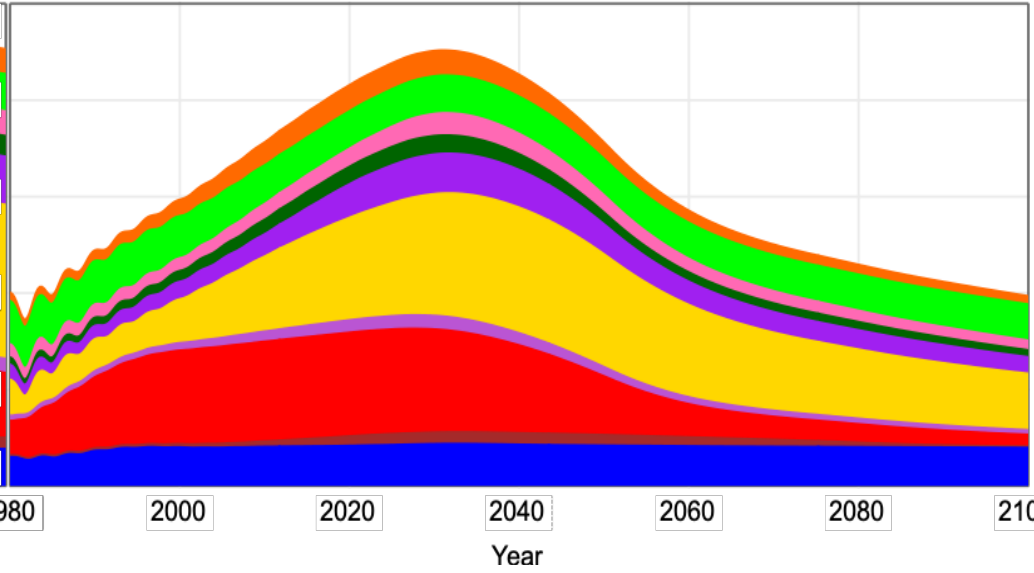
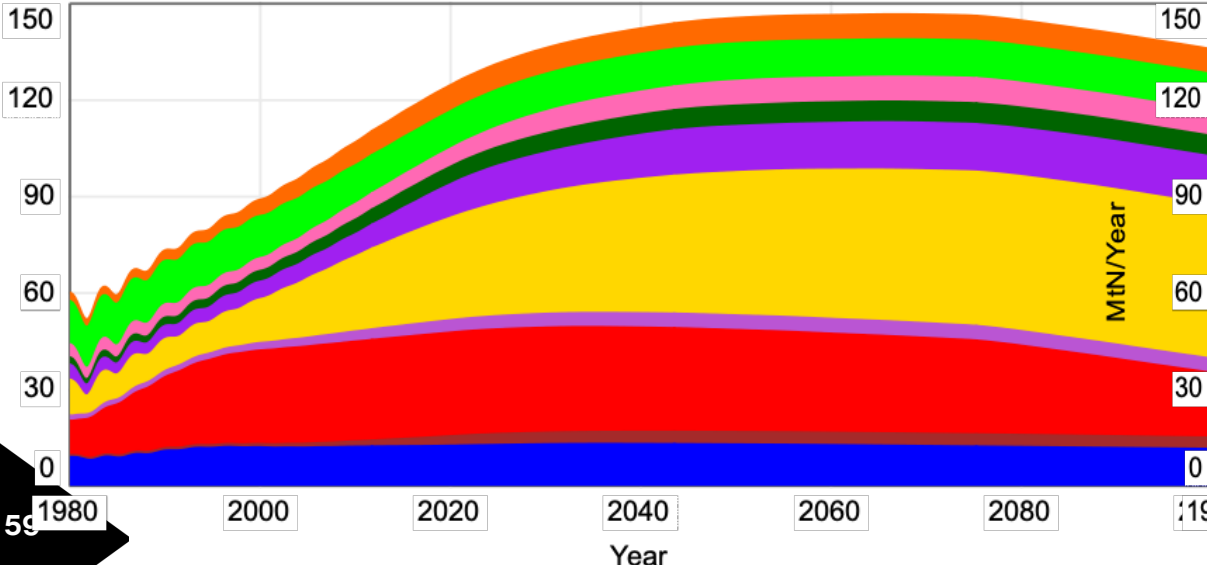
Red meat production Mt red meat / yr - TLTL

Red meat production Mt red meat / yr - GL



N (synthetic) used MtN/yr - TLTL

N (synthetic) used MtN/yr - GL



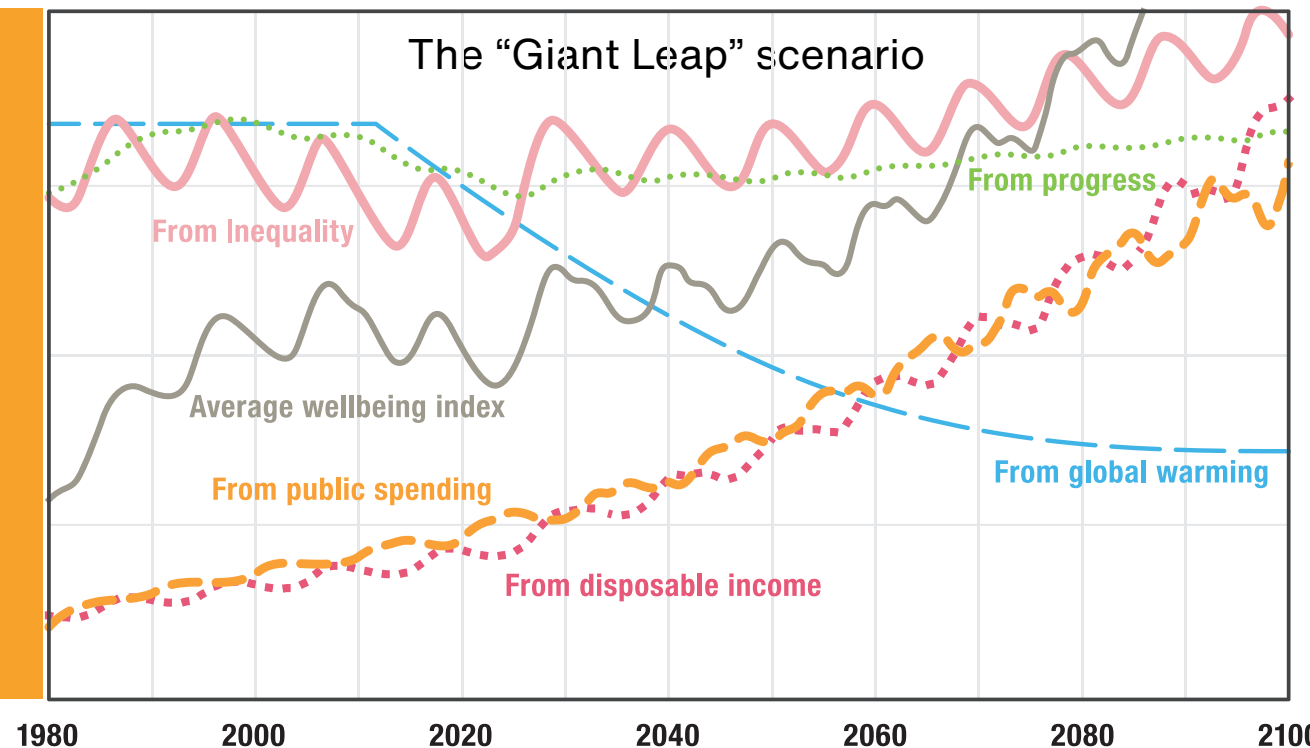
WHAT THE TURNAROUNDS COULD ACHIEVE

The effects from reduced inequality, increased public action, greater disposable income, greater financial wealth and lower global warming

can **reverse**

today's declining wellbeing trends.

(Earth For All, September 2022)





Understanding the model

See www.Earth4all.life
& online documentation
(under development):
<https://kumu.io/ugol/e4a-regional>

Welcome

and thanks for your interest!

This systems map shows the annotated causal connections of the *e4a 10-region model* -eventual link to the full Stella model to be added- connected to the *ESMICON* climate model.

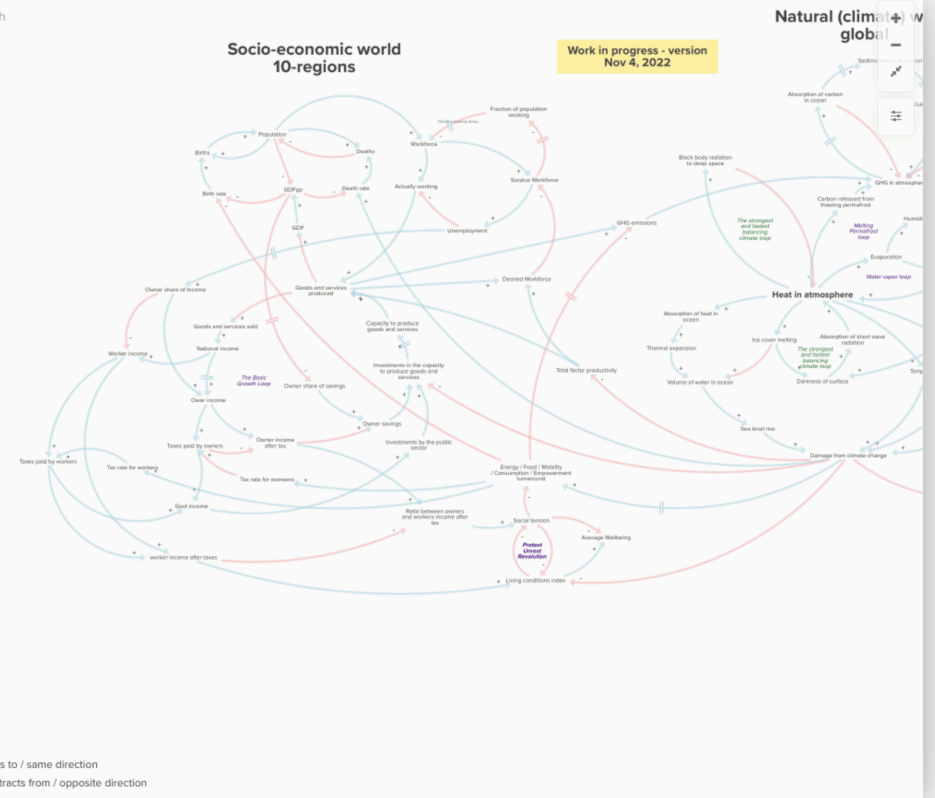
The 10 regions are China, the USA, Africa South of Sahara, the Middle East and Northern Africa, Europe, Eastern Europe and Central Asia, South Asia, South East Asia, Latin America and the Pacific region.

The climate exists only globally, i.e. there is no regional average surface temperature, only a global one.

You read the map like this: Variables are concepts that are explained, if you click on them, in the panel on the left (where you read this current text). Arrows between variables are causalities between variables: blue arrows mean that if the variable at the tail of the arrow increases, the one at the head of the arrow also increases, **and** if the variable at the tail of the arrow **decreases**, the one at the head of the arrow also **decreases** - the causality is in the **same** direction.

Red arrows mean the **opposite**: if the variable at the tail of the arrow **increases**, the one at the head of the arrow **decreases**, and if the variable at the tail of the arrow **decreases**, the one at the head of the arrow also **increases** - the causality is in the **opposite**

Search

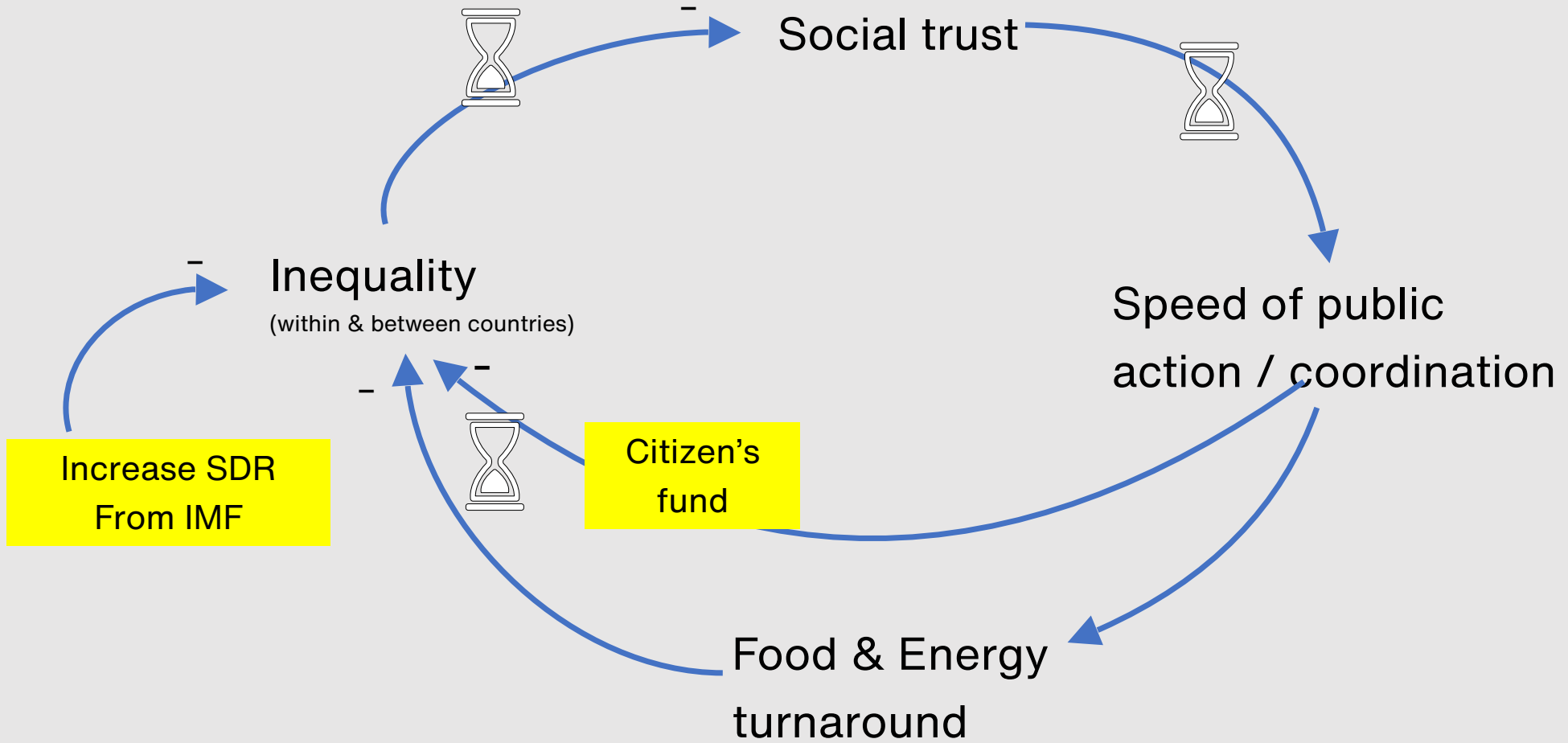


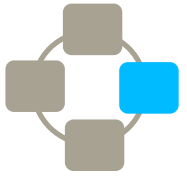
Help

Questions???



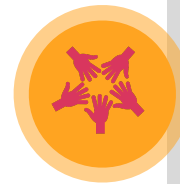
2 key recommendations to fix poverty & inequality



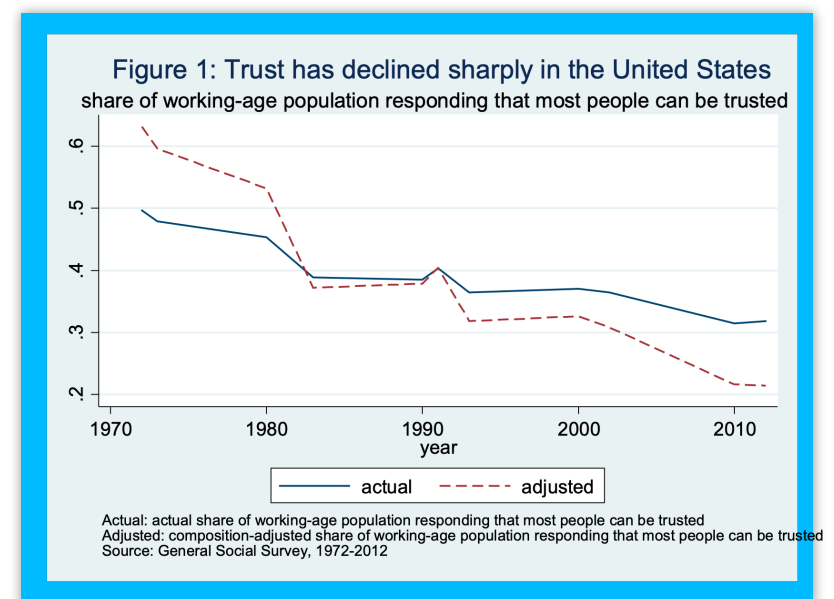
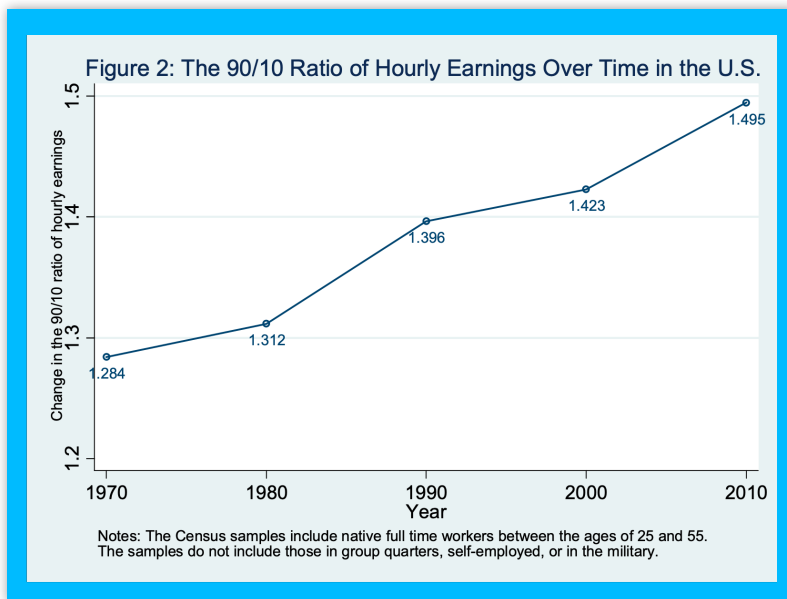


DATA: INEQUALITY REDUCES TRUST

Wage inequality (based on 90/10 ratio) in the US has **increased 14%** between 1970 - 2010



At the same time, surveys of US citizens show **decreasing levels of trust** in other people



Sources: IMF - Gould, Eric D, and Alexander Hijzen. Growing Apart, Losing Trust? The Impact of Inequality on Social Capital. International Monetary Fund, 2016.



DATA: PUBLIC TRUST AND PUBLIC ACTION

The **LOWER** the Gini Index the **LOWER** the levels of social trust



The **HIGHER** the public expenditure (action) the **HIGHER** the levels of social trust

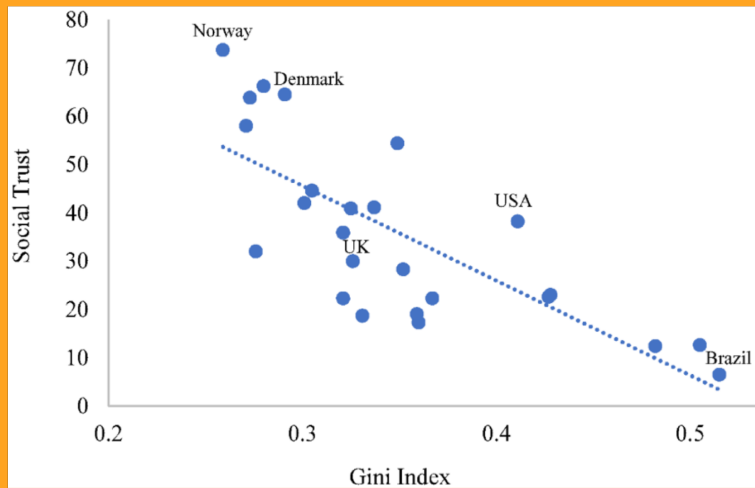


Figure 1. Income inequality and social trust. Sources: UNDP and World Values Survey.

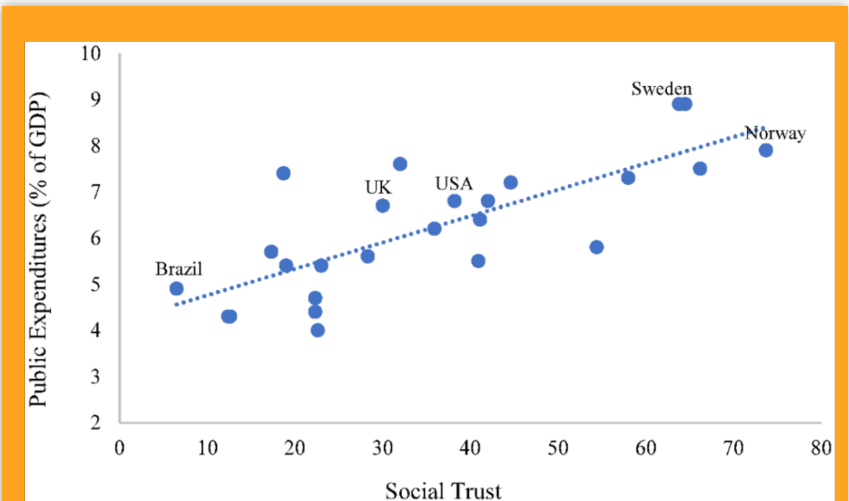


Figure 2. Trust and public expenditures on education and health. Sources: UNDP and World Values Survey.

Sources: Reiersen (2019) "Inequality and Trust Dynamics." Disaster, Diversity and Emergency Preparation