

Environmental and Climate Economics

Defining and Measuring Common Prosperity

Adrien Fabre

Tsinghua University

Spring 2024

Outline of the course

1. Common Prosperity

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2. Climate Policy Mix (*April 23*)

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Slides are available at github.com/bixiou/course_Tsinghua.

What is Common Prosperity?

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“Prosperity is the essential requirement of socialism and an important feature of Chinese modernization. (...)

It is necessary to promptly formulate an action plan to promote common prosperity and propose a scientific and feasible indicator system and assessment method that is consistent with national conditions.”

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到本世纪中叶，全体人民共同富裕基本实现，居民收入和实际消费水平差距缩小到合理区间。要抓紧制定促进共同富裕行动纲要，提出科学可行、符合国情的指标体系和考核评估办法。

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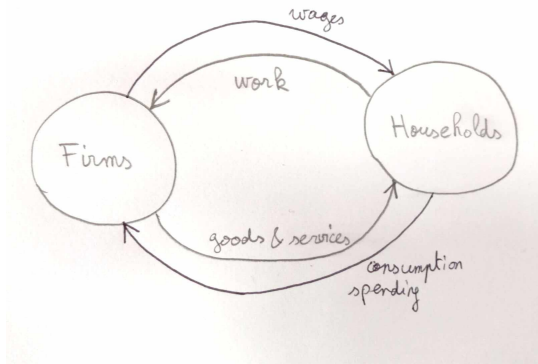
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So, what is common prosperity? How to measure it?

Our situation and actions: the Economic Circuit

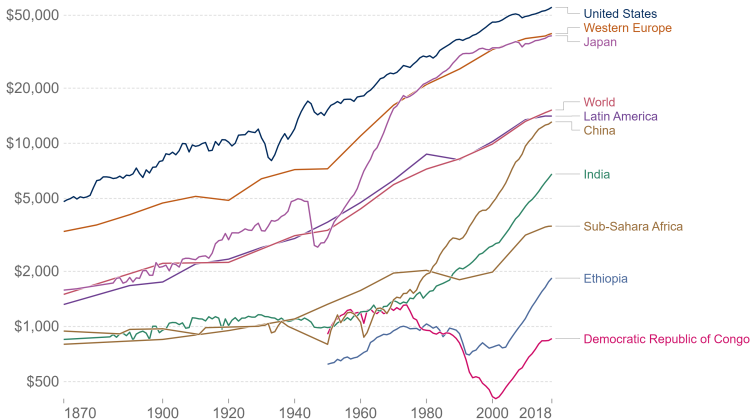
Simplified economic circuit



Prosperity as production: Gross Domestic Product

GDP per capita, 1870 to 2018

This data is adjusted for differences in the cost of living between countries, and for inflation. It is measured in constant 2011 international-\$.
Our World in Data

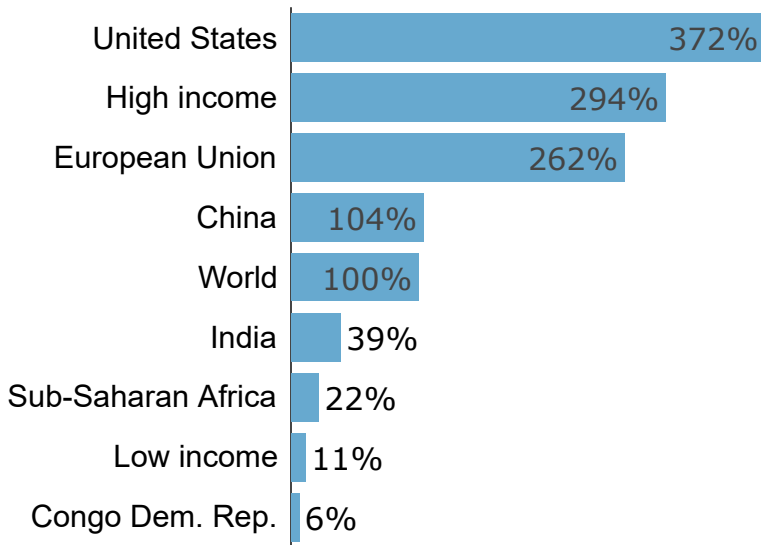


Source: Maddison Project Database 2020 (Bolt and van Zanden, 2020)

OurWorldInData.org/economic-growth • CC BY

Prosperity as production: Gross Domestic Product

GDP per capita in Purchasing Power Parity (PPP) compared to world average (2022).



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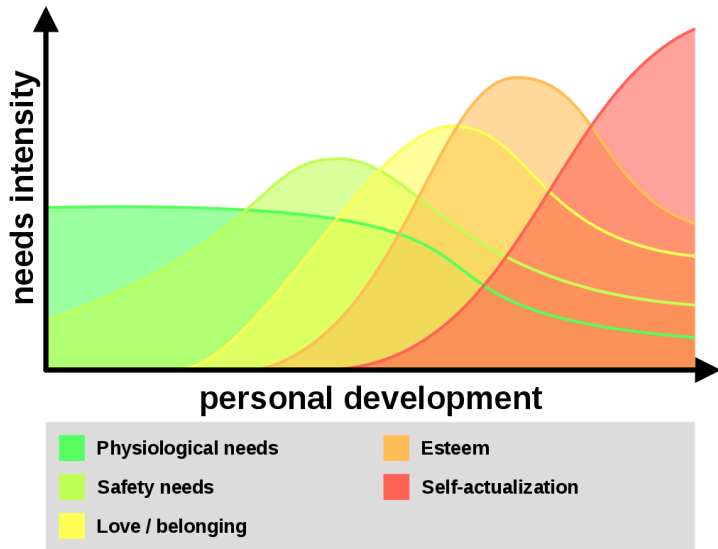
Is GDP p.c. a good proxy for common prosperity?

Why do we produce? Needs, capabilities, and human development

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Mean affect by activity (Kahneman et al., 04)

Activity	Percentage of sample	Time spent (hours)	Net affect
Intimate relations	11	0.21	4.74
Socializing after work	49	1.15	4.12
Dinner	65	0.78	3.96
Relaxing	77	2.16	3.91
Lunch	57	0.52	3.91
Exercising	16	0.22	3.82
Praying	23	0.45	3.76
Socializing at work	41	1.12	3.75
Watching TV	75	2.18	3.62
Phone at home	43	0.93	3.49
Napping	43	0.89	3.27
Cooking	62	1.14	3.24
Shopping	30	0.41	3.21
Computer at home	23	0.46	3.14
Housework	49	1.11	2.96
Childcare	36	1.09	2.95
Evening commute	62	0.62	2.78
Working	100	6.88	2.65
Morning commute	61	0.43	2.03

Notes: Net affect is the average of three positive adjectives (enjoyment, warm, happy) less the average of five negative adjectives (frustrated, depressed, angry, hassled, criticized). All the adjectives are reported on a 0–6 scale, ranging from “not at all” to “very much.” The “time spent” column is not conditional on engaging in the activity. The sample consists of 909 employed women in Texas.

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Imagine one country that enjoys listening to music rather than buying stuff ⇒ works less ⇒ lower GDP.

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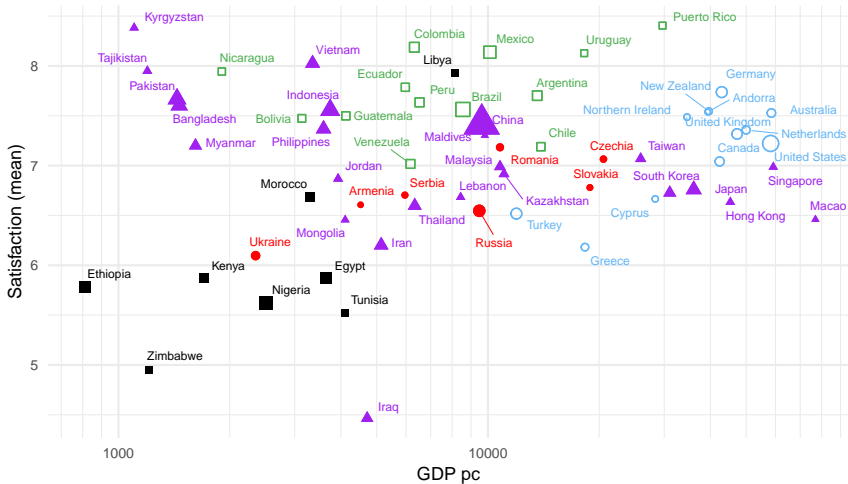
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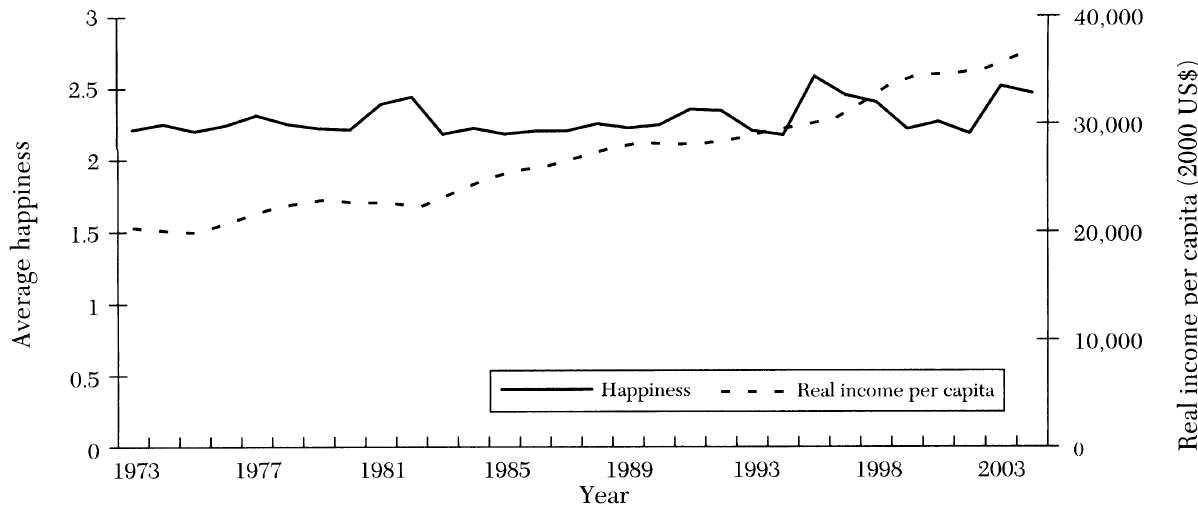


Figure 1. Happiness and Real Income Per Capita in the United States, 1973–2004

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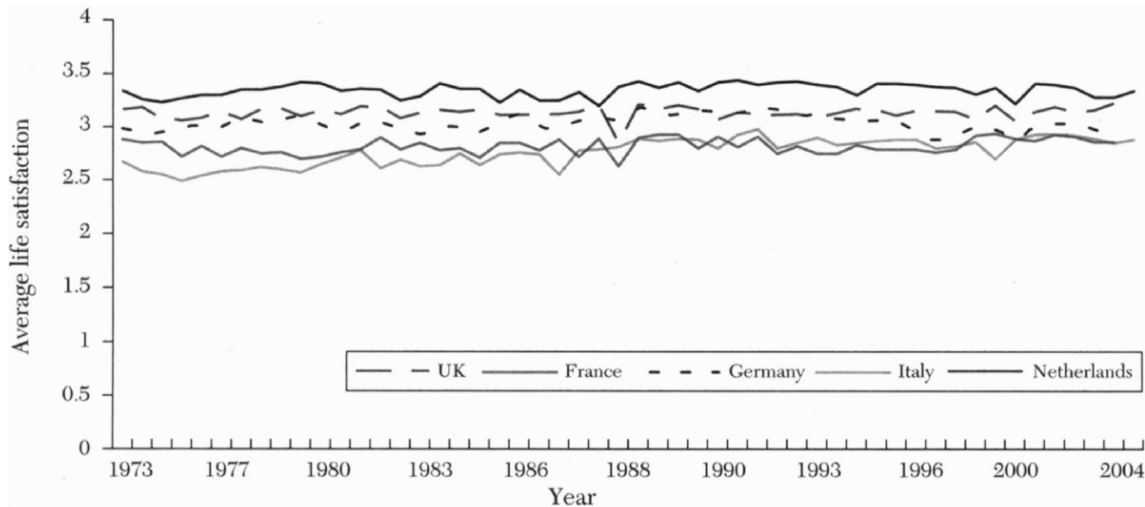
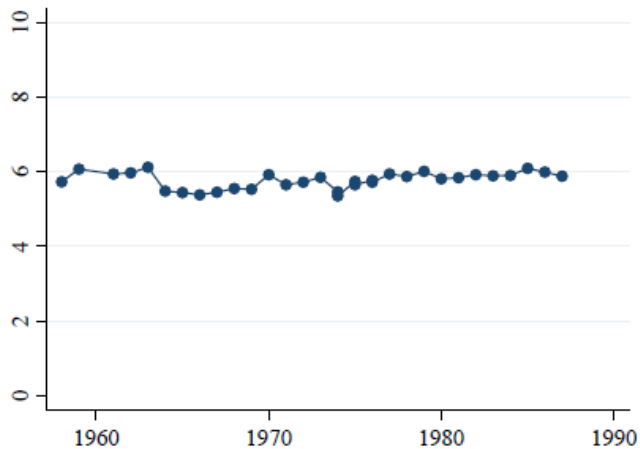


Figure 2. Life Satisfaction in Five European Countries, 1973–2004

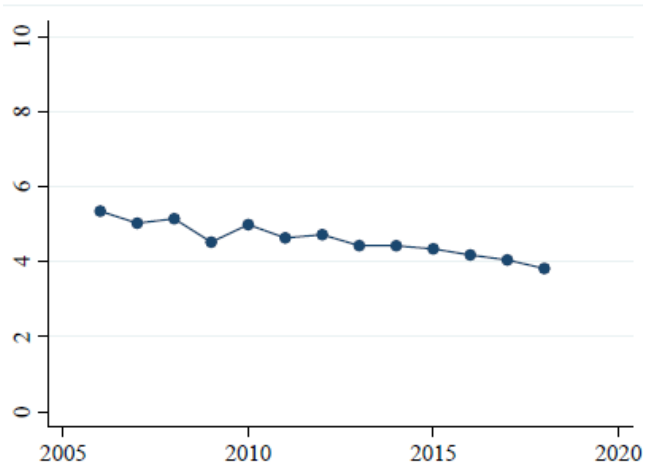
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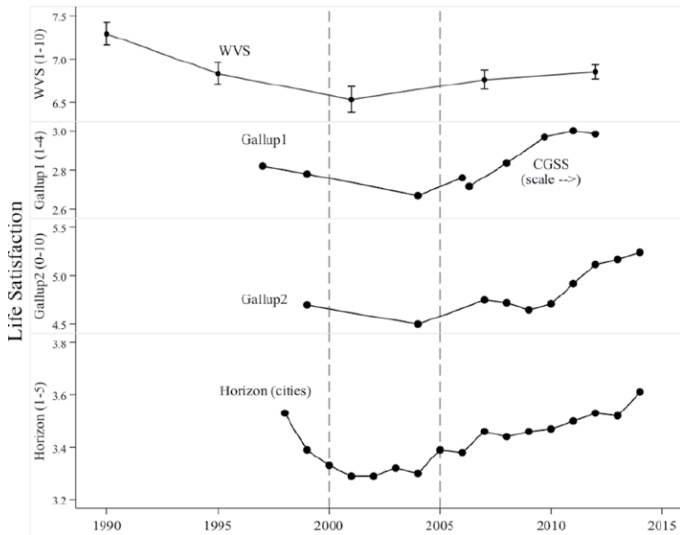
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India 2006-2018



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Evolution of well-being in China.



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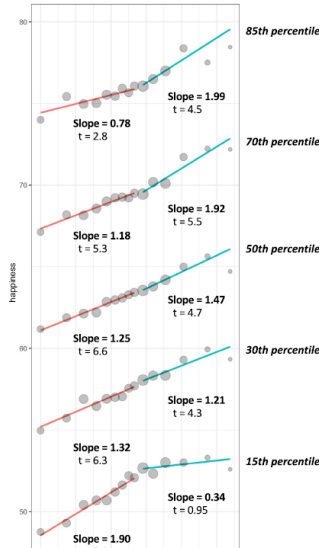
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U.S. emotional well-being distribution per income category (Killingsworth et al., 2023).



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Kahneman & Deaton (2010) ranked correlates of well-being in the U.S. by strength: loneliness (-), headache (-), illness (-), religiosity (+), leisure time (+), smoking (-), high income (+), age (+), married (+)...

A direct measure: subjective well-being

World Values Survey ask people: “How satisfied are you from 1 to 10?” ⇒ sli.do/04160416

WVS indicates little correlation between national income and mean satisfaction.

Another survey (Gallup) finds a strong correlation where question scale is from 0-worst to 10-best possible life.

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As the correlates are mostly personal, it is difficult to use this measure to guide policy. It may work better to directly ask people what policy they want.

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⇒ **Once basic needs are fulfilled, “increasing the income of all increases the happiness of no one.”**

If all engage in conspicuous/status-seeking consumption through more work effort, it can even decrease everyone's happiness (as status doesn't change but leisure reduces).

The limits of overconsumption: its environmental impact

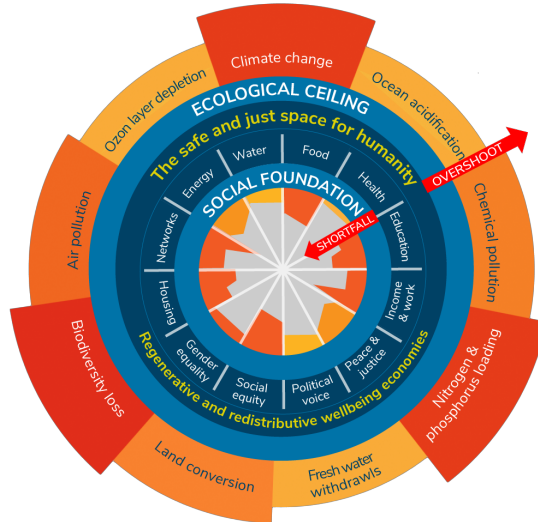
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The limits of overconsumption: its environmental impact

The “doughnut”, a safe space for humanity: above social floor and below ecological ceiling (Raworth, 2017).



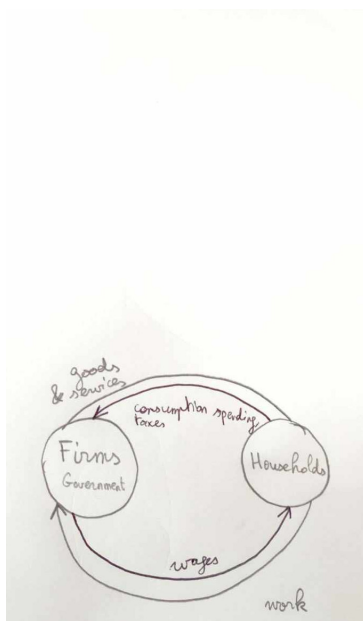
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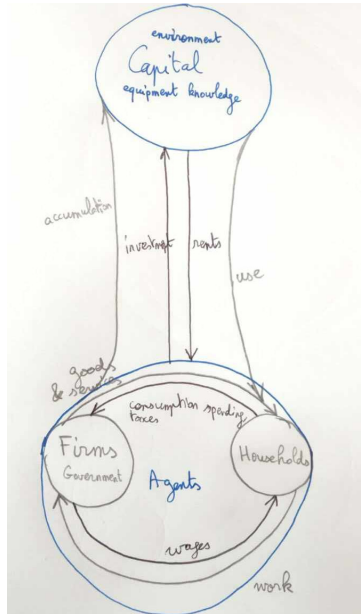
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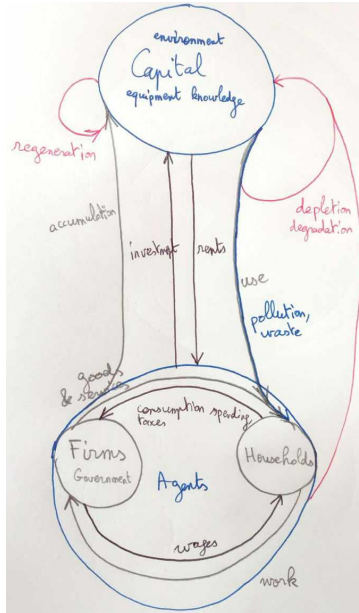
Our situation and actions: the Environmental-Economic Circuit



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What Common Prosperity Is

Xi Jinping (2021), *Solidly promoting common prosperity*:

“The common prosperity we are talking about means the common prosperity of all people. It means the prosperity of the material and spiritual lives of the people. It is not the prosperity of a few people, nor is it uniform egalitarianism. (...) The new round of technological revolution and industrial transformation has powerfully promoted economic development and has also had a profound impact on employment and income distribution, including some negative impacts that need to be effectively addressed and resolved.

By the middle of this century, common prosperity for all people will be basically realized, and the gap between residents' income and actual consumption levels will be narrowed to a reasonable range.

到本世纪中叶，全体人民共同富裕基本实现，居民收入和实际消费水平差距缩小到合理区间

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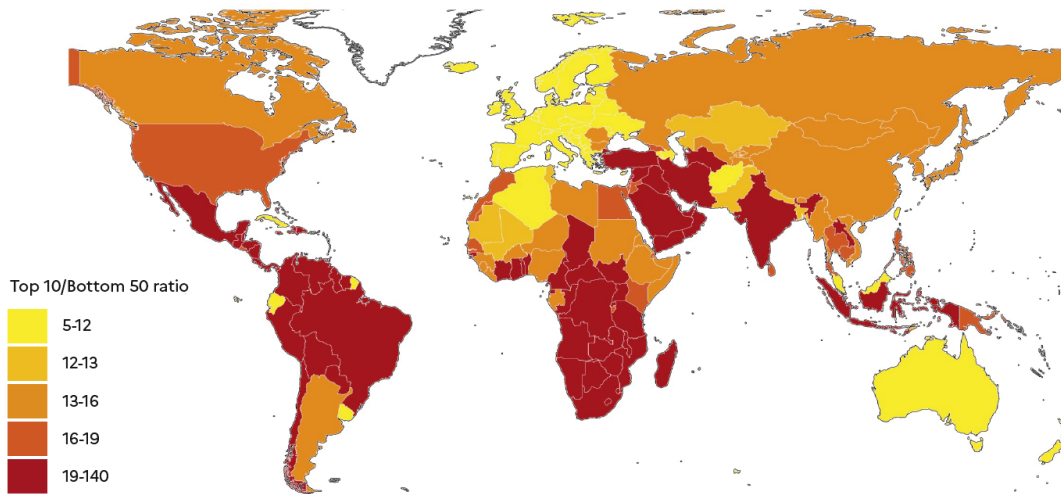
Capital owners are richer \Rightarrow **can command more work** (through consumption) **than** what **they provide**: capitalistic **exploitation**.

Rich people can accumulate capital and transmit it with low taxes to their children \Rightarrow **inequality**.

Prosperity of everyone? Setting the goal, trading off equity and efficiency

Inequality by country (World Inequality Report, 2022).

Figure 1.5 Top 10/Bottom 50 income gaps across the world, 2021



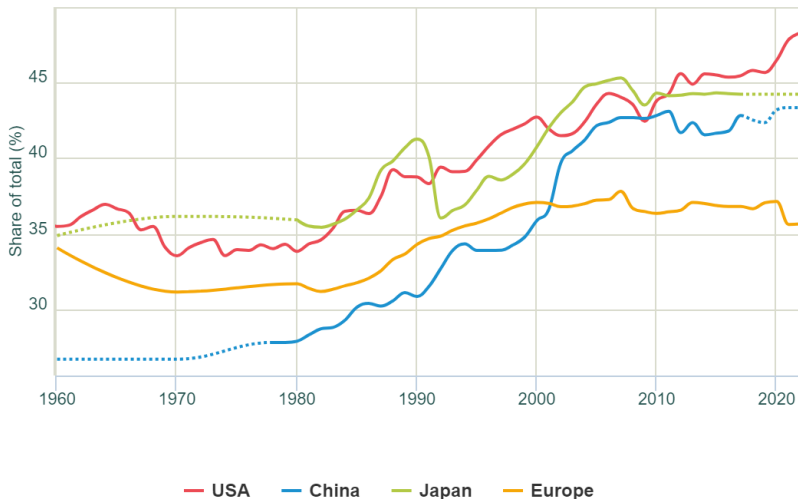
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Figure 1.9a *Inequality across the world, 2018-2021: the uneven impact of redistribution on inequality*



Prosperity of everyone? Setting the goal, trading off equity and efficiency

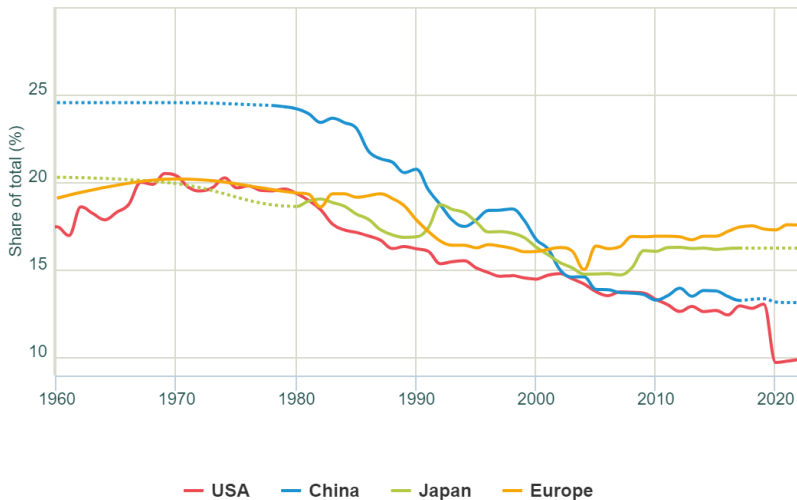
Top 10% national income share



Graph provided by www.wid.world

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Bottom 50% national income share



Graph provided by www.wid.world

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To address inequality, [wealth and inheritance taxes](#) are also key (Piketty et al., 2023).

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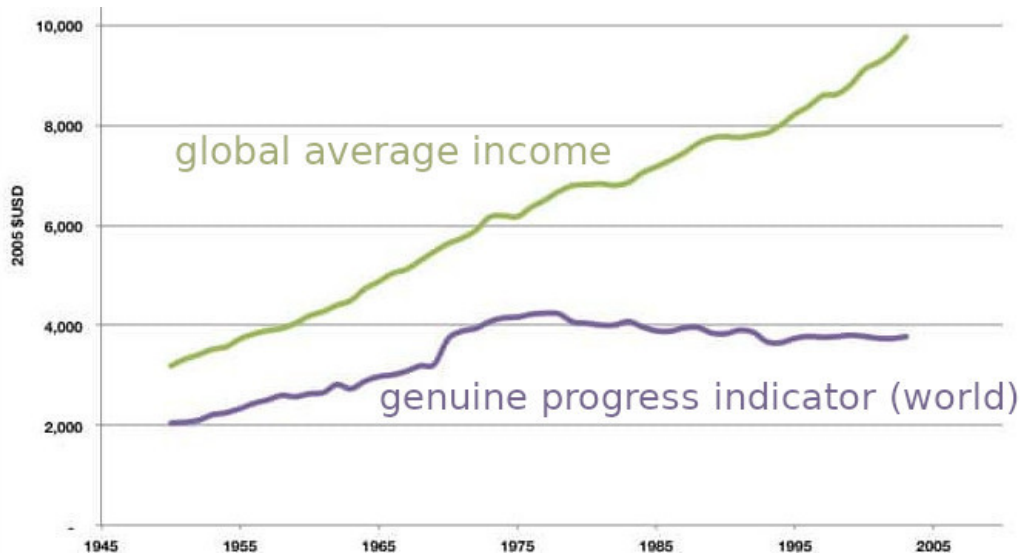
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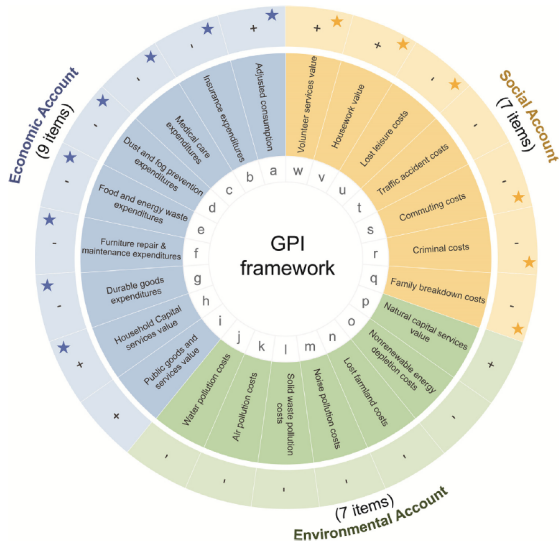
Measuring economic welfare: the Genuine Progress Indicator

Evolution of World's Genuine Progress Indicator (Kubiszewski et al., 13)



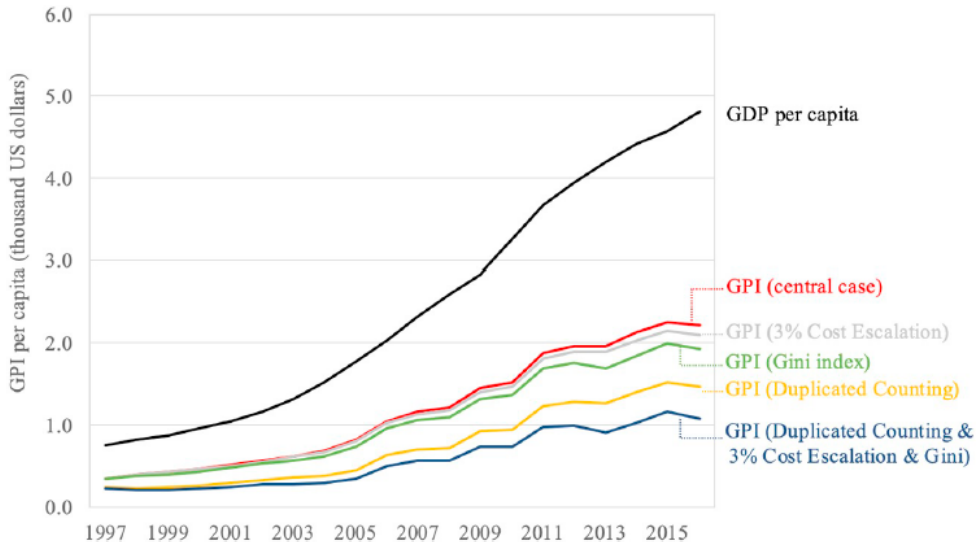
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Components of the GPI (Guan et al., 2021)



Measuring economic welfare: the Genuine Progress Indicator

China's GPI [just look at central case] (Long & Ji, 2019)



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Decomposition of China's GPI (Long & Ji, 2019)

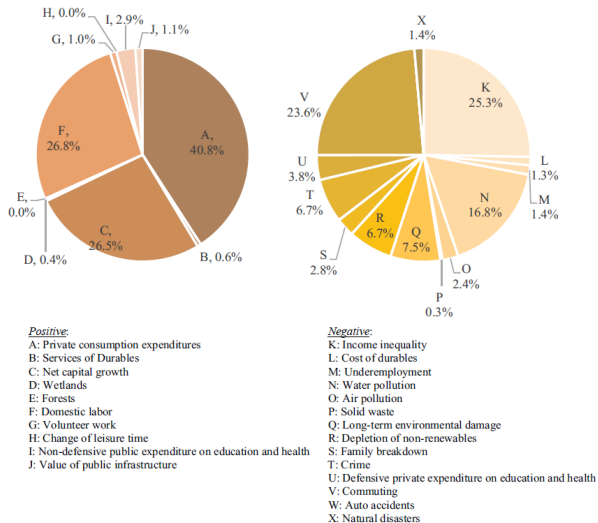
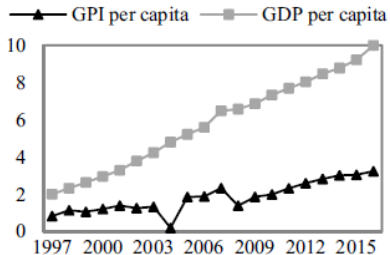


Fig. 7. Detailed GPI breakdown (left: positive items; right: negative items).

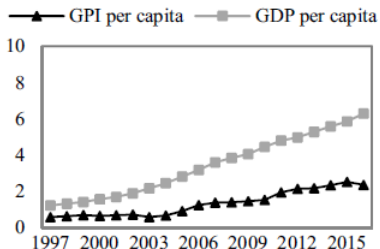
Measuring economic welfare: the Genuine Progress Indicator

Selected Chinese provinces' Genuine Progress Indicator (Long & Ji, 2019)

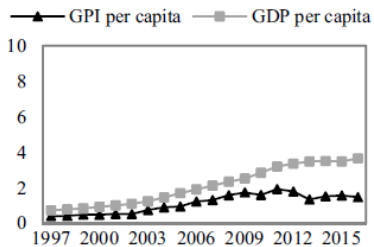
Beijing



Guangdong



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$$\begin{aligned} \text{GPI} = & \text{GDP} \times (1 - \text{inequality}) + \text{home production} + \text{volunteer work} + \text{leisure time} \\ & - \text{pollution} - \text{resource depletion} - \text{crime costs} - \text{workplace/road accidents} \\ & - \text{commuting costs} - \text{unemployment psychological costs} \\ & - \text{defensive spending (military, police, health protection)} \quad (\text{e.g., Long \& Ji, 2019}) \end{aligned}$$

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- pollution – resource depletion – crime costs – workplace/road accidents
- commuting costs – unemployment psychological costs
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The **GPI also has limitations**: does not account for human capital (knowledge), international inequality, or non-economic well-being (e.g. relationships);

choice of elements somewhat arbitrary (e.g. accounts for unemployment psychological costs but not advertising);

valuation methods of different costs require extensive data and ethical assumptions.

Appendix

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Production: final demand \mathbf{y} , inputs for final demand $\mathbf{A}\mathbf{y}$, inputs for these inputs $\mathbf{A}^2\mathbf{y}$, etc.

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Impacts $\mathbf{C}\mathbf{x}$: carbon footprint, number of hours of work, tons of iron extracted... for one car.

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Marxism was blind to the importance of self-interested motives, free enterprise and democracy.

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Schor (91) proposes to take “productivity increases in the form of leisure time rather than increased output.”

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Tropics should seize the opportunity of industrialized countries protecting *aristocratic* wages by outsourcing manufacturing, as their unskilled labor force becomes scarce.

\S_{79} **Theodore Schultz, \oplus_{12} Michael Lipton, and the importance of agriculture**

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