



Appropriate Technology & the Role of AI

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Effects of Technological Progress on Economy

What Are the Economic Effects of New Technologies?

The Luddite Story (Manchester, circa 1800):

- new technologies destroy jobs...
- ...and we are all doomed because we lost our jobs as artisan weavers and spinners

Effects of Technological Progress on Economy

What Are the Economic Effects of New Technologies?

The “Smart” Consensus Story (e.g. Davos, 2010s):

- new technologies automate away simple, low-paying, jobs
- we create new, more exciting, higher-paying jobs
- along the way, there are unfortunately some “transition costs”

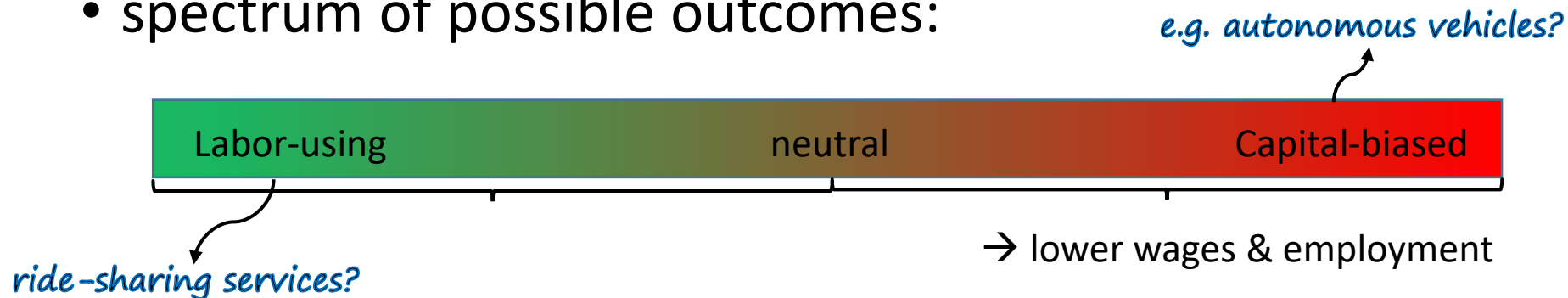
BUT: according to the consensus, a rising tide lifts all boats

Effects of Technological Progress on Economy

What Are the Economic Effects of New Technologies?

The Truth?

- new technology leads to significant redistributions of income
- spectrum of possible outcomes:



- similar spectrum of possibilities for bias towards lower-skilled workers or workers in developing countries
 - so far, recent wave of automation seems to have hurt lower-skilled workers

Technological Progress and Welfare

Economic Decomposition: the effects of technological progress on incomes can be decomposed into two parts:

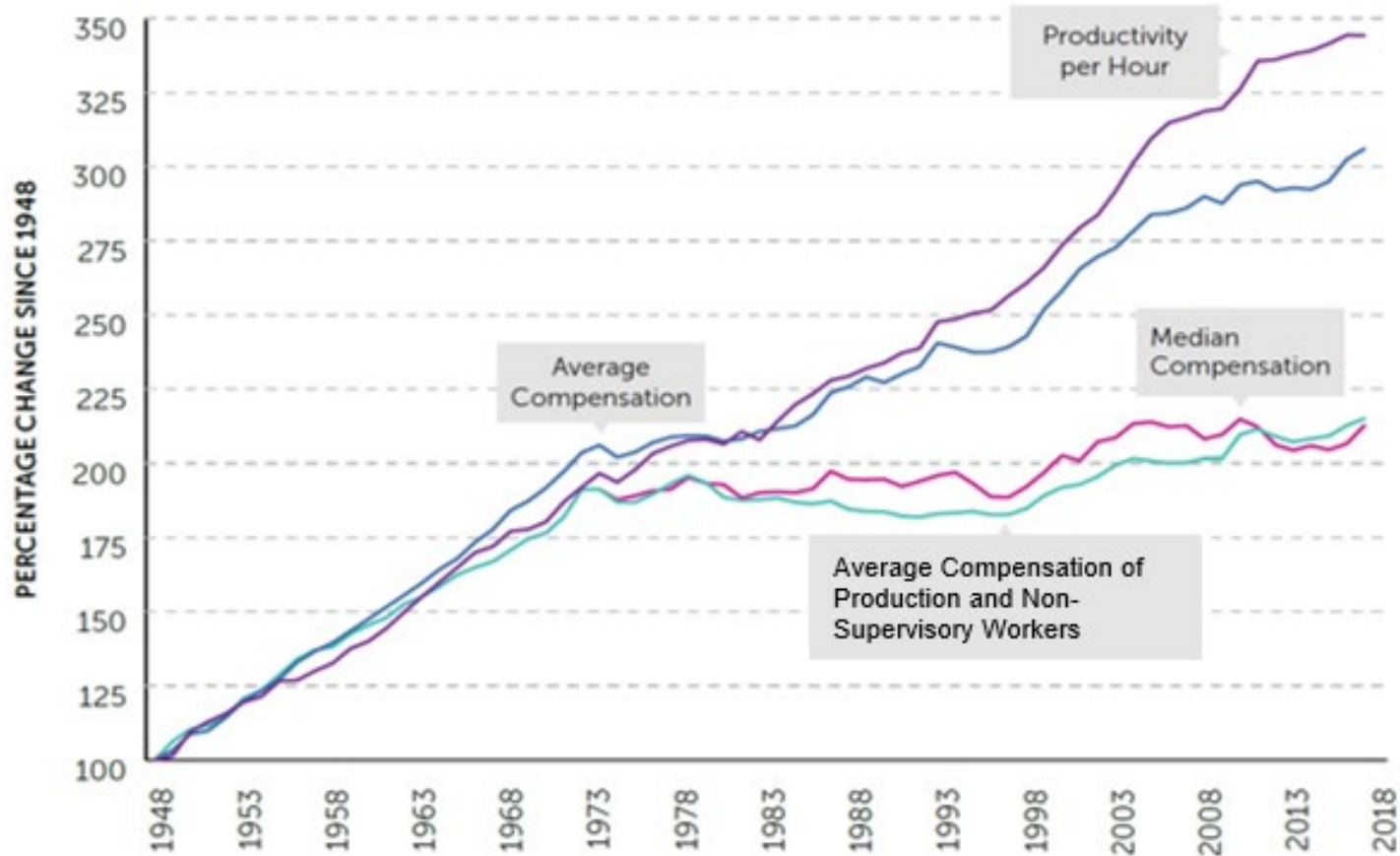
- a) an increase in overall income
- b) a technological redistribution that creates winners and may create losers

As a result of the redistribution (b), technological progress may make some workers and/or some countries worse off, and there may be political opposition to technological progress.

→ Role for a social safety net to compensate the losers

A Quick Look at US Data

U.S. Productivity and Compensation Growth, 1948 – 2018



Source: Various.

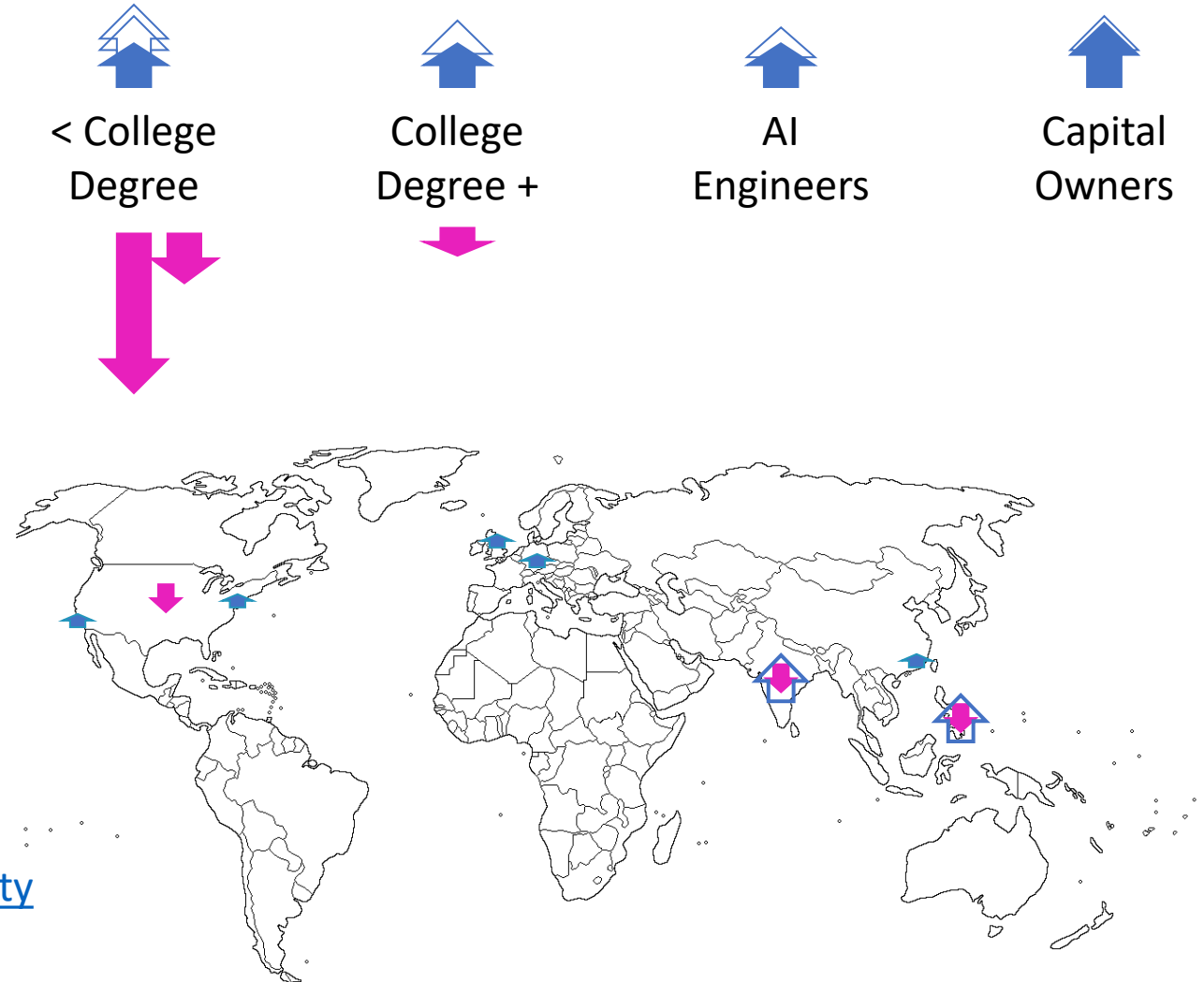
Appropriate Technology in the Global Context

- In advanced economies, technology-induced redistributions between capital and labor can create significant political conflict
 - but there are social safety nets & mechanisms for redistribution
- In the global context, things may be an order of magnitude worse:
 - winners of advanced technology located in advanced economies
 - losers located everywhere else, but esp in developing countries

AND: there are no global safety nets & mechanisms for redistribution

Who stands to benefit and lose from introduction of chatbots?

1. Direct effects
2. Demand effects
3. Vertical effects
4. Horizontal effects
5. Factor reallocation



see <https://partnershiponai.org/shared-prosperity>

Need to Steer Technological Progress

How can we make technology more appropriate for everybody?

- create awareness for distributive concerns, “nudge” innovators, consumers, ...
- focus on distributive impact of government spending, policies, and government-sponsored research
- more stakeholder participation in decision-making
- ...

[inspiration: the “green” movement]

see [“Steering Technological Progress,”](#) with J. Stiglitz

Concerns about the future of work

Recent advances in AI (large language models a la ChatGPT) have exacerbated concerns about the disproportionate impact of AI:

- cutting-edge systems developed by a handful of labs in US & UK
- new digital divide: functionality in English better than in other languages
- distribution of benefits more unequal than ever



REPORT

Preparing for the (non-existent?) future of work

Anton Korinek and Megan Juelfs - Thursday, August 11, 2022

see <https://www.brookings.edu/research/preparing-for-the-non-existent-future-of-work/>