Economics for Evidence-Based Policy

Oriana Bandiera

LSE

January 2018

Economics is unpopular

Students, commentators, anyone..

This, however, is worrisome

Brexit + Add to myFT

Britain has had enough of experts, says Gove

Brexit campaigner offers to have disputed EU contribution figure audited

fastFT Brexit + Add to myFT

Davis confirms there are no sectoral impact assessments on Brexit

Mr Davis said:

The assessment of that effect is not as straightforward as people imagine. I am not a fan of economic models as they have all been proven wrong. When you have a paradigm change as in 2008, all the models are wrong. As we are dealing with here [with a] free trade agreement or a WTO outcome, it's a paradigm change.

Very worrisome

Published 2:54 PM ET Fri, 15 Dec 2017 | Updated 10:34 AM ET Sun, 17 Dec 2017

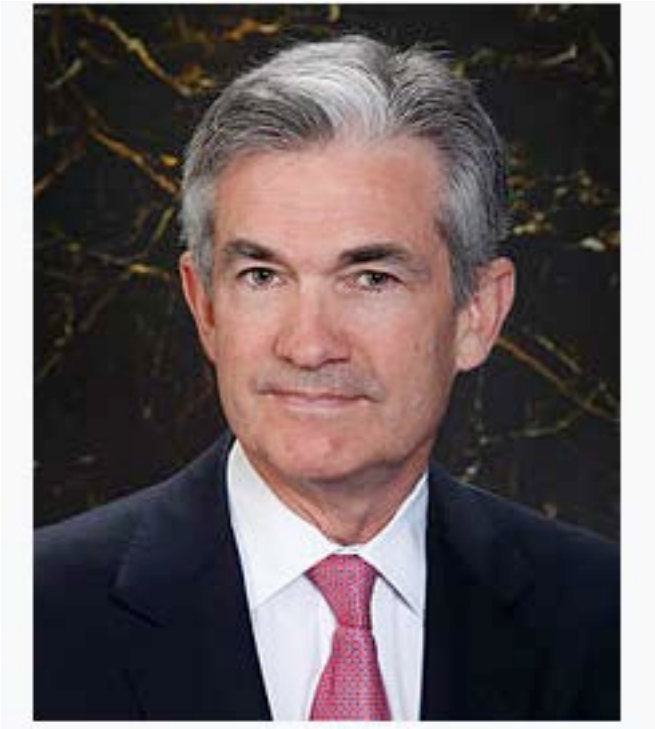
Rep. Tom Cole doesn't trust the economists on GOP tax plan:

Jerome Powell

The first non economist in 40 years

Janet Yellen, Yale PhD

FED Chair, perfect record



two reasons to dislike economics

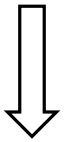
1. topics/ideology

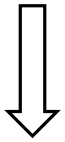
2. methods

economic ideology: critics' view

humans are selfish and rational

markets are efficient --> no role for public policy





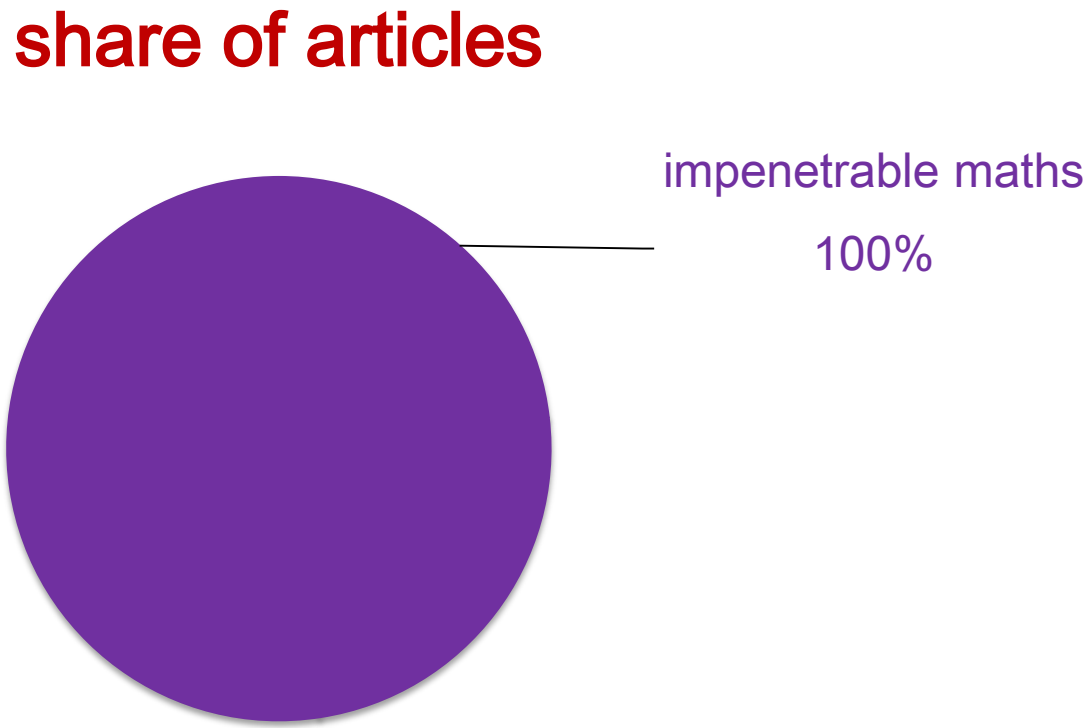
"fair" inequality

balanced budget, austerity

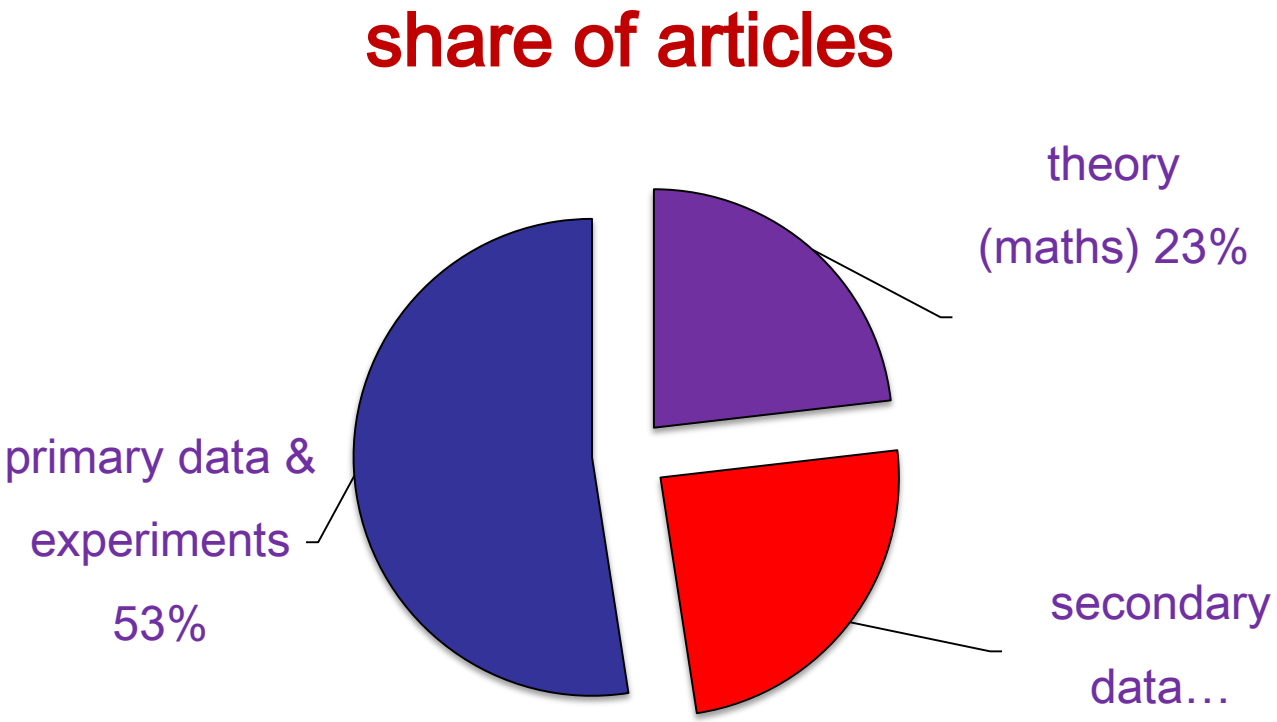
critics' wish list

imperfections in labor markets	2010 Mortensen & Pissarides
regulation of monopoly power	2013 J Tirole
exchange in the absence of markets	2012 A.Roth
wealth and income inequality	2015 A Deaton
altruism and irrationality	2017 R. Thaler

economic methods: critics'view

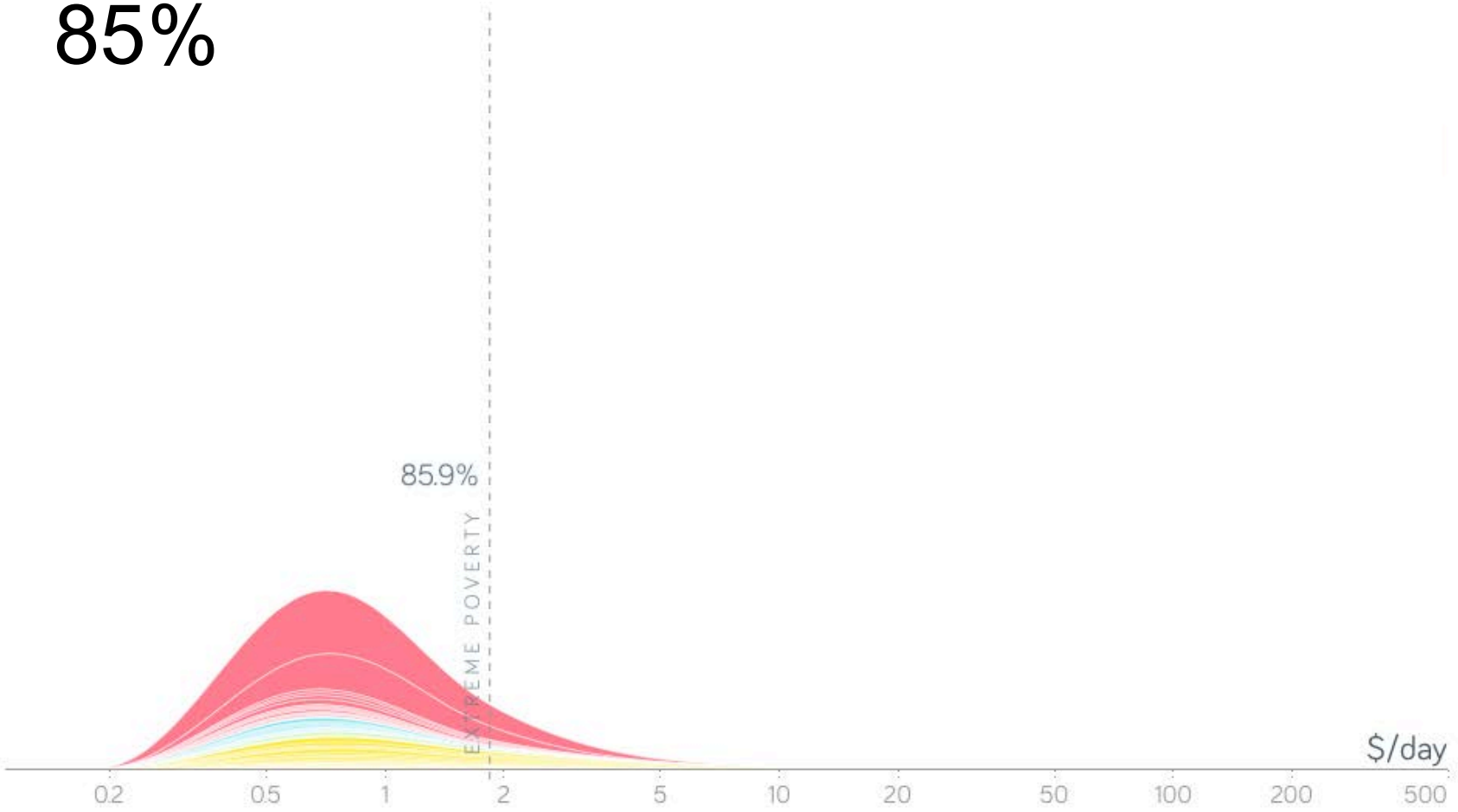


economics methods: reality



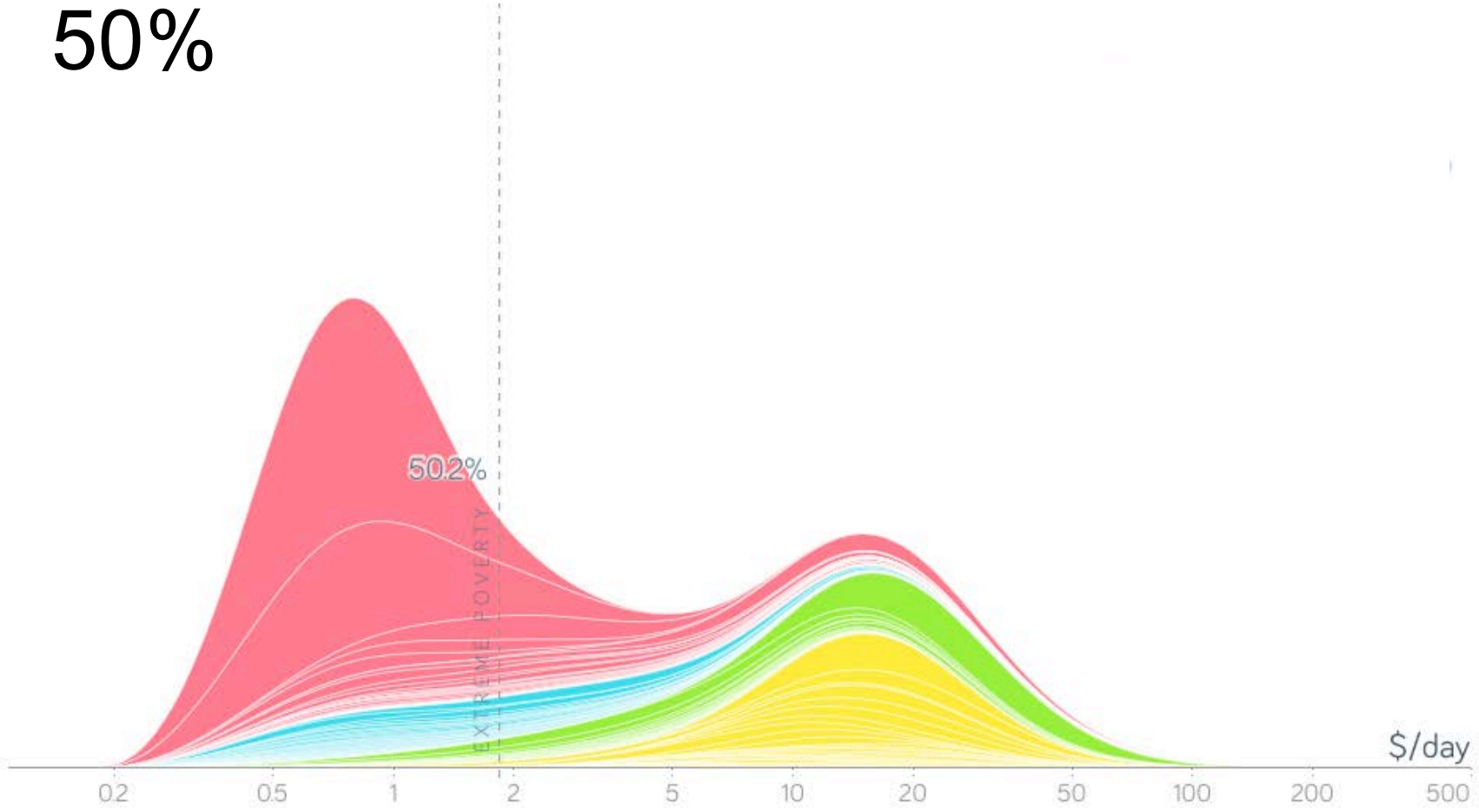
One example to remember: how many poor?

85%



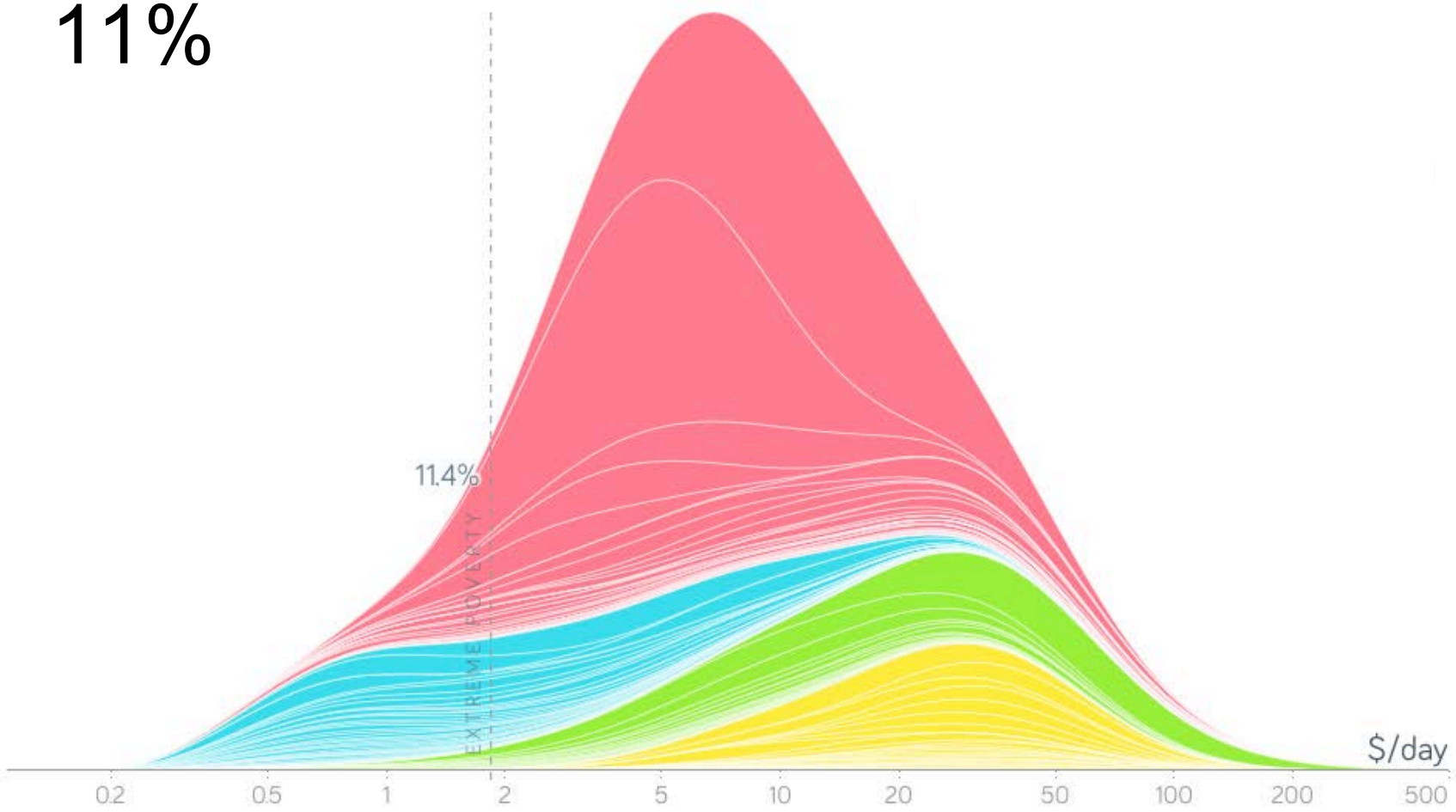
One example to remember: how many poor?

50%



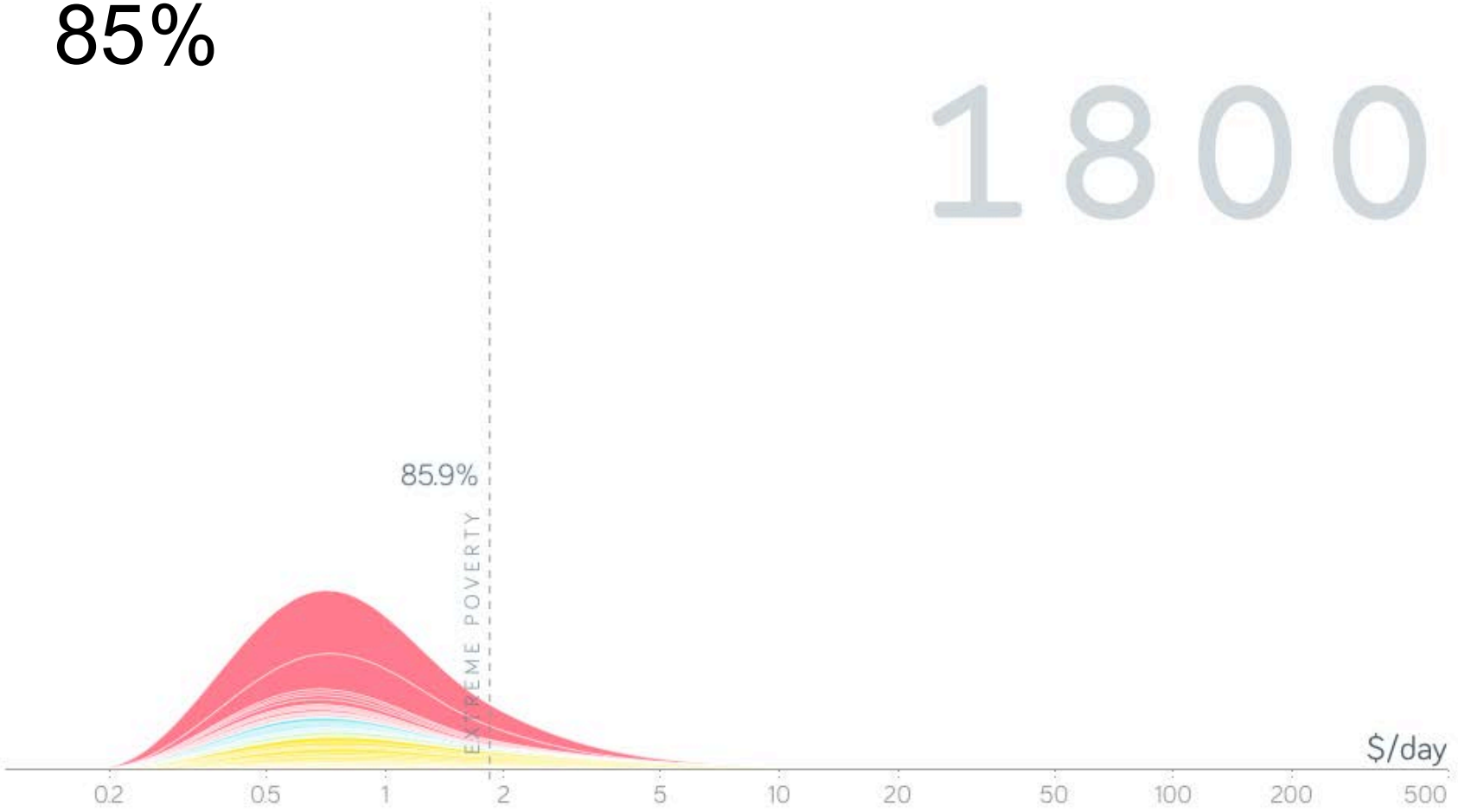
One example to remember: how many poor?

11%



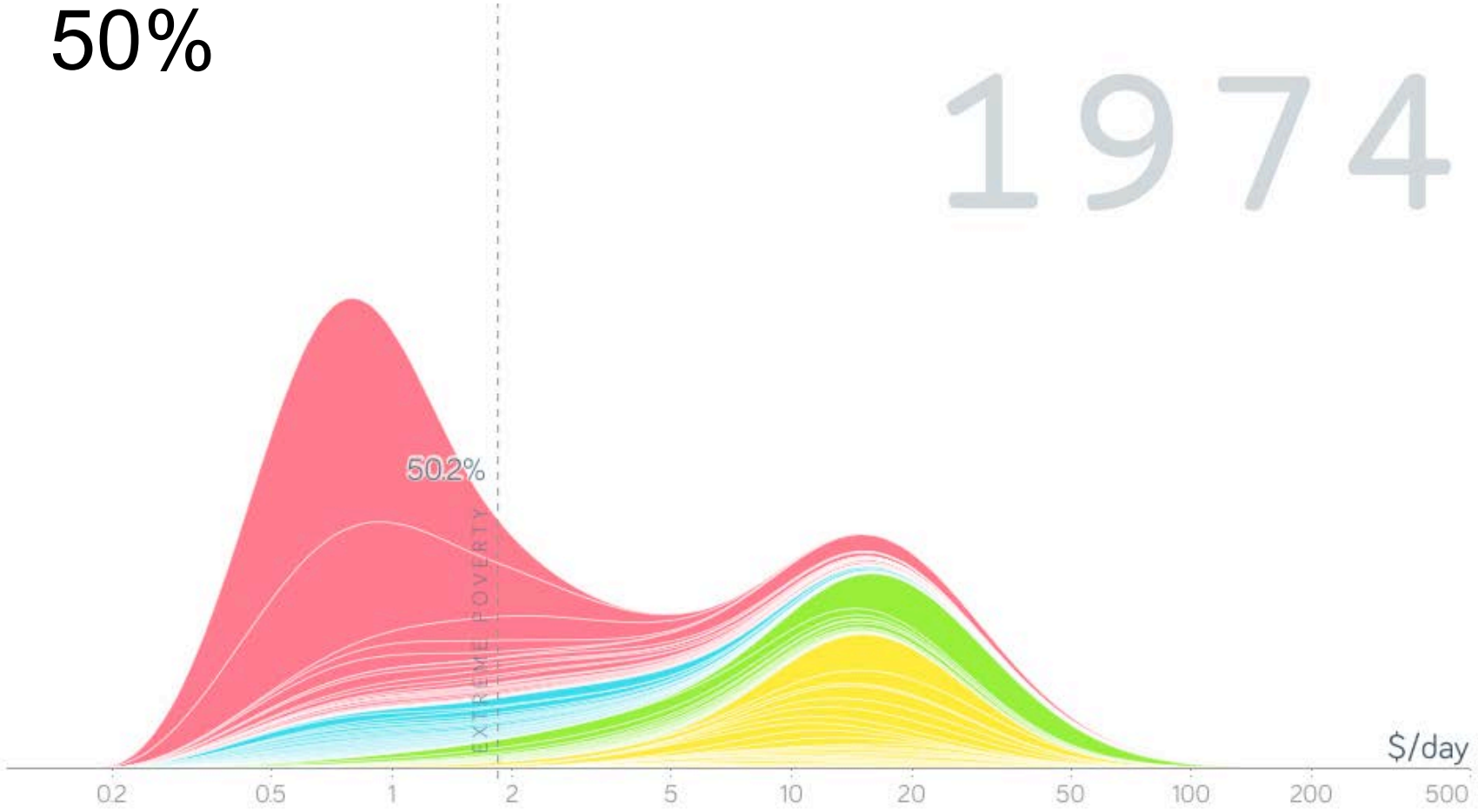
One example to remember: how many poor?

85%



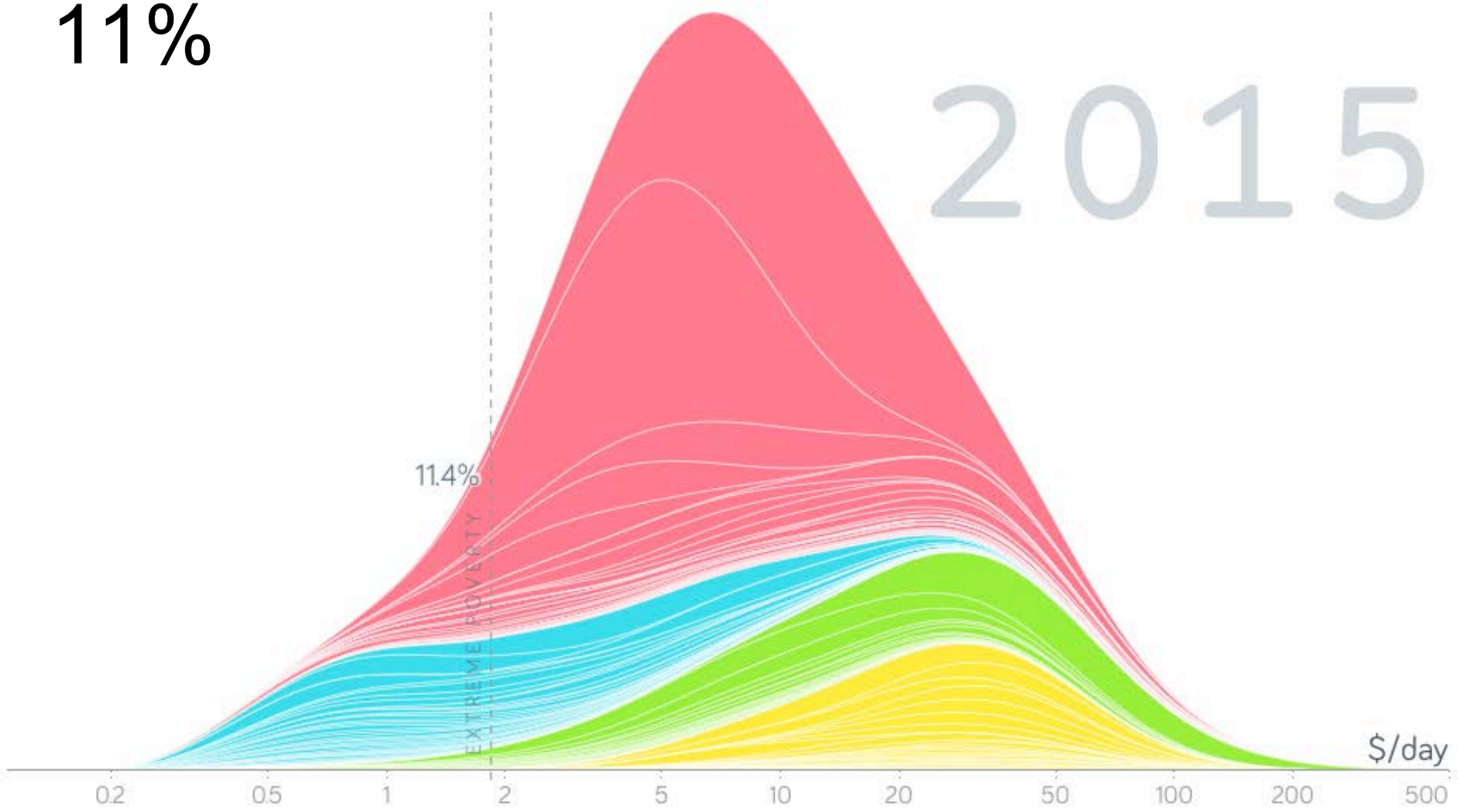
One example to remember: how many poor?

50%



One example to remember: how many poor?

11%



parallel universes

popular accounts

- unrealistic math models
- perfect markets
- poor forecasting

real economics

- theory founded data analysis
- deviations from perfection
- not aiming to forecast

Economics is unpopular

for the wrong reasons

This percolates to grade 11-12

and affects who studies economics

What is economics?

Economics is the science which studies human behaviour as a relationship between ends and scarce means which have alternative uses." L.Robbins

no money

no selfish agents

no maths!

human behavior

scarce resources

no rational agents

no dislike of the state

Human behaviour

what to study

how many children to have

how many hours to work

in which job

how much to pollute

whether to pay taxes

whether to commit a crime

What about the Homo Economicus?

- pretty nasty
- imaginary

If it doesn’t exist why make it up?

- Economists use models
- Good models are like maps: abstract from unnecessary details to improve clarity
- Challenge is to understand which details are unnecessary

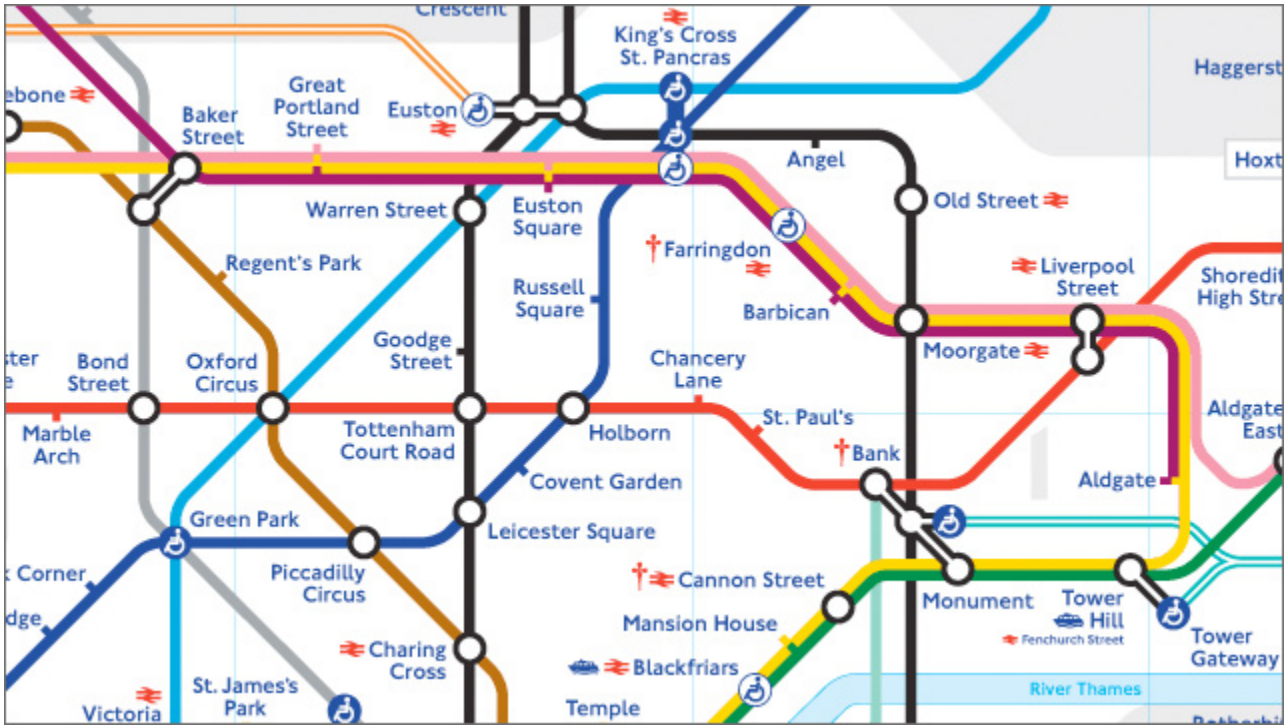
Method 1: mathematical models

We use mathematics to make sense of a very complex reality

Mathematical models are “unrealistic” by design

Reality is not easy to navigate

A good model abstracts from irrelevant information to highlight key features



A bad model abstracts from essential details

Is self-interest a good assumption?

- If it simplifies things without leading you astray: yes
  - e.g. understanding the demand for cereal
- or as a worse case scenario: yes
  - firm behaviour with externalities
- If it leads to wrong conclusions: no
  - e.g. charity giving

Is self-interest the same as rationality?

- two separate concepts
- rational: coherently strives to achieve *some* goal
- goal can be entirely selfish or it can be altruistic
- as long as it’s done coherently, it is rational

Why theory?

- *Economists don't use maths because they are smart, it is because we are stupid* (anonymous Nobel laureate)

- Maths does not lie
- Many ideas don't survive mathematical modeling, and many new ideas come out of models

- For example, before writing the nurse recruitment model, we all thought that there would be a tradeoff between talent and prosociality

- But once we modelled the outside option, we saw that the tradeoff only exists at low ability levels

Let’s go back to Zambia

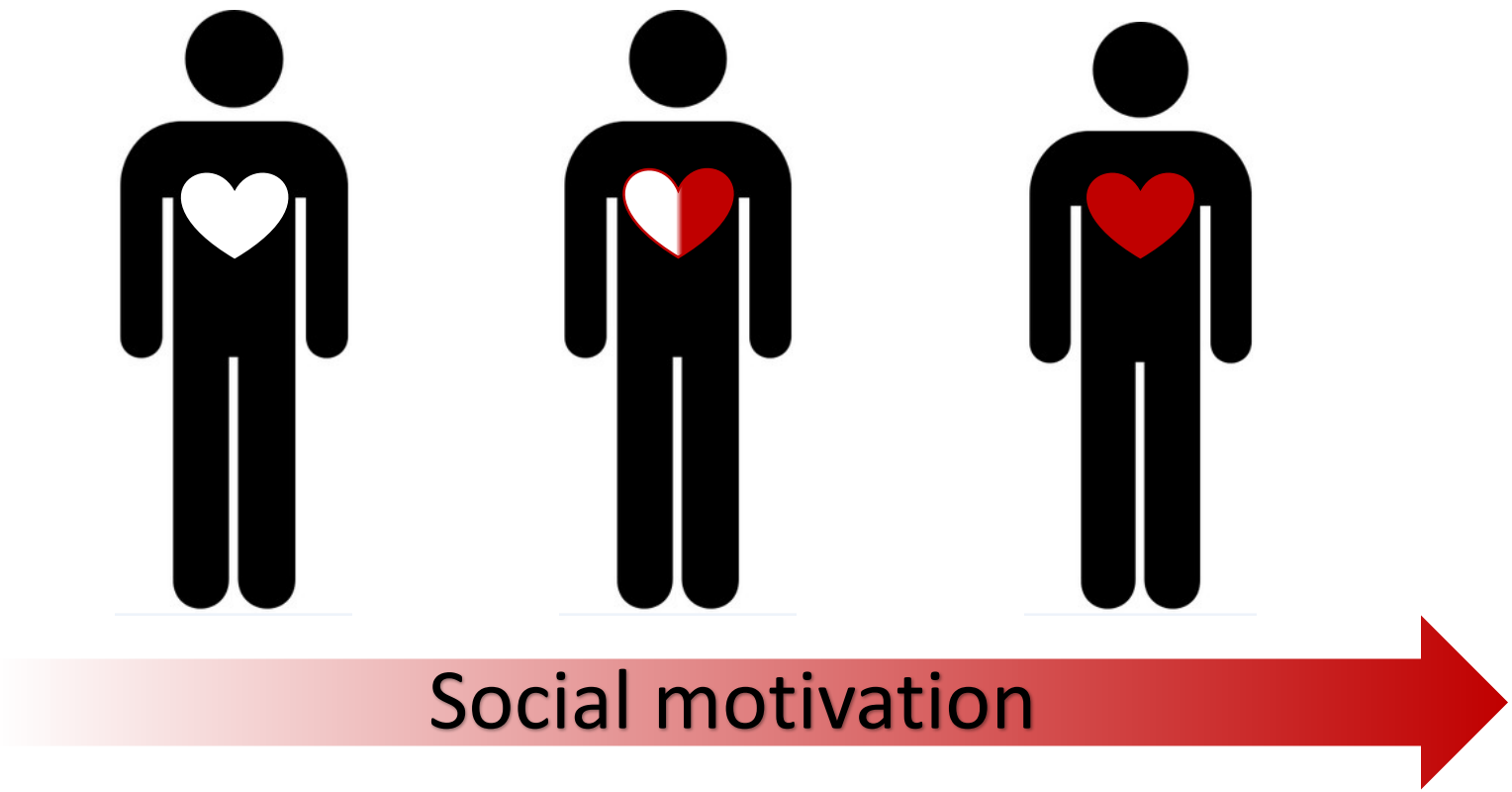
here: behaviour of potential applicants

Economics is the science which studies human behaviour as a relationship between ends and scarce means which have alternative uses.”

what’s scarce?

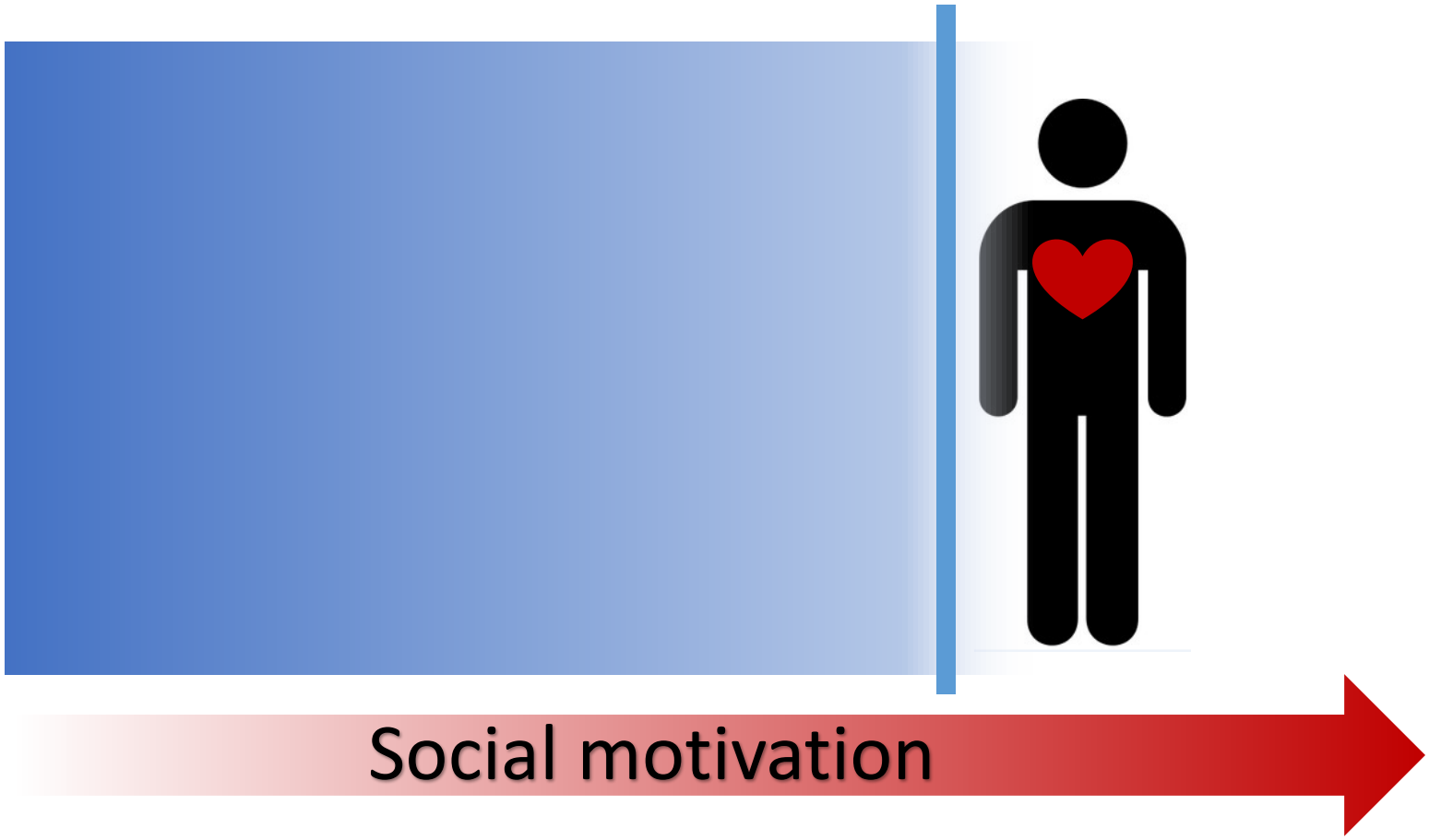
what are their ends?

Assumption 1: applicants have different levels of prosociality

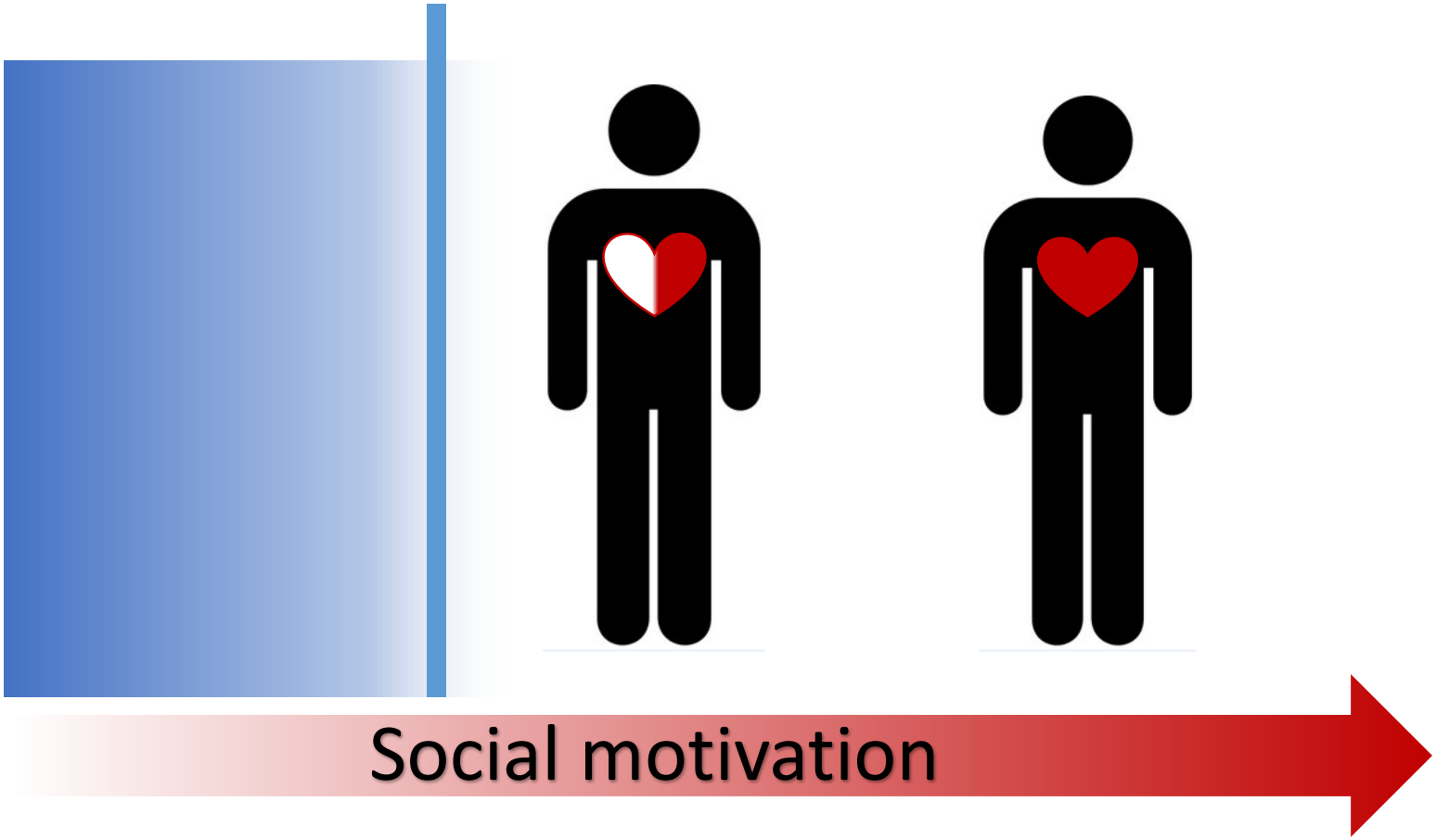


Assumption 2: applicants care about money and helping others

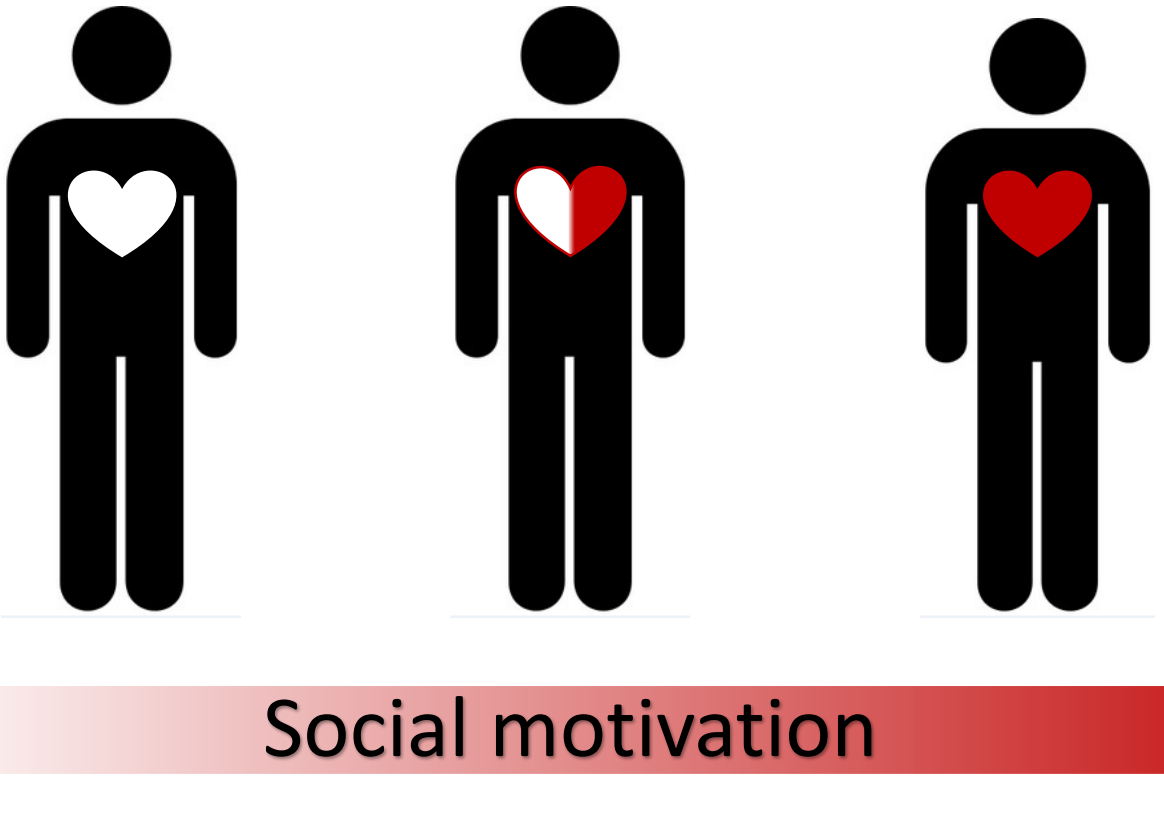
what are their ends?



Medium rewards

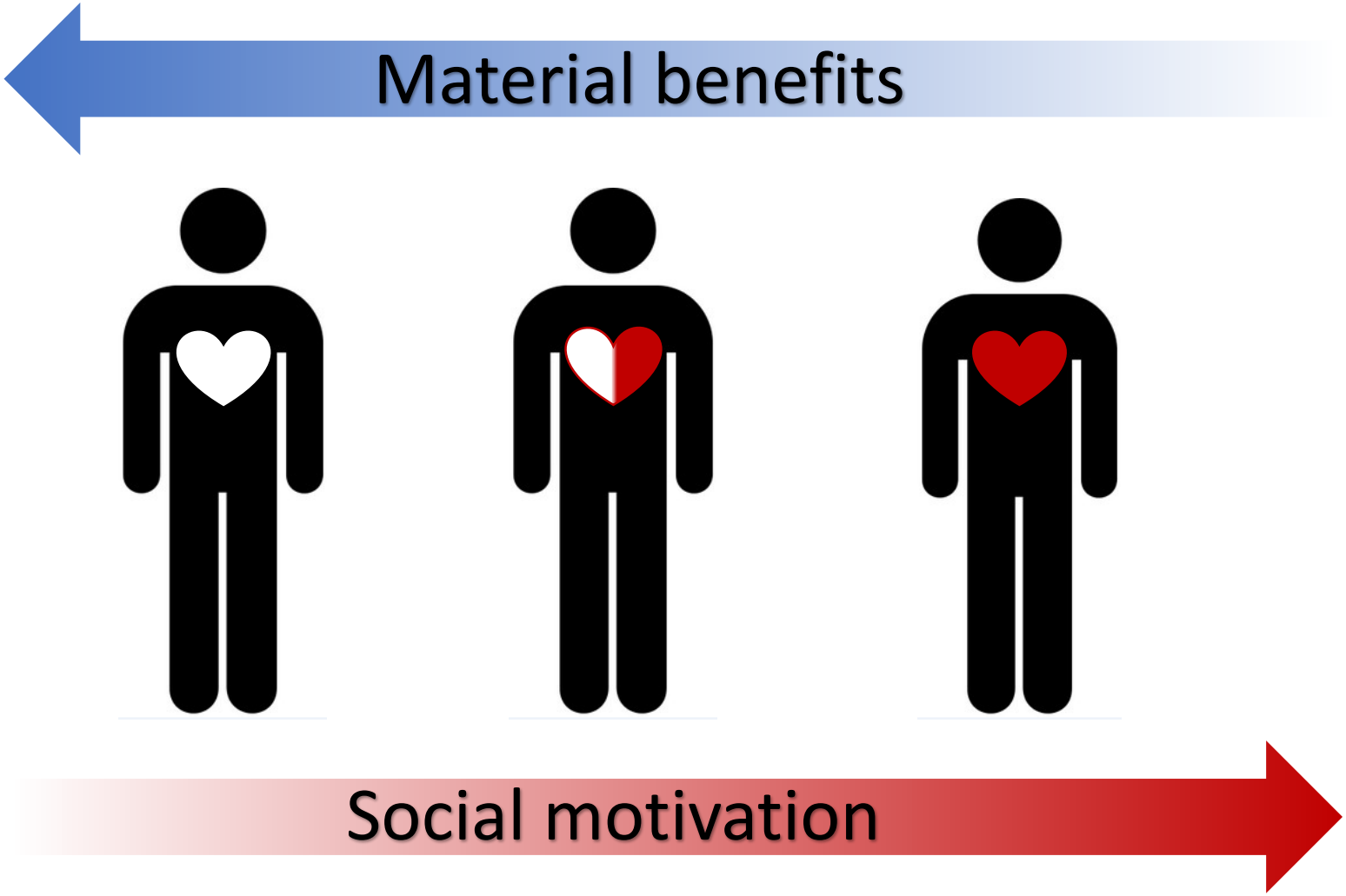


High rewards



Social motivation

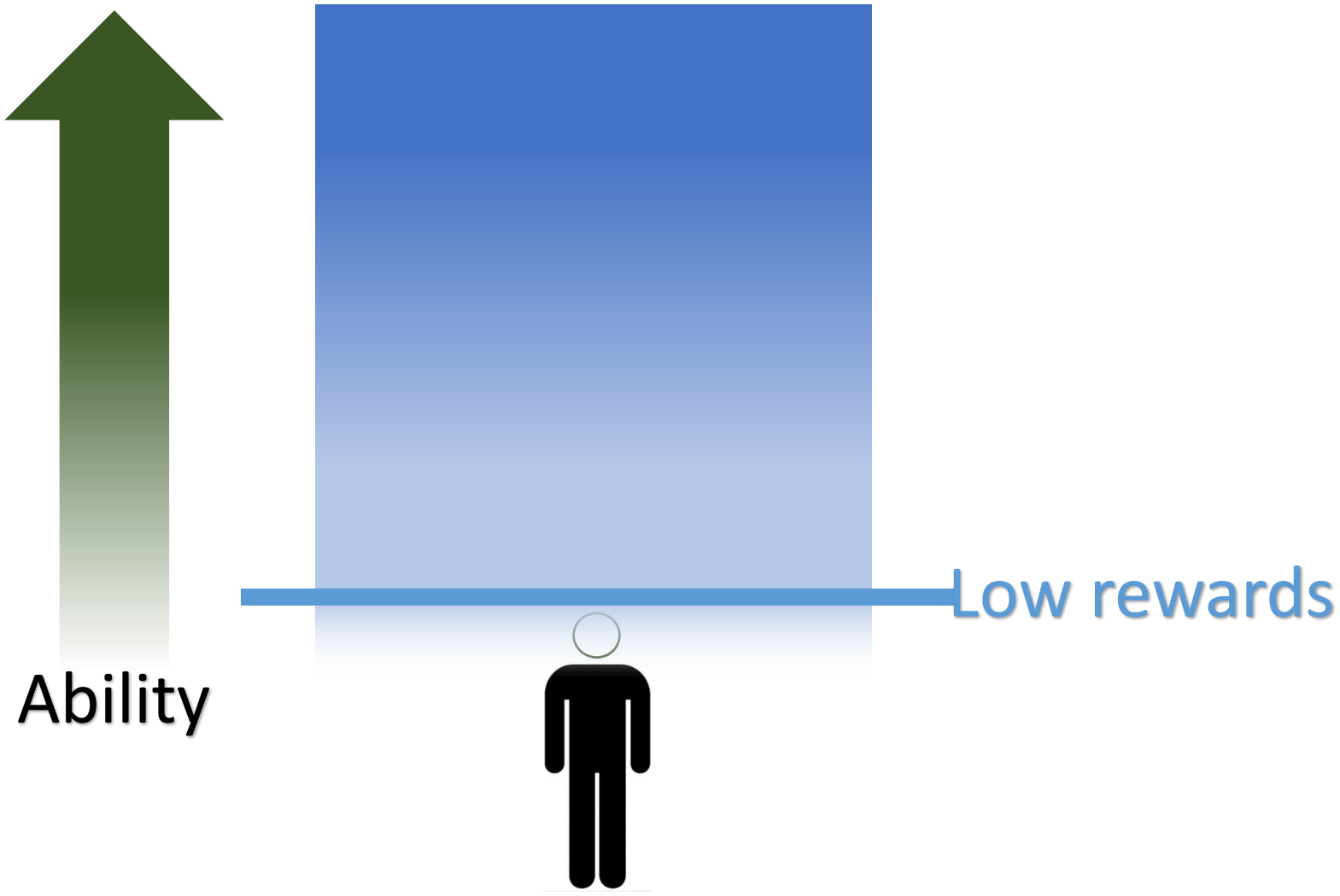
Implication 1: other things equal, increasing material benefits attracts less prosocial applicants (as Mr Mwila feared)



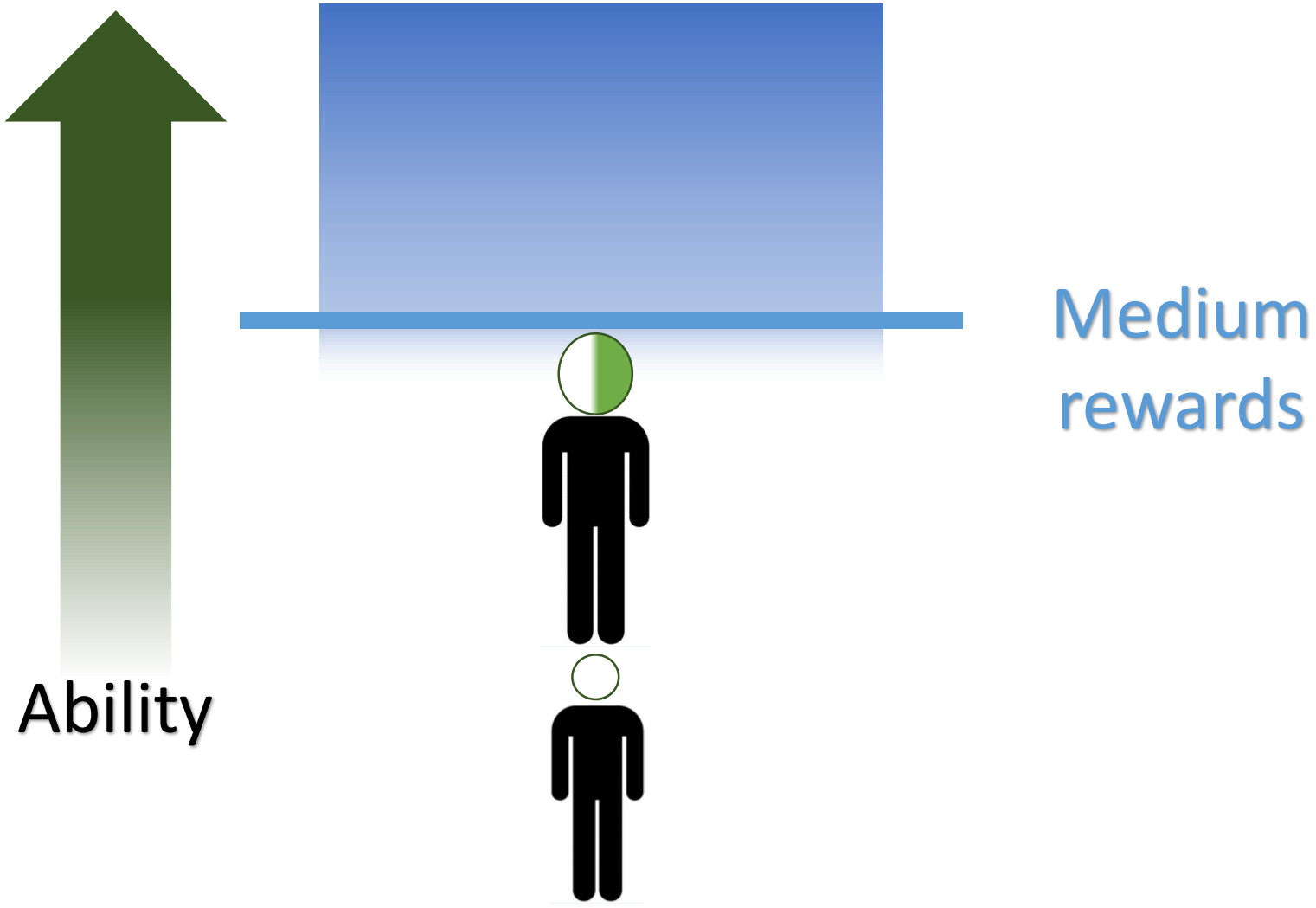
Are we forgetting something?

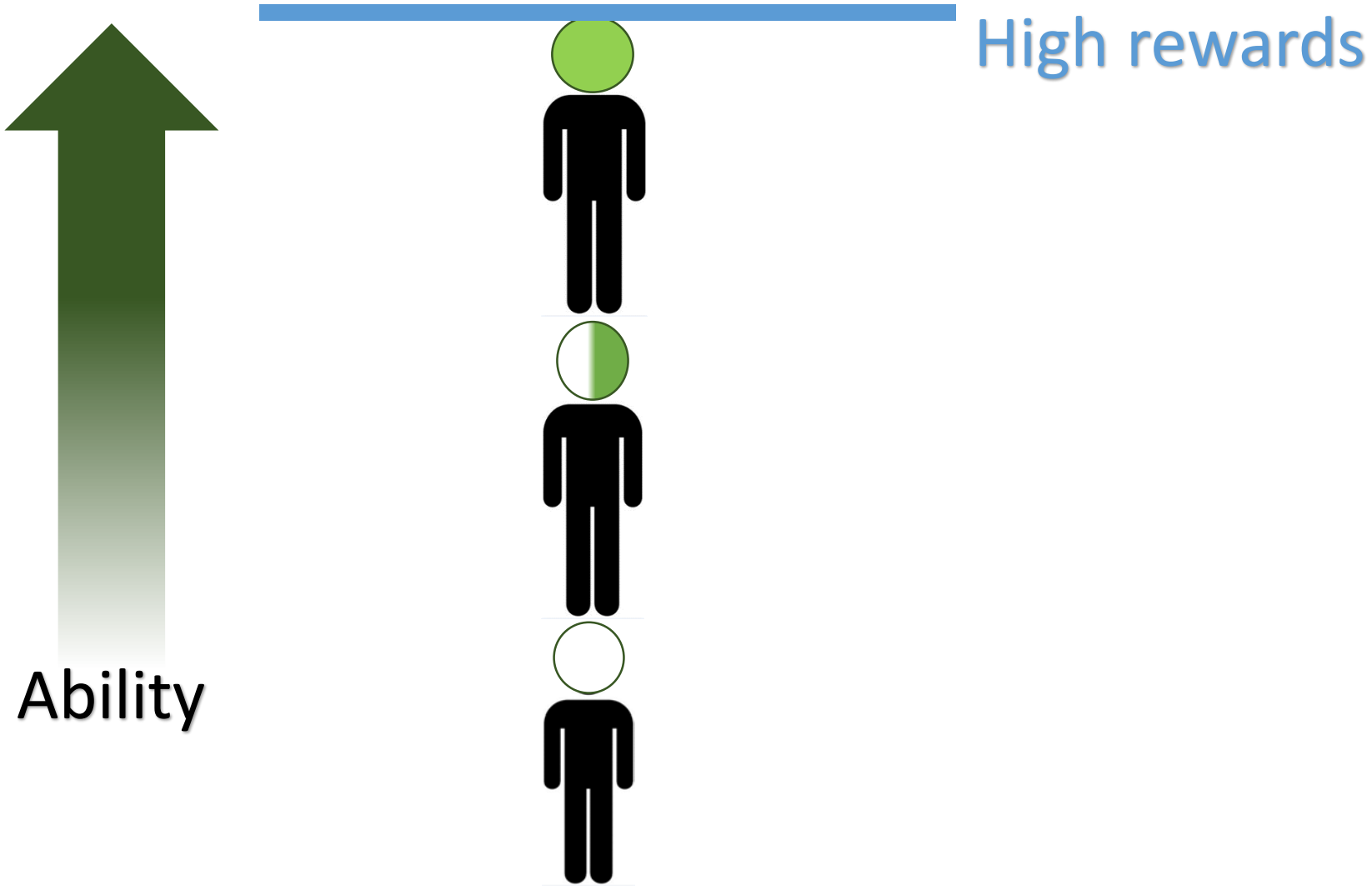
Assumption 3: applicants have different levels of ability

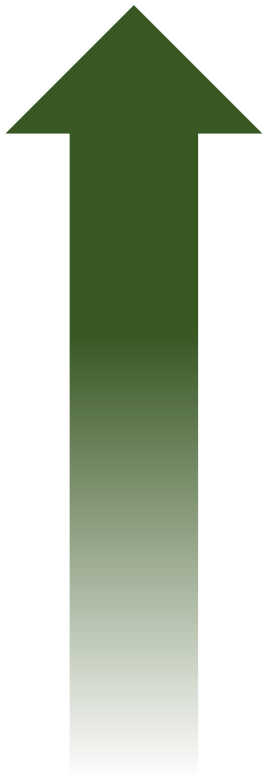
Assumption 4: high ability are paid more in the private sector



Implication 2: other things equal, increasing material benefits attracts more talented applicants

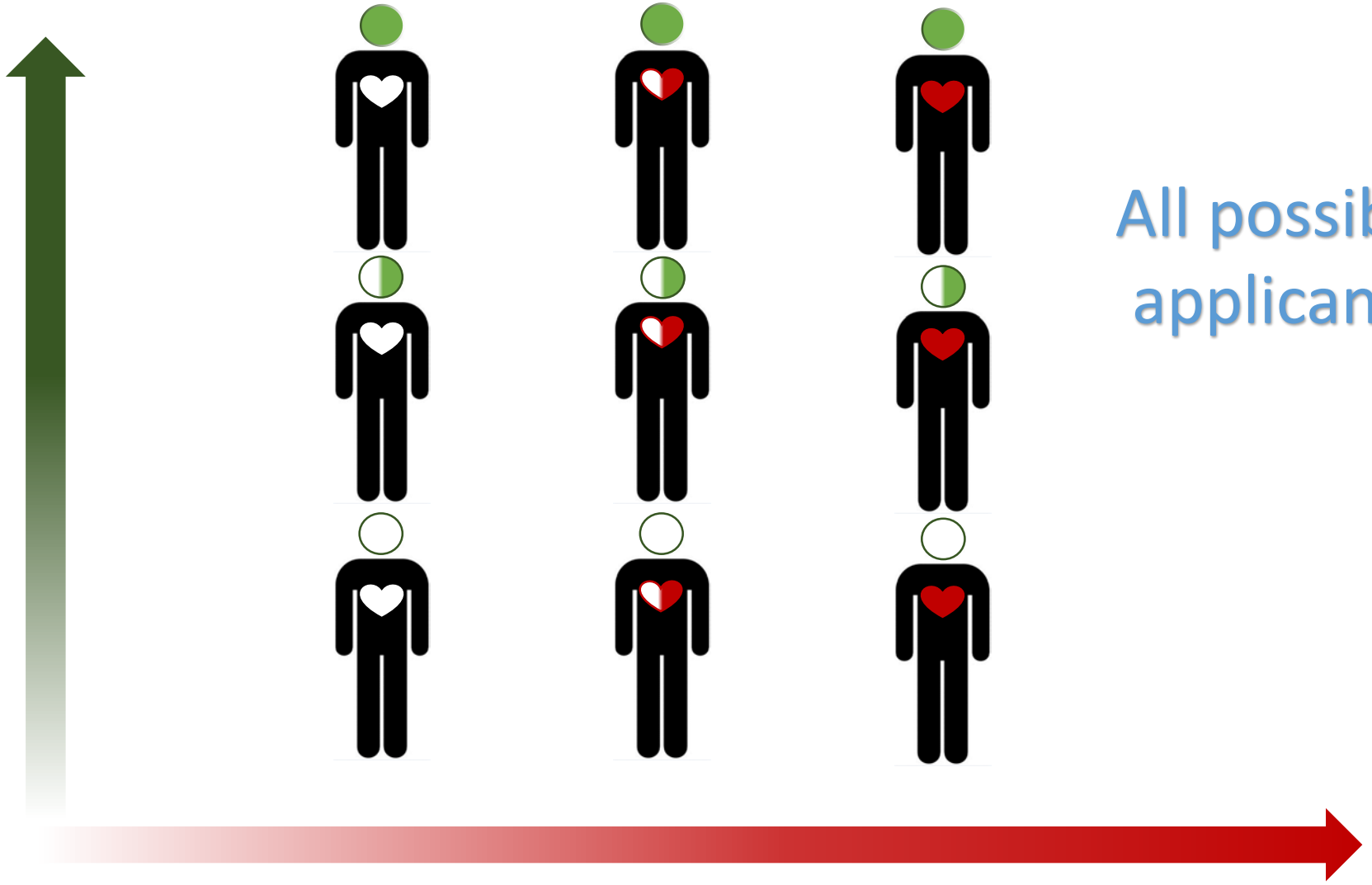



High rewards
Ability

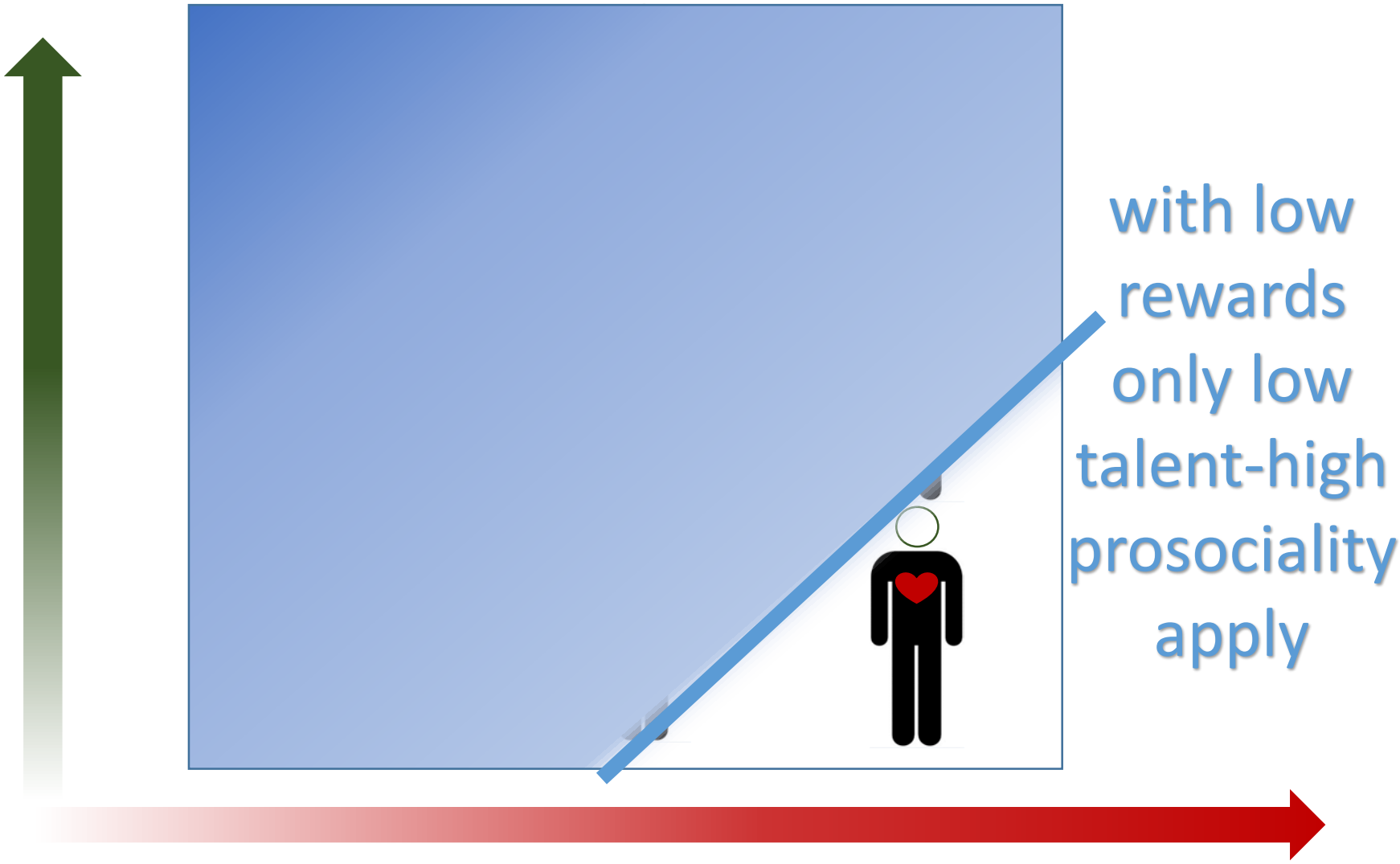


Ability

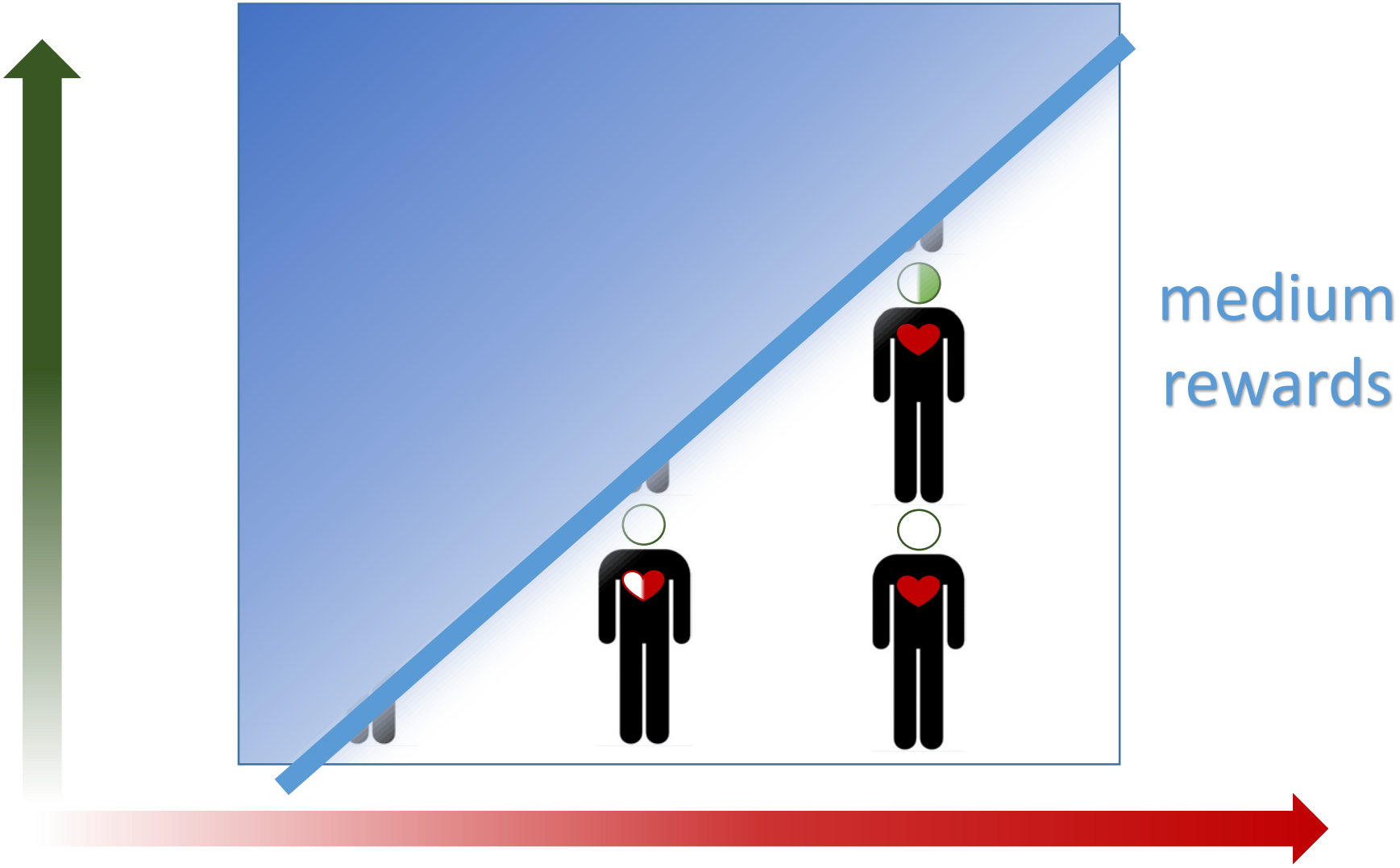
Material benefits

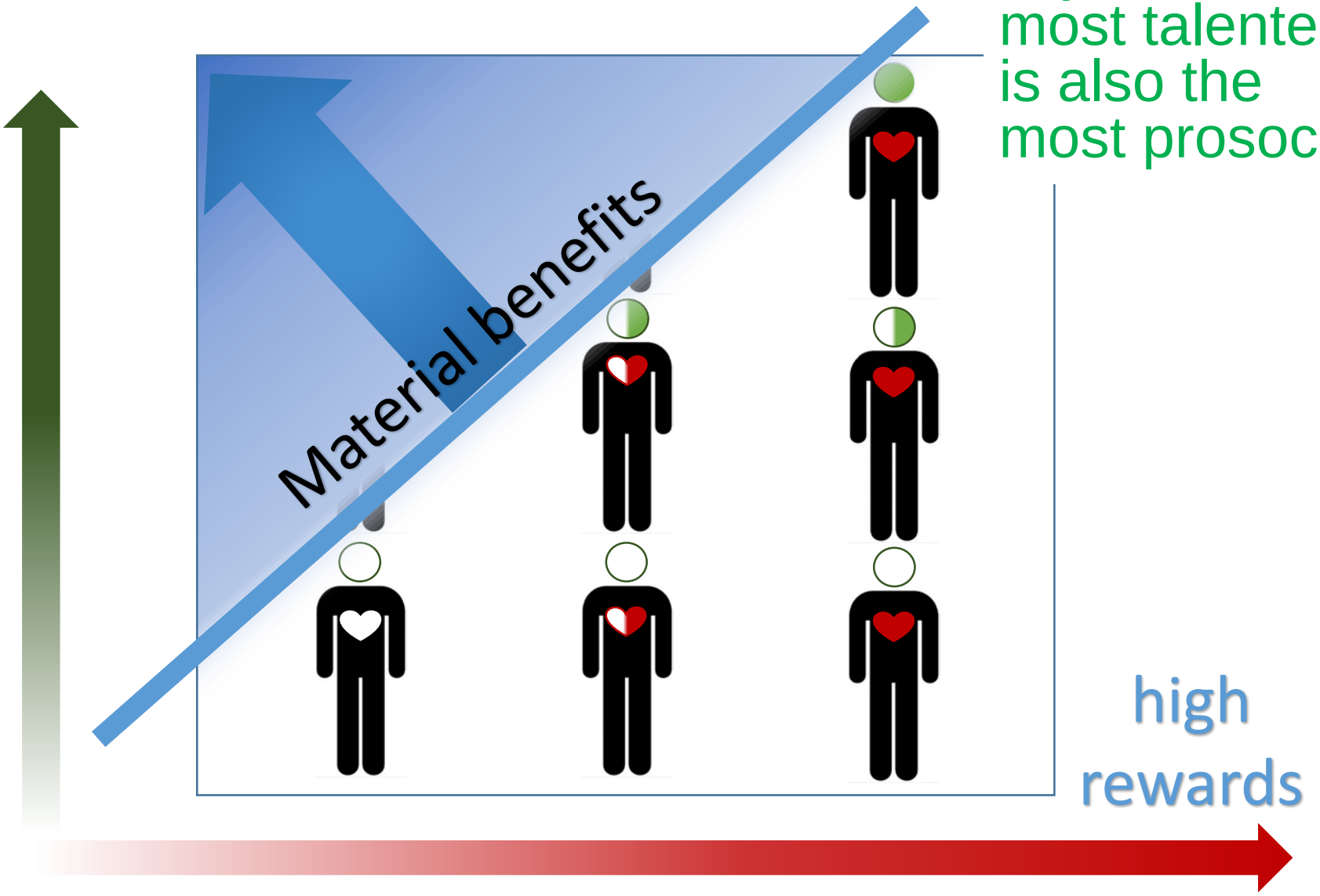


All possible applicants

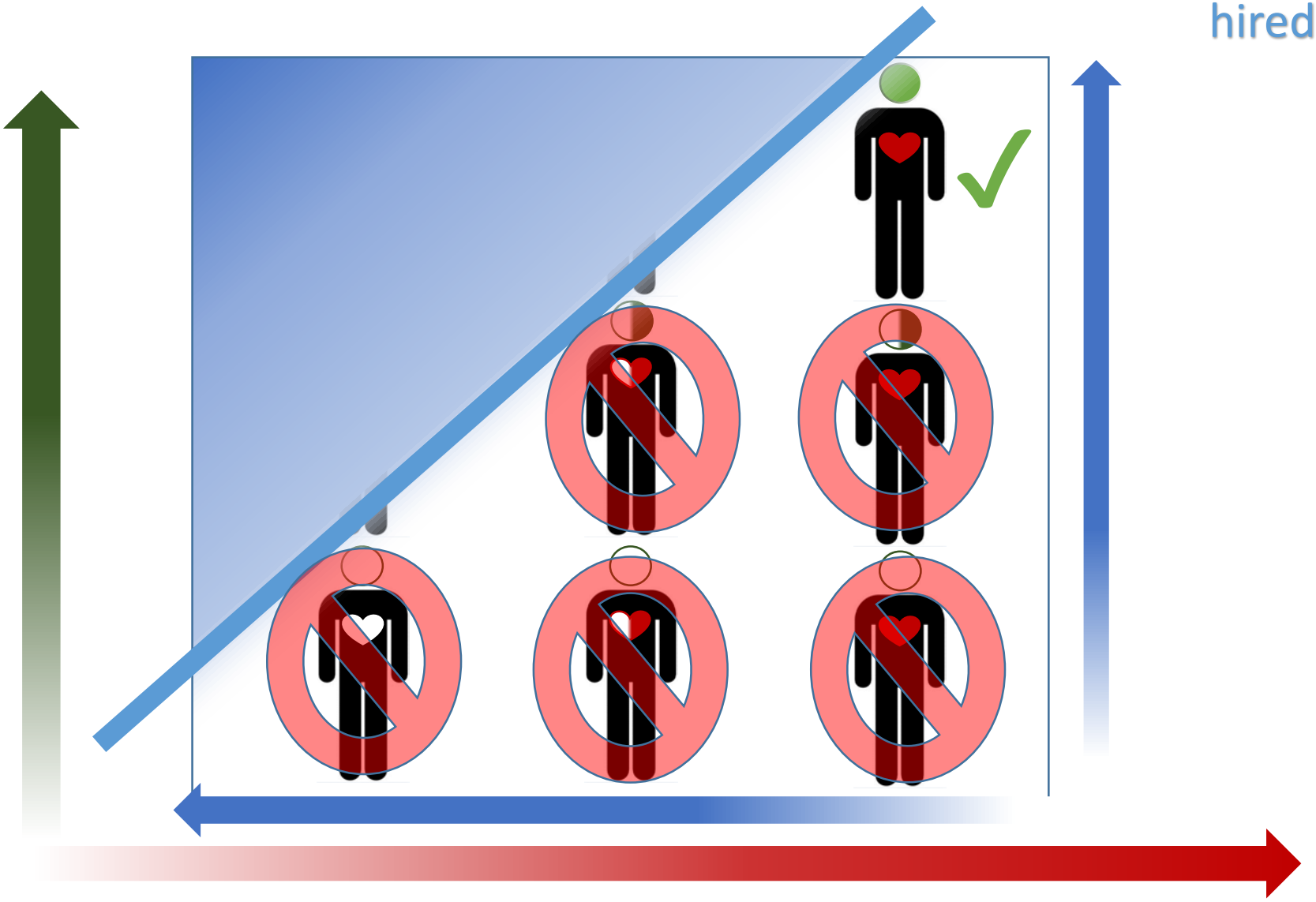


with low rewards only low talent-high prosociality apply


medium
rewards


key result: the most talented is also the most prosocial
Material benefits
high rewards

and she gets hired



Scarce resources → opportunity cost

- The applicants in Zambia could only do one job –time is scarce
- Thus if they become nurses they have to give up their private sector job
- Talented people earns more in the private sector
- → that's why they apply only when offered enough incentives

- And that explains why, had Mr Mwila believed the naïve interpretation, many more children would be malnourished today
- Theory based, statistical data analysis is at the core of economics

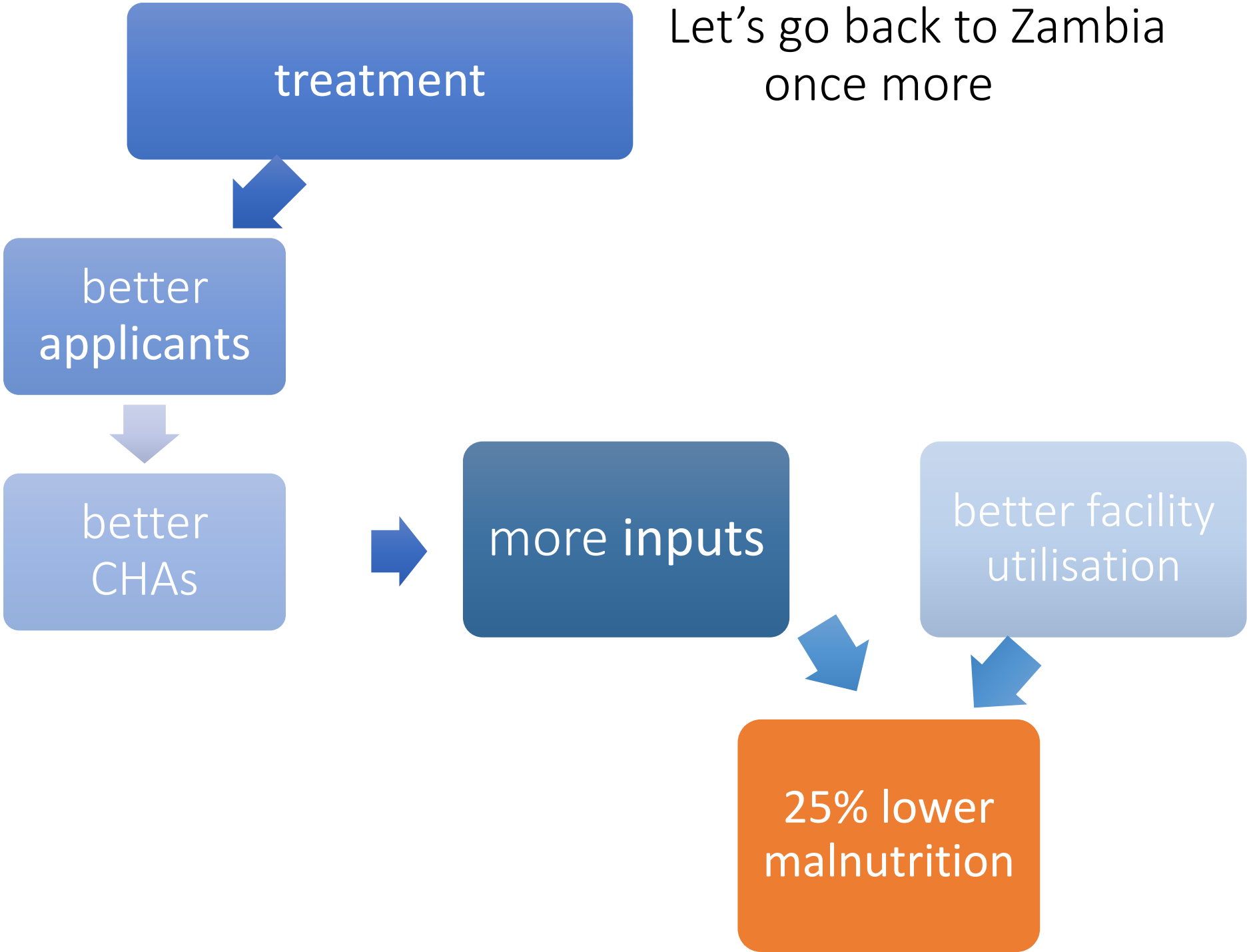
Method 2: uncovering causal links

Models predict a causal link between two variables

Reality is a lot messier

Much of economics tries to find causal links in data to evaluate policy effects

Let's go back to Zambia once more



The difference between anecdotes and science

- A short amusing or interesting story about a real incident or person.

- The intellectual and practical activity encompassing the systematic study of the structure and behaviour of the physical and natural world through observation and experiment.

Two kinds of evidence

- Evidence derived from selected histories

- Evidence derived from the systematic study of the structure and behaviour of the physical and natural world through observation and experiment.

An example: material rewards

- Dan Pink’s TED talk
  - if you reward people for doing well they do badly
- Systematic meta-analysis of causal effect of incentives
  - if you reward people for doing well they do well
  - e.g. nurses in Zambia

Who have you heard of?

- Dan Pink's TED talk
  - 19 MILLION VIEWS
- Most cited article on incentives (Ed Lazear AER 00)
  - 2.5 THOUSANDS CITES
- for each person who has read Lazear's paper there are 7600 who have seen Pink's video

Why such difference?

- Dan Pink's TED talk, 19million views

  A short amusing or interesting story about a real incident or person.

- Academic articles, max 2K readers

"The distinctive characteristic of academics, their DNA, is *doubt*."

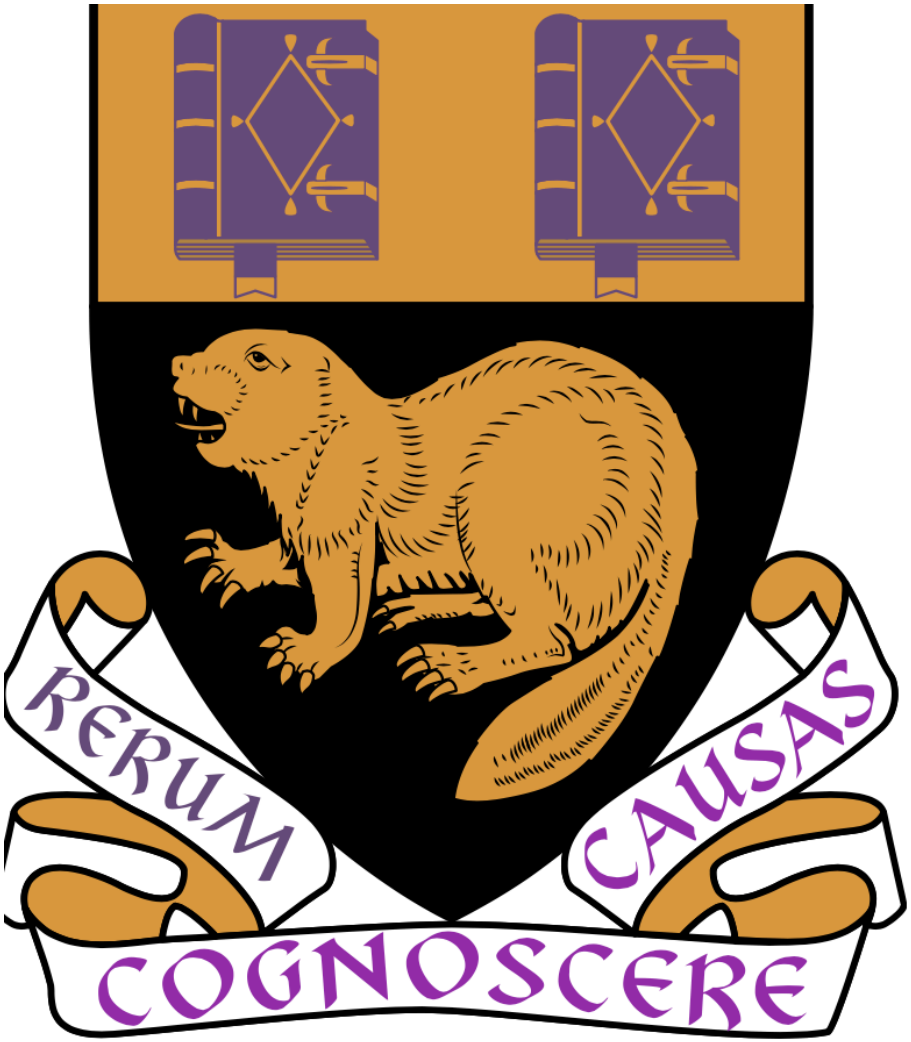
(J. Tirole)

Do incentives always work?

- Yes, they increase the MEASURE that is rewarded
- But often rewarded measure is not the desired outcome

- Tax collectors incentives that increase bribes
- Teachers incentives that increase kids' sugar intake
- A&E incentives that result in ambulances scarcity
- Anti-corruption rules that create monopolies

To know the causes of things



Policies in the absence of causal evidence

- Bankers' pay is excessive
- Most of bankers' pay is bonuses → put a cap on bonuses

- What's the effect on pay?
- What's the effect on risk taking?

- Curing the symptom does not wish the cause away

- Bankers' bonuses are only a symptom of strong demand for top bankers (or their capture of the industry)
- These are the ultimate causes of excessive pay

Identifying causality

- “Ice-cream consumption increases the frequency of shark attacks”
  - what determines ice-cream demand?
  - could it determine shark attacks?

- causality requires a counterfactual
  - a parallel universe where everything is identical but for the consumption of icecream

Random ice-cream

- RCTs have taken the world by storm in the last 15 years
- idea is simple: offer the policy to a randomly selected treatment group
- key strength: decoupling variation in treatment from any other variable that affects outcomes
- are RCTs a silver bullet?
  - offer is random, compliance is not
  - control group can be contaminated by the existence or knowledge of treatment (eg GE effects, experimenter effect)

You can bring a horse to water..

- We can randomise the *offer of treatment*
- But we cannot force people to take it
- Or to stick with it
- Such take up or drop off decisions are endogenous thus we cannot estimate the effect on those who take up
- We can estimate the Intent to Treat (ITT)—that is the effect on everybody who randomly received the offer
- This is unbiased but only of interest if we want to incorporate take up in the estimates
- It is close to the parameter of interest (treatment effect on the treated ToT or ATT) when take-up is close to 100

An often forgotten caveat

- randomisation only ensures balance in expectation, not in every draw
  - imagine a world with two workers, one man and one woman → each draw will be unbalanced
  - does it make it better that “the difference is due to chance”?
  - unbalance reduces precision regardless

There's even a statistical poem about it

- **Hiawatha Designs an Experiment** by W. E. Mientka
- Hiawatha, mighty hunter,
  He could shoot ten arrows upward,
  Shoot them with such strength and swiftness
  That the last had left the bow-string Ere the first
  to earth descended.
- This was commonly regarded
  As a feat of skill and cunning.
  Several sarcastic spirits
  Pointed out to him, however,
  That it might be much more useful
  If he sometimes hit the target.
  "Why not shoot a little straighter
  And employ a smaller sample?"
- Hiawatha, who at college
  Majored in applied statistics,
  Consequently felt entitled
  To instruct his fellow man in
  Any subject whatsoever,
  Waxed exceedingly indignant,
- Talked about the law of errors,
  Talked about truncated normals,
  Talked of loss of information,
  Talked about his lack of bias,
  Pointed out that (in the long run)
  Independent observations,
  Even though they missed the target,
  Had an average point of impact
  Very near the spot he aimed at,
  With the possible exception
  of a set of measure zero.
- "This," they said, "was rather doubtful;
  Anyway it didn't matter.
  What resulted in the long run:
  Either he must hit the target
  Much more often than at present,
  Or himself would have to pay for
  All the arrows he had wasted."
- Hiawatha, in a temper,
  Quoted parts of R. A. Fisher,
  Quoted Yates and quoted Finney,
  Quoted reams of Oscar Kempthorne,
  Quoted Anderson and Bancroft
  (practically in extenso)
  Trying to impress upon them
  That what actually mattered
  Was to estimate the error.
  Several of them admitted:
  "Such a thing might have its uses;
  Still," they said, "he would do better
  If he shot a little straighter."

There's even a statistical poem about it

- Hiawatha, to convince them,
  Organized a shooting contest.
  Laid out in the proper manner
  Of designs experimental
  Recommended in the textbooks,
  Mainly used for tasting tea
  (but sometimes used in other cases)
  Used factorial arrangements
  And the theory of Galois,
  Got a nicely balanced layout
  And successfully confounded
  Second order interactions.
- All the other tribal marksmen,
  Ignorant benighted creatures
  Of experimental setups,
  Used their time of preparation
  Putting in a lot of practice
  Merely shooting at the target.
- Thus it happened in the contest
  That their scores were most impressive
  With one solitary exception.
  This, I hate to have to say it,
  Was the score of Hiawatha,
  Who as usual shot his arrows,
  Shot them with great strength and swiftness,
  Managing to be unbiased,
  Not however with a salvo
  Managing to hit the target.
- "There!" they said to Hiawatha,
  "That is what we all expected."
  Hiawatha, nothing daunted,
  Called for pen and called for paper.
  But analysis of variance
  Finally produced the figures
  Showing beyond all peradventure,
  Everybody else was biased.
  And the variance components
  Did not differ from each other's
  As they did from Hiawatha's.
- (This last point, it might be mentioned,
  Would have been much more convincing
  If he hadn't been compelled to
  Estimate his own components
  From experimental plots on
  Which the values all were missing.)
- Still they couldn't understand it,
  So they couldn't raise objections.
  (Which is what so often happens with analysis of variance.)
  All the same his fellow tribesmen,
  Ignorant benighted heathens,
  Took away his bow and arrows,
  Said that though my Hiawatha
  Was a brilliant statistician,
  He was useless as a bowman.
  As for variance components
  Several of the more outspoken
  Made primeval observations
  Hurtful of the finer feelings
  Even of the statistician.
- In a corner of the forest
  Sits alone my Hiawatha
  Permanently cogitating
  On the normal law of errors.
  Wondering in idle moments
  If perhaps increased precision
  Might perhaps be sometimes better
  Even at the cost of bias,
  If one could thereby now and then
  Register upon a target.

Researchers have some solutions

1. stratification on key determinants increases statistical power
2. using eligible&interested as the starting sample allays take-up and drop out concerns
3. randomisation at higher level of aggregation helps minimise spillovers
4. randomising the roll-out rather than the policy itself is politically more feasible

FAQs

1. is randomisation always necessary?
   - no, but a valid counterfactual is
2. is a pilot enough?
   - for troubleshooting: yes, for evaluation: no
   - scaled up interventions have general eq effects
3. aren’t qualitative methods more informative?
   - interviews are a good way to uncover mechanisms and complementary to systematic data collection
   - they are not a substitute

#whatEconomistsReallyDo

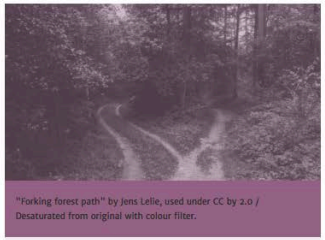
- Economists study human behaviour
  - theoretically, by stylised models that show they key forces at play
  - empirically, by experiments or other techniques to uncover causality

- Both are useful for policy
  - to anticipate unwanted responses
  - to evaluate impacts

Readings in useful economics

Microeconomic Insights: distilling research for public debate

About MI	Development	Environment	Health
International Trade	Labour Markets	Organisation of Markets	Public Finance



"Forking forest path" by Jens Lelie, used under CC by 2.0 / Desaturated from original with colour filter.

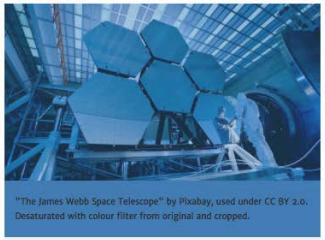
17 November 2017

Labour Markets

Authors: Ghazala Azmat (Sciences Po), Rosa Ferrer (Universitat Pompeu Fabra)

Gender gaps among high-skilled professionals: the case of US lawyers

Are differences in earnings between



"The James Webb Space Telescope" by Pixabay, used under CC BY 2.0. Desaturated with colour filter from original and cropped.

10 November 2017

Public Finance

Authors: Enrico Moretti (University of California, Berkeley), Daniel J. Wilson (Federal Reserve Bank of San Francisco)

Where star scientists choose to locate: the impact of US state taxes

Forthcoming Articles

1. "Housing Market Responses to Transaction Taxes: Evidence from Notches and Stimulus in the UK", Michael Best (Columbia) and Henrik Kleven (Princeton).
2. "Infrastructure investment and regulation", Claire S. H. Lim (Cornell), Ali Yurukoglu (Stanford).

Past Highlight

Economic benefits of transportation infrastructure: historical evidence from India and America

coreecon

Economics for a changing world

VoxDev