Is Poverty Persistent?

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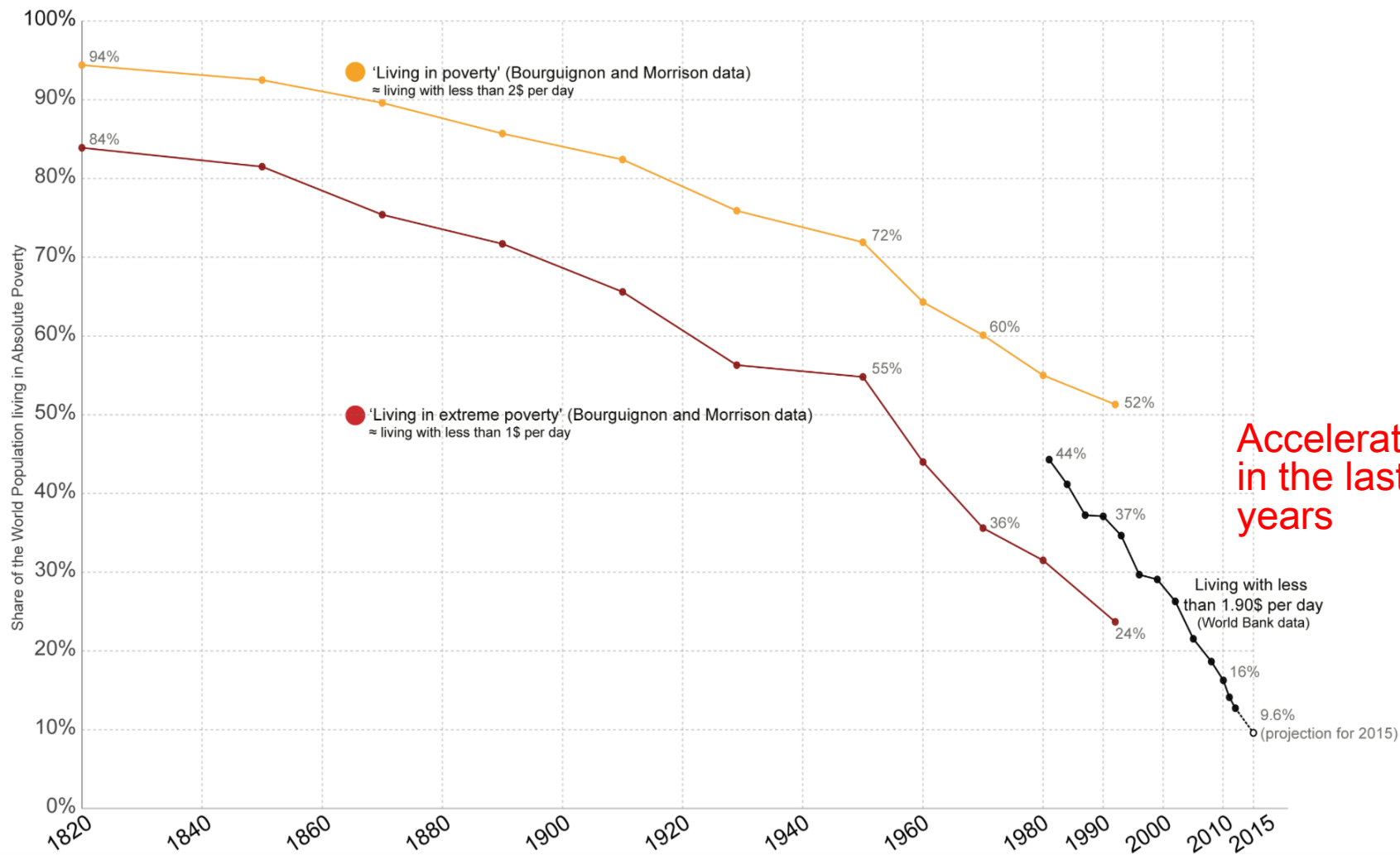
July 20, 2018

Introduction

Poverty

- *Global* poor are those whose income falls below the global poverty line, the famous "Dollar A Day" line
  - nowadays $1.90

# The share of people living in absolute poverty has been dropping steadily in the last 200 years

Share of the World Population living in Absolute Poverty

'Living in poverty' (Bourguignon and Morrison data)
≈ living with less than 2$ per day

'Living in extreme poverty' (Bourguignon and Morrison data)
≈ living with less than 1$ per day

Living with less than 1.90$ per day (World Bank data)

Acceleration in the last 50 years

94%
84%
72%
55%
60%
52%
44%
37%
36%
24%
16%
9.6% (projection for 2015)

Poverty has been decreasing but is still high in SSA and SA

Poverty Headcount (1.9$ per day) by region
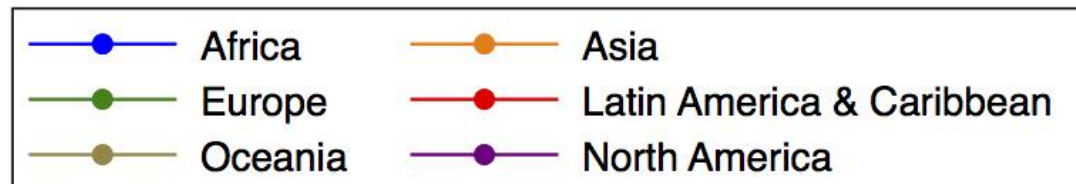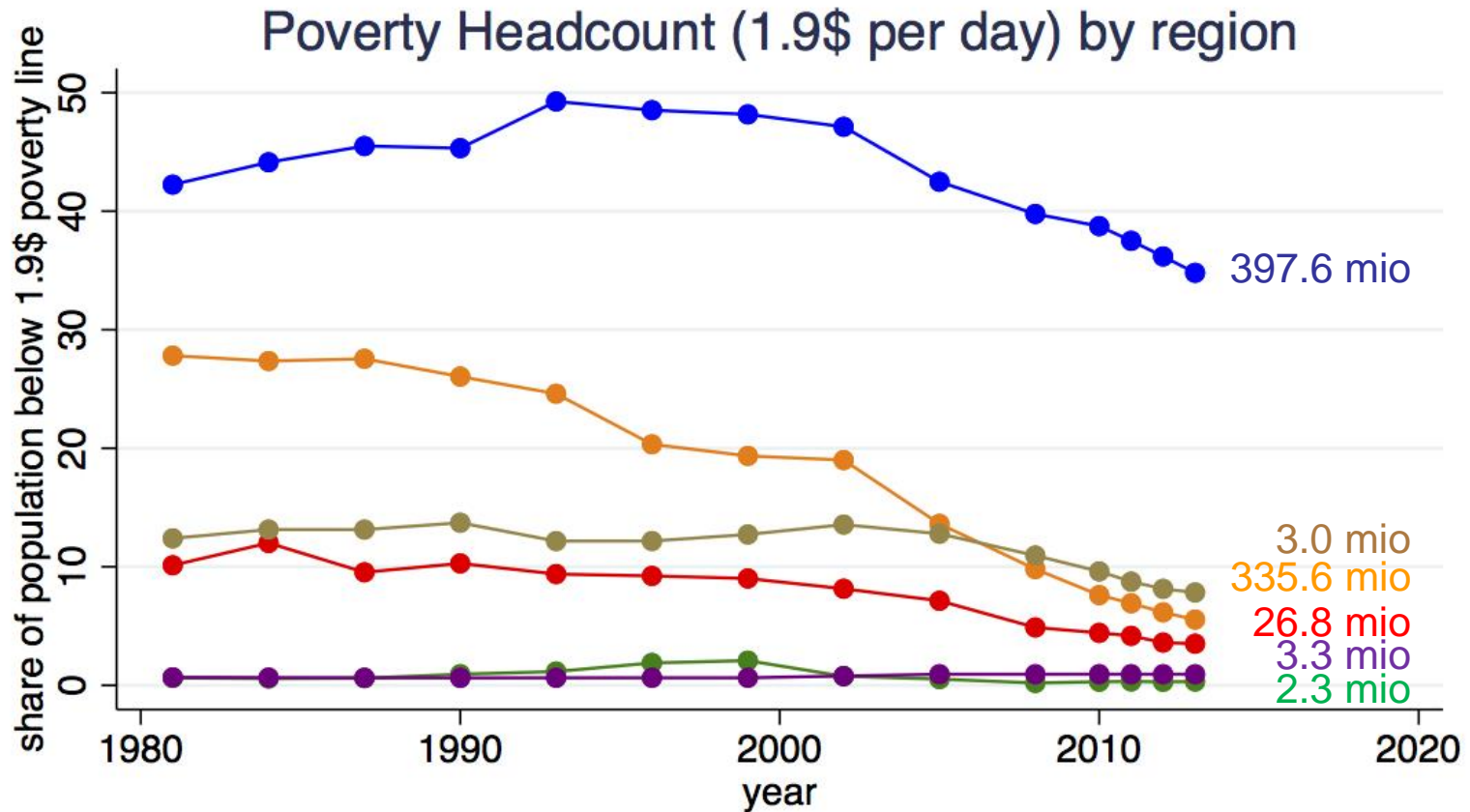
But numbers are stable in the poorest regions

Total population living in extreme poverty, by world region

Numbers are in millions of people. Extreme poverty is defined as living with per capita household consumption below 1.90 international dollars per day (in 2011 PPP prices). International dollars are adjusted for inflation and for price differences across countries.

Latin America and the Caribbean
East Asia and Pacific
South Asia
Middle East and North Africa
Europe and Central Asia
Sub-Saharan Africa
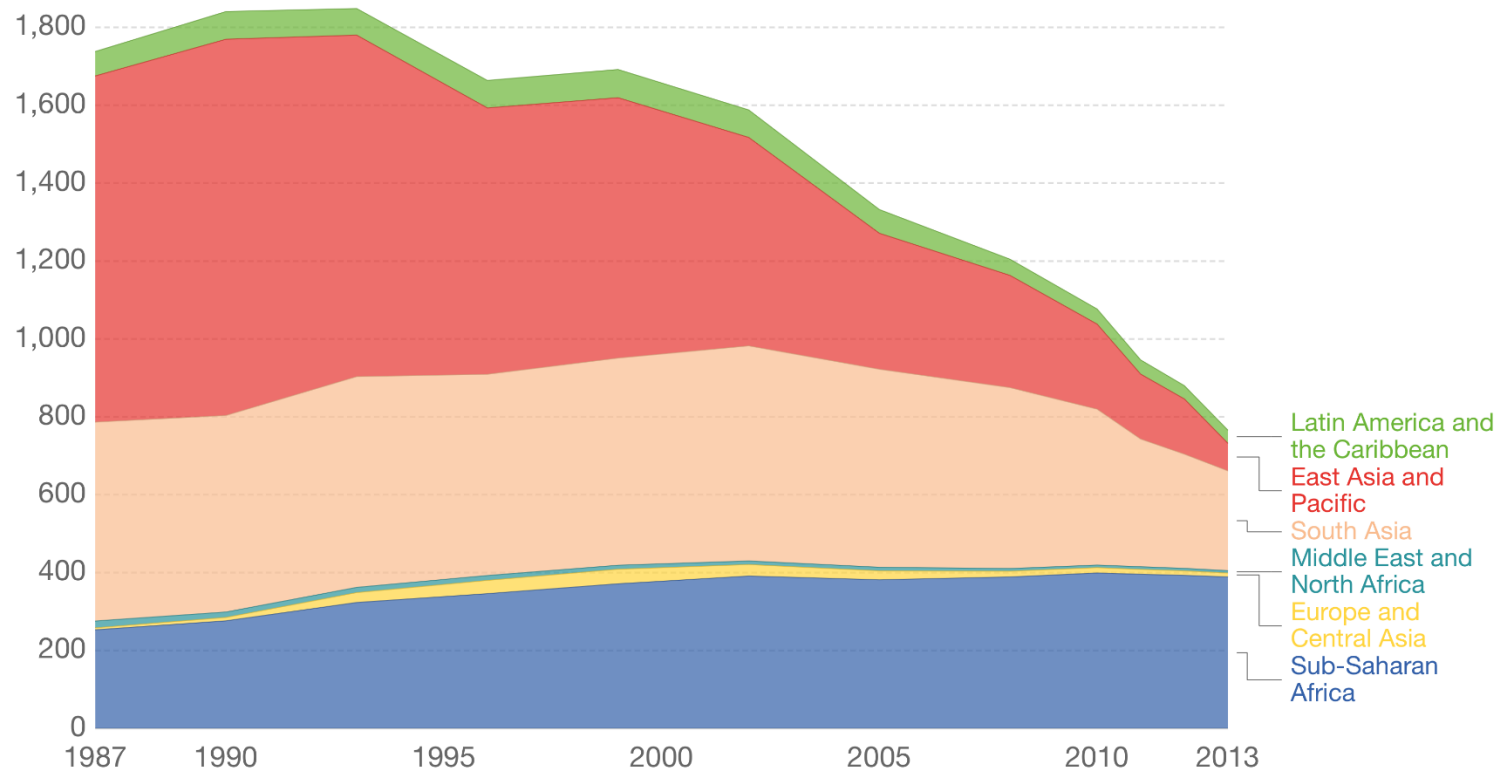
Source: World Poverty Absolute Number by Region - PovcalNet (World Bank)   OurWorldInData.org/extreme-poverty/ • CC BY-SA
Note: Consumption per capita is the preferred welfare indicator for the World Bank's analysis of global poverty. However, for about 25% of the countries, estimates correspond to income, rather than consumption.

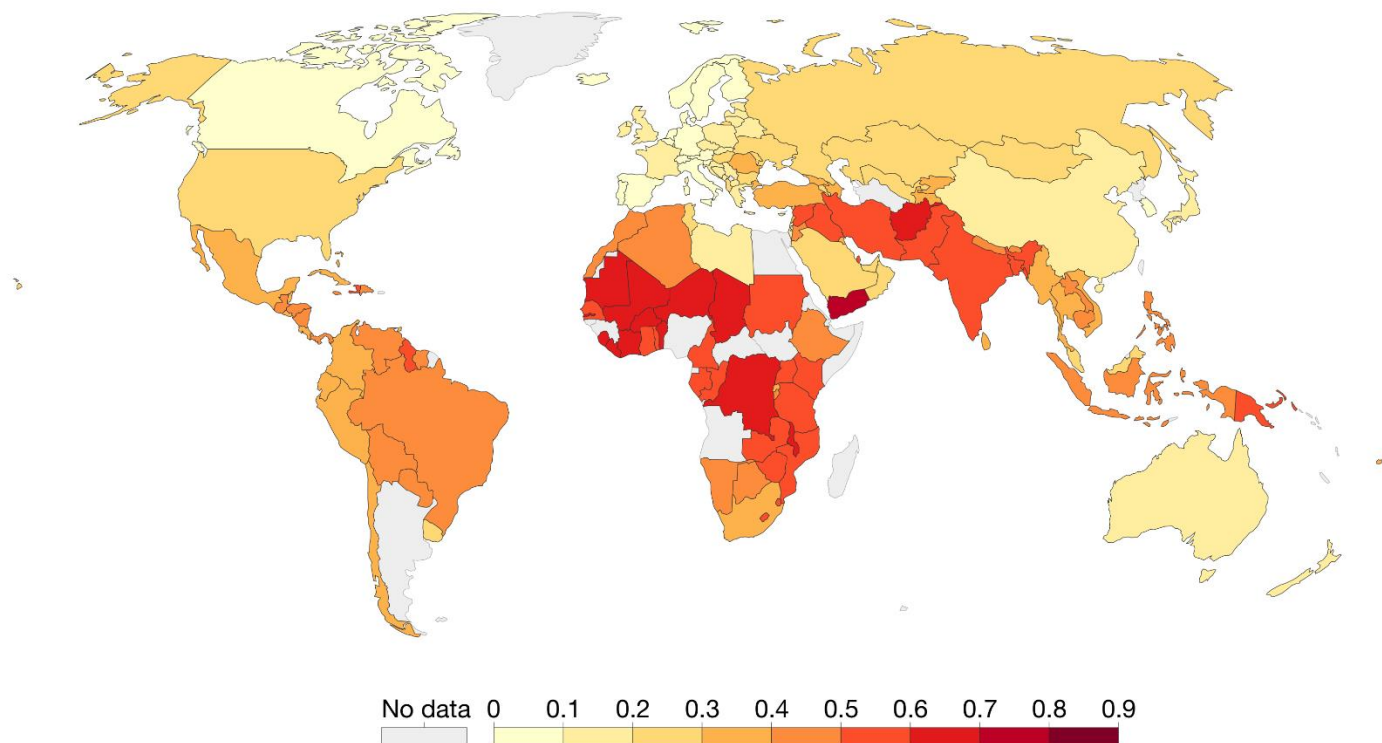# These are the regions where population growth will be fastest

Population projections (1950-2100)
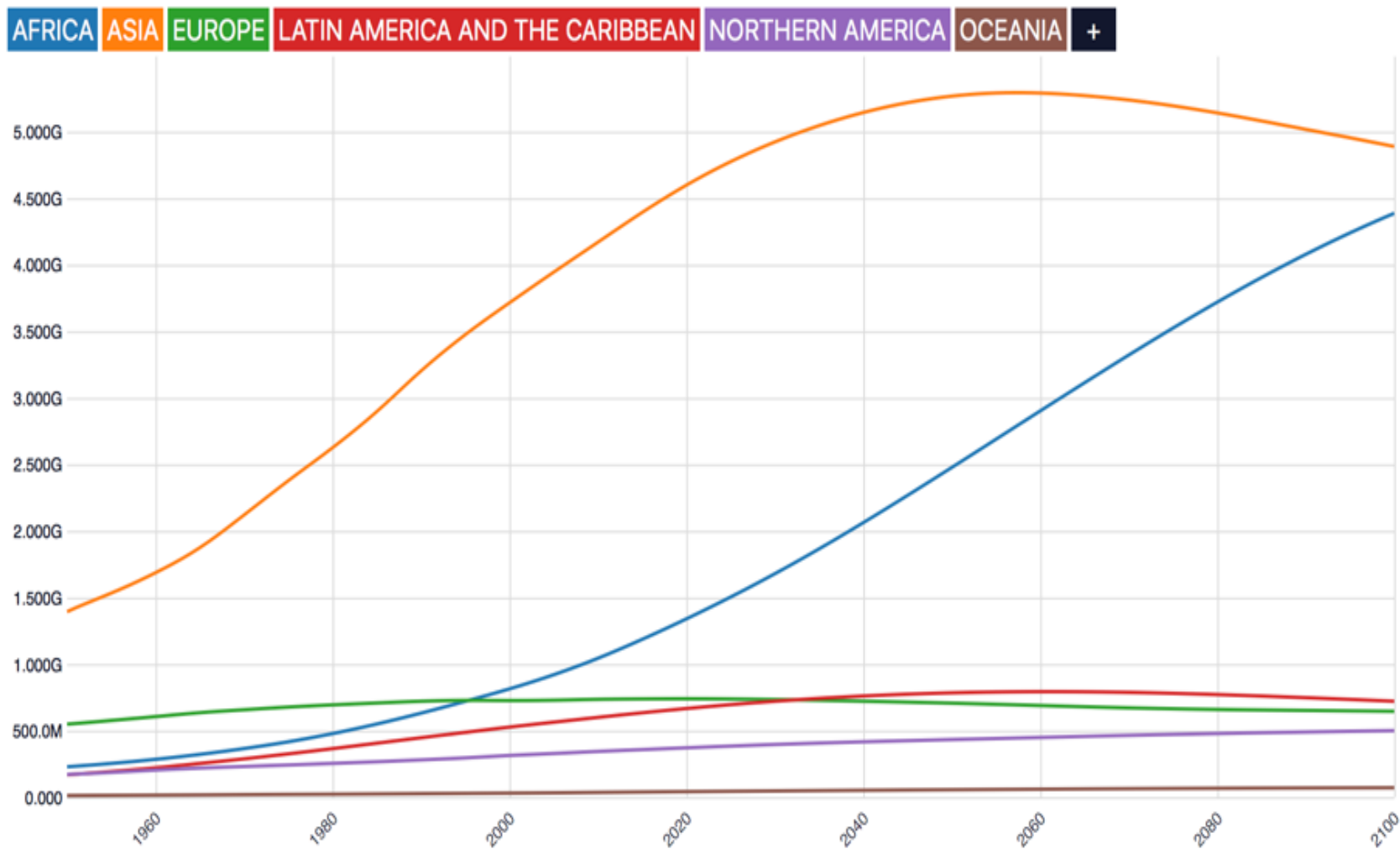
These are the regions with higher gender inequality

Gender Inequality Index from the Human Development Report, 2015

This index covers three dimensions: reproductive health (based on maternal mortality ratio and adolescent birth rates); empowerment (based on proportion of parliamentary seats occupied by females and proportion of adult females aged 25 years and older with at least some secondary education); and economic status (based on labour market participation rates of female and male populations aged 15 years and older). Scores are between 0-1 and higher values indicate higher inequalities.
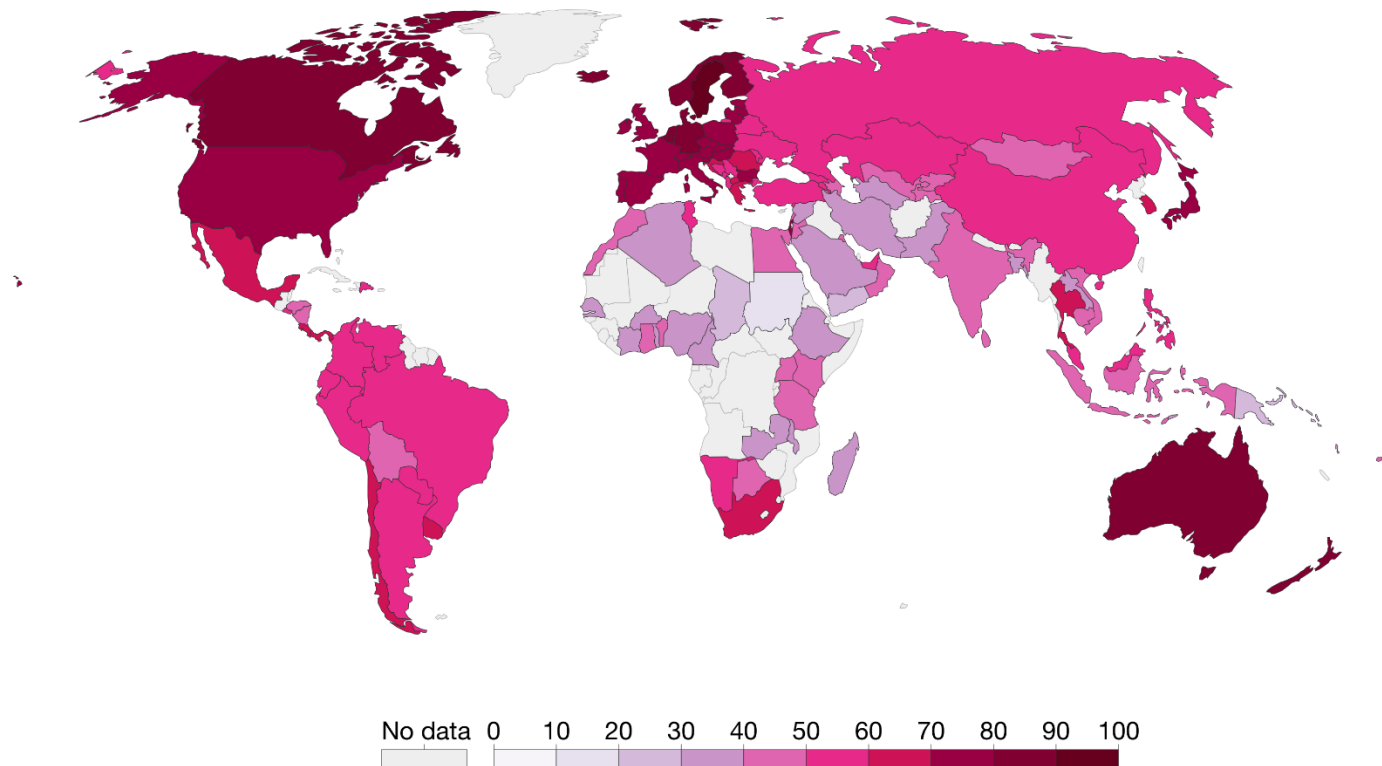
No data 0   0.1   0.2   0.3   0.4   0.5   0.6   0.7   0.8   0.9

Where women have fewer economic opportunities
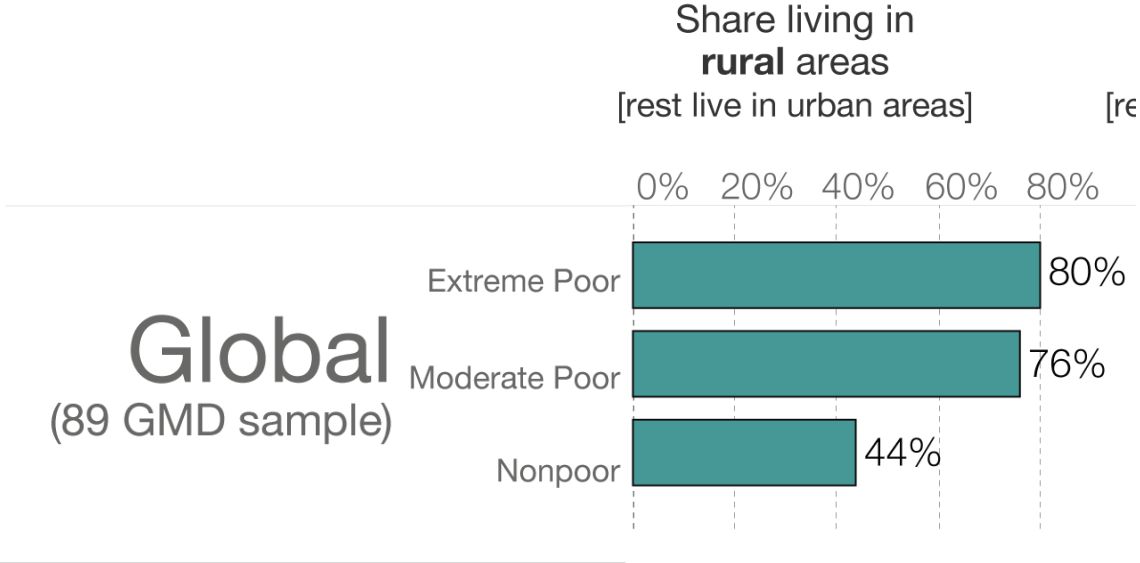
Women's Economic Opportunity Index, 2012

This index is base on five underlying indicators: Labor policy and practice; Access to Finance; Education and training; Women's legal and social status; and the General business environment. Scores are scaled 0-100, where higher values denote more economic opportunities for women.

No data 0 10 20 30 40 50 60 70 80 90 100

80% of the global poor live in RURAL areas

Share living in
rural areas
[rest live in urban areas]   [re

	0%	20%	40%	60%	80%

Extreme Poor — 80%

Global
(89 GMD sample)

Moderate Poor — 76%

Nonpoor — 44%

Eradicate extreme poverty by 2030 (SDG1)?

- Need to address the "stubborn poverty" problem: a lot of poor people are left behind even as countries grow.

- We need to understand why people stay poor in order to design policies that lift the poorest out of poverty

- 75% of extreme poor rural and of these majority work in agriculture (World Bank 2013)
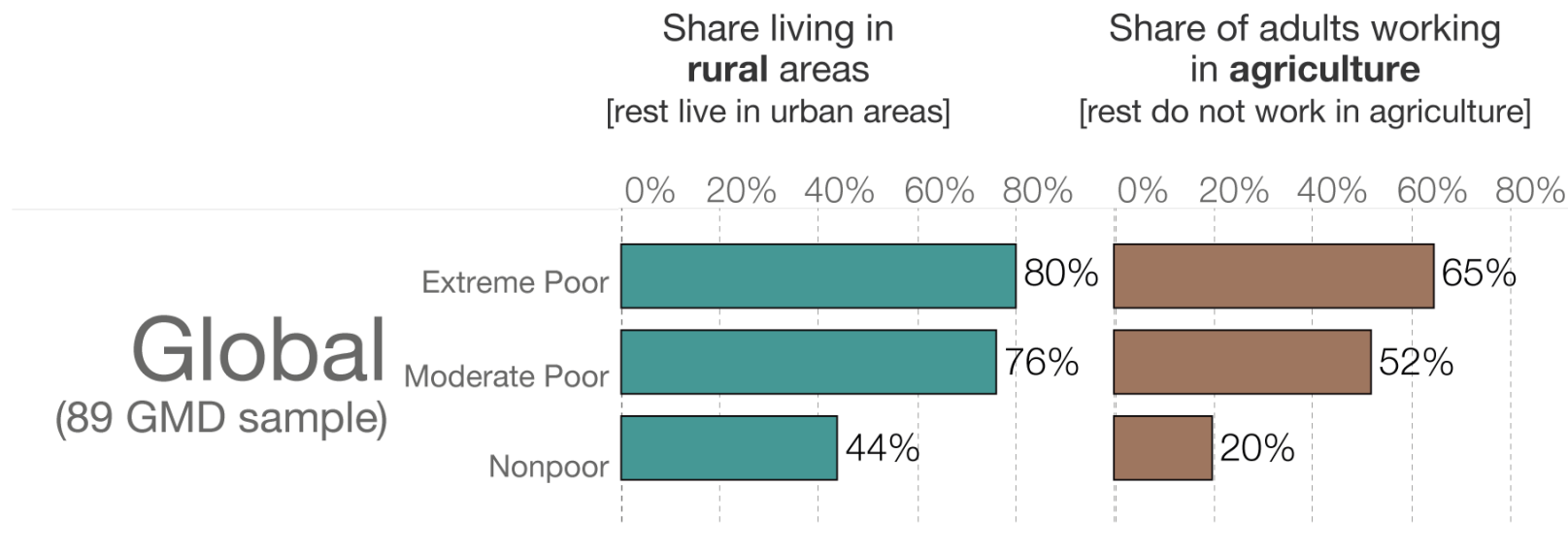
Economic Lives of the Poor

- Labor is the sole endowment of the poor → we need to understand what determines earnings

- Earnings= wage X hours worked

- This comes down to the choice of jobs

Laborers represents a large part of the workforce

- Nearly a third of workers in India and a fifth of workers in Bangladesh and Pakistan are itinerant wage labourers (World Bank 2011)

- 67% of landless rural workers report casual employment as their primary source of earnings (Kaur 2017)

- 98% of agricultural wage employment in India is through casual employment typified by spot markets (Kaur 2017)

Most of the poor are employed in agriculture

Share living in **rural** areas
[rest live in urban areas]

Share of adults working in **agriculture**
[rest do not work in agriculture]

Global
(89 GMD sample)

	Share living in rural areas	Share of adults working in agriculture
Extreme Poor	80%	65%
Moderate Poor	76%	52%
Nonpoor	44%	20%

Stable wage jobs are the exception

FIGURE 1.1 *A job does not always come with a wage*

80% have stable wage jobs
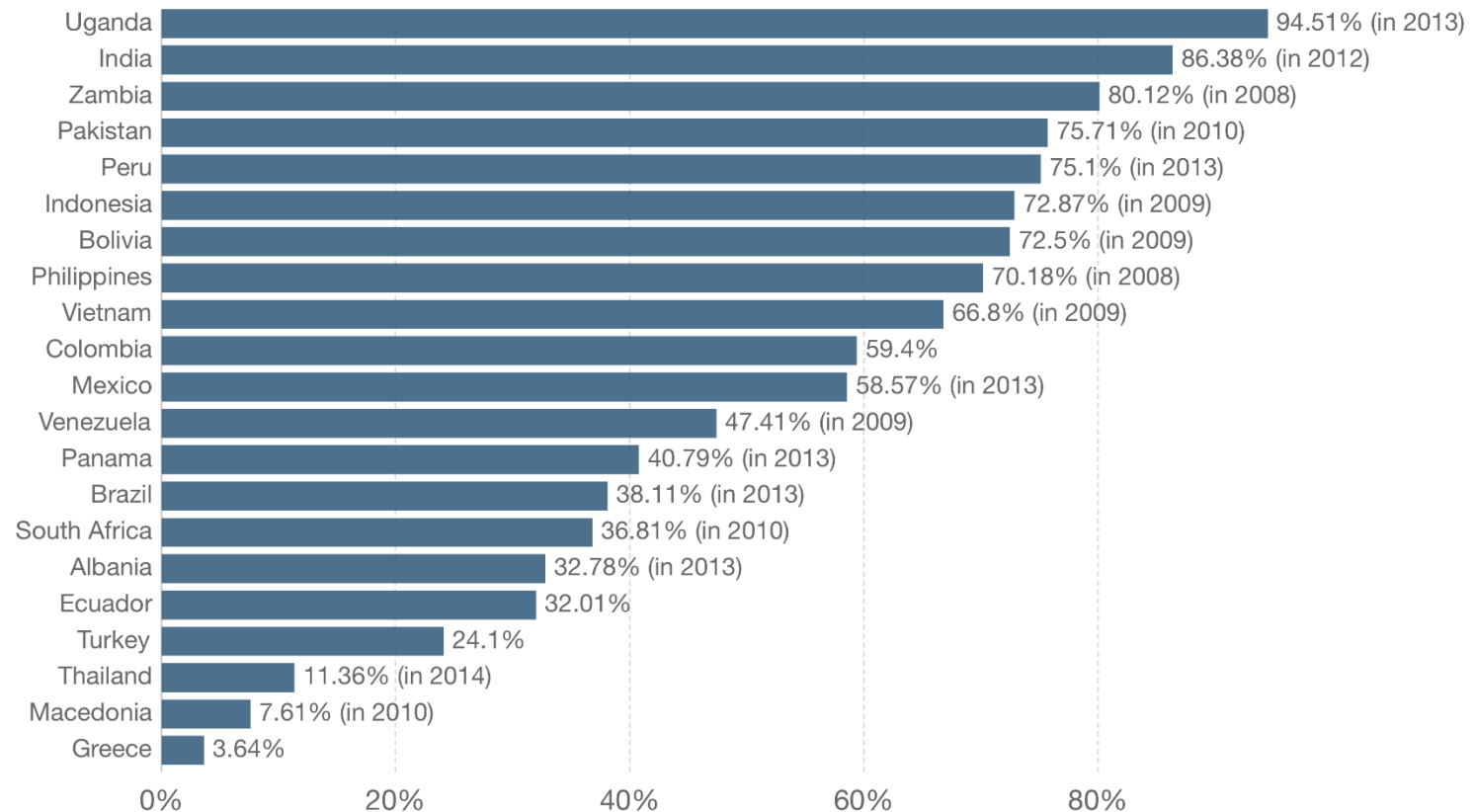
20% have stable wage jobs

Informal/casual jobs

- offered on a daily/ hourly basis with no guarantee of further employment

- very common: 98% of agricultural wage employment in India is through casual employment (Kaur 2017)

- wage is low & elasticity to production shocks is high (Jayachandran 05)

- demand during the lean season is very low (Khandker and Mahmud, 2012; Bryan et al, 2014; Fink et al, 2017)
  → hides a lot of underemployment

Most women do informal jobs

Women in informal employment as share of female employment, 2015

Employment in the informal economy as a percentage of total non-agricultural employment. It basically includes all jobs in unregistered or small-scale private enterprises that produce goods or services for sale. Self-employed street vendors, taxi drivers and home-base workers, regardless of size, are all considered.

Country	Value
Uganda	94.51% (in 2013)
India	86.38% (in 2012)
Zambia	80.12% (in 2008)
Pakistan	75.71% (in 2010)
Peru	75.1% (in 2013)
Indonesia	72.87% (in 2009)
Bolivia	72.5% (in 2009)
Philippines	70.18% (in 2008)
Vietnam	66.8% (in 2009)
Colombia	59.4%
Mexico	58.57% (in 2013)
Venezuela	47.41% (in 2009)
Panama	40.79% (in 2013)
Brazil	38.11% (in 2013)
South Africa	36.81% (in 2010)
Albania	32.78% (in 2013)
Ecuador	32.01%
Turkey	24.1%
Thailand	11.36% (in 2014)
Macedonia	7.61% (in 2010)
Greece	3.64%

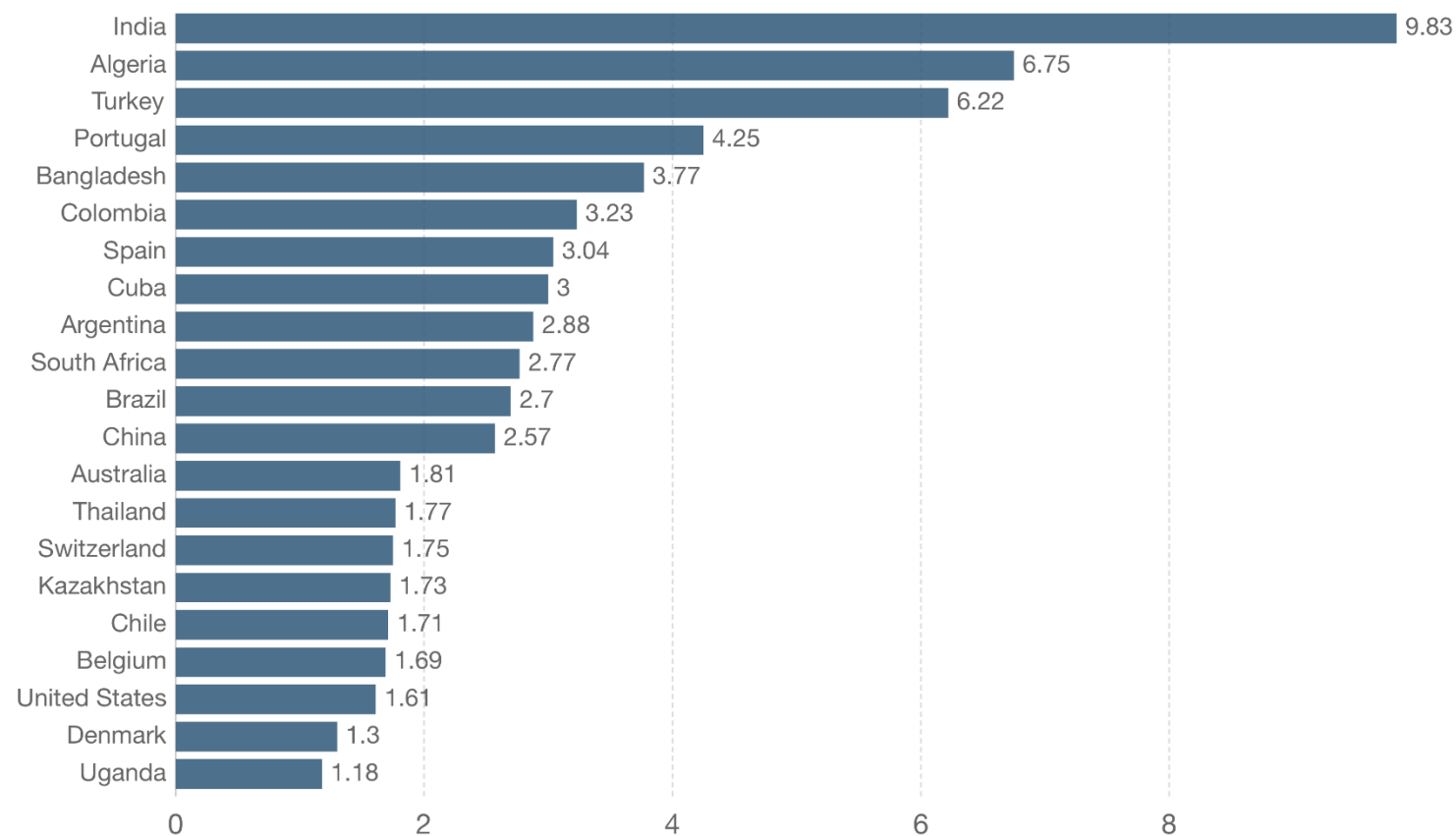0%   20%   40%   60%   80%

Source: World Bank – WDI

OurWorldInData.org/female-labor-force-participation-key-facts • CC BY-SA

and unpaid jobs

Female-to-male ratio of time devoted to unpaid care work, 2014

Female to male ratio of time devoted to unpaid care work. Unpaid care work refers to all unpaid services provided within a household for its members, including care of persons, housework and voluntary community work.

Country	Ratio
India	9.83
Algeria	6.75
Turkey	6.22
Portugal	4.25
Bangladesh	3.77
Colombia	3.23
Spain	3.04
Cuba	3
Argentina	2.88
South Africa	2.77
Brazil	2.7
China	2.57
Australia	1.81
Thailand	1.77
Switzerland	1.75
Kazakhstan	1.73
Chile	1.71
Belgium	1.69
United States	1.61
Denmark	1.3
Uganda	1.18

Source: OECD Gender, Institutions and Development Database (2014) OurWorldInData.org/women-in-the-labor-force-determinants/ • CC BY-SA
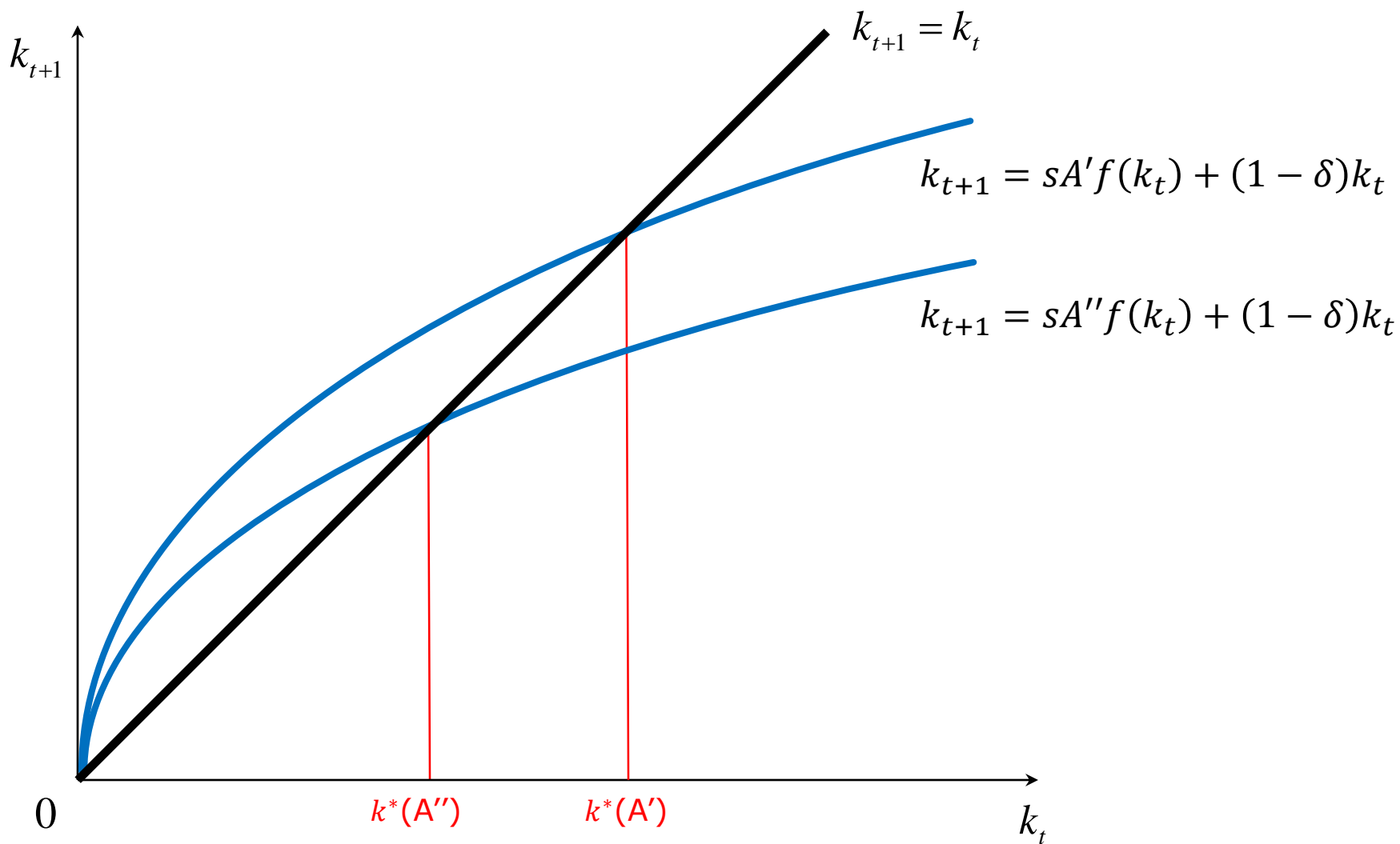
Two standard views – convergence vs poverty trap

Equal access to opportunity, different traits

- People have different innate traits which determine their occupational choices and earnings

- In the long run people converge to a steady state determined by "fundamentals"

Unequal access to opportunity, same traits

- People have different access to opportunity which determine their occupational choices and earnings

- People with the same fundamentals may converge to different steady states, depending on initial endowments

Make precise the assumptions underpinning the two views

Equal access to opportunity, different traits

- People have different innate traits which determine their occupational choices and earnings

- DRS to factors that can be accumulated

- Perfect credit markets

Unequal access to opportunity, same traits

- People have different access to opportunity which determine their occupational choices and earnings

- IRS to factors that can be accumulated

- Imperfect credit markets

If opportunities do not depend on initial wealth, you need differences in innate traits (A, s) to explain poverty

$k_{t+1} = k_t$

$k_{t+1} = sA'f(k_t) + (1-\delta)k_t$

$k_{t+1} = sA''f(k_t) + (1-\delta)k_t$

k_{t+1}

0

$k^*(\text{A}'')$ $k^*(\text{A}')$

k_t

If opportunities depend on initial wealth, individuals with identical innate traits (A, s) can end up poor or non-poor

$k_{t+1} = sAf(k_t) + (1-\delta)k_t$

$k_{t+1} = k_t$

k_{t+1}

k_t

k^L $\hat{k}$ k^H
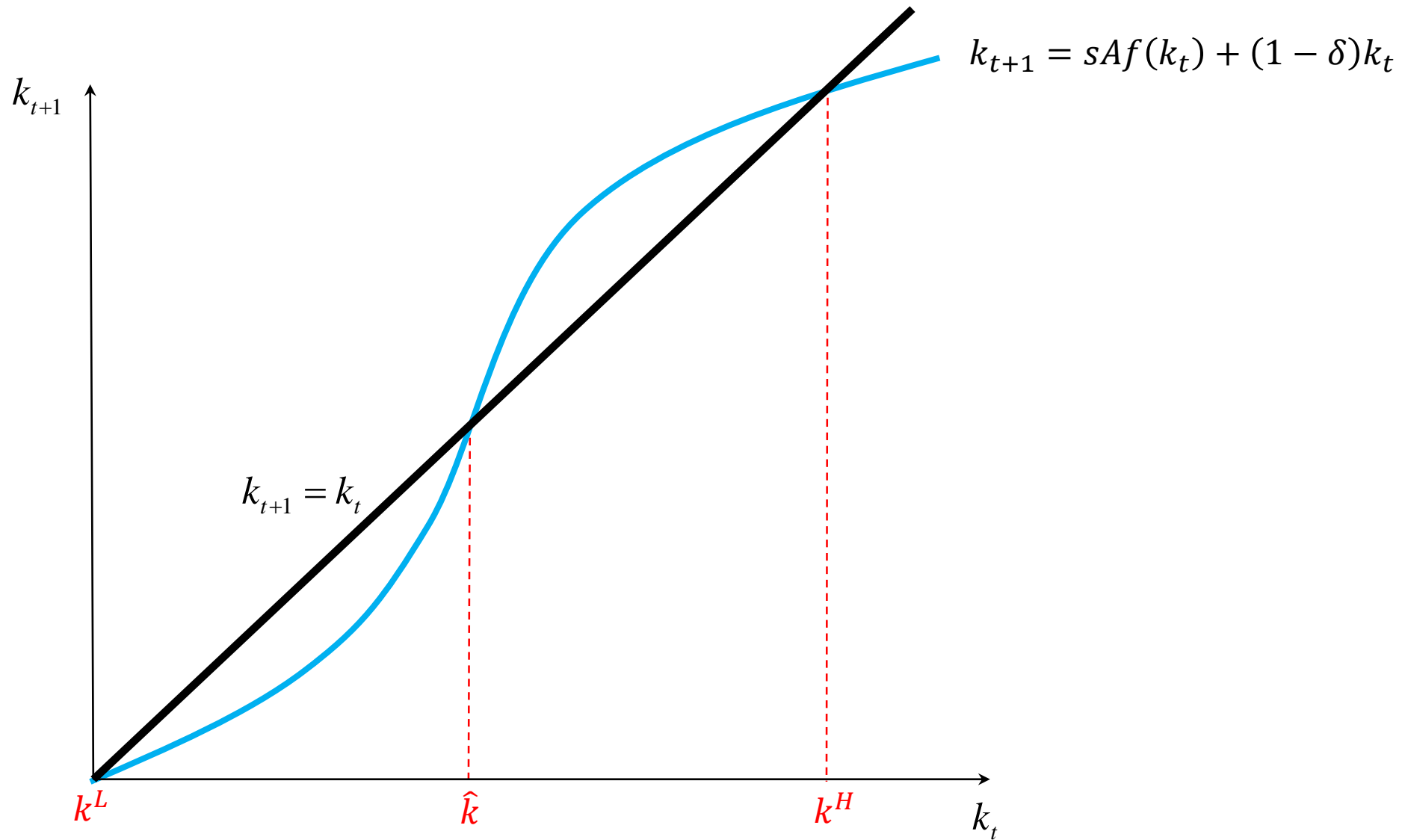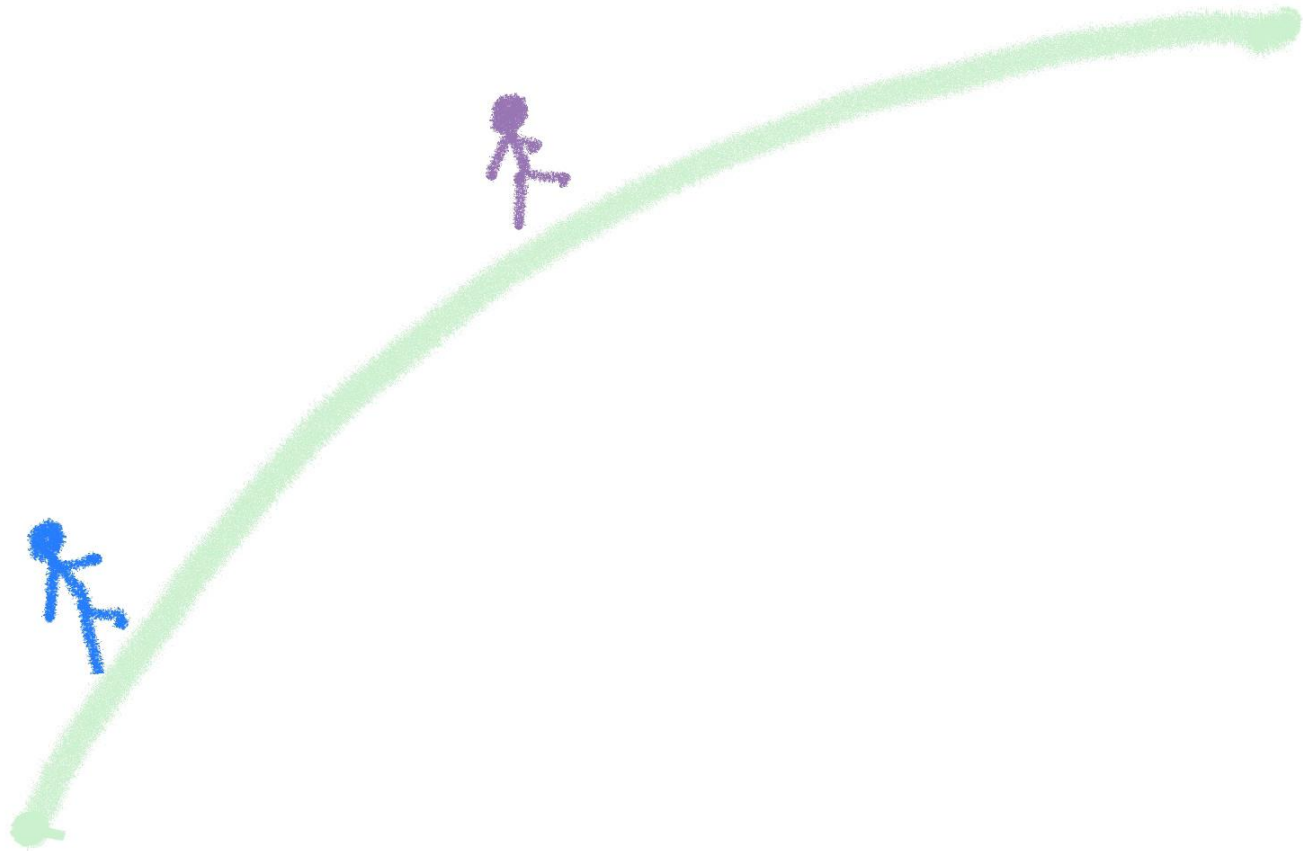
The economics behind the hill

- A person is born with an asset –say a shop- that generates income

- She decides how much to consume and how much to save and reinvest in the shop

- You get a "hill" if it is easier to grow a small shop than a large one, because, for instance, the same level of investment is more valuable when there are many unexploited growth opportunities

A steep mountain face
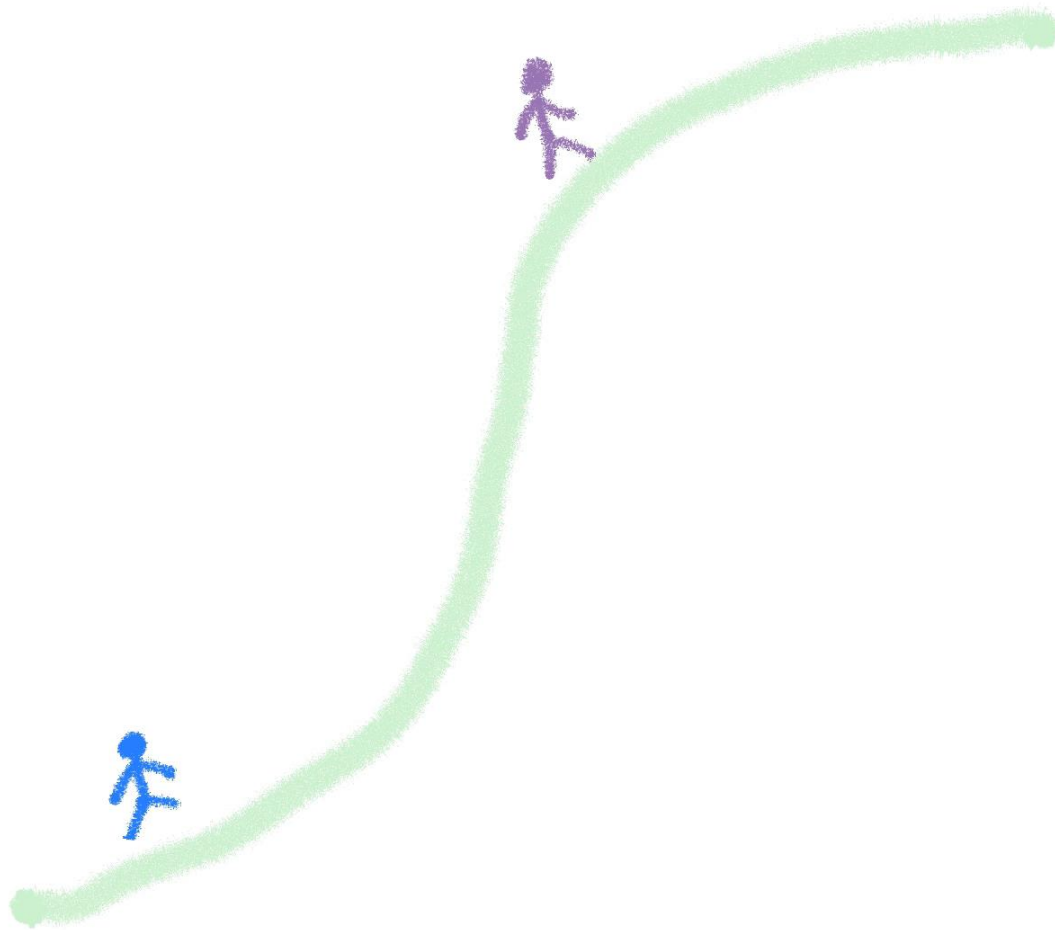
The economics behind the mountain

- A person is born with an asset –say a shop- that generates income

- She decides how much to consume and how much to save and reinvest in the shop

- You get a "mountain face" if it is easier to grow a large shop than a small one, for instance because required investments are chunky

- This, combined with little access to credit can generate "poverty traps" → people with the talent to run a business, study for a degree etc end up not doing so

Poverty traps are both unfair and inefficient

- Unfair because two people with the same talent end up with different standards of living because of accidents at birth → poorer person faces higher barrier

- Inefficient because highly talented people who are born poor will not be able to exploit that talent and will be replaced by a less talented, richer, person

- Not just wealth: gender, race, caste all cause barriers

Can the poor do better jobs when given the chance?

- sample over 23k households in1300 villages in rural Bangladesh
- the poorest women in randomly chosen villages receive a large asset (a cow) with "instructions"
- over 4000 beneficiaries engaged solely in casual labor at baseline
- four years later…

At baseline ultrapoor women only do casual jobs

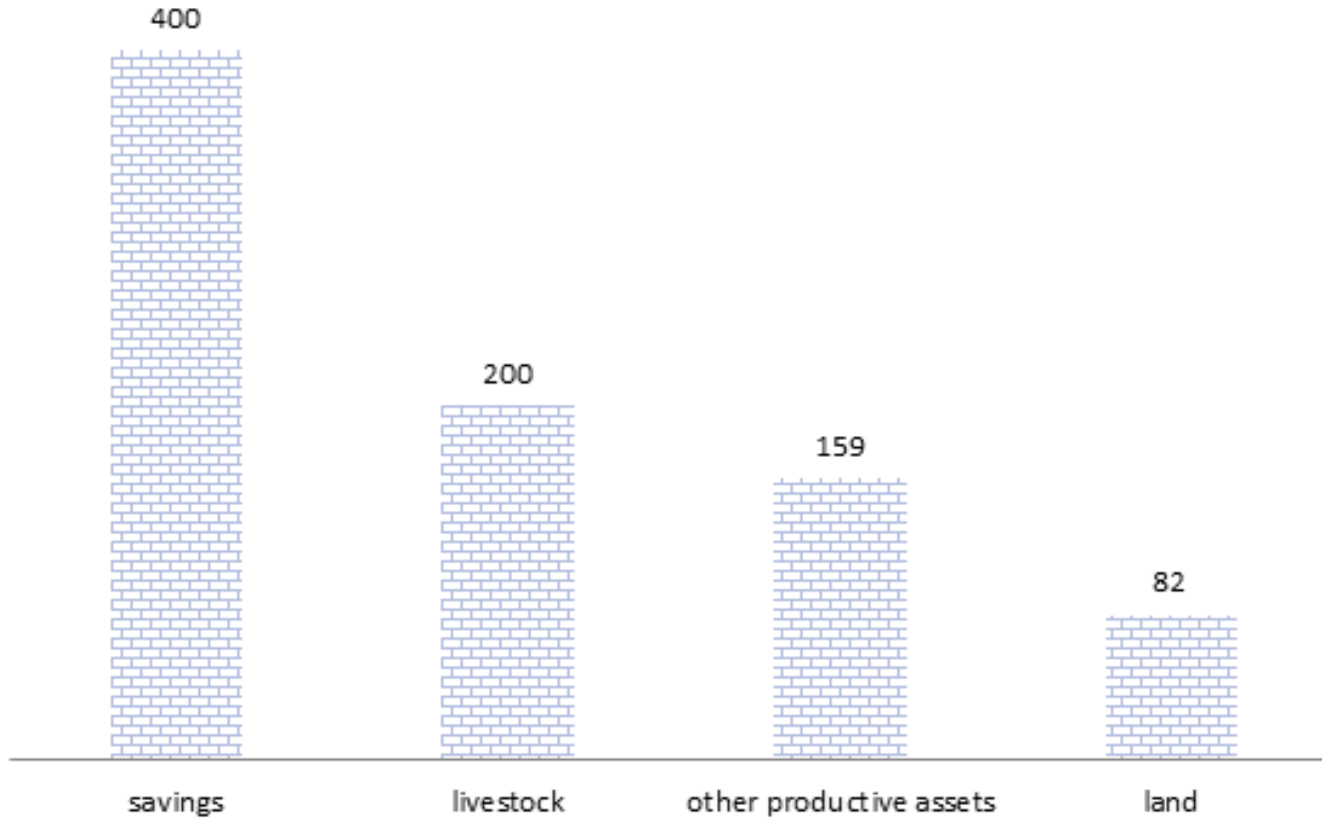Share of time devoted to different occupations

Other

Livestock rearing (cows/goats)

Domestic Maid

Agriculture day labor

Ultra Poor   Near Poor   Middle Class   Upper Class
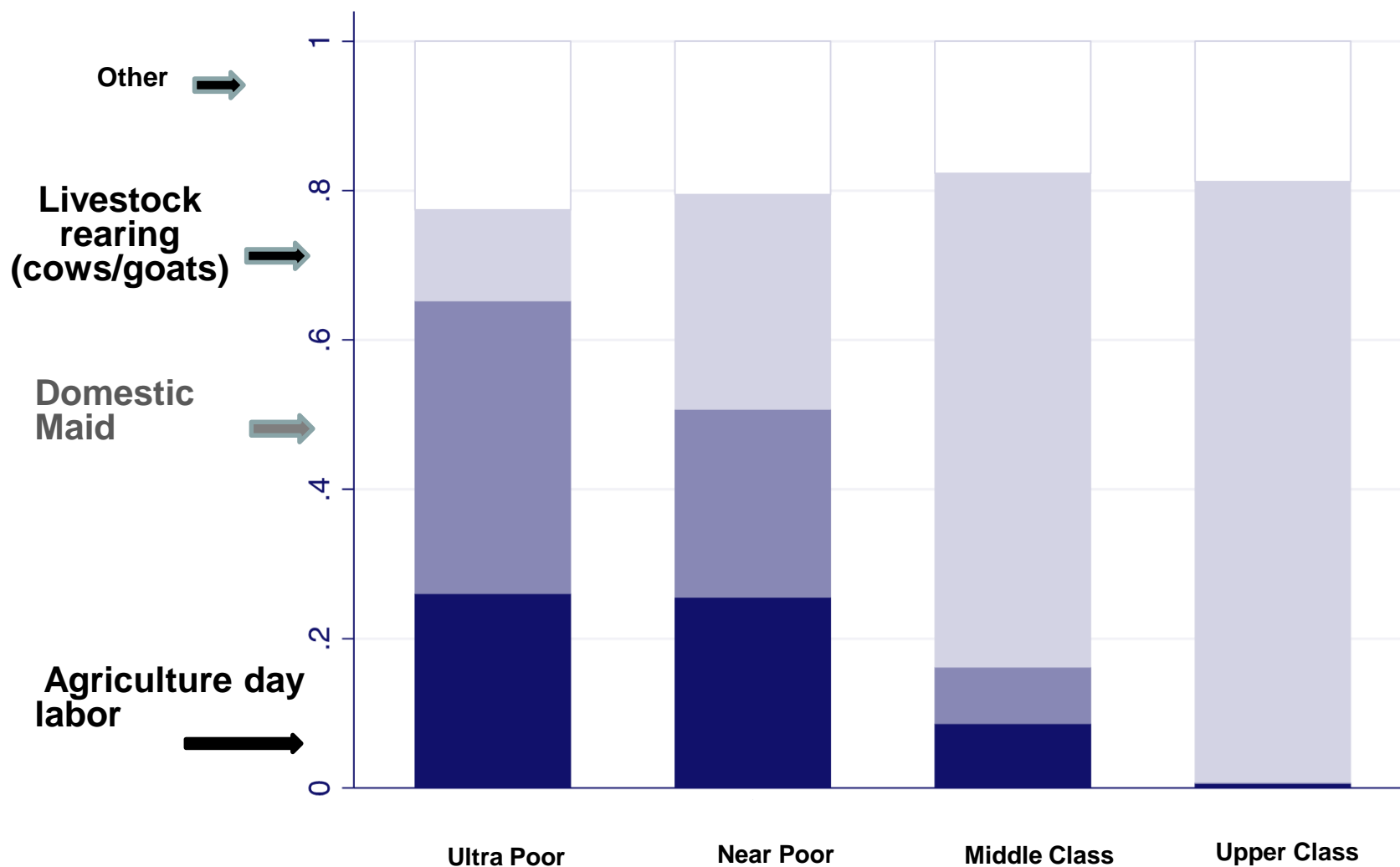
Ultrapoor women change jobs and work more hours
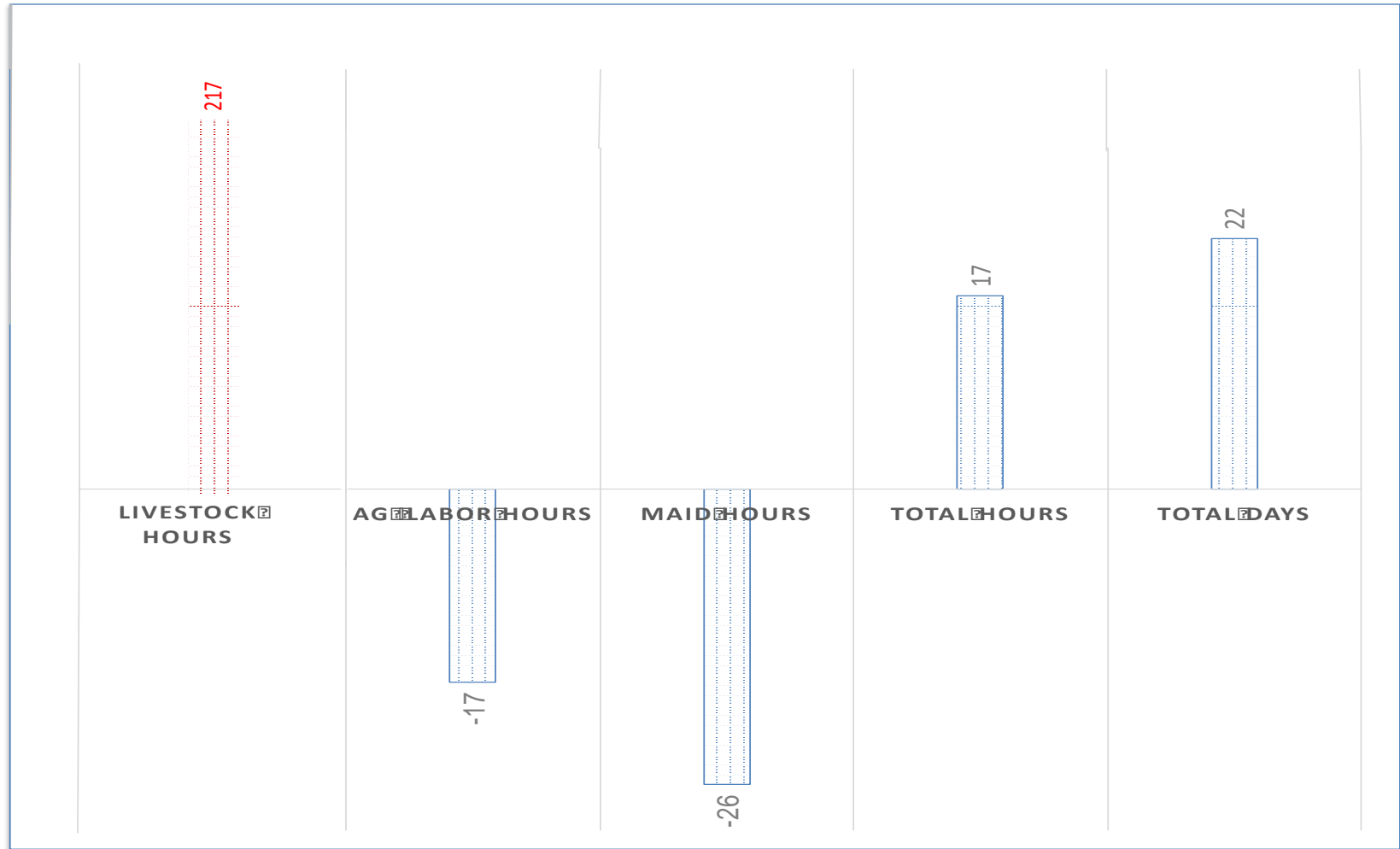
They earn more and consume more
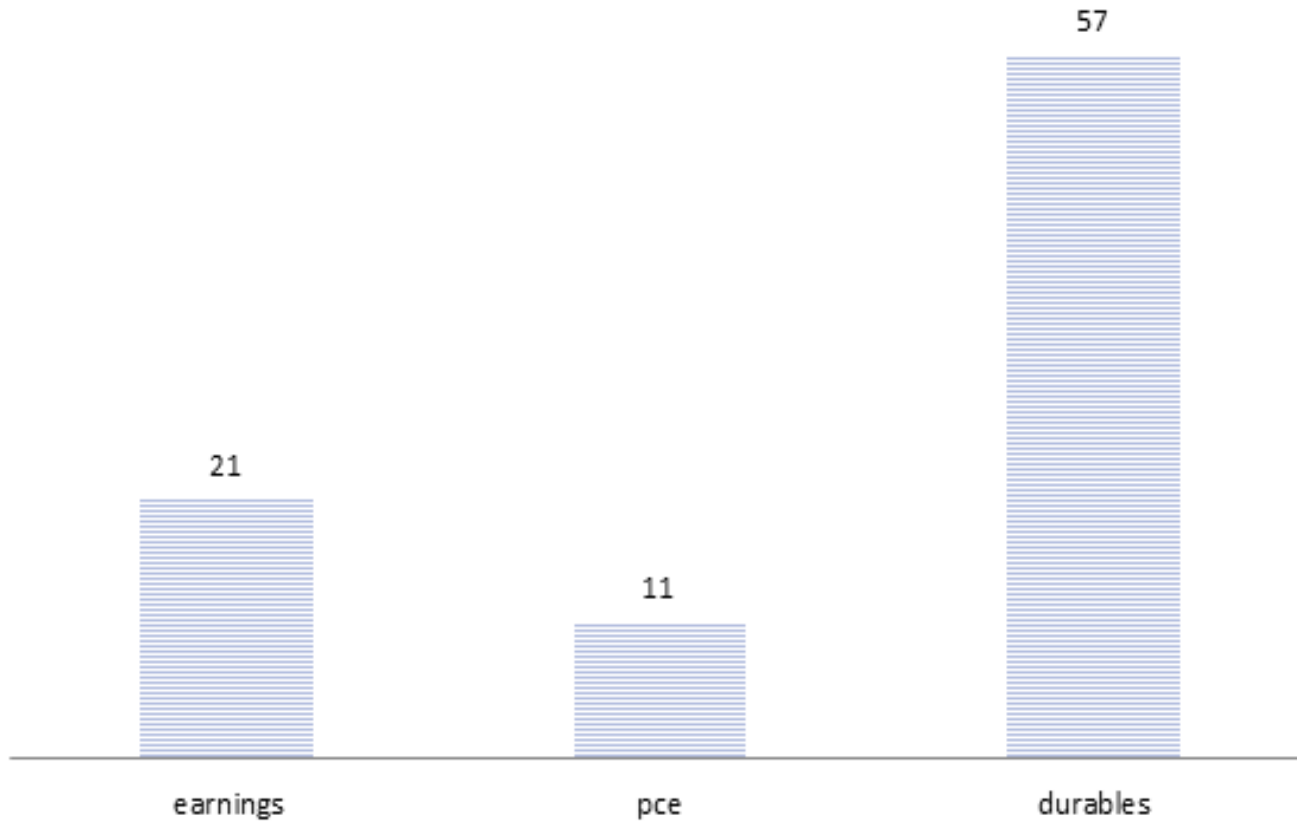
and they save more and accumulate more assets

The poor can take on better jobs

- Both training and asset transfers transform the occupational choices of the beneficiaries

- Leading to more employment and earnings → more investment → sustainable poverty reduction

A poverty trap?

- Using our estimates of earnings <u>the rate of return</u> is 22%
- But the program is expensive: $560 --GDP pc $541

- Cost more than one year worth of consumption and cannot be bought in pieces→ poor talented people cannot afford them
- Large transfer allows them to escape the trap
- But for some it is not enough & they fall back
- What determines this - initial endowment level?
- Subject of current exercise

Outline of Rest of the Presentation

1. Use theory to illustrate how response to exogenous shock to endowments can be used to test between the two views of poverty

2. Implement test using RCT in Bangladesh (Bandiera et al., 2017) tracking 23k HHs across wealth distribution over 7 years

3. Inform the design of policies for poverty reduction

Setting

Study site: Bangladesh

Monga region: a lack of demand for casual wage labor, higher grain prices, extreme poverty and food insecurity

Legend
- Treatment Branch
- Control Branch
- STUP Evaluation Districts

0   0.3   0.6   1.2 Decimal Degrees
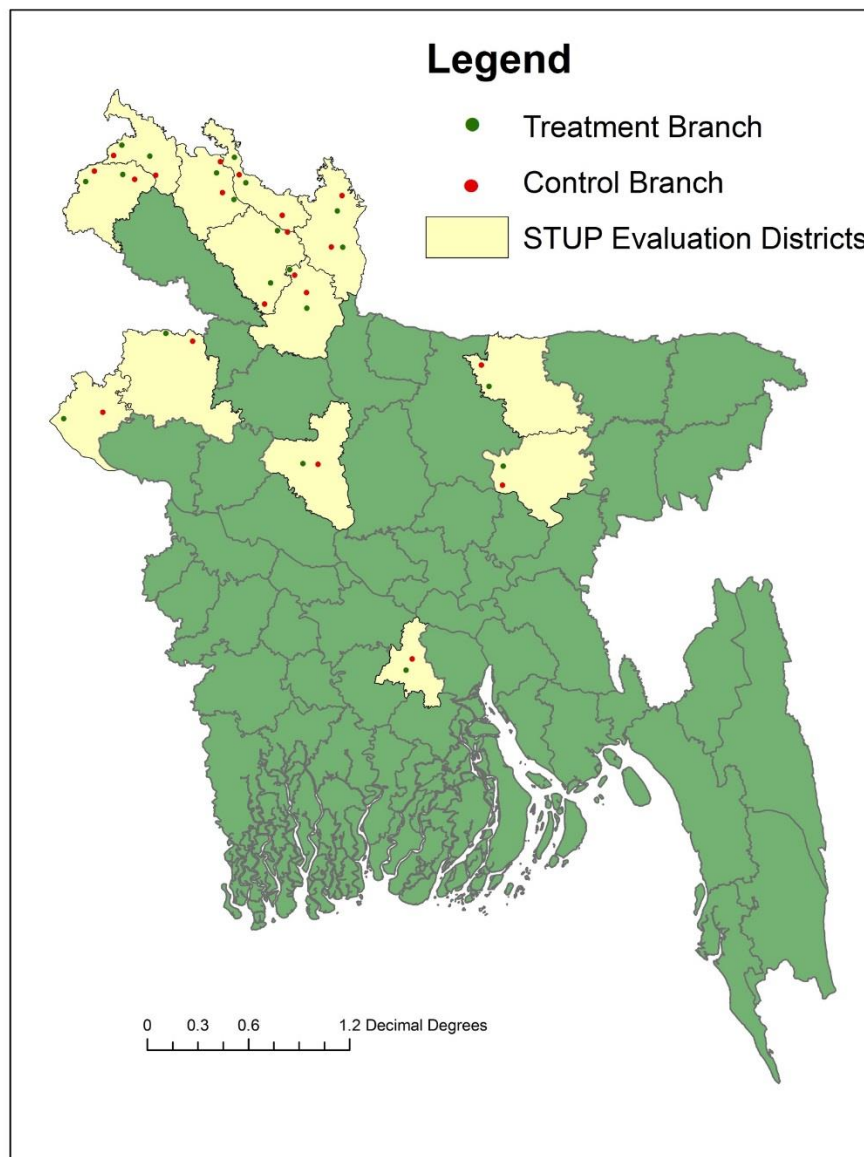
Data

- 23K households surveyed 4 times (07,09,11,14)
  - labor market activities
  - productive assets

- 4 wealth classes, ranked by the community

Descriptive statistics – household characteristics

HOUSEHOLD CHARACTERISTICS AND ASSET HOLDINGS, BY WEALTH CLASS

	(1) Ultra-poor	(2) Near-poor	(3) Middle class	(4) Upper class
Household characteristics				
Share of population in this wealth class	0.061	0.219	0.585	0.135
Primary female is the sole earner	0.409	0.250	0.142	0.120
Primary female is illiterate	0.929	0.832	0.736	0.489
Consumption and assets				
Household is below the $1.25 a day poverty line	0.530	0.493	0.373	0.121
Consumption expenditure (per adult equivalent)	627.8	645.1	759.5	1,234.2
Household assets [$]	36.5	68.1	279.9	1,663.4
Household savings [$]	7.9	22.1	84.5	481.9
Household receives loans	0.191	0.393	0.498	0.433
Household gives loans	0.012	0.018	0.030	0.067
Business assets (excl. livestock and land) [$]	22.9	54.4	286.1	1,569.8

Descriptive statistics – asset holdings

HOUSEHOLD CHARACTERISTICS AND ASSET HOLDINGS, BY WEALTH CLASS

	(1) Ultra-poor	(2) Near-poor	(3) Middle class	(4) Upper class
Livestock				
Household owns cows	0.055	0.154	0.469	0.733
Household owns goats	0.092	0.142	0.300	0.425
Value of cows [$]	33.8	120.2	633.8	1,559.1
Value of goats [$]	7.97	12.8	39.8	71.3
Household rents cows for rearing	0.070	0.148	0.118	0.030
Household rents goats for rearing	0.111	0.157	0.102	0.021
Land				
Household owns land	0.066	0.107	0.487	0.911
Value of land owned [$]	200.0	491.2	6,789.6	40,125.1
Household rents land for cultivation	0.060	0.143	0.276	0.168
Number of sample households	6,732	6,743	6,328	2,036

The poor do casual labor, the rich only livestock rearing

Share of time devoted to different occupations

Other

Livestock rearing (cows/goats)

Casual labor, maid

Casual labor, agriculture

Ultra Poor   Near Poor   Middle Class   Upper Class
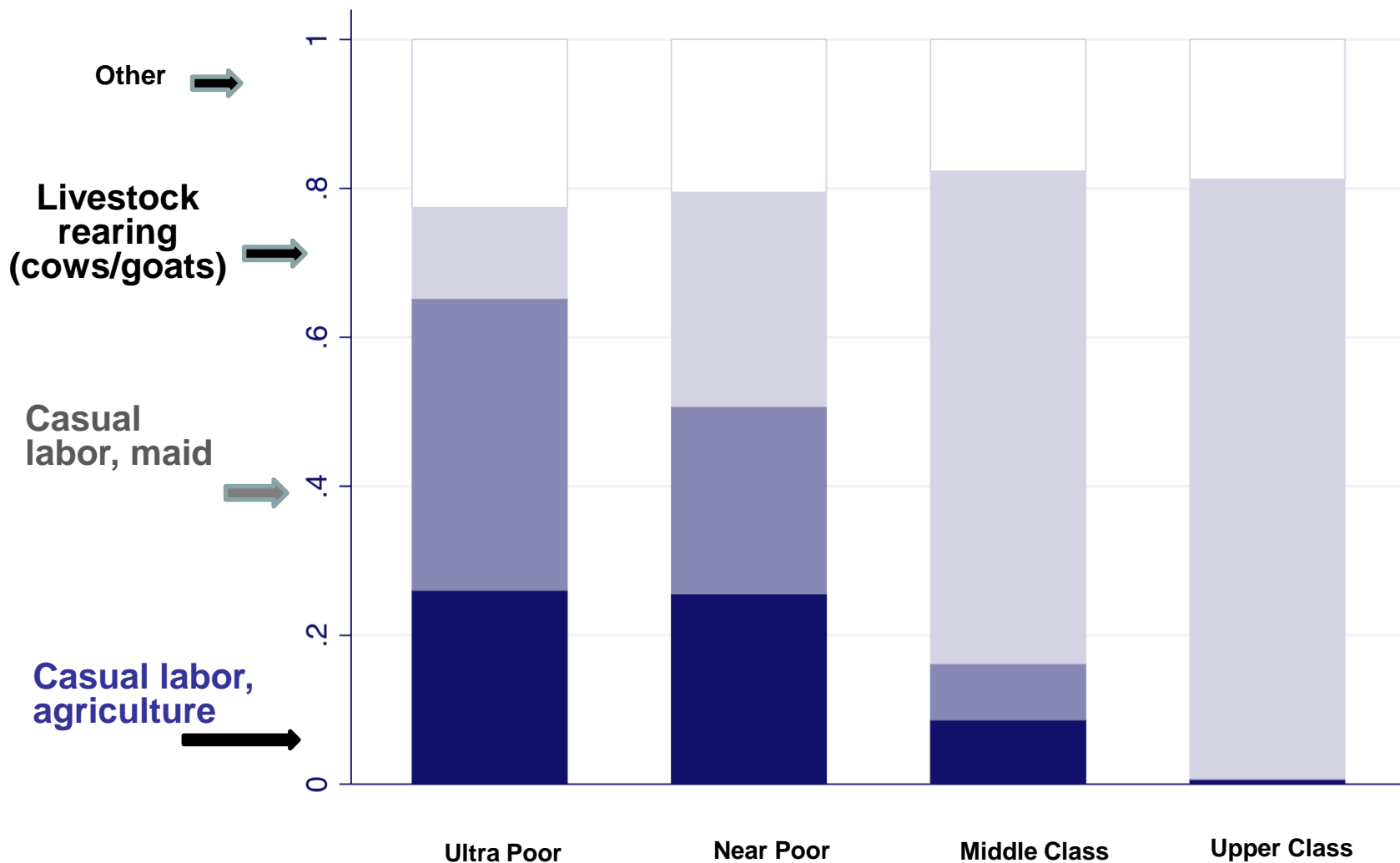
Casual labor pays less per hour and is available on fewer days

Village Level Statistics, Measured Pre-Intervention

Means, standard deviation in parentheses

	Casual Wage Labor		Self Employment		
	(1) Agriculture	(2) Domestic Maid	(3) Livestock Rearing [Cows, Goats]	(4) t-test [Col 1 = Col 3]	(5) t-test [Col 2 = Col 3]
Days per year	127	167	334	[.000]	[.000]
	(65.9)	(89.5)	(41.2)		
Hours per day	7.62	7.04	1.83	[.000]	[.000]
	(1.15)	(1.74)	(.771)		
Hourly earnings [USD]	.344	.268	.719	[.000]	[.000]
	(.102)	(.109)	(.779)		

Notes: All statistics are constructed at the village level, using baseline data from both treatment and control villages. The number of villages is 1309. In Column 3, livestock comprises cows and/or goats. To reduce sensitivity to outliers, the hours per day and hourly earnings variables are computed by first taking the median value for each activity in a village, and then averaging these across all villages. Columns 4 and 5 report p-values on a t-test of the equality of some of these outcomes between the two forms of casual wage labor (agriculture and domestic maid work) and livestock rearing. All monetary amounts are PPP-adjusted USD terms, set at 2007 prices and deflated using CPI published by Bangladesh Bank. In 2007, 1USD=18.46TK PPP.

The poor have fewer assets and don't accumulate over time
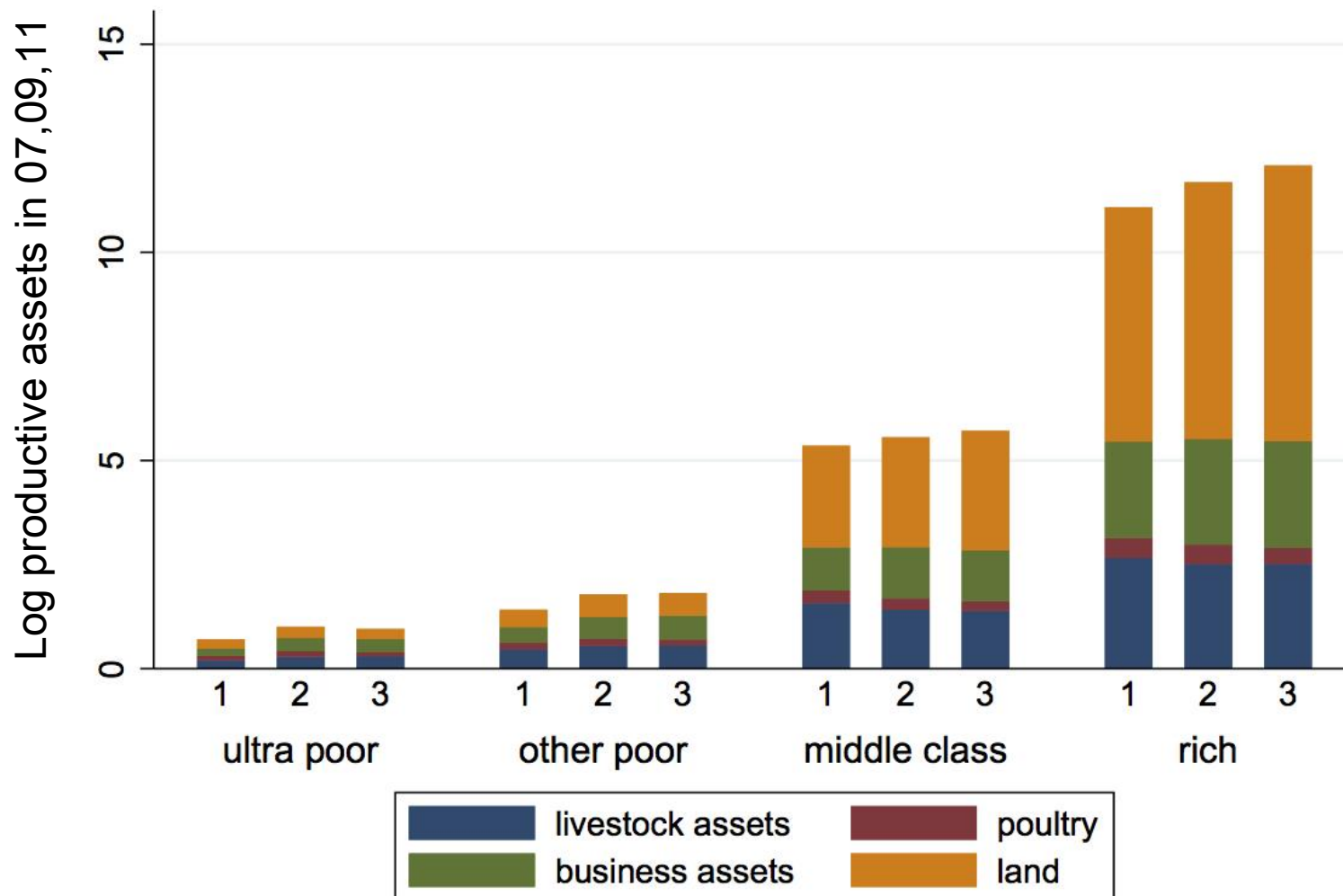
Composition of assets at baseline by decile – ultra poor
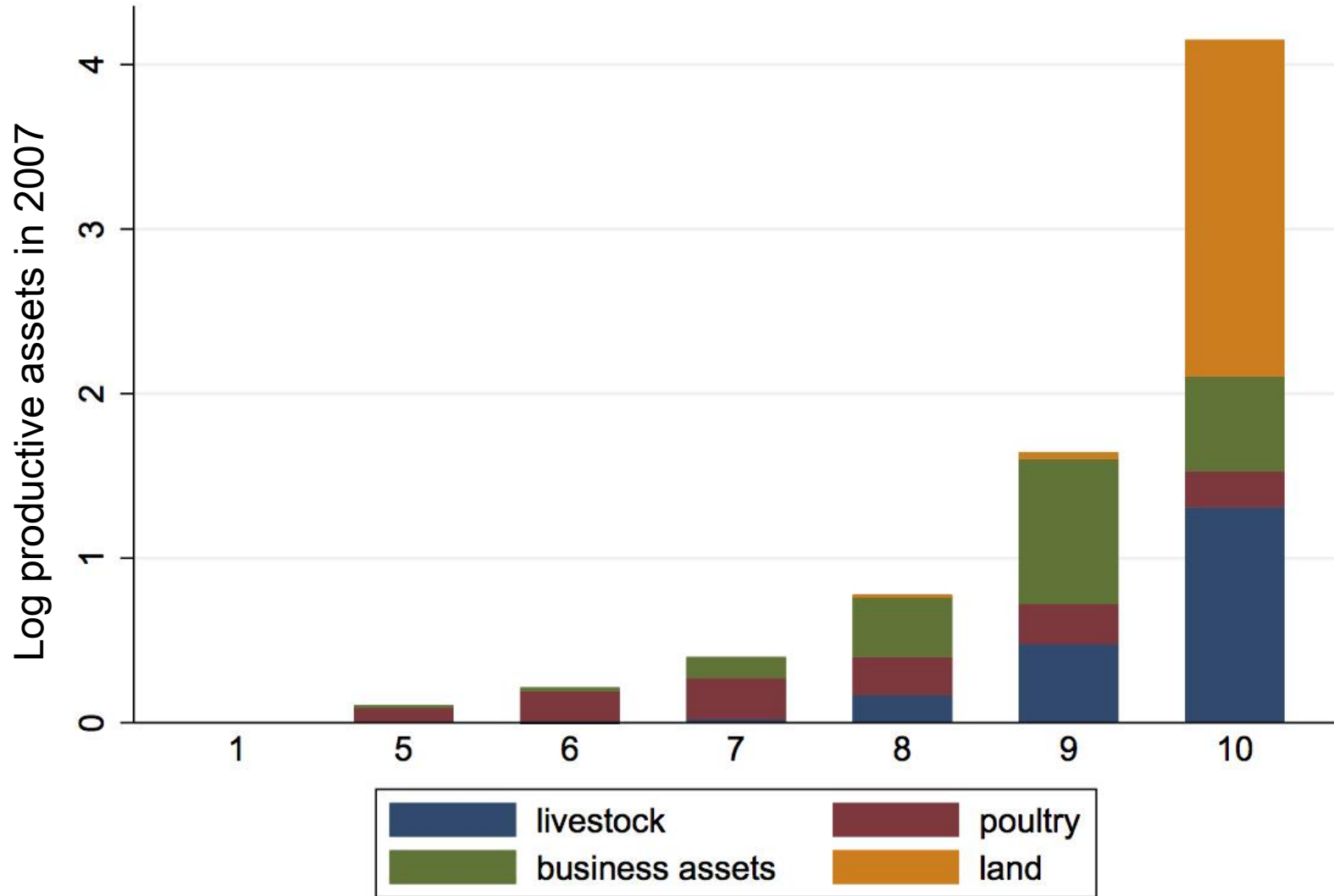
Wage earnings are flat, livestock earnings increasing
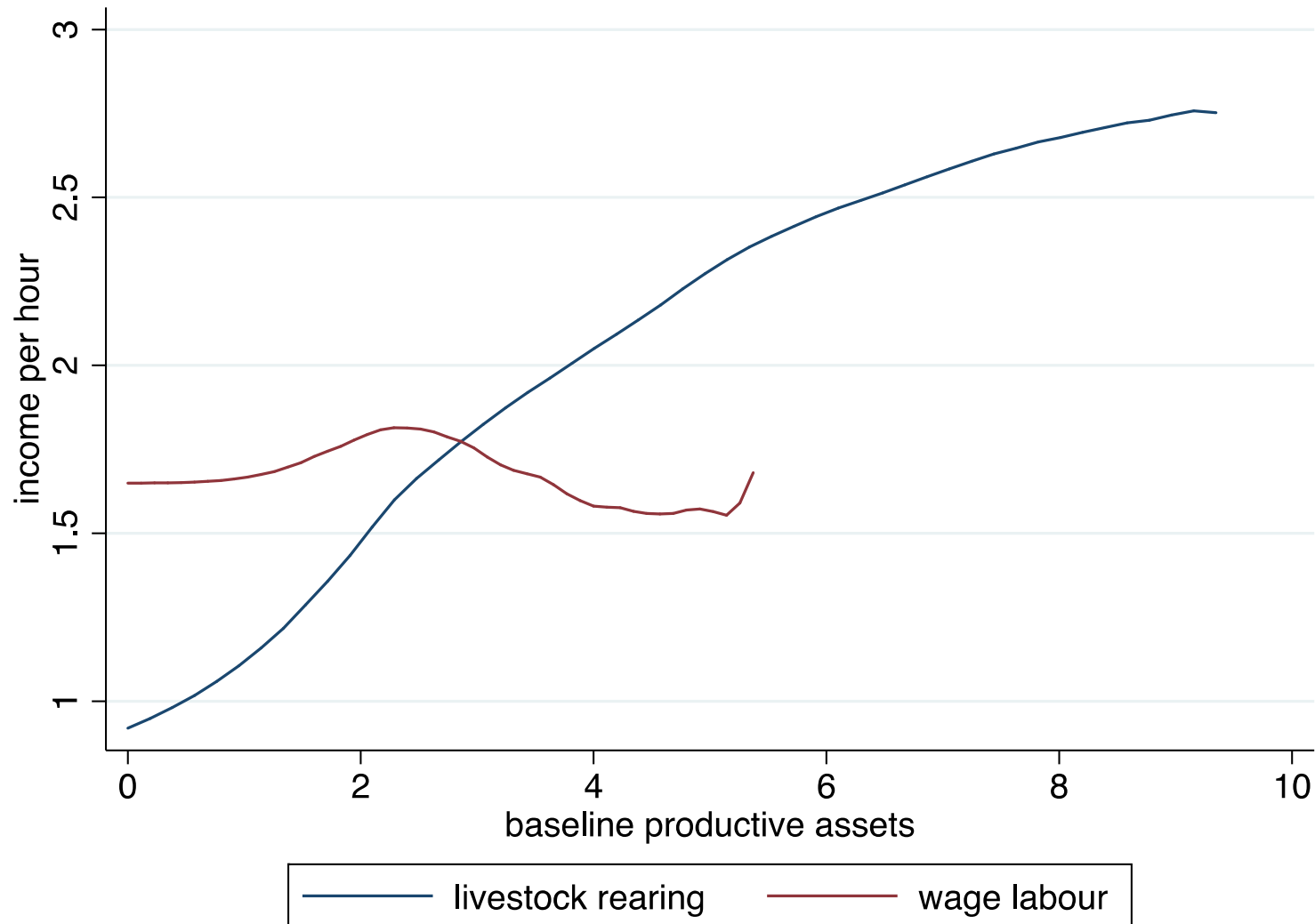
Theoretical Framework

Occupational choice under the two views

- Each person i is born with one unit of time, wealth endowment E_i and talent A_{ij} for occupation j $= 1,2$

- 1 is wage labor, pays w

- 2 is livestock rearing, requires capital K and yields $A_{i2}f(K)$

- Assume $A_{i1} = 1$ for all i's, A_{i2} can differ among people, call it A_i to simplify

Occupational choice problem

- l_i = time allocated to self-employment by individual i
- $(1 - l_i)$ = time allocated to wage labour by individual i
- Individuals choose l and K to maximise:

$$A_i l_i f(K_i) + w(1 - l_i) + r(\overline{E}_i - K_i)$$

- subject to the non-negativity constraints

$$l_i \geq 0, K_i \geq 0$$

Since the objective function is linear all solutions will be corners

Perfect credit markets + DRS→ equal opportunities

- Everybody faces the same cost of capital r, $f(K)$ is concave
- Individual i chooses K^* to maximize

$$A_i f(K_i) - r K_i \ s.t. \ K_i \geq 0$$

- This yields the standard FOC

$$A_i f'(K_i^*) = r$$

- → threshold A^* s.t. $A *_i f \ (K_i^*)$=w
  - $A_i < A^*$ choose $K^* = 0$ → work in wage labor
  - $A_i > A^*$ choose $K_i^* > 0$ → work in livestock rearing

- → Endowments do not matter
- → All individuals with $K_i = 0$ have $A < A^*$ → no misallocation

$y = \max\{w, Af(k)\}$

$y = w$

0

k(A*)

K
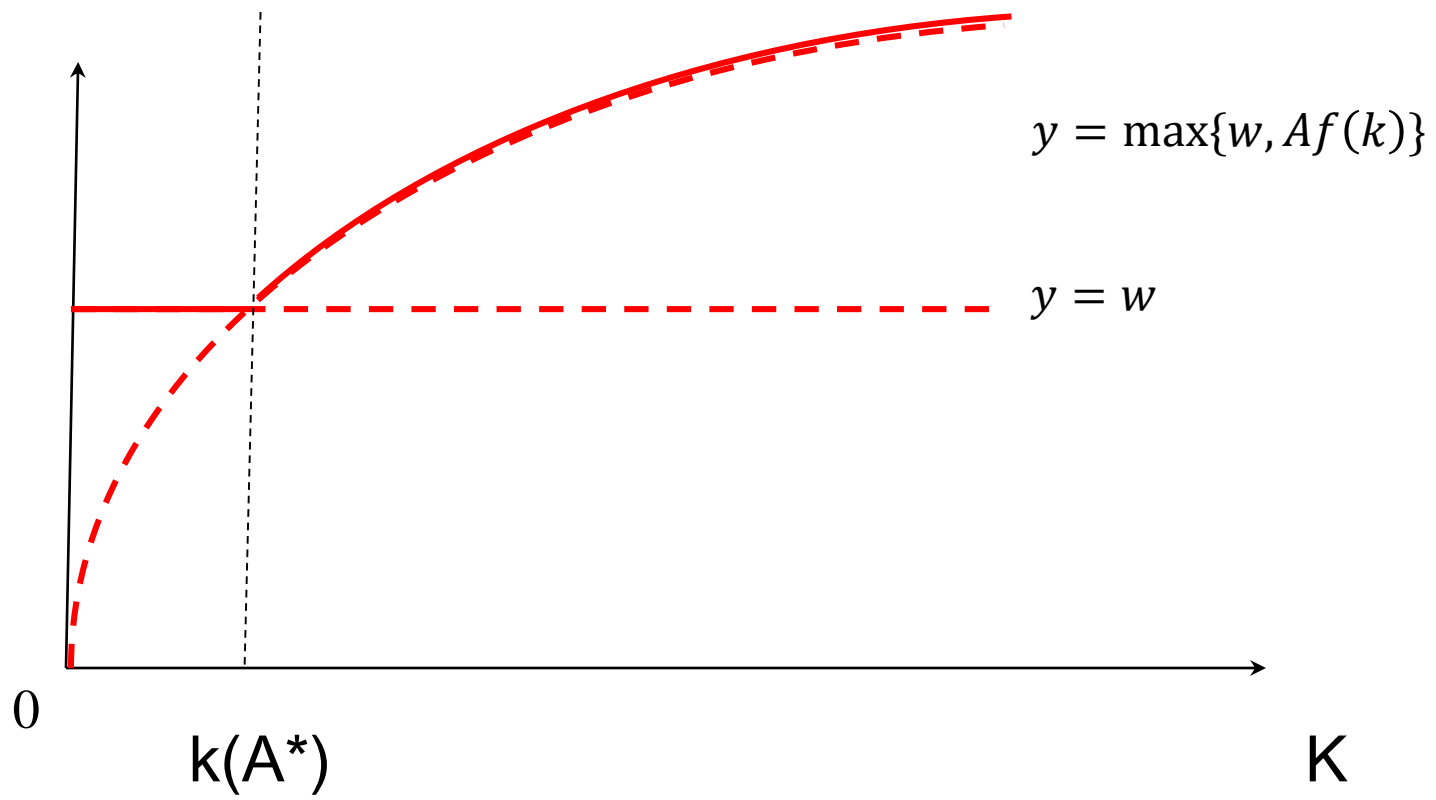
No credit markets → poverty trap?

- Without credit markets individual i chooses K^*, to maximize
$$A_i f(K_i) - rK_i \; s.t. \; E_i \geq K_i \geq 0$$

- Now $A_i f'(K_i) - r = 0 \; for \; K_i^* < E_i$
- and $A_i f'(K_i) - r > 0 \; for \; K_i^* > E_i$

- In a model with savings, individuals can save their way out of poverty as small investments at low *K* have high returns
- That is, as long as f(.) is concave, *credit market imperfections cannot generate a trap*

IRS at low K increase the minimum viable scale

$y = \max\{w, Af(k)\}$

$y = w$

k(A*)   k(A*)
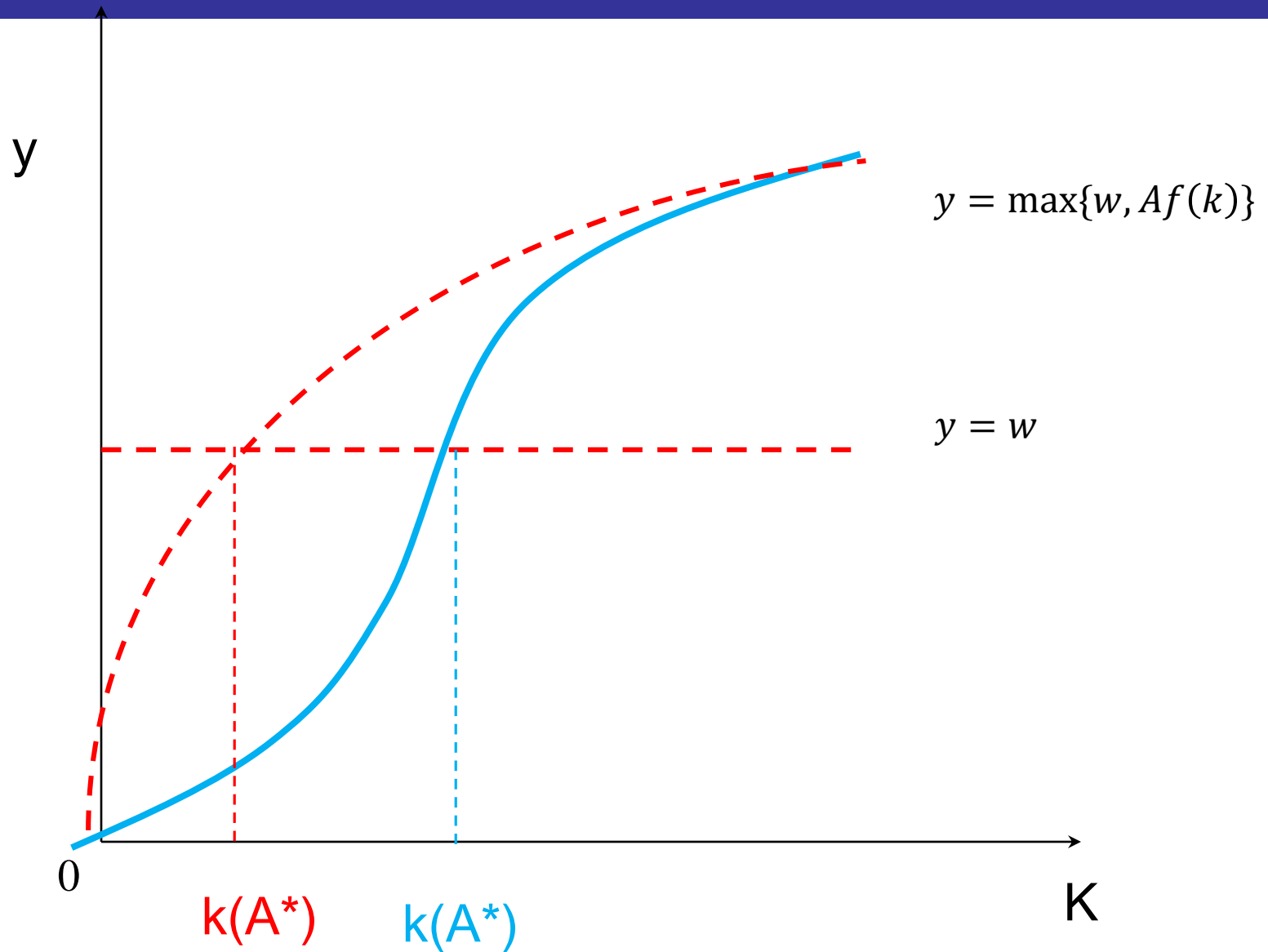
No credit markets + IRS → poverty trap

- We now have two groups of people for given talent A:

- those for whom $E_i > K(A_i^*)$ → choose optimally

- those for whom $E_i < K(A_i^*)$ → stuck in wage labor

→endowments matter

→some people observed in wage labor actually have $A > A^*$
  → misallocation

Empirical Analysis

- K shock: Asset transfer worth 1 year of PCE
- 4k HHs received the program at the same time
- By design all get a package of similar value
- But they start with different assets at baseline

$$k_{t+1} = sAf(k_t) + (1-\delta)k_t$$

k_{t+1}

$k_{t+1} = k_t$

- Compare person A with person B
- Both receive transfer of size Δ
- Transfer sends A below and B above $\hat{k}$
- A reverts back towards low steady state, k^L
- B escapes poverty and ends up at high steady state, k^H

Δ

Δ

k^L k_0^A k_0^B $\hat{k}$ k^H k_t
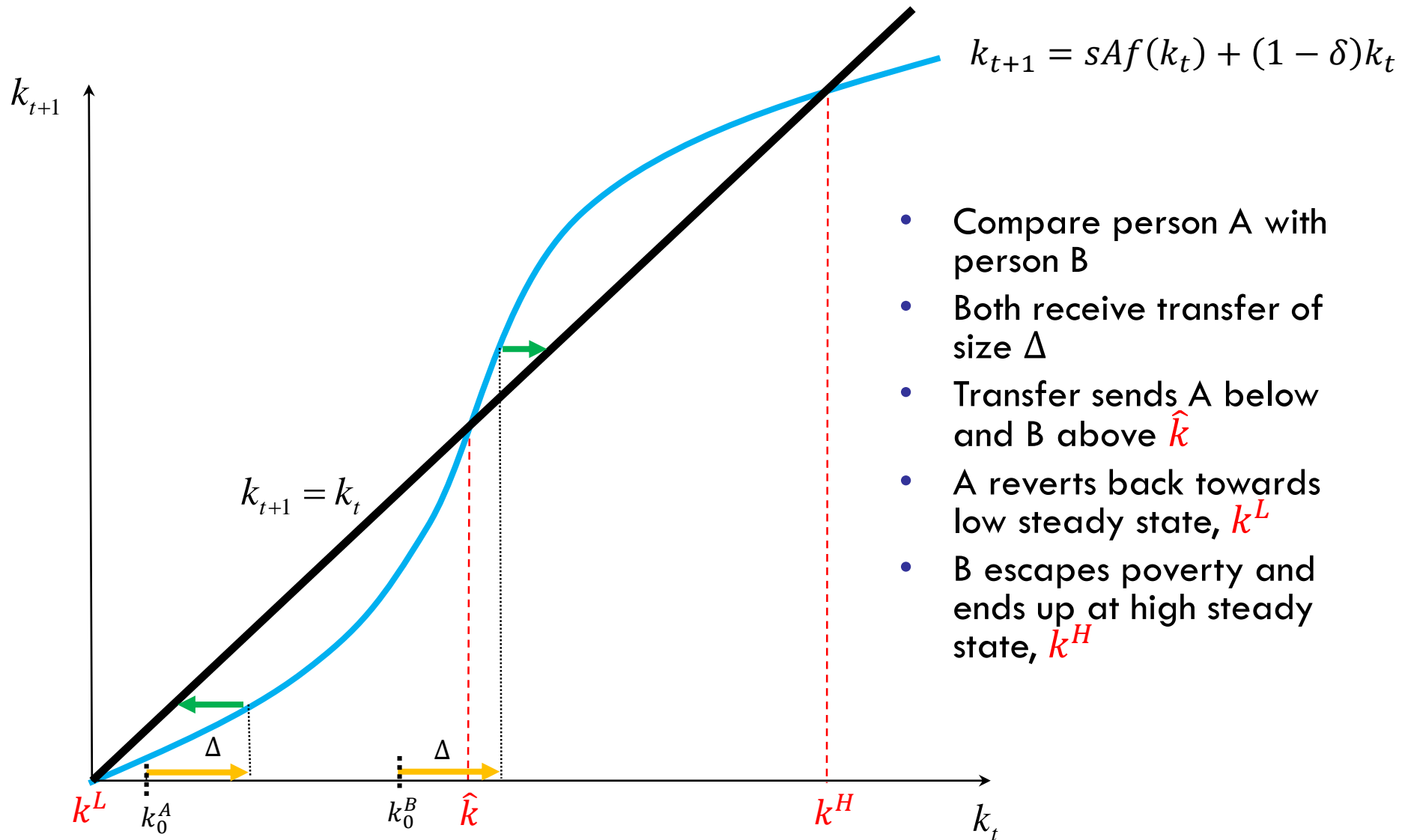
Identifying the threshold

- Level of K such that those below fall back into poverty and those above escape
- This is identified by:
    - estimating the transition equation for K
    - finding the point, if any where it crosses the 45 line from below

- Note: this estimates an average threshold
- In progress: structural estimates of individual thresholds

The transition equation

$$k_{t+1} = sAf(k_t) + (1-\delta)k_t$$

find this point

$$k_{t+1} = k_t$$

Δ

Δ

k^L $\quad k_0^A$ $\qquad k_0^B$ $\;\; \hat{k}$ $\qquad\qquad k^H$ $\qquad k_t$
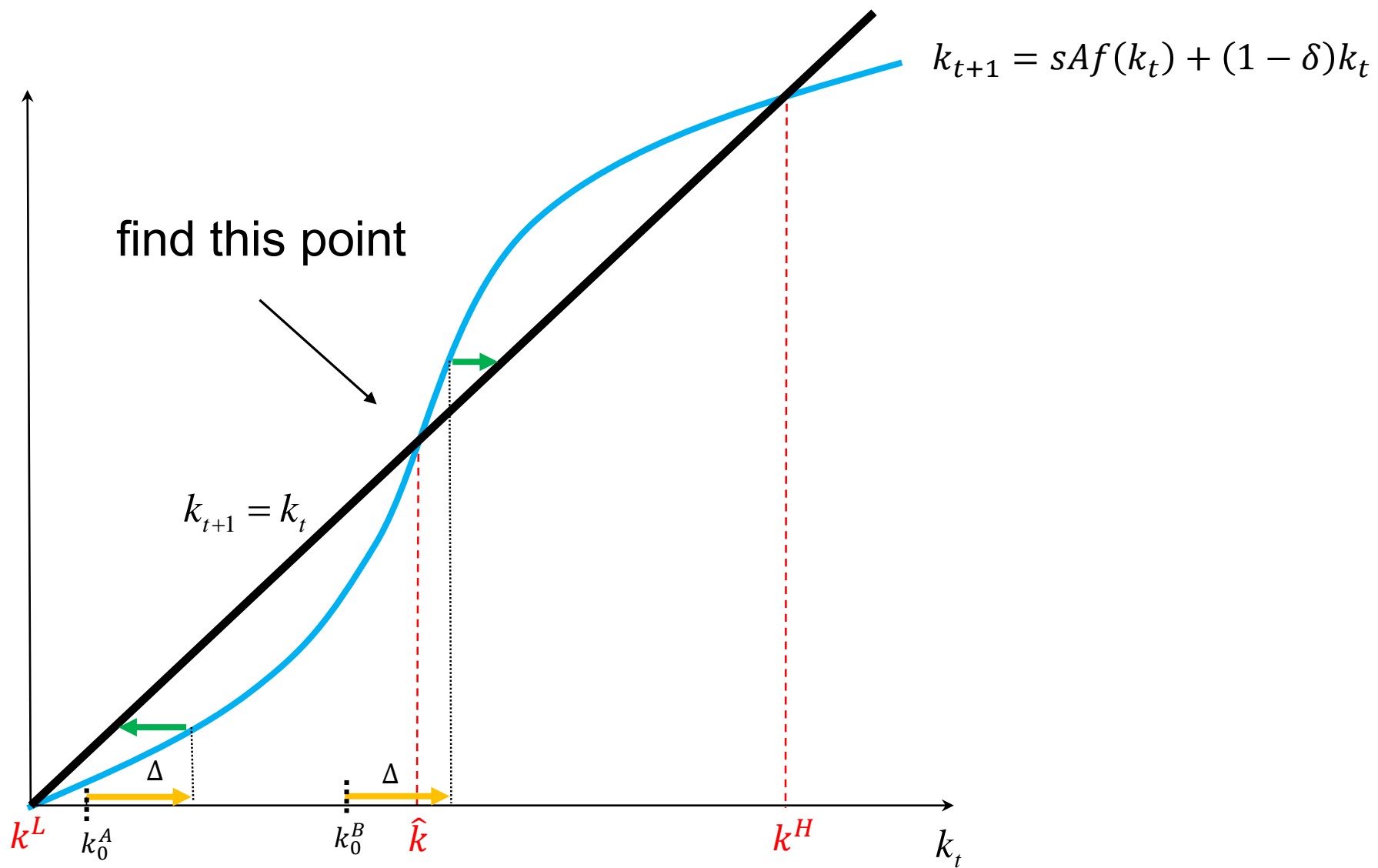
Non-parametric identification

Local polynomial smooth, treated ultra poor
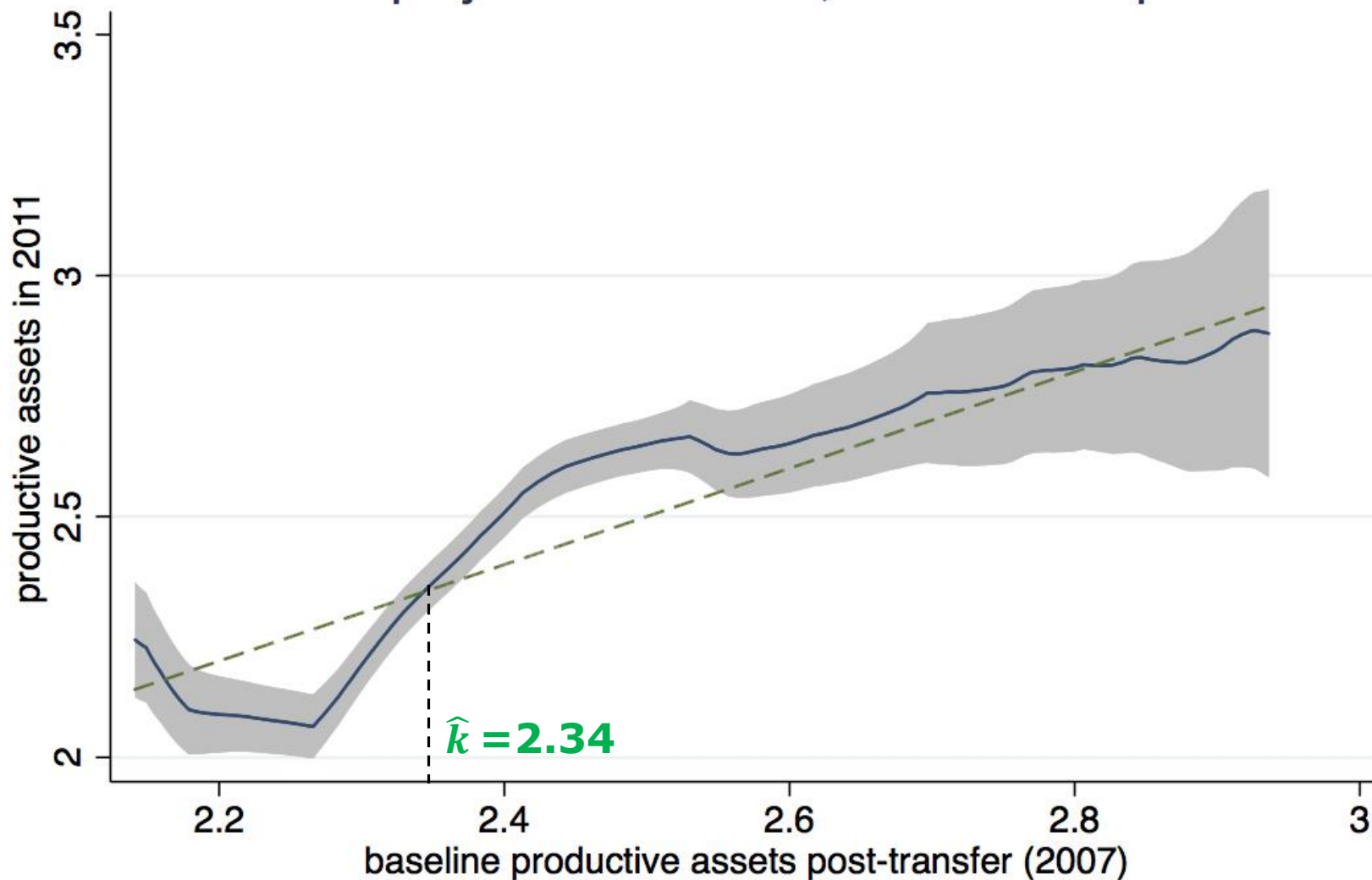
Sample includes treated ultra-poor households with baseline productive assets<18,000 BDT.

Polynomial of degree 3

$\hat{k} = 2.36$

$\hat{k} = 2.34$
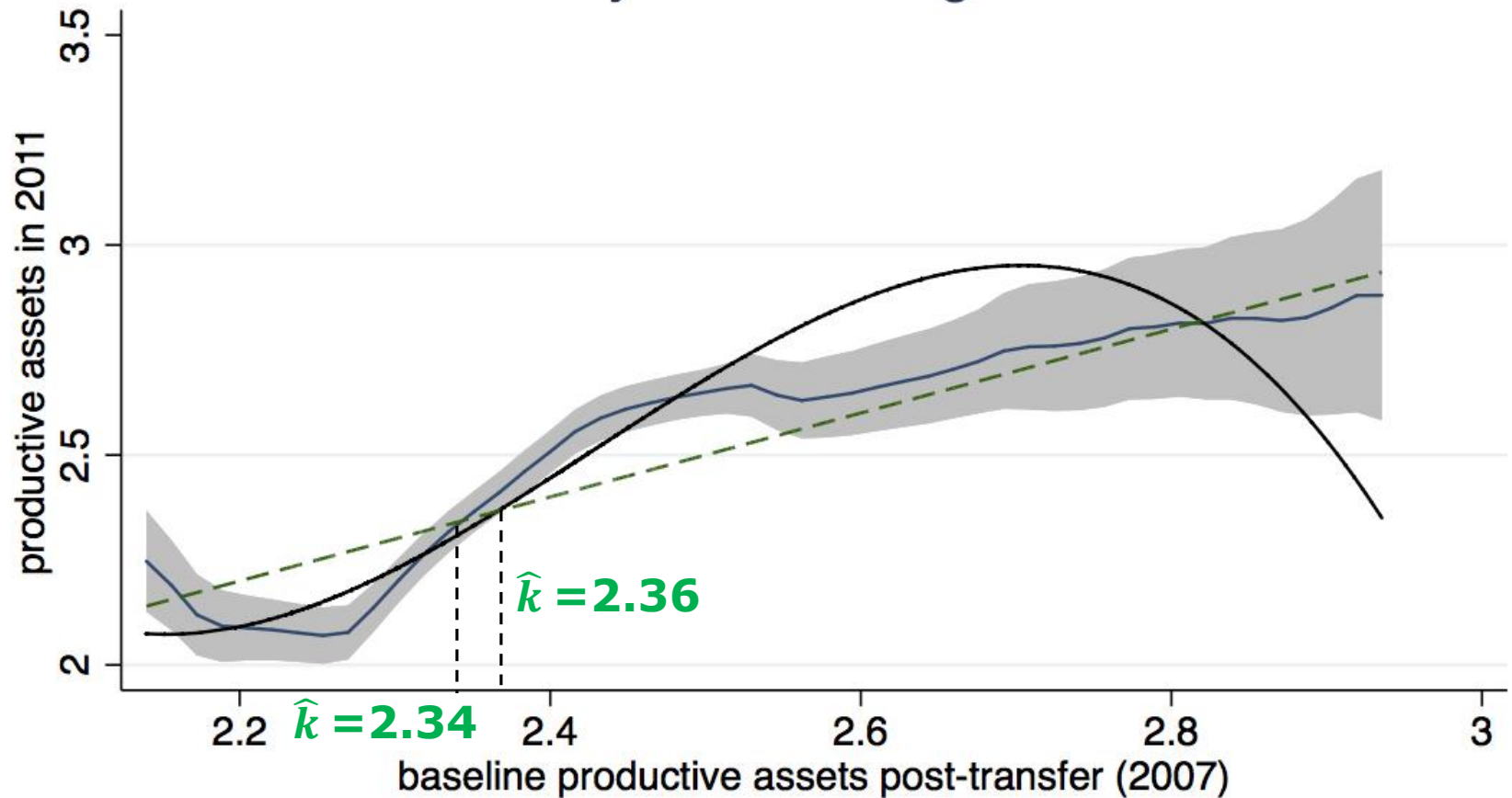
Placebo (red) vs Treatment (blue)
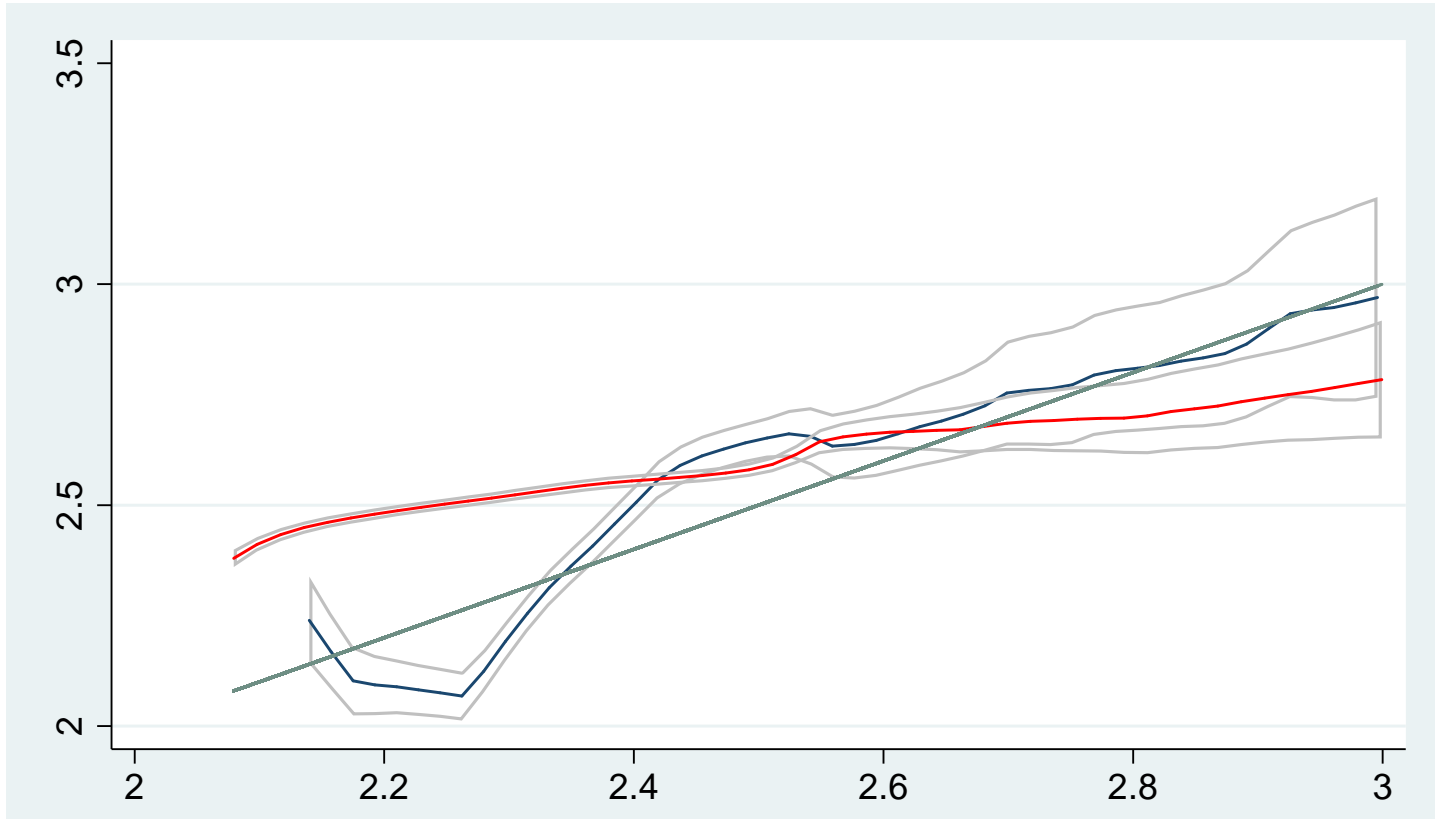
Is this really a poverty trap?

- Identification exploits differences in baseline assets
- These could be correlated with

1. traits – e.g. talent - that determine the return to K
   - the estimated k^ is an average of different thresholds
   - no guarantee that people below it would be able to escape poverty had they been given enough

2. shocks that drive capital accumulation

Is k^ an unstable steady state

if k^ is an unstable steady state

1. in equilibrium there should be no-one around it: people are either at the low or at the high SS

2. people brought by the program to the left of k^ should lose assets, those to the right should accumulate

At baseline the distribution of assets is bi-modal and density around the threshold is low
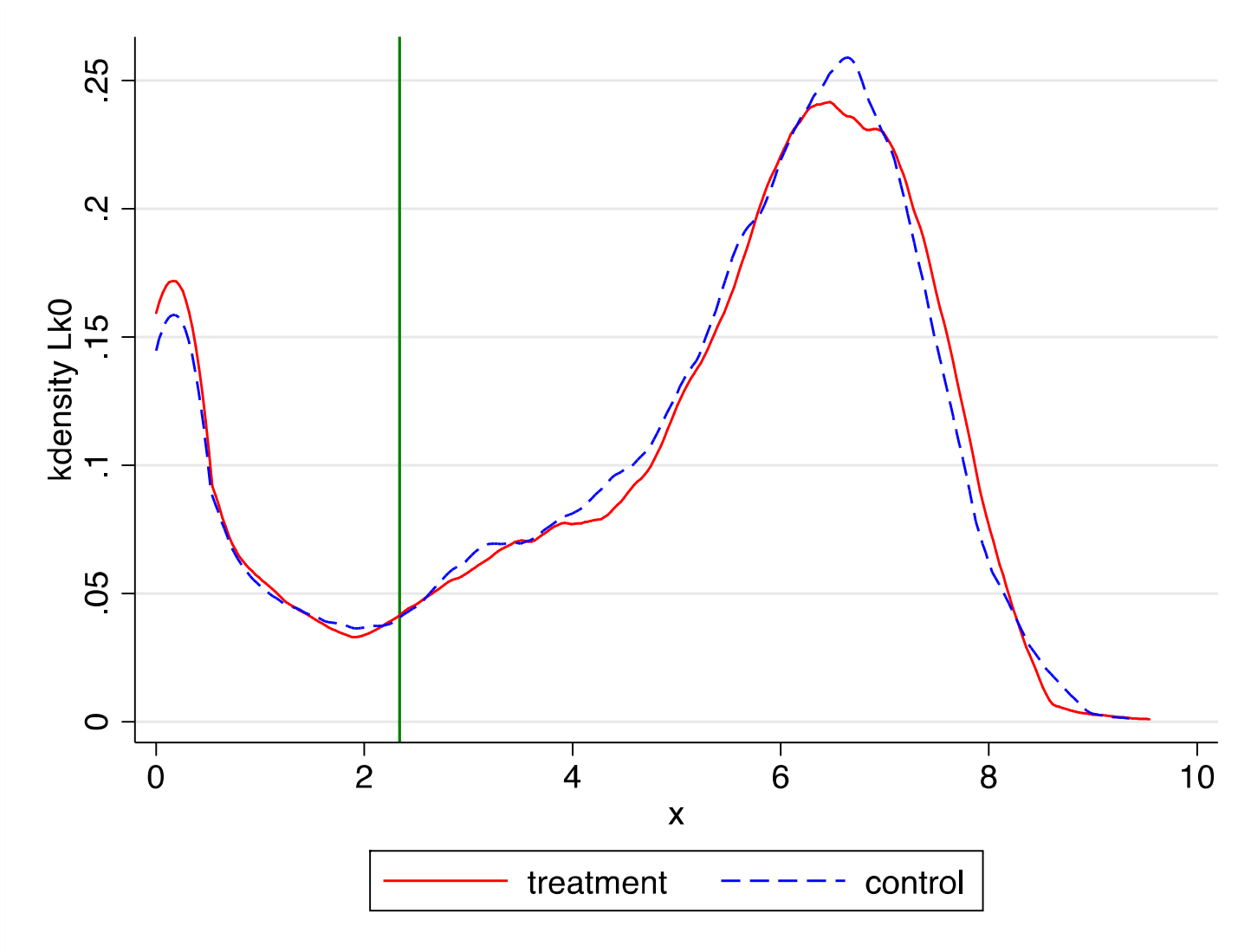
Innate traits (A)

- Assume unequal opportunity world with a standard Cobb-Douglas production function:

$$y = AK^{\beta_1} L^{\beta_2} H^{\beta_3}$$

- We want to test whether under this assumption the distribution of A can explain the observed bimodal distribution of productive assets.

- A is unobserved → estimate from panel of control HHs

- Regression equation:

$$\ln(y_{i,t}) = \beta_1 \ln(K_{i,t}) + \beta_2 \ln(L_{i,t}) + \beta_3 \ln(H_{i,t}) + \gamma_i + \delta_t + \varepsilon_{i,t}$$

- We interpret $\exp(\hat{\gamma}_i)$, the individual fixed effect, as a measure of (unobserved) innate traits (A).

But A is unimodal

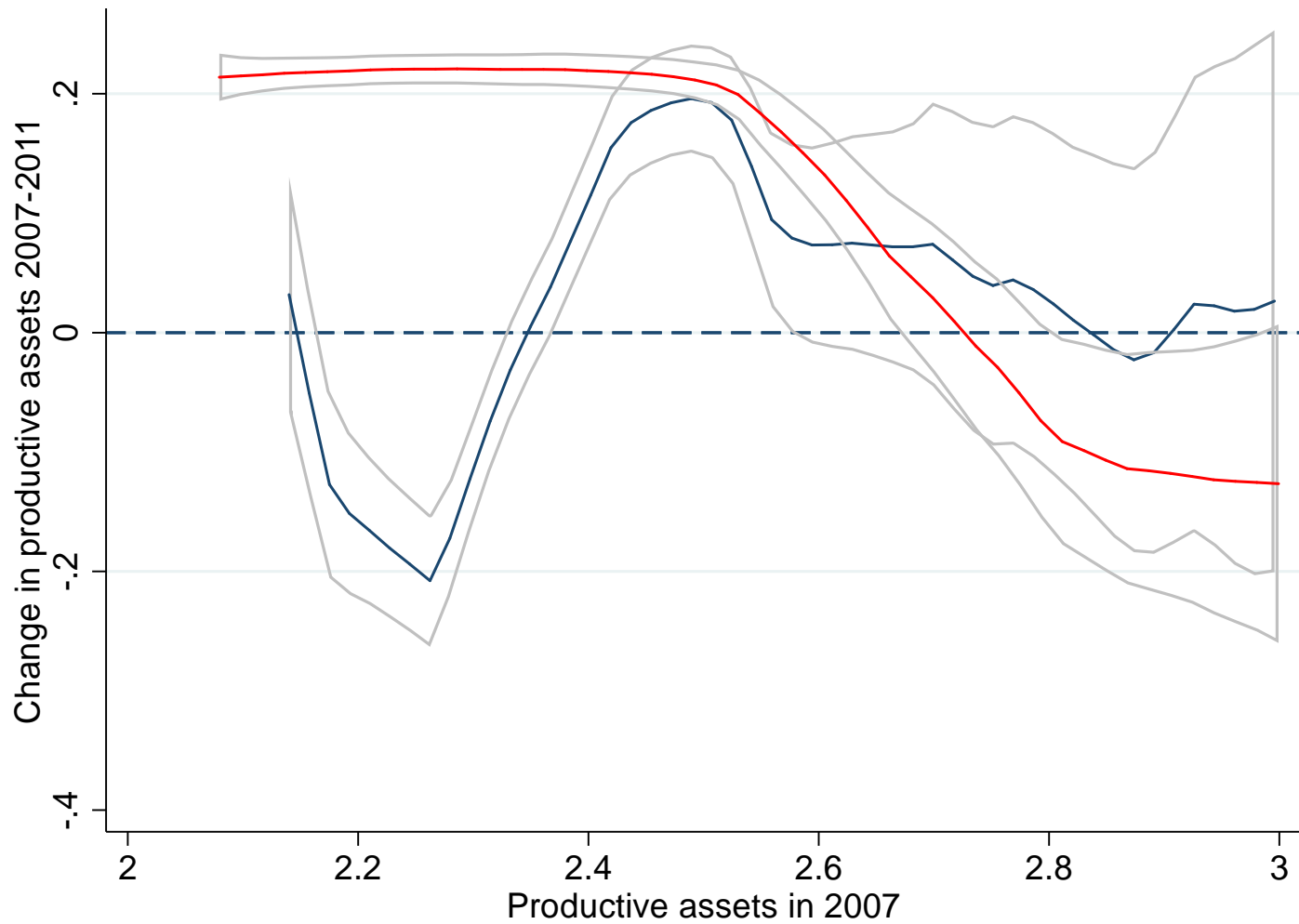# Response to asset transfer in unequal opportunity view
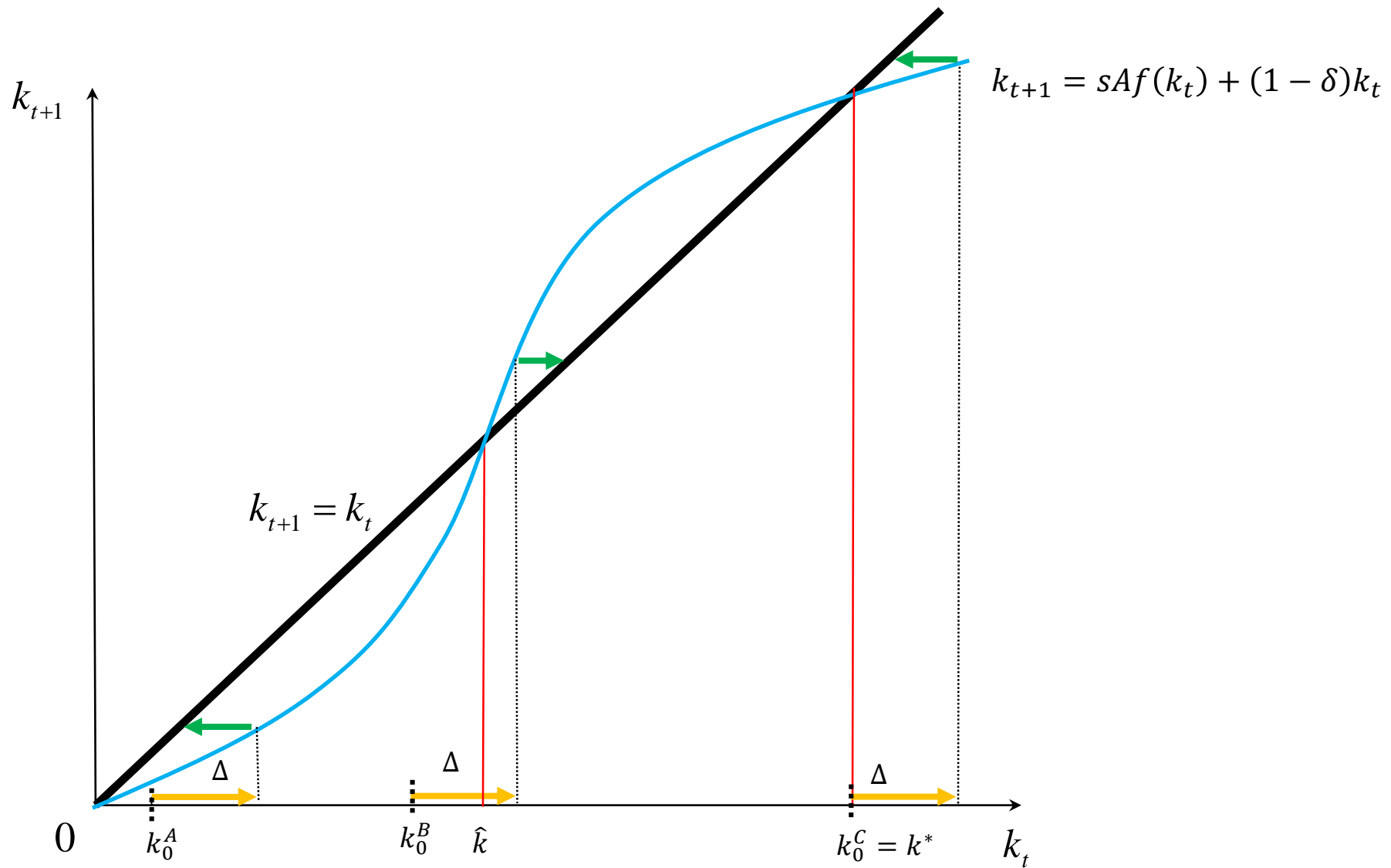
$k_{t+1} = sAf(k_t) + (1-\delta)k_t$

$k_{t+1} = k_t$

k_{t+1}

0

k_0^A

k_0^B $\hat{k}$

$k_0^C = k^*$

k_t

Δ

Δ

Δ
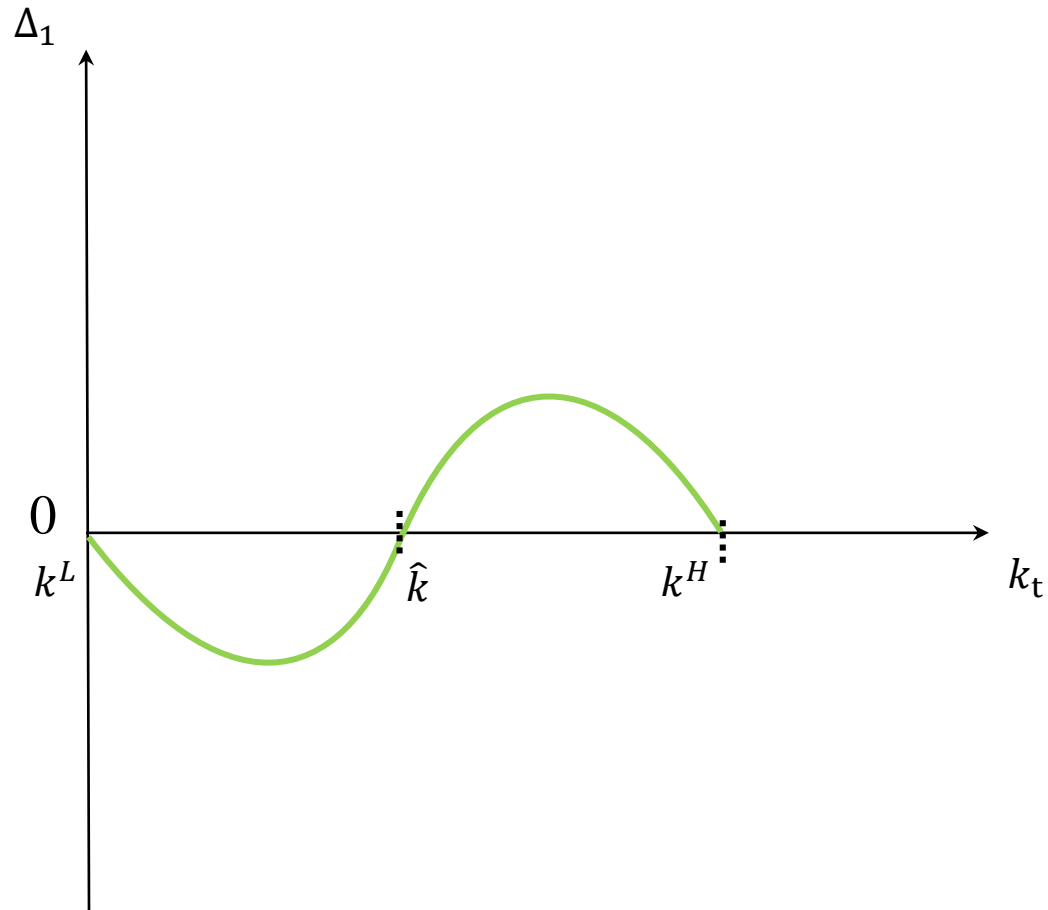
Response to asset transfer in data
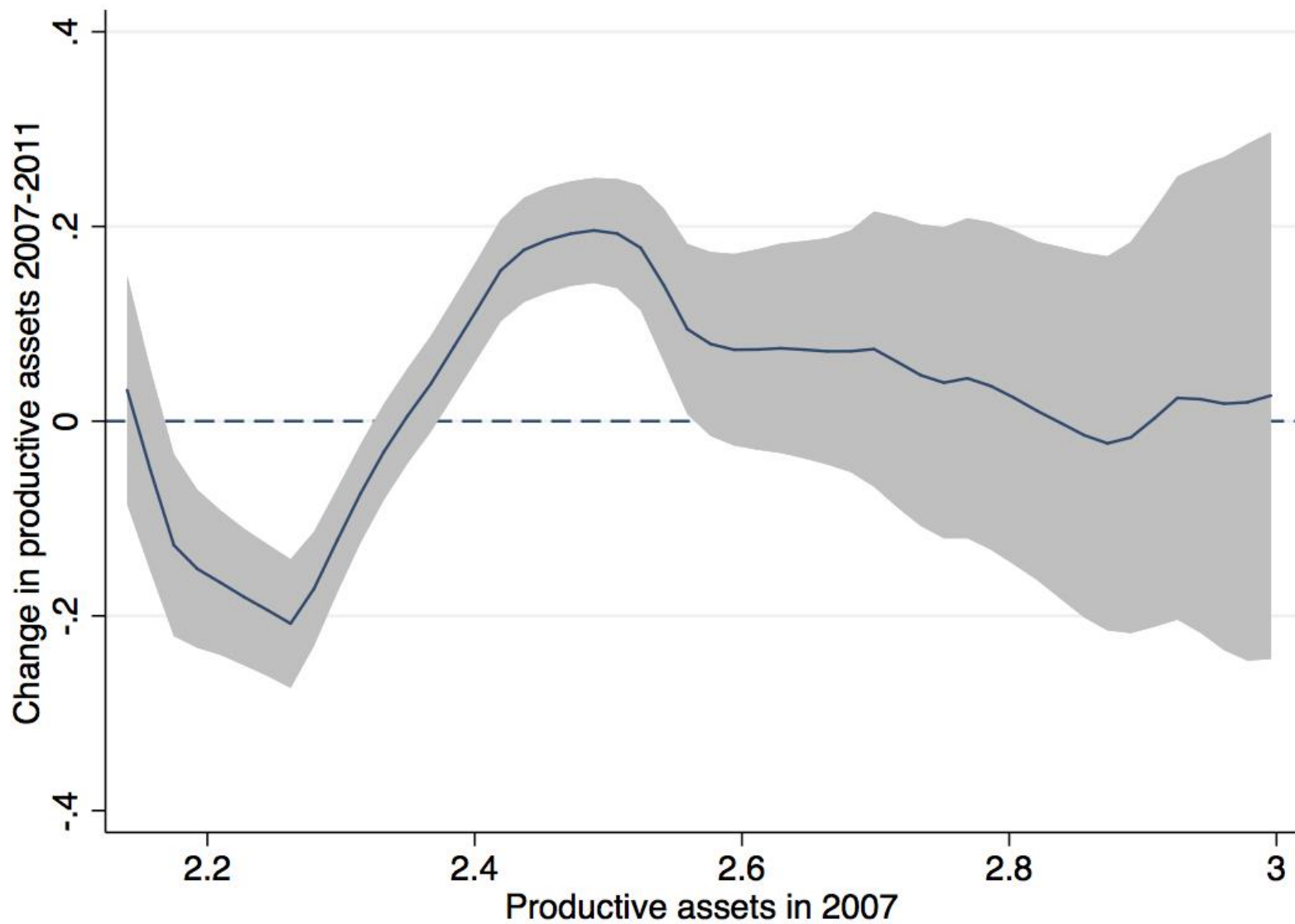
Difference in difference estimates

	above k^	below k^	
treatment	.109	-.154	-.262***
control	-.026	.219	.244***
	-.134***	.372***	-.507***

this shows that hadnt it been for the treatment pushing people above k^ to the new high SS, people with higher k would have been more likely to lose assets (mean reversion to low SS)

Response to asset transfer in data, allowing for discontinuty

People above $\hat{k}$ accumulate more assets, at a decreasing rate

People below $\hat{k}$ lose assets an an increasing rate

Change in assets (2007-2011)

$\hat{k}$ Productive assets (k) in 2007 +transfer
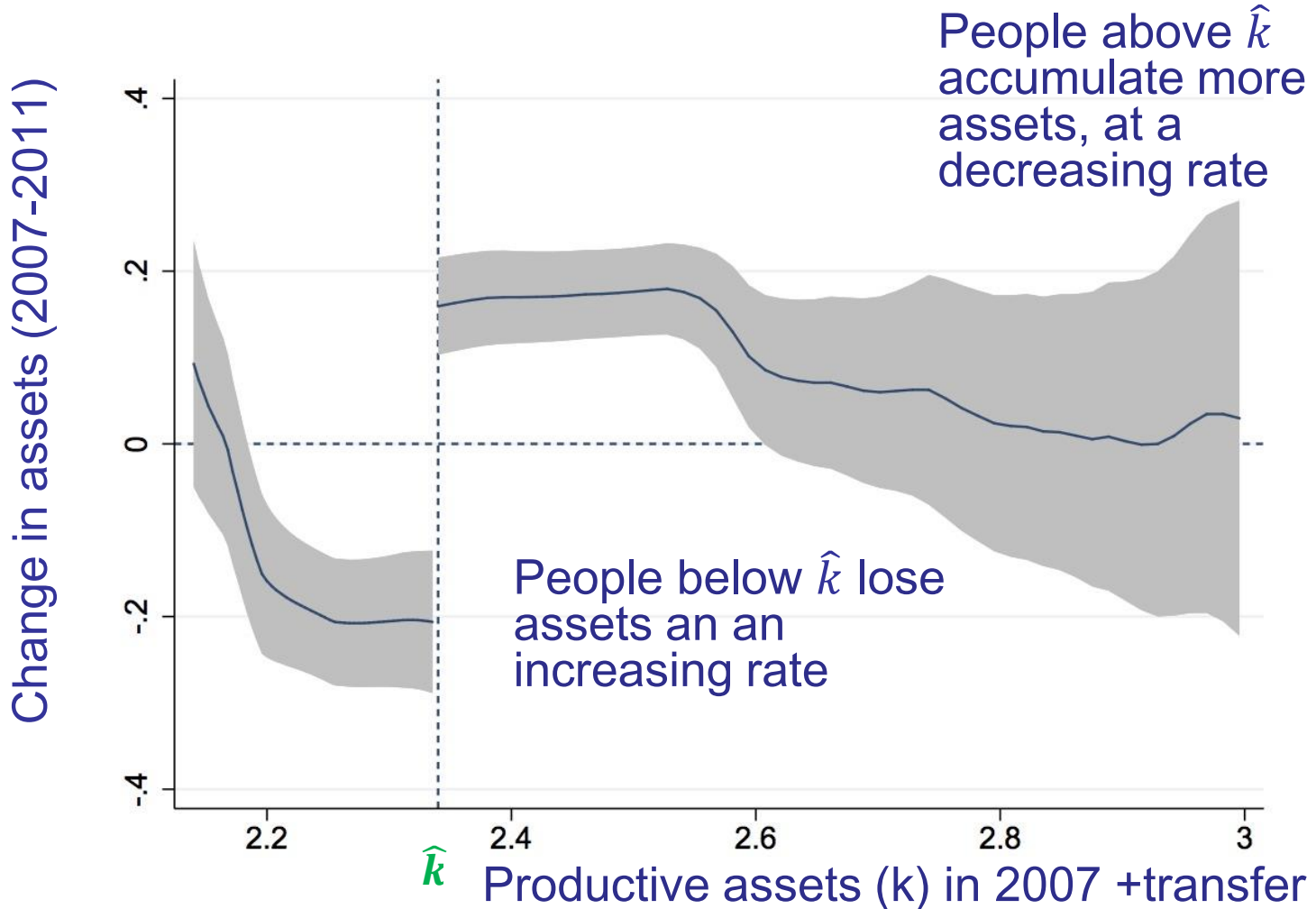
Had it not been for the program, people above $\hat{k}$ would have experienced a bigger loss (mean reversion)

Ipoly with threshold, Control

Change in assets (2007-2011) vs Productive assets (k) in 2007
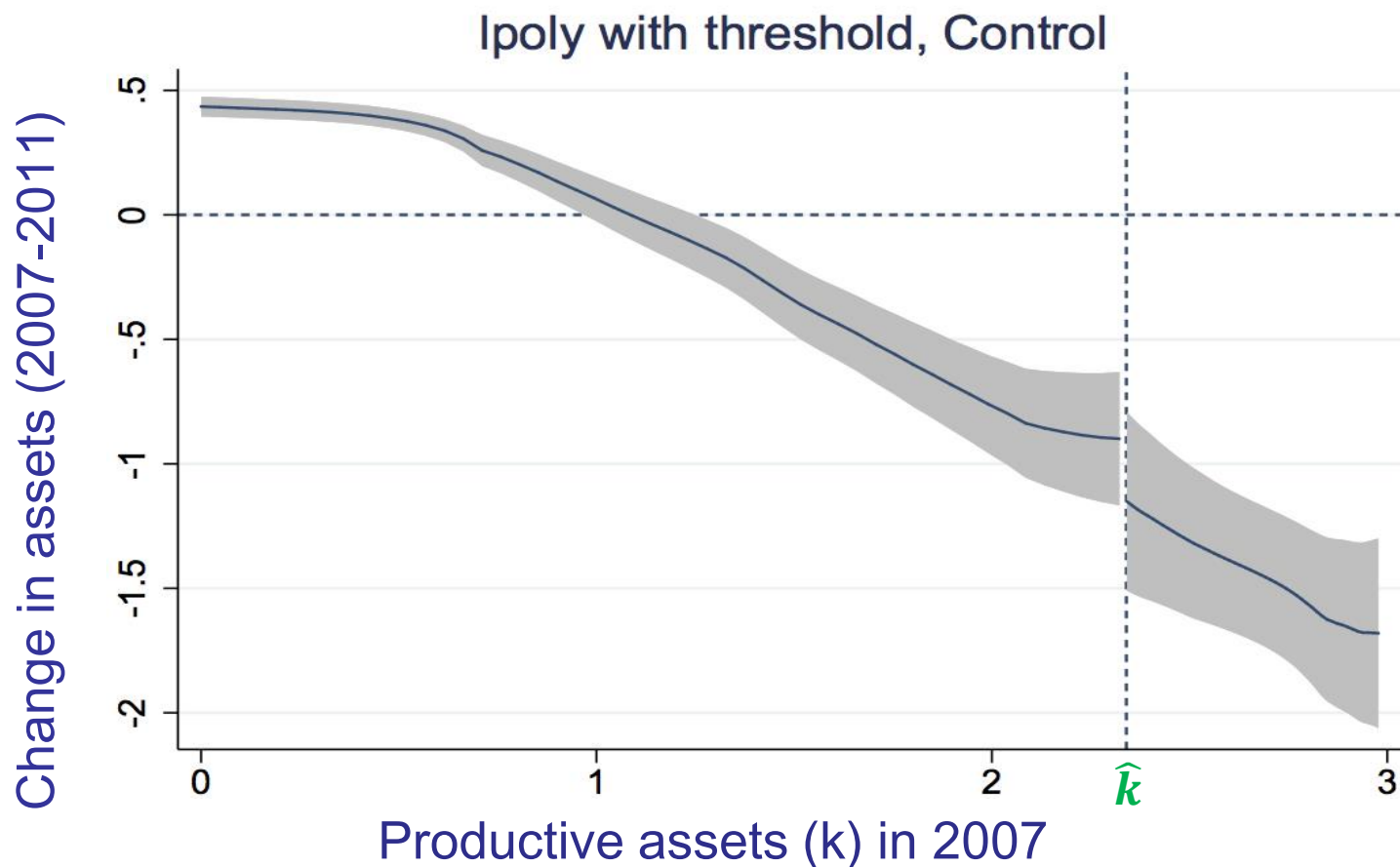
Consistent with no evidence for PT in panel data from China (Jalan and Ravallion, 2004), Hungary and Russia (Lokshin and Ravallion, 2004), or Pakistan and Ethiopia (Naschold, 2013).

Is this really a poverty trap?

- Identification exploits differences in baseline assets
- These could be correlated with traits – e.g. talent - that determine the return to K

  - no guarantee that people below it would be able to escape poverty had they been given enough

- Three ways to provide evidence

  1. estimate individual unobservable traits using panel data in control

 2. exploit testable implications on sorting

  3. structural estimation

Four tests

We present four tests to assess whether the patterns we observe can be explained by differences in talent/preferences or shocks correlated with baseline assets

1.   Missing mass test

2.   Sorting test

3.   Response to K transfer test

4.   Changes in observed traits around the threshold

1. Missing Mass Test

Missing mass around the threshold in CONTROL villages
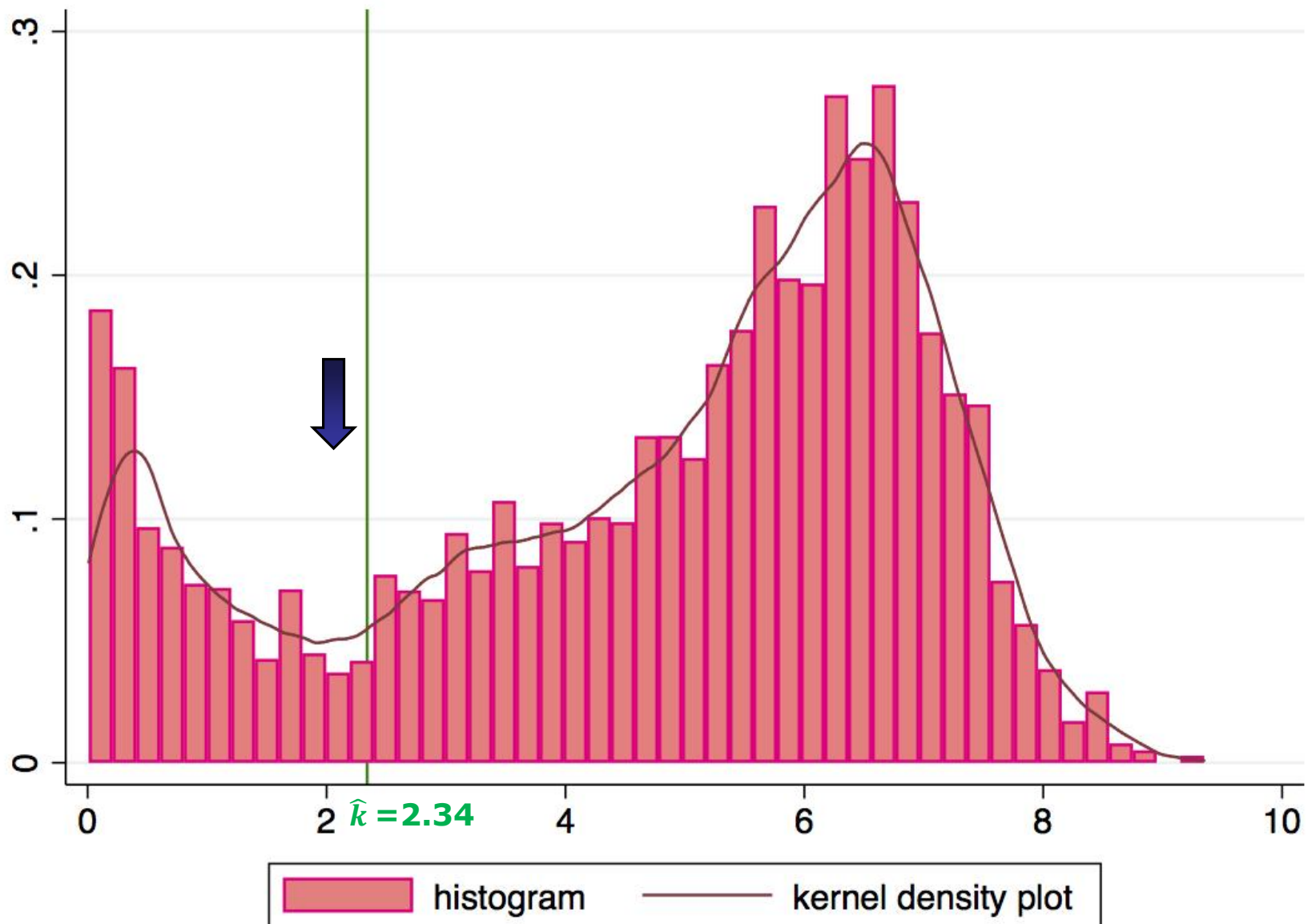
Innate traits (A)

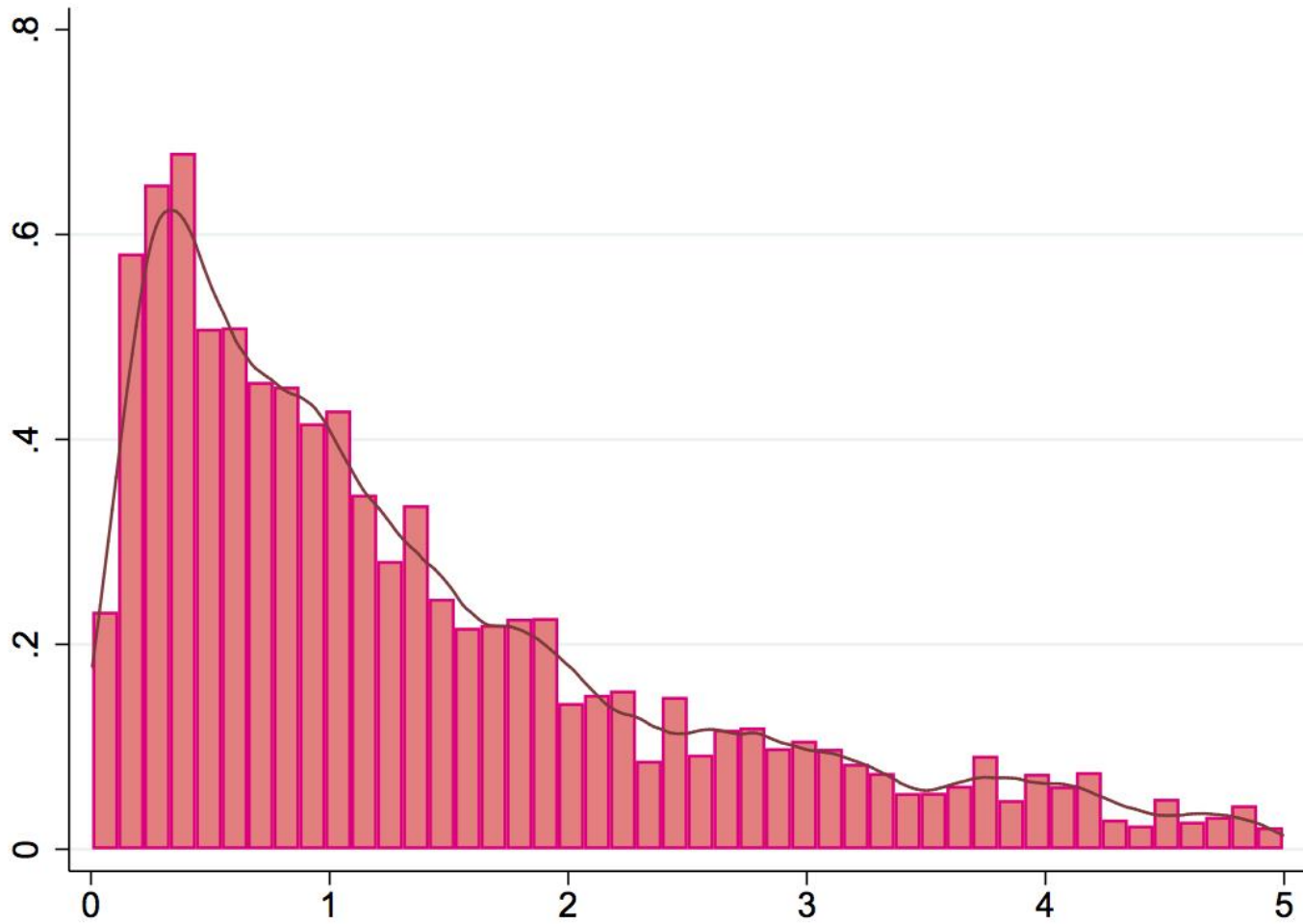- Assume unequal opportunity world with a standard Cobb-Douglas production function:
$$y = AK^{\beta_1}L^{\beta_2}H^{\beta_3}$$

- We want to test whether under this assumption the distribution of A can explain the observed bimodal distribution of productive assets.

- A is unobserved → estimate from panel of control HHs

- Regression equation:

$$\ln(y_{i,t}) = \beta_1\ln(K_{i,t}) + \beta_2\ln(L_{i,t}) + \beta_3\ln(H_{i,t}) + \gamma_i + \delta_t + \varepsilon_{i,t}$$

- We interpret $\exp(\hat{\gamma}_i)$, the individual fixed effect, as a measure of (unobserved) innate traits (A).
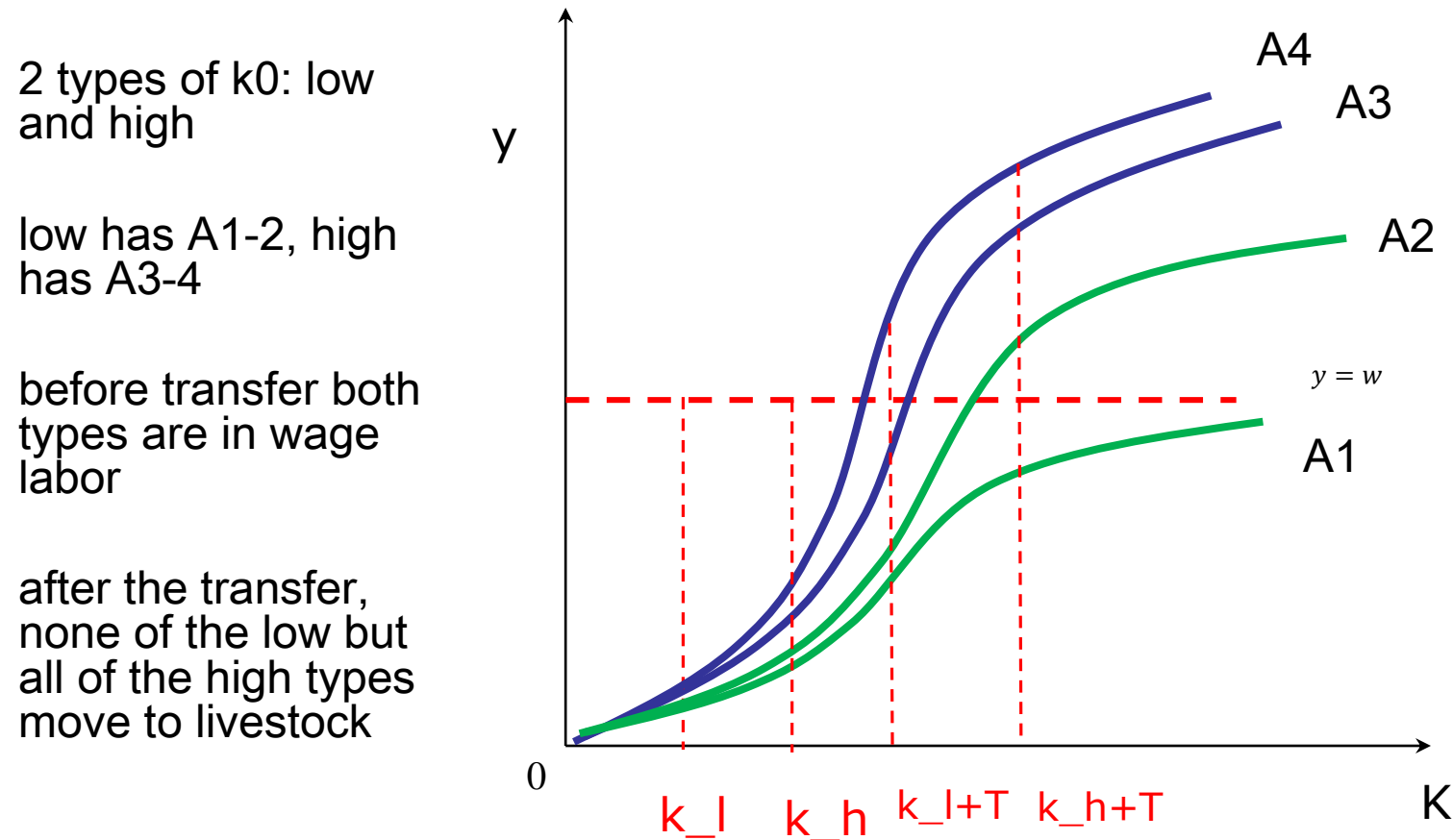
But A is unimodal

2. Sorting test

Sorting when A is uncorrelated with k0

2 types of k0: low and high

4 As in each type

before transfer both types are in wage labor

after the transfer, only the brightest of low (A4) but almost all of the high move to livestock
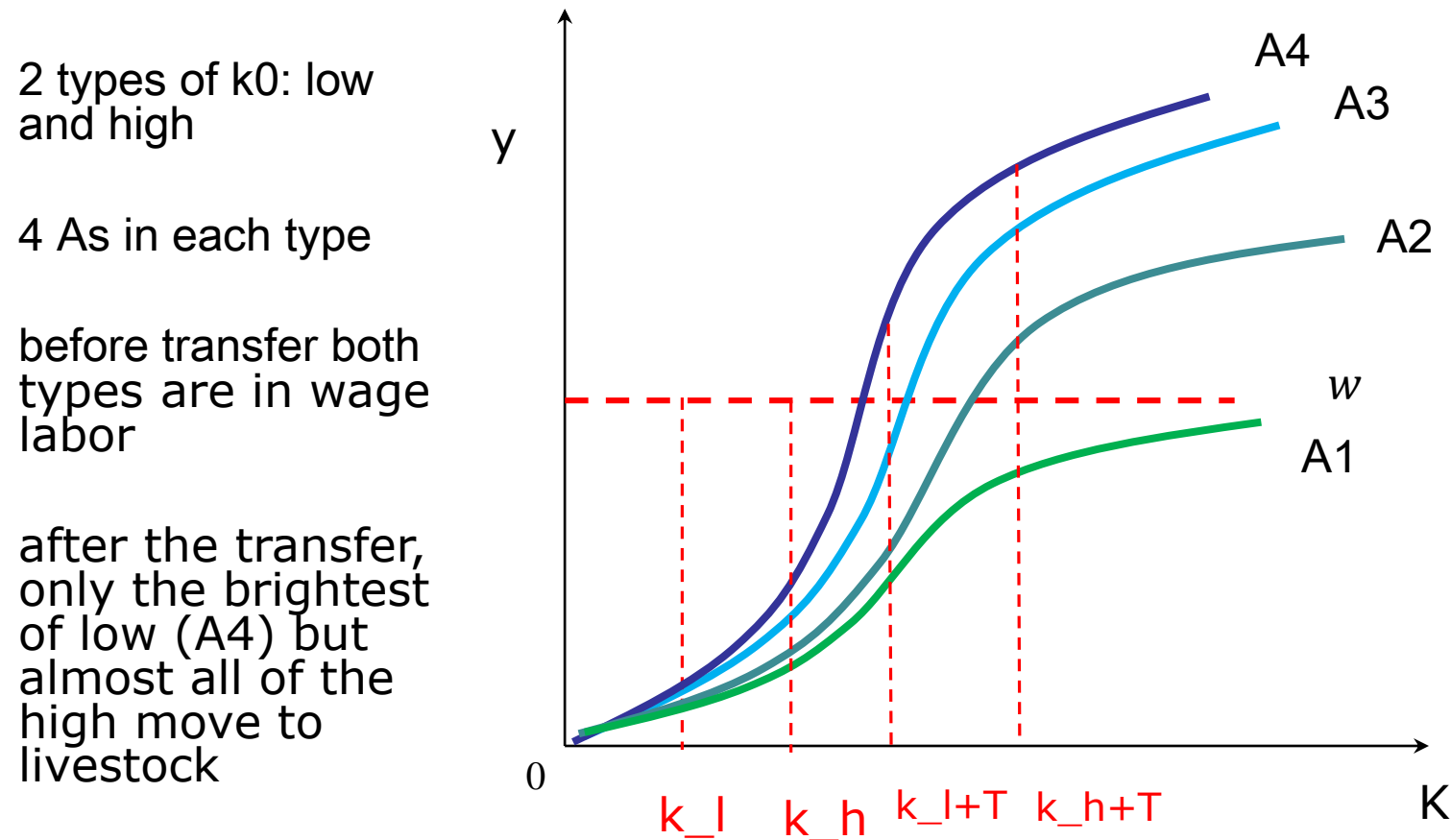
The average A for switchers is **_decreasing_** in k0
The max A for switchers is **_constant_** in k0
The min A for switchers is **_decreasing_** in k0

Sorting when A is correlated with k0

2 types of k0: low and high

low has A1-2, high has A3-4

before transfer both types are in wage labor

after the transfer, none of the low but all of the high types move to livestock

The average A for switchers is **_increasing_** in k0
The max A for switchers is **_increasing_** in k0
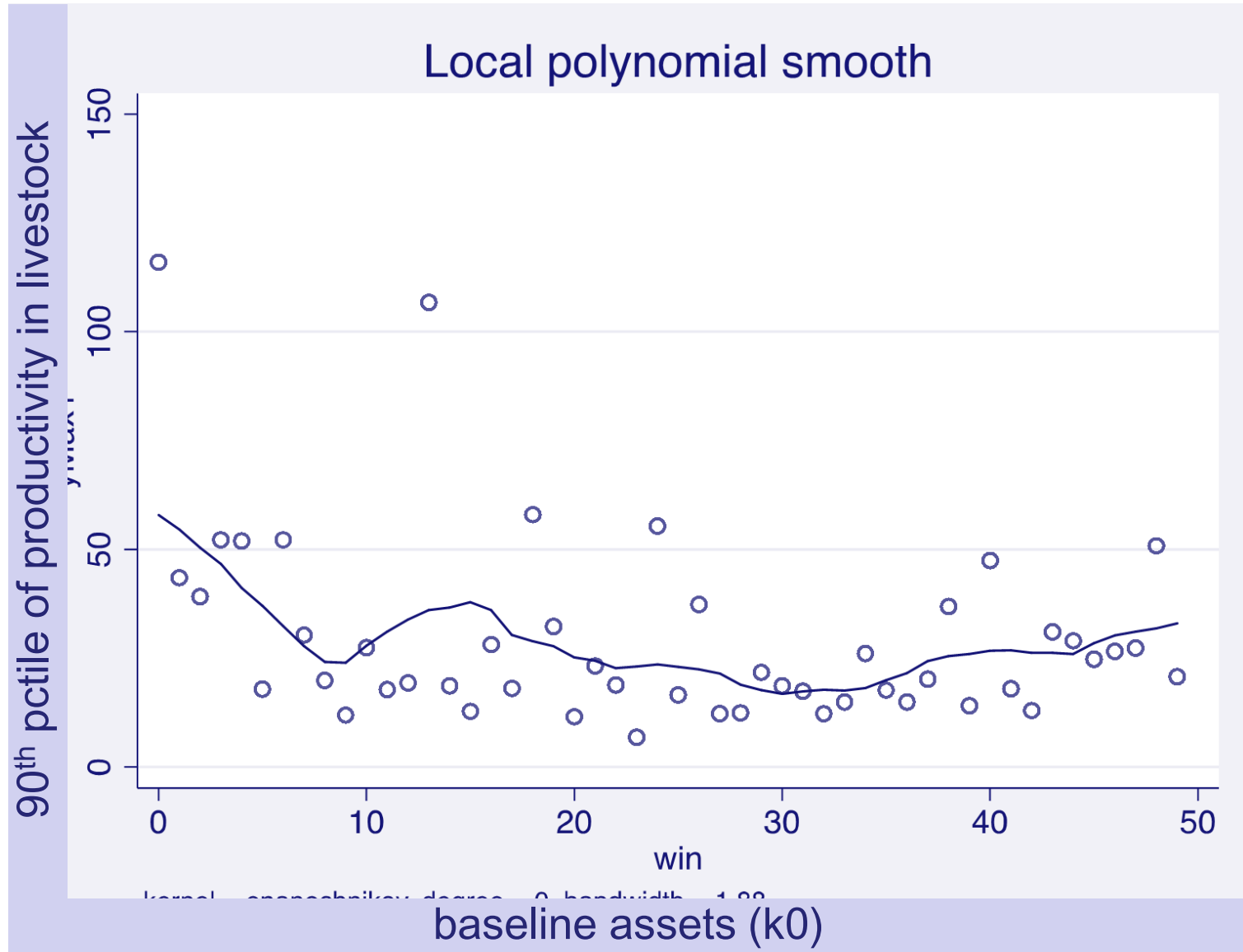The min A for switchers is **_increasing_** in k0

1. The average A for switchers is ***decreasing*** in k0 (increasing)
2. The max A for switchers is ***constant*** in k0 (increasing)
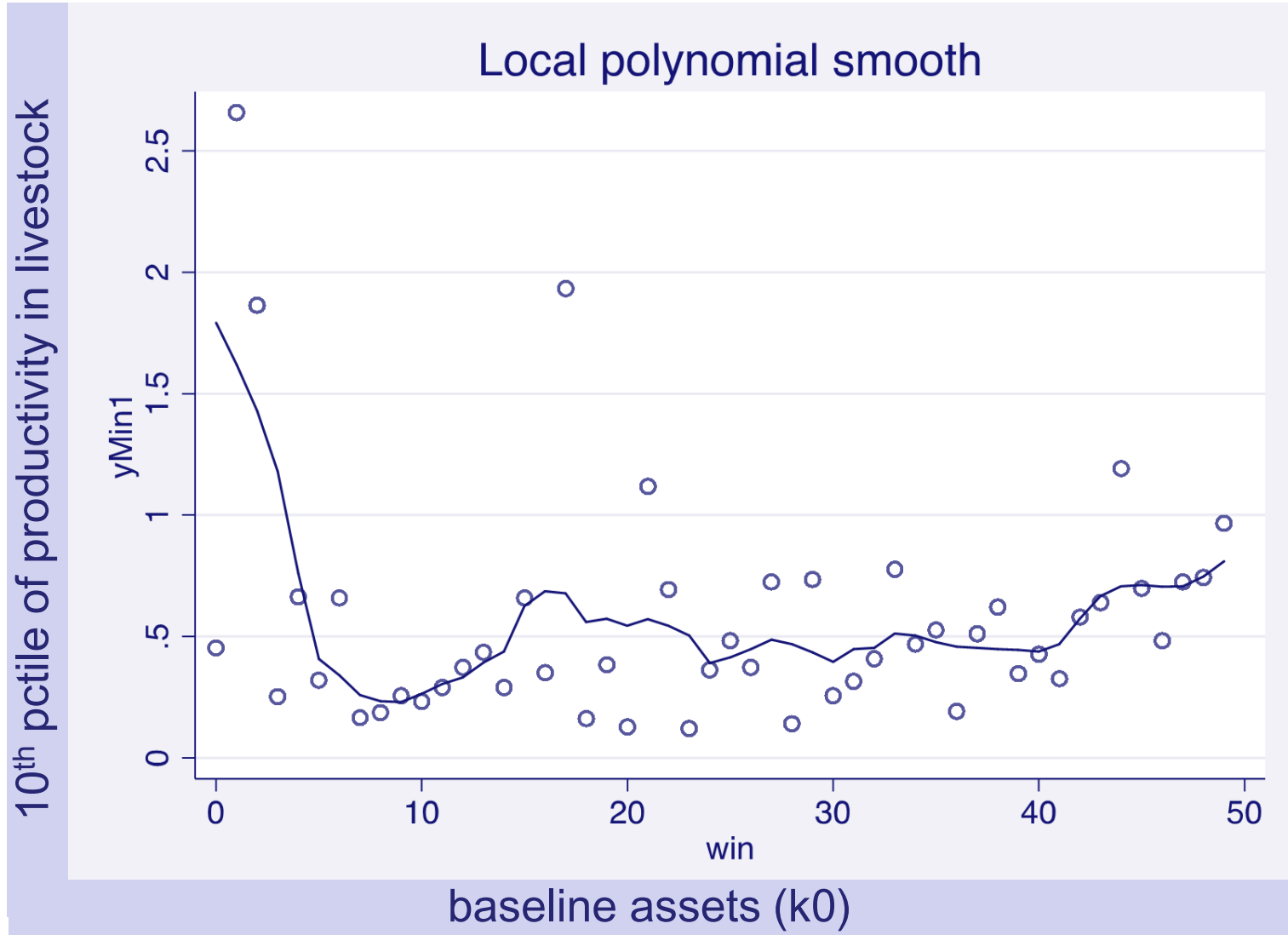3. The min A for switchers is ***decreasing*** in k0 (increasing)

1. Average productivity of switchers is decreasing
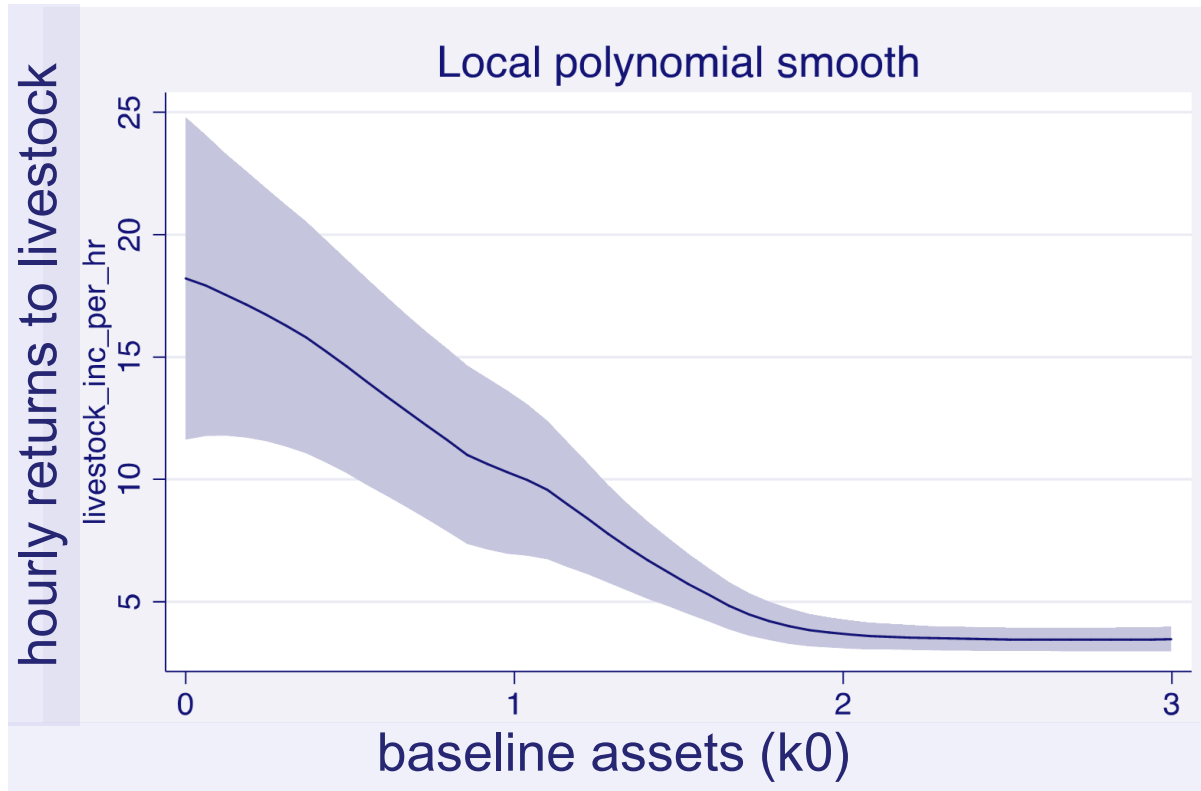
2. Max productivity of switchers is flat
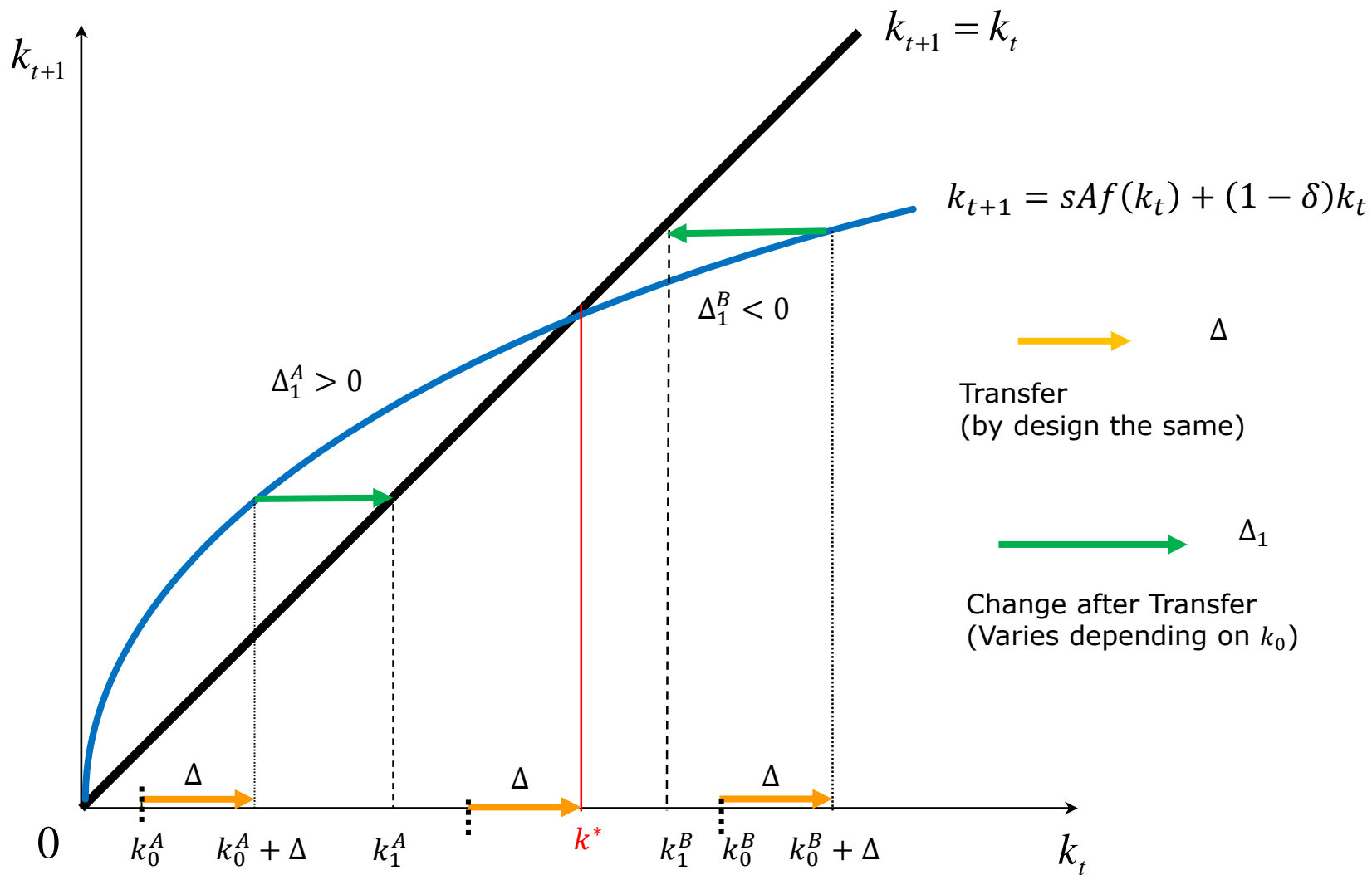
3. Min productivity of switchers is decreasing

Implications of cov(k0,A)=0 (vs cov(k0,A)>0)

1. The average A for switchers is ***decreasing*** in k0 ~~(increasing)~~ ✓

2. The max A for switchers is ***constant*** in k0 ~~(increasing)~~ ✓

3. The min A for switchers is decreasing in k0 ~~(increasing)~~ ✓
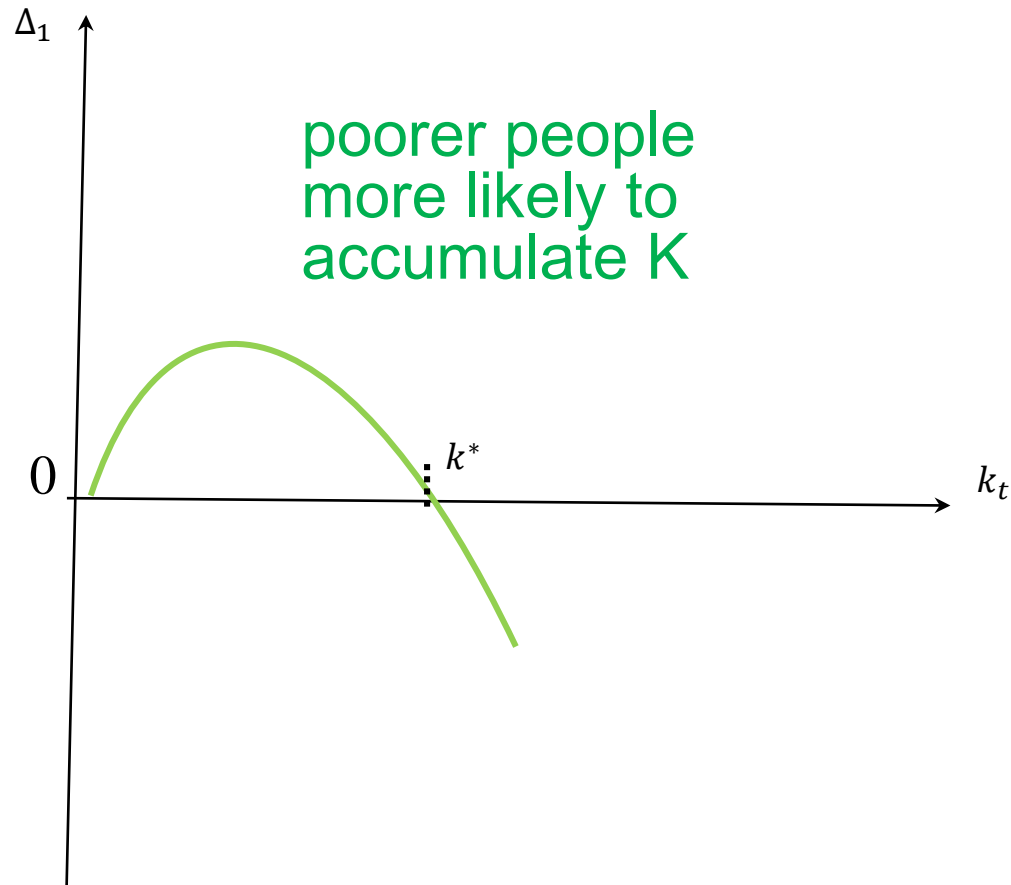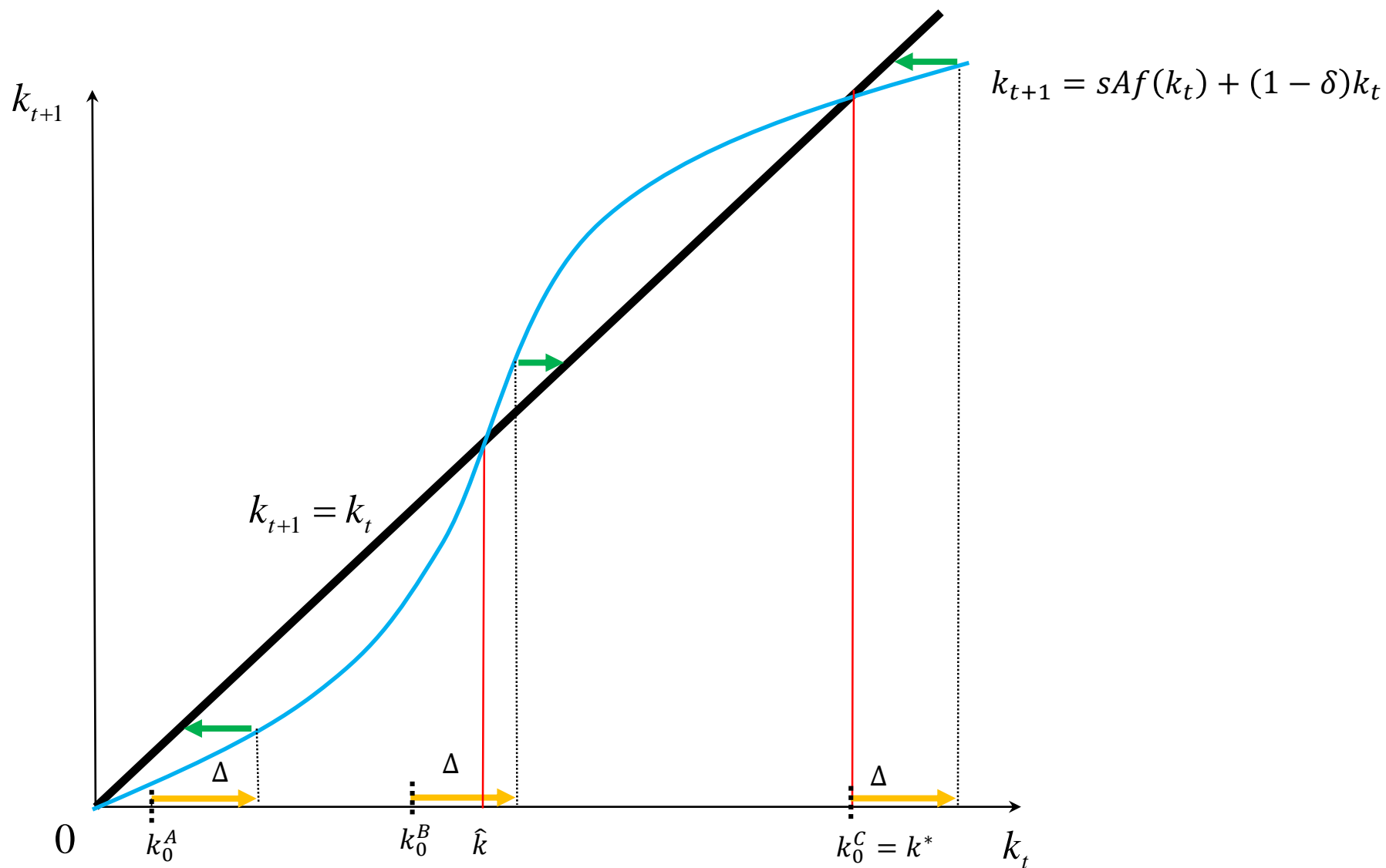
3. Responses to K transfer test

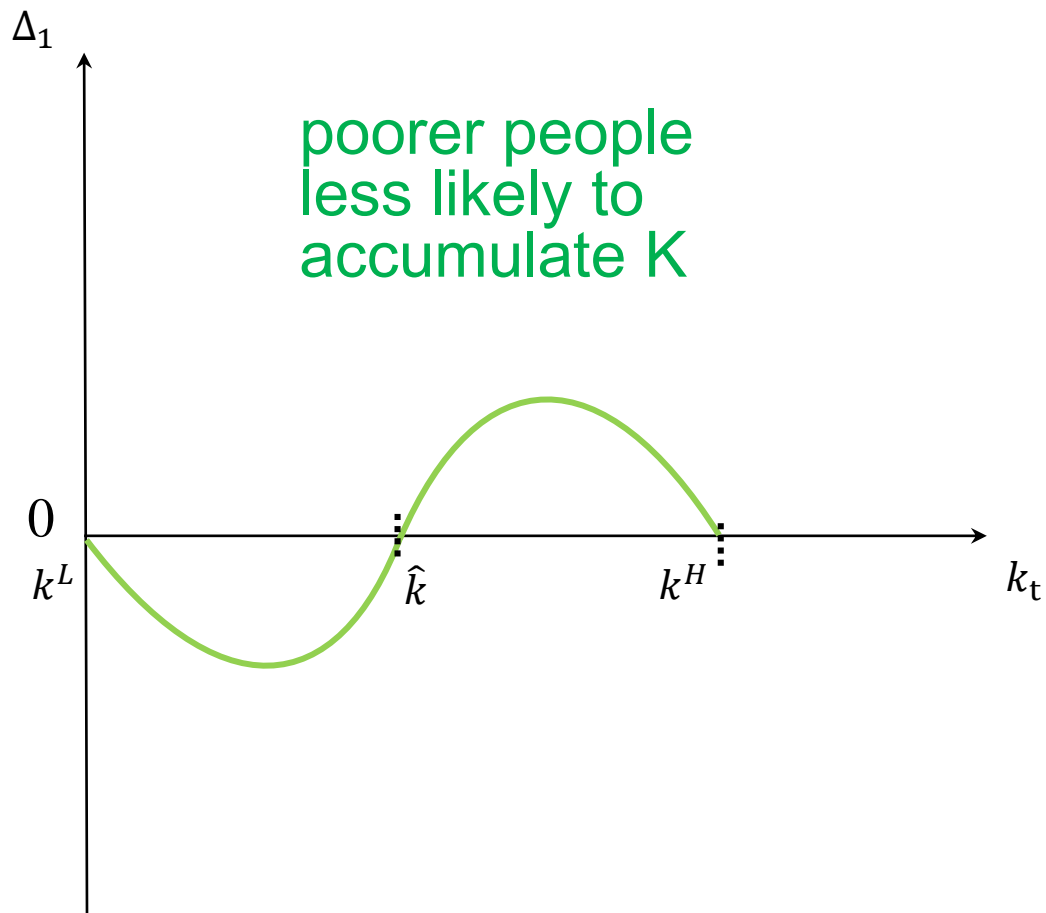# Response to asset transfer in equal opportunity view

Δ_1

poorer people
more likely to
accumulate K

0

k^*

k_t

Response to asset transfer in unequal opportunity view

Response to asset transfer in data

People above $\hat{k}$ accumulate more assets, at a decreasing rate

People below $\hat{k}$ lose assets an an increasing rate
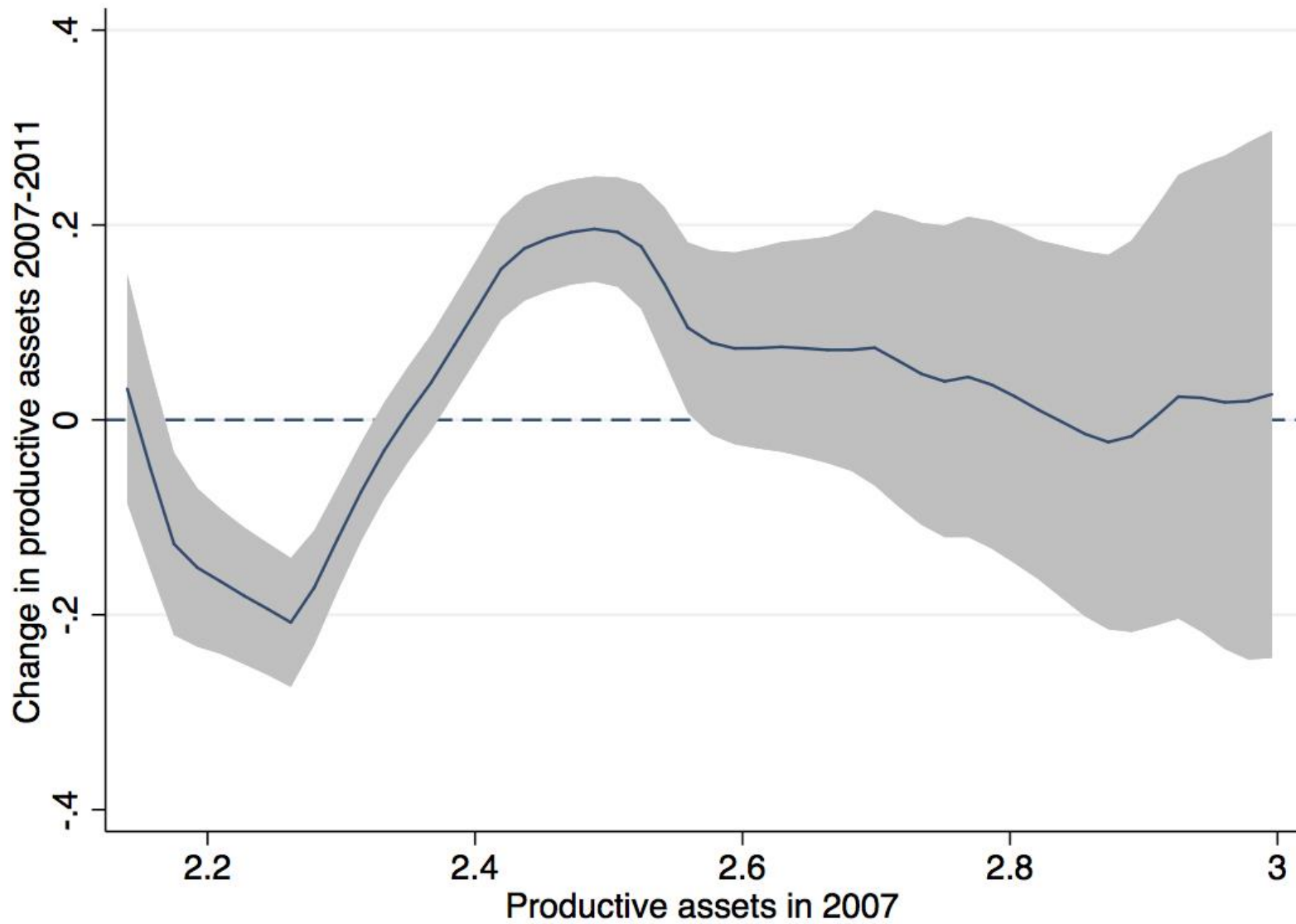
Change in assets (2007-2011)

$\hat{k}$ Productive assets (k) in 2007 +transfer
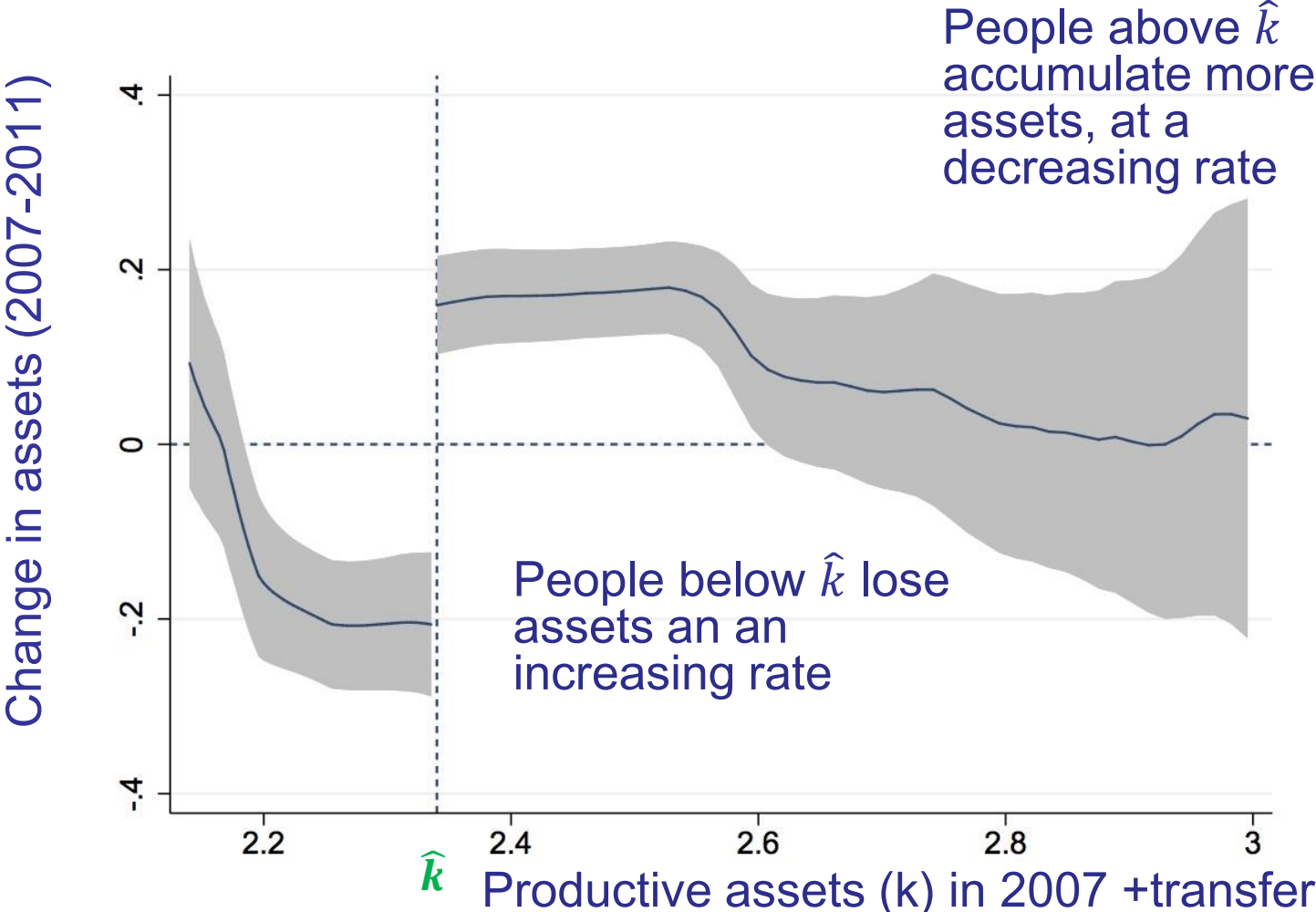
Change in assets below and above the threshold: regression

VARIABLES	(1) $\hat{k} = 2.34$	(2) $\hat{k} = 2.36$
Baseline productive assets	-2.051**	-2.449***
	(0.978)	(0.902)
Above threshold	-3.720*	-4.500**
	(2.231)	(2.064)
Baseline productive assets * Above threshold	1.794*	2.159**
	(0.984)	(0.909)
Constant	4.496**	5.389***
	(2.214)	(2.046)
Observations	3,531	3,531
Mean of dependent variable	0.0107	0.0107

Standard errors clustered at the spot ID level
*** p<0.01, ** p<0.05, * p<0.1

- <u>If controls are in steady state</u>, any changes in assets must be due to shocks → we use data from controls

  1. to test whether shocks can explain the pattern of asset accumulation we see in treatment

  2. to adjust for shocks

Shocks (blue) cannot explain the distribution of changes in treatment (red)
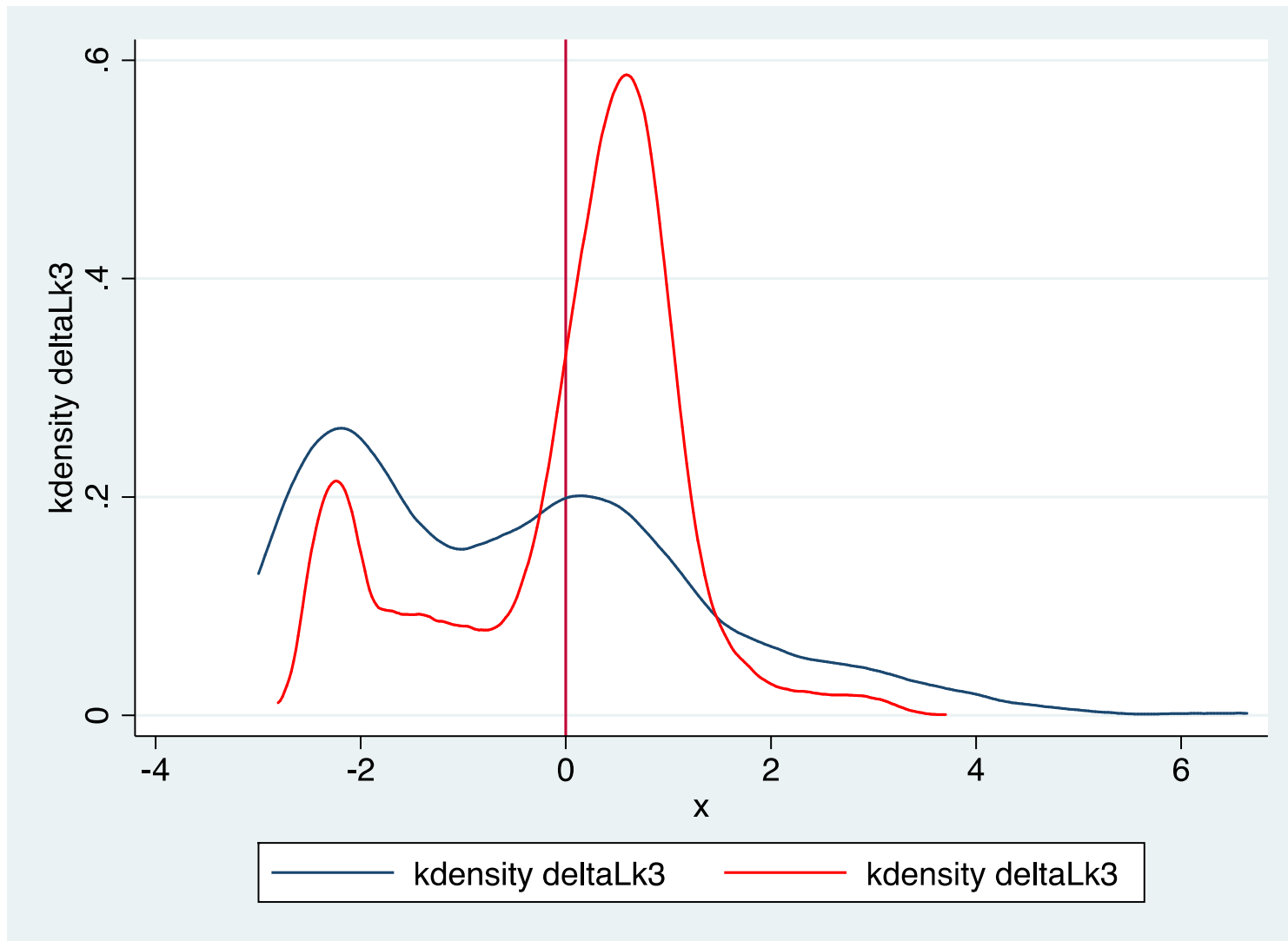
How do we know this is not due to shocks correlated with k_0?

| VARIABLES	(1) 5%	(2) 10%	(3) 15%	(4) 20%
		Dummy=1 if asset loss larger than		
Above Threshold	0.180***	0.184***	0.179***	0.164***
	(0.00929)	(0.00823)	(0.00737)	(0.00667)
Treatment HH	0.212***	0.234***	0.220***	0.167***
	(0.0204)	(0.0186)	(0.0164)	(0.0133)
Above Threshold * Treatment HH	-0.294***	-0.311***	-0.295***	-0.240***
	(0.0229)	(0.0209)	(0.0189)	(0.0160)
Constant	0.126***	0.0664***	0.0298***	0.00946***
	(0.00465)	(0.00325)	(0.00212)	(0.00119)
Observations	14,937	14,937	14,937	14,937
Mean of dependent variable	0.212	0.157	0.117	0.0861

*** p<0.01, ** p<0.05, * p<0.1
Standard errors clustered at the spot ID level.

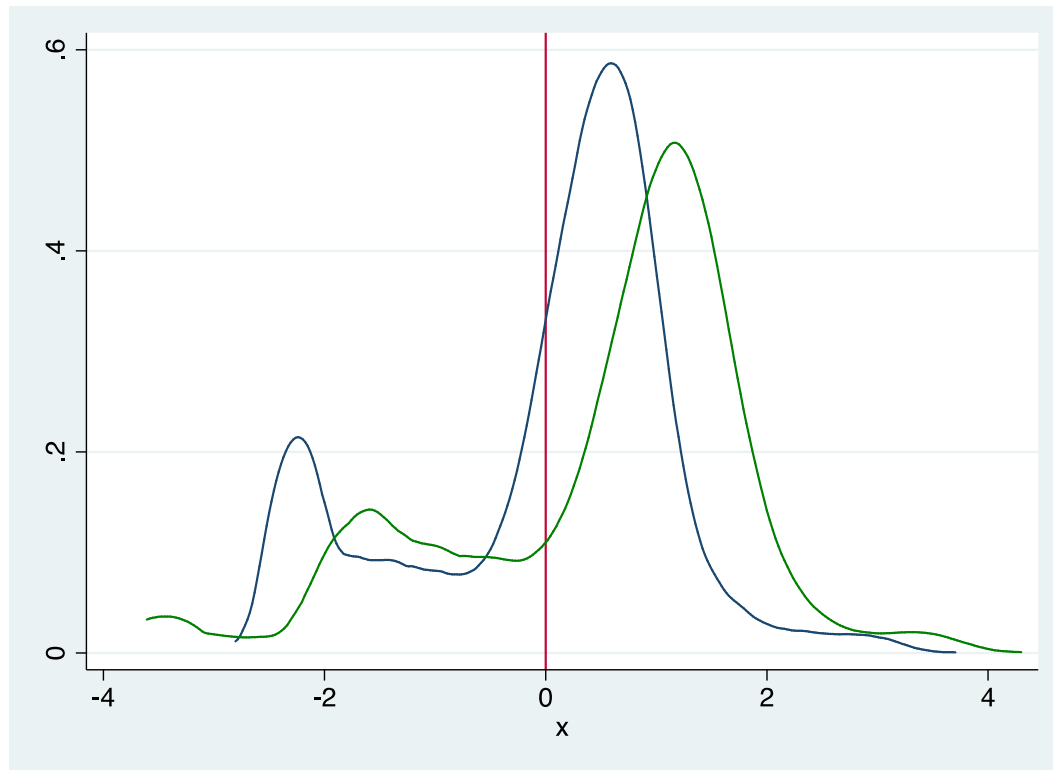# How do we know this is not due to shocks correlated with k_0?

Below threshold
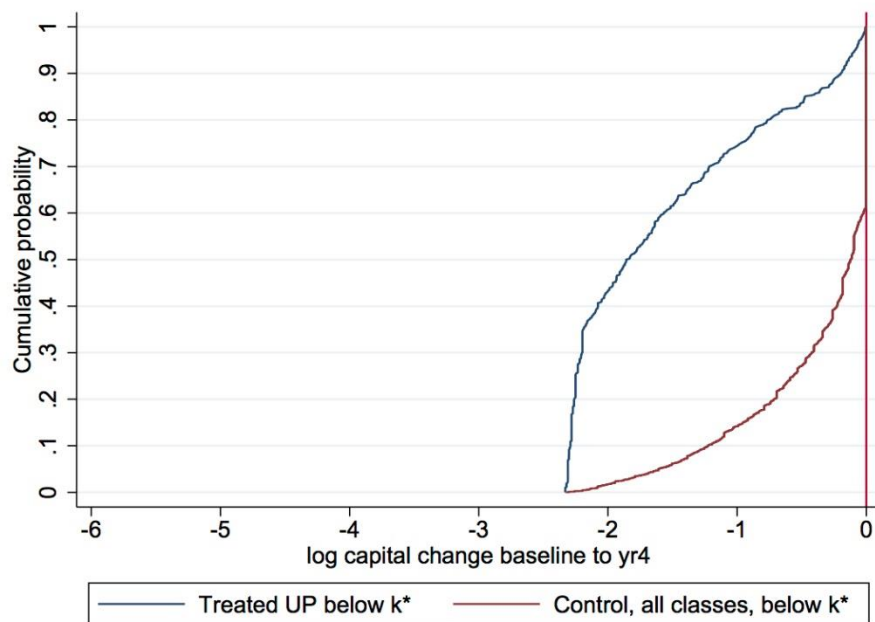
Above threshold
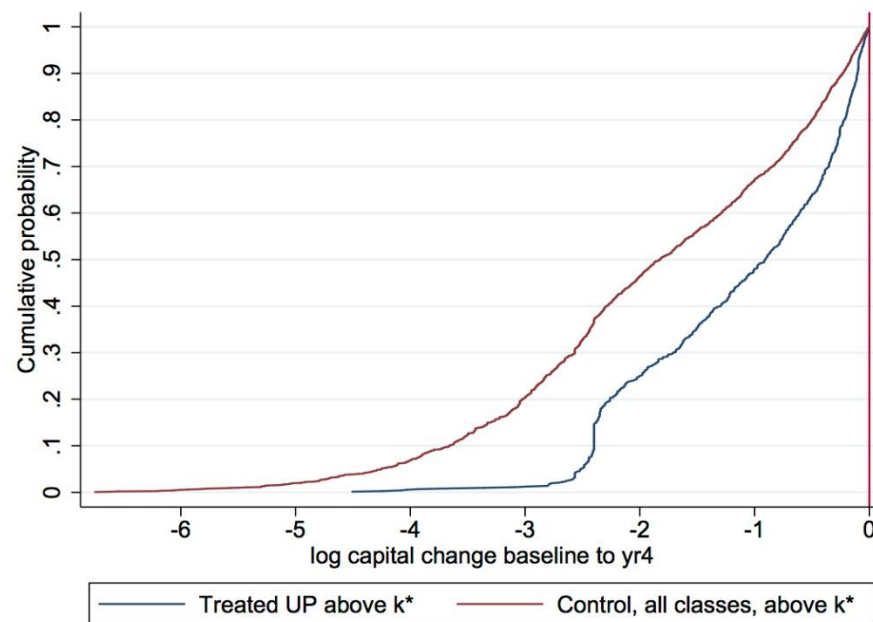
Adjust for shocks

- We rank beneficiaries by their assets+transfer value

- We compute the average shock of controls at similar levels of assets (20 windows)

- Under the assumption that people with similar asset value receive similar shocks we can use shocks experienced by controls to adjust the beneficiaries' responses

Changes in assets with shock adjustment (green)

Mechanisms

Nutrition

Per-adult equivalent annual food expenditure

Calorie intake per day per capita
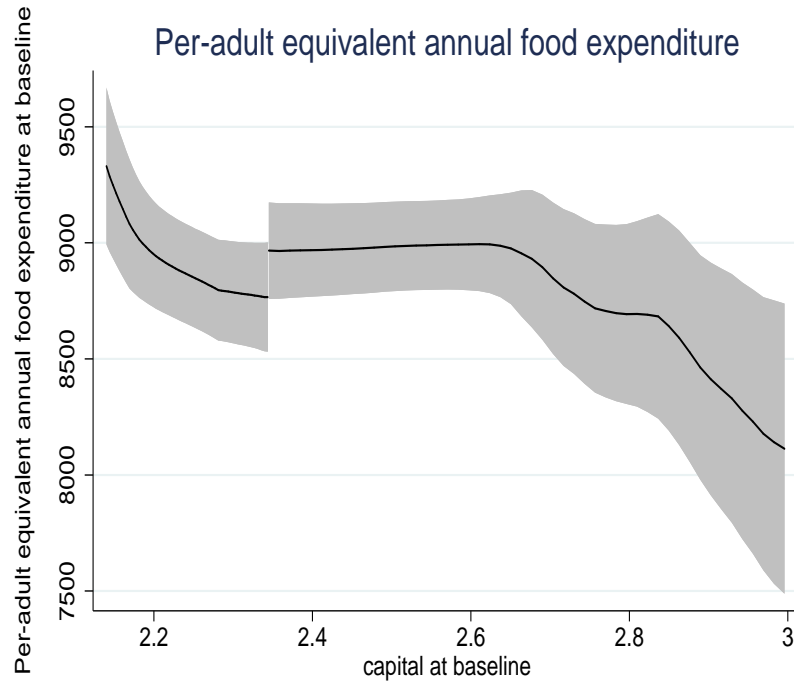
Sample restricted to 3390 treated ultra-poor
Threshold at 2.344.
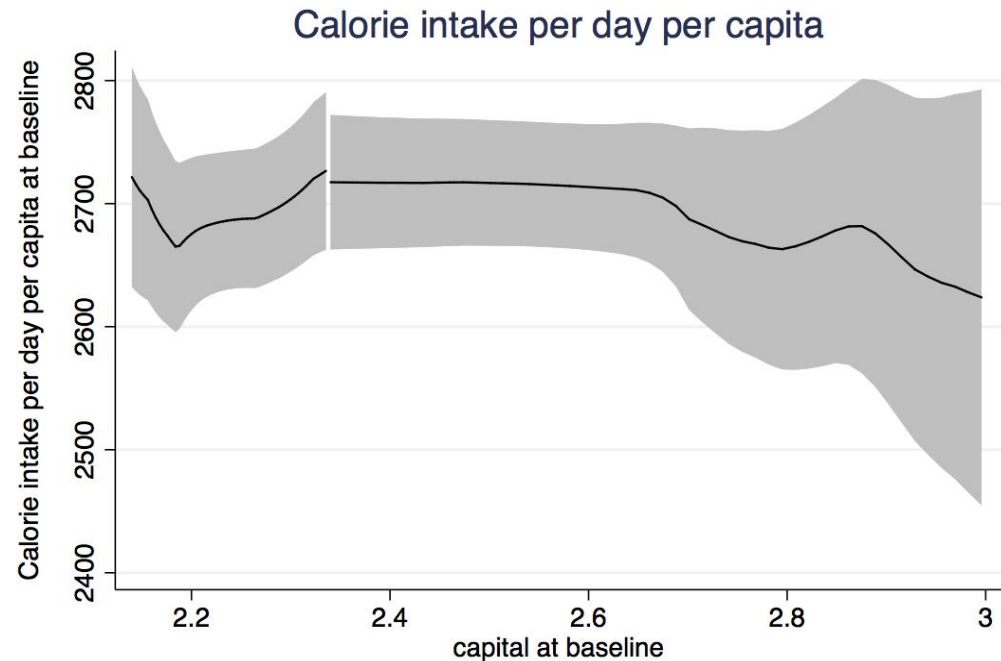
Sample restricted to 3390 treated ultra-poor
Threshold at 2.34.

cost of calories low relative to income even of the poorest (Subramanian and Deaton 1997, Banerjee and Duflo 2011)

Human capital

Body Mass Index
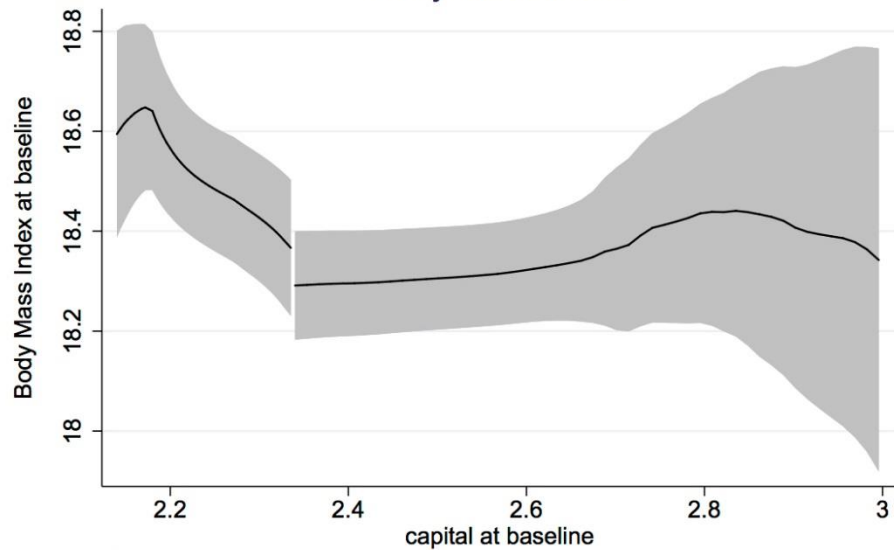
Sample restricted to 3340 treated ultra-poor
Threshold at 2.34.

Years of Education of Main Respondent
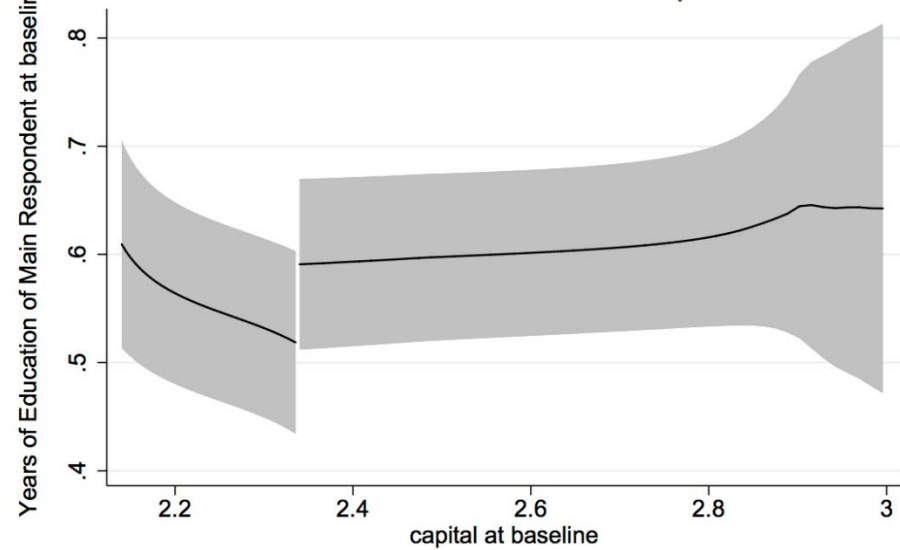
Sample restricted to 3540 treated ultra-poor
Threshold at 2.34.

Behavioral 1: impatience

Savings Rate

Sample restricted to 3385 treated ultra-poor
Threshold at 2.34.
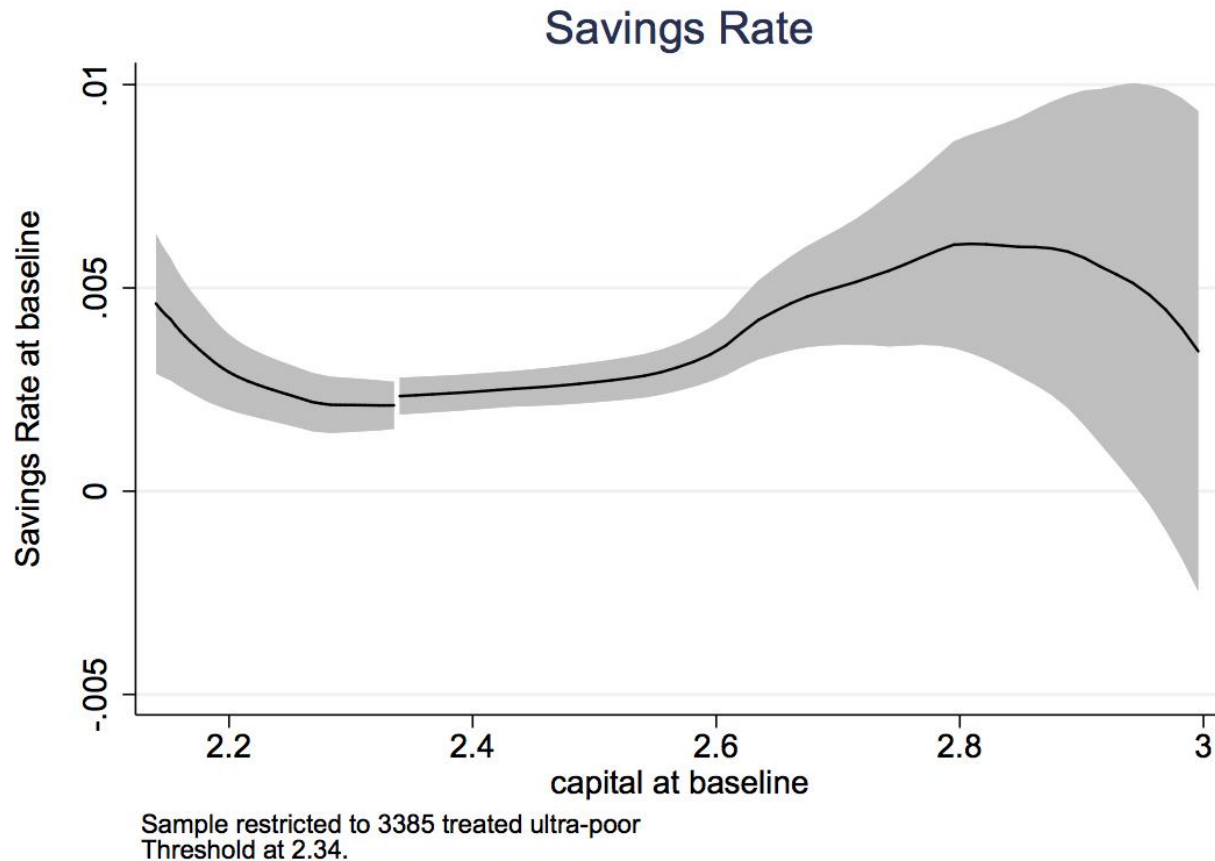
Temptation goods or limited attention lead the poor to make worse choices (Banerjee and Mullainathan, 2010; Shah et al., 2012).

Discount Rate

Sample restricted to 3556 treated ultra-poor
Threshold at 2.34.
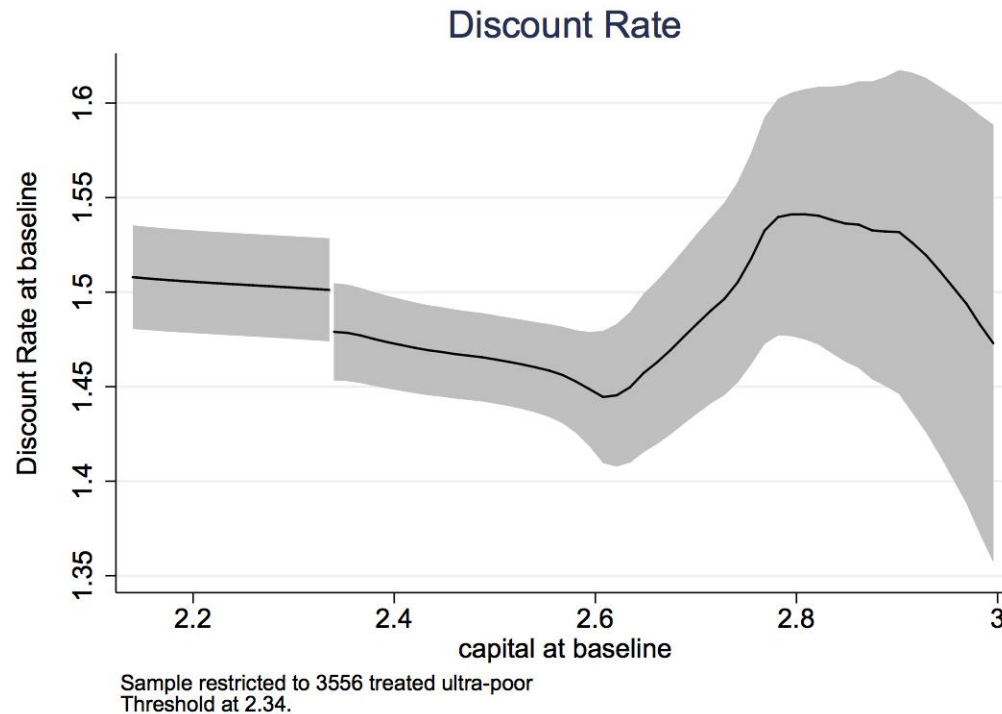
Suppose you have won 200 taka in a game. You can get this 200 taka today or get 250 taka instead in one month. Which one would you prefer?

1) 200 taka today
2) 250 taka in one month

Behavioral 2: risk aversion

Risk Aversion

Sample restricted to 3556 treated ultra-poor
Threshold at 2.34.
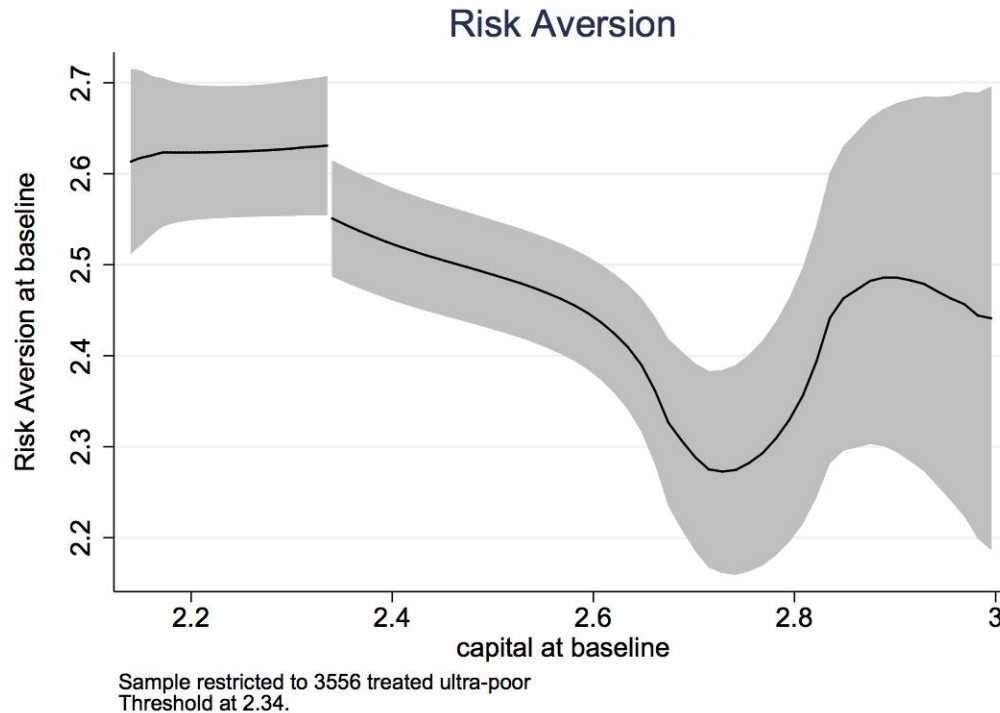
Which payoff would you prefer?
1) 100 for winning, 100 for losing
2) 200 for winning, 60 for losing
3) 300 for winning, 20 for losing
4) 400 for winning, 0 for losing

Regressions: preferences and human capital

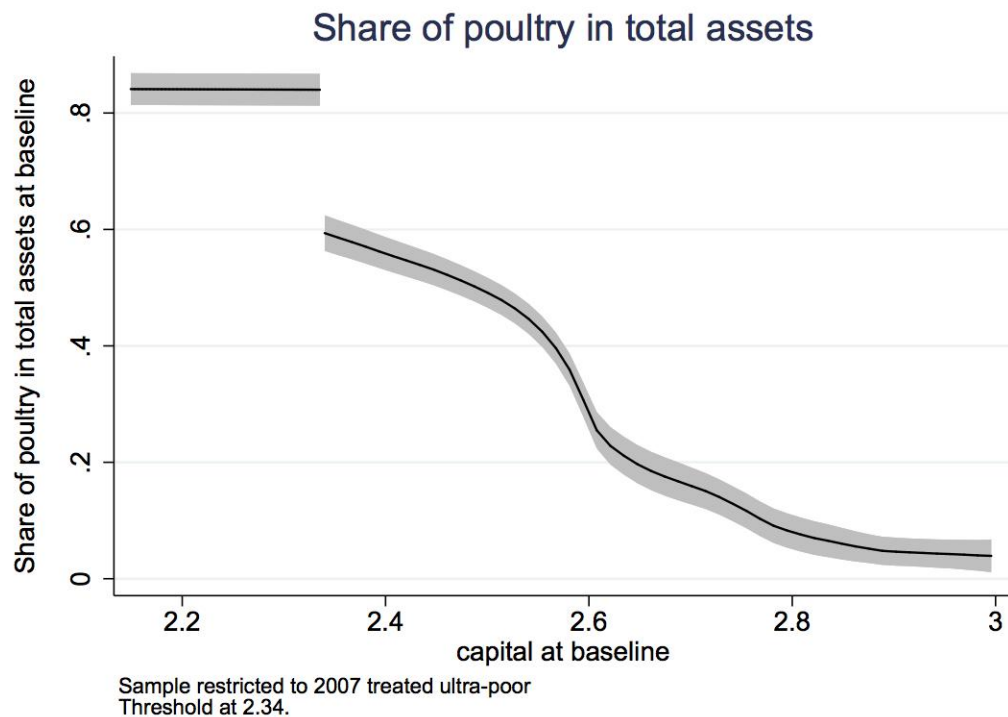| VARIABLES	(1) Savings Rate	(2) Risk Aversion	(3) Discount Rate	(4) Body Mass Index	(5) years of schooling, main female respondent
Lk1	0.0139	-1.434**	-0.0934	0.0678	-0.298
	(0.00934)	(0.724)	(0.233)	(1.338)	(0.868)
Lk1sqr	-0.00196	0.212*	0.00862	-0.00769	0.0415
	(0.00138)	(0.114)	(0.0365)	(0.213)	(0.137)
aboveT	-0.000724	-0.0313	-0.0199	-0.137	0.0758
	(0.000535)	(0.0767)	(0.0284)	(0.111)	(0.0828)
Constant	-0.0188	4.774***	1.672***	18.33***	1.005
	(0.0142)	(1.057)	(0.342)	(1.944)	(1.267)
Observations	3,385	3,556	3,556	3,340	3,540
Mean of dependent variable	0.00299	2.532	1.481	18.37	0.575

*** $p<0.01$, ** $p<0.05$, * $p<0.1$

Regression discontinuity around threshold of 2.34. Standard errors are clustered at the spot ID level. Risk aversion is measured on a scale of 1 to 4 with higher values corresponding to lower risk aversion. Discount Rate is a binary variable indicating whether the respondent prefers a payment of 250Tk in 1 month over 200Tk now.

- Why can't the poor get past $\hat{k}$ on their own?

- **Indivisible investments:** Given a limited set of production technologies and borrowing constraints, individuals face a non-convex production function (e.g. Banerjee and Newman, 1993; Aghion and Bolton, 1997).

  - Supporting evidence: Pastoralists in rural Ethiopia (Lybbert et al., 2004; Santos and Barret 2011) and Kenya (Barrett et al. 2006).

- Evidence for IRS

  - fixed factors/indivisibilities

Asset composition differs: fewer chickens

Share of poultry in total assets

Sample restricted to 2007 treated ultra-poor
Threshold at 2.34.

20%
DROP

More business assets (esp rickshaws and boats)

Share of business assets in total assets

Sample restricted to 2007 treated ultra-poor
Threshold at 2.34.
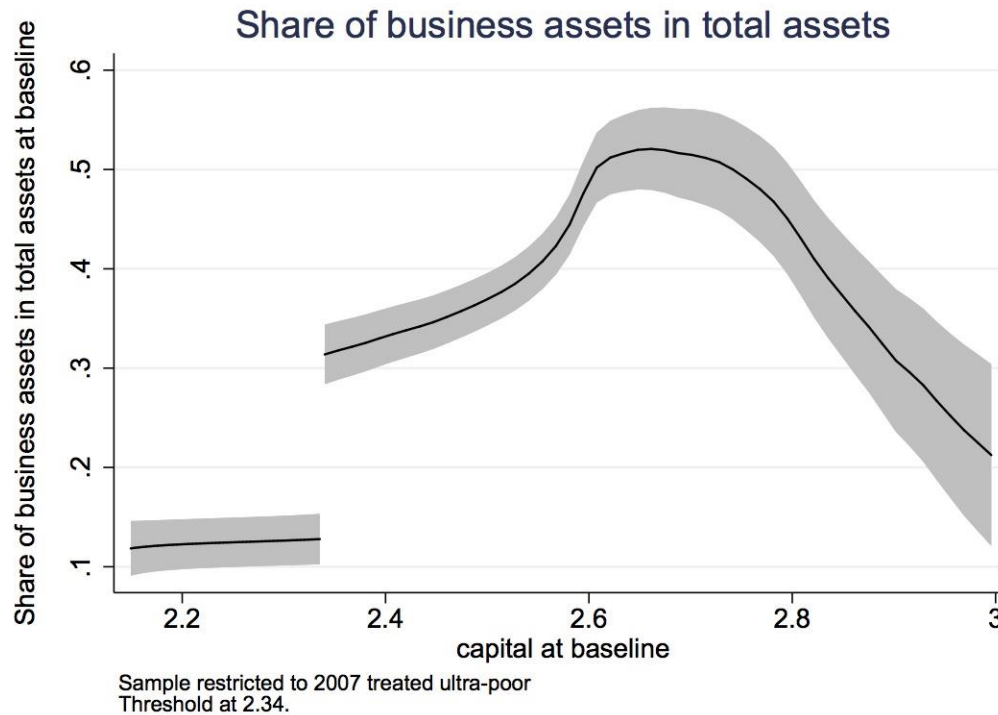
20%
HIKE

Regressions: composition of capital

VARIABLES	(1) Value of homestead land owned	(2) baseline share of poultry in total assets	(3) baseline share of goats in total assets	(4) baseline share of business assets in total assets
Baseline productive assets	13,375***	-0.390***	-0.0643***	-0.205***
	(2,715)	(0.0218)	(0.00785)	(0.0161)
Above Threshold	670.2	-0.323***	0.0970***	0.289***
	(889.5)	(0.0264)	(0.0124)	(0.0249)
Constant	-25,407***	1.730***	0.182***	0.592***
	(6,163)	(0.0542)	(0.0195)	(0.0420)
Observations	3,556	2,007	2,007	2,007
Mean of dependent variable	8239	0.483	0.0859	0.270

*** p<0.01, ** p<0.05, * p<0.1

Regression discontinuity around threshold of 2.34. Standard errors are clustered at the spot ID level. Capital shares are calculated as a fraction of total baseline productive assets.

Taking stock

- Evidence that rural poor are locked into low productivity occupations

- Sufficiently large transfers of productive assets (and training) can allow households to change occupation sustainably

- Those households who are elevated above a poverty threshold save and invest year after year and diversify into other assets (e.g. land)

- Alternative approach: Address households' autarky by infrastructure investments to reduce marketization/trade costs and allow rural households/regions to trade

Taking stock

- Beneficiaries who do not start with complementary inputs regress back to poverty despite the large transfers
- Those who do are elevated above the threshold and set on a sustainable path out of poverty
- They save and invest year after year
- They diversify into assets (e.g. land) that were not transferred by the program

Policy

Two views of why people stay poor

Equal access to opportunity, different traits

- People have different innate traits which determine their standard of living

- Initial endowments do not matter, allocation of talent is efficient

➔ Social protection programs

Unequal access to opportunity, same traits

- People have different access to opportunity which determines their standards of living

- Initial endowments matter, talent is misallocated

➔ Large asset/skill transfers
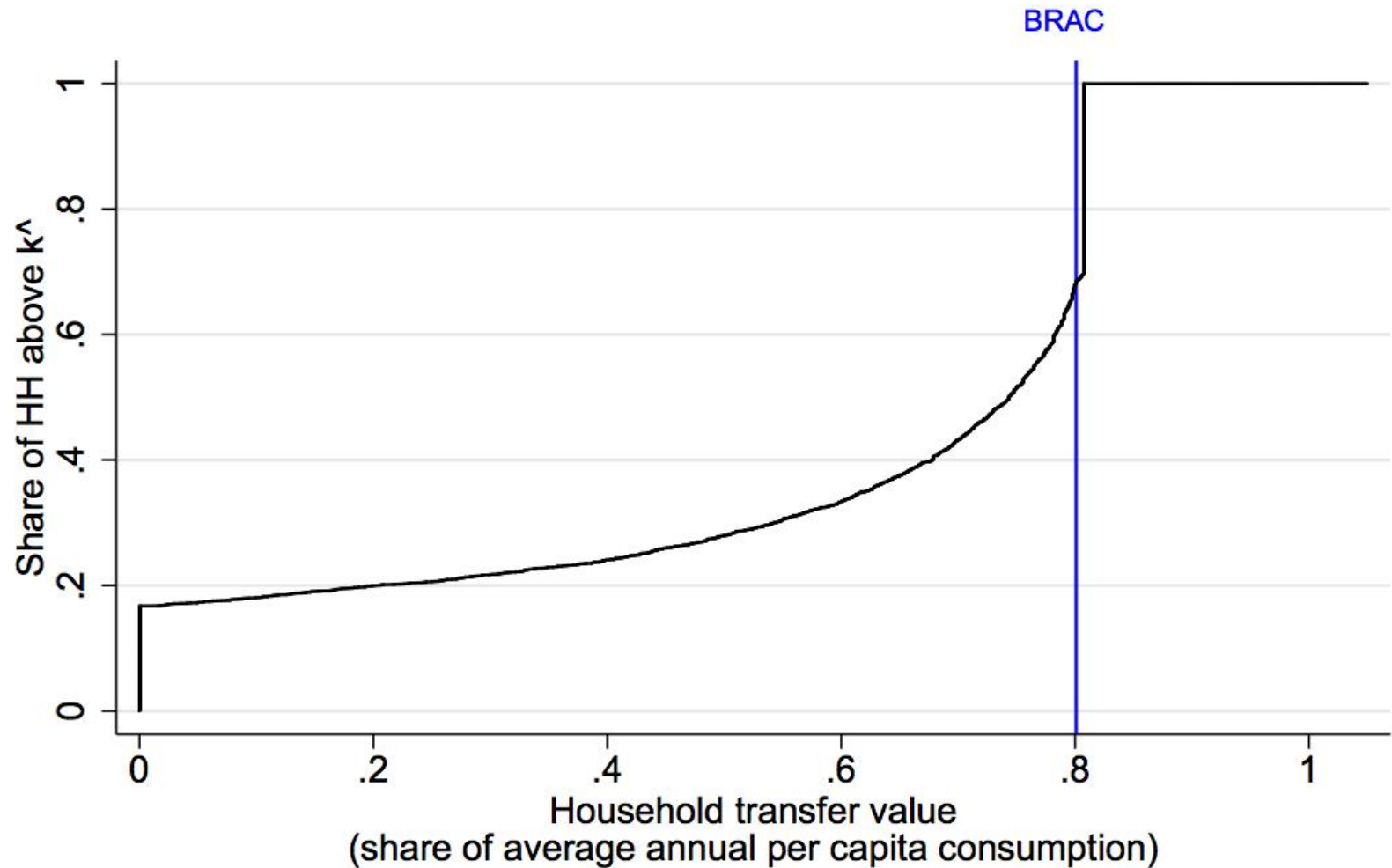
The evidence in one slide

- Microfinance is cheap (even profitable) but ineffective at allowing access to more remunerative occupations (Meager 18, Banerjee et al 15)

- Vocational training programs typically have low take up if not they are effective, but expensive (McKenzie 17, Alfonsi et al 18)

- Large assets & cash grants are effective at promoting occupational change, but expensive (Banerjee et al 15, Blattman et al 14,16, Bandiera et al 17)
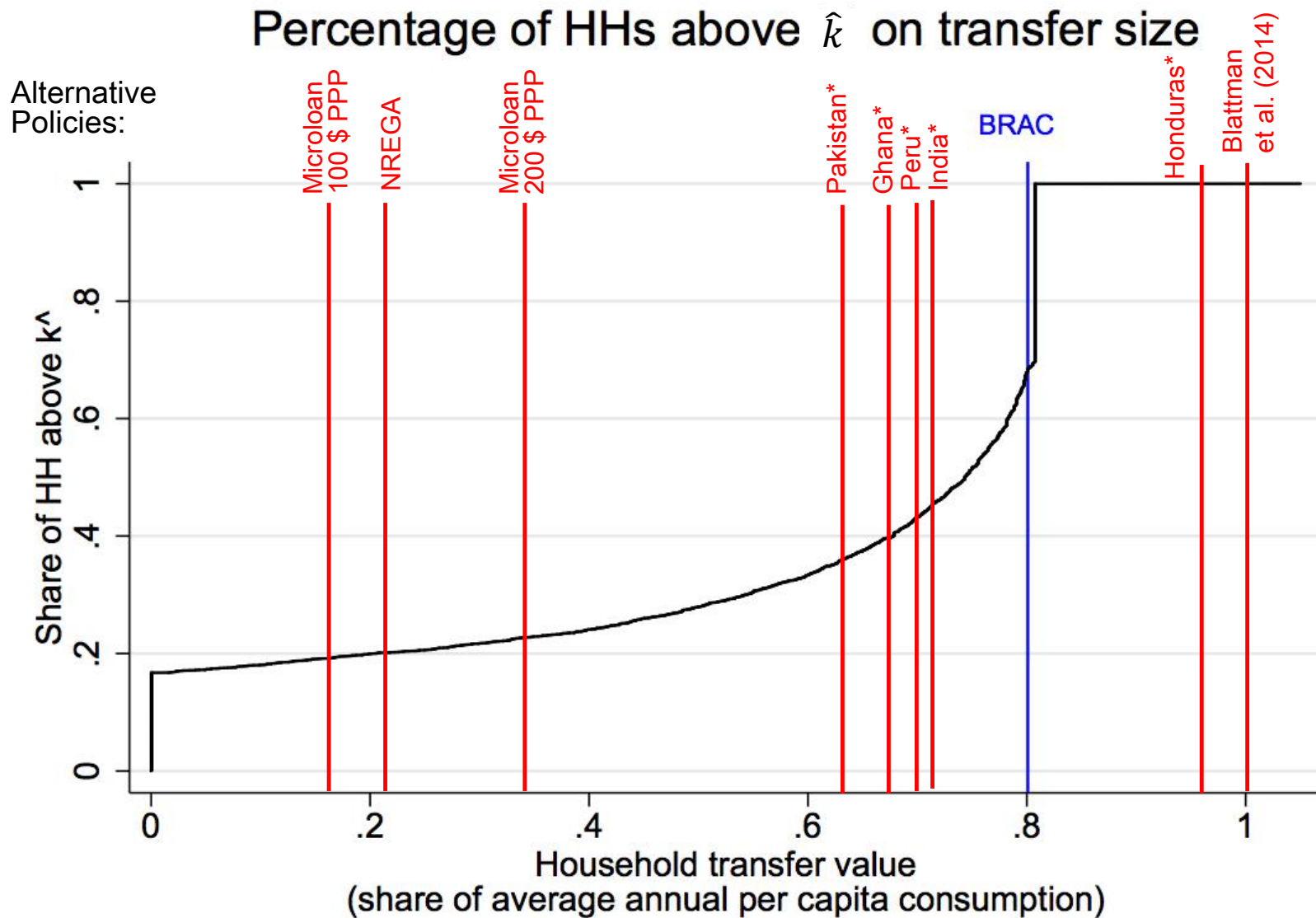
Policy implications

- The existence of a poverty threshold implies that only transfers large enough to push beneficiaries past the threshold will reduce poverty in the long run

- Smaller transfers might increase consumption for a short period but will have no long lasting effects

- BRAC asset transfer worth $515 (1 year of PCE) was enough for 66% of beneficiaries

- Micro-loans are typically <$200, which might explain the disappointing effects of microfinance

A big problem requires a big solution

Percentage of HHs above $\hat{k}$ on transfer size

A big problem requires a big solution

Percentage of HHs above $\hat{k}$ on transfer size

Alternative Policies:

Microloan 100 $ PPP · NREGA · Microloan 200 $ PPP · Pakistan* · Ghana* · Peru* · India* · BRAC · Honduras* · Blattman et al. (2014)

Share of HH above $\hat{k}$

Household transfer value
(share of average annual per capita consumption)

* Country names refer to study sites in Banerjee et al. (2015)

- We are currently extending the preliminary framework to allow for:
    - Individuals to split time between livestock rearing and wage labour
    - Change in total hours worked as a result of the programme
- These are both observed in the data
- In this setup, we can take FOCs to the data to:
    - Solve for each individual's productivity term A_i in livestock rearing
    - Quantify the extent of misallocation at baseline

Conclusions

- Key conclusion – misallocation of talent
- Poor people are not unable to take on more productive employment activities – they just lack the needed capital
- Program releases this constraint – those closer to the threshold cross it and move out of poverty, those further away sink back into poverty
- Key policy conclusion – need big push policies to tackle persistent poverty
- These policies need to focus on tapping into the abilities and talents of the poor rather than just propping up their consumption

thank you