Why do People stay Poor?

Evidence on Persistence of Poverty from a Randomized Asset Transfer Programme

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Introduction

Question

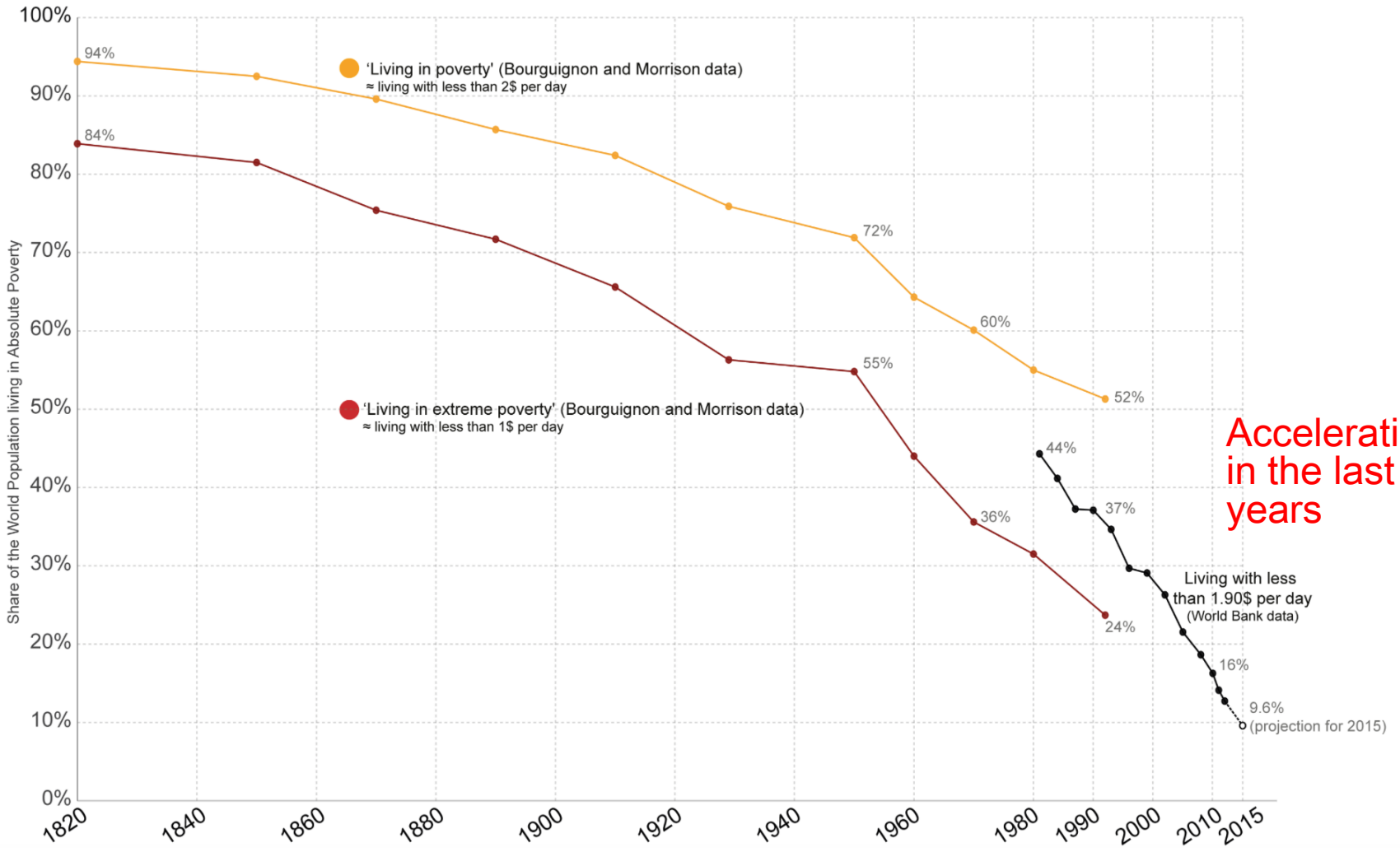
- Is poverty persistent? In particular:
  - Are the poor “stuck” in a trap and need a push to move out of it?

    or
  - Is it a combination of economic fundamentals (productivity, preferences) & slow convergence?
- Derive theoretical predictions and provide a test based on RCT evidence from a one-time asset-transfer programme in Bangladesh where the recipients were surveyed 2, 4, & 7 years after the initial transfer

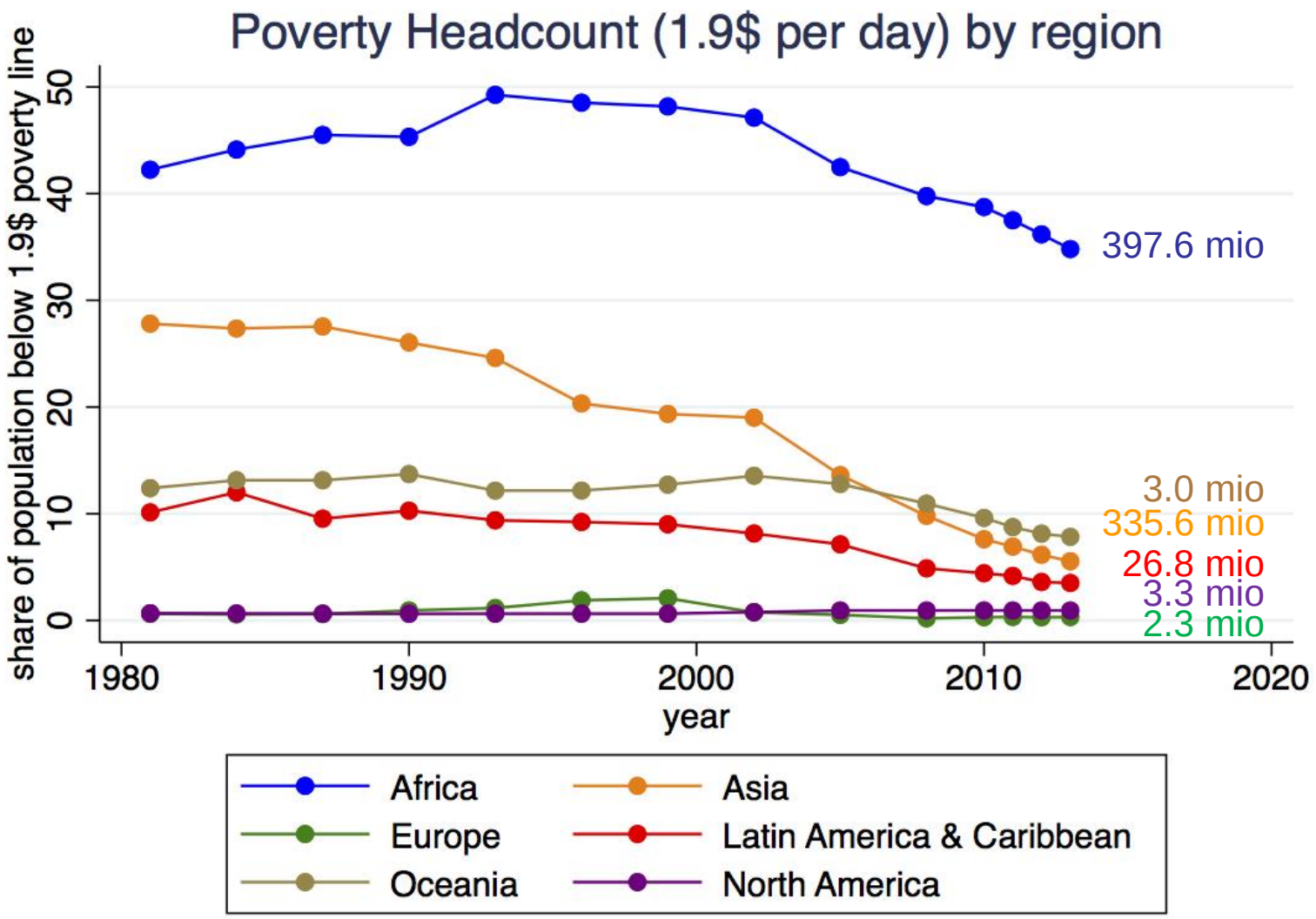
Poverty

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

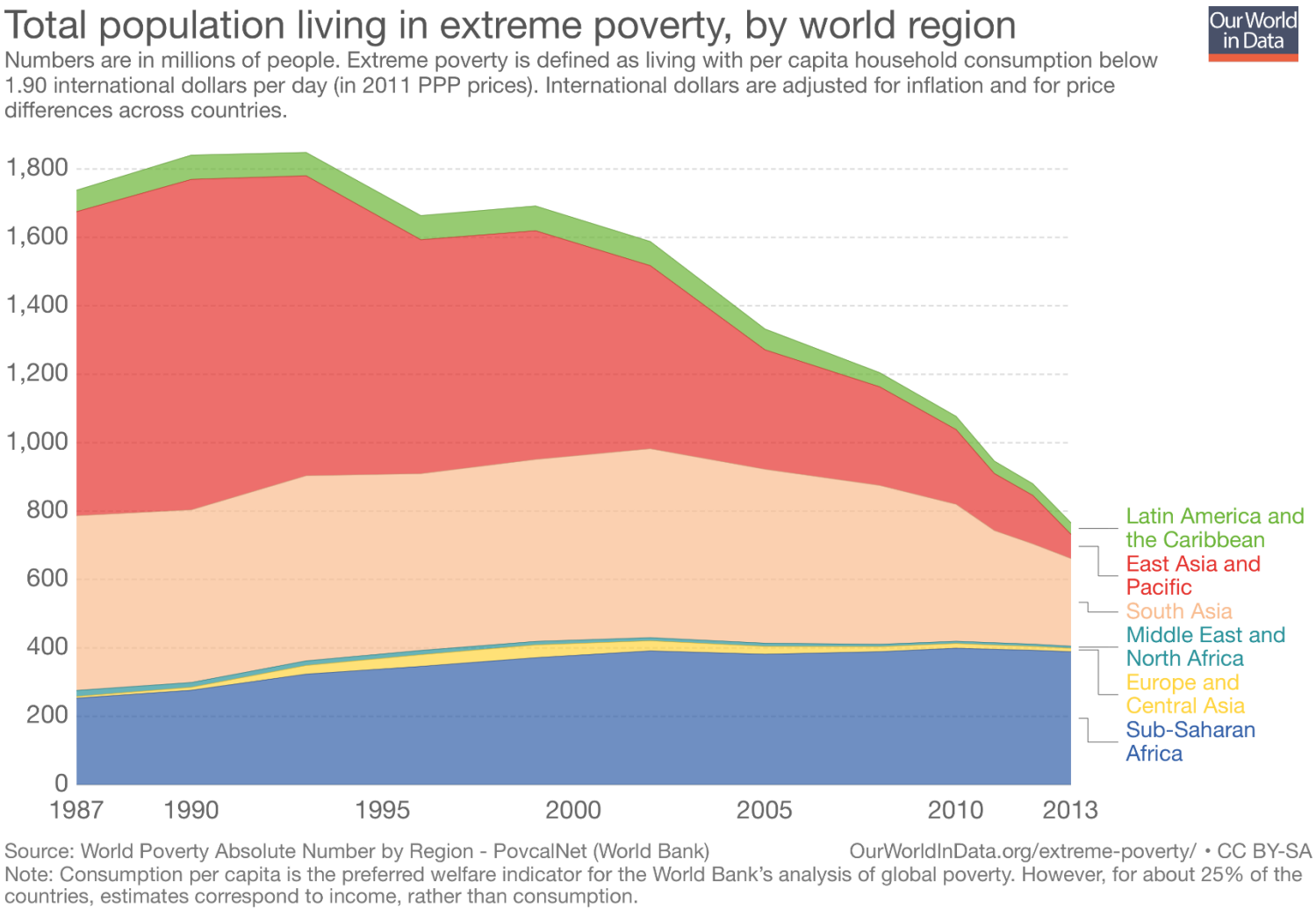
The share of people living in absolute poverty has been dropping steadily in the last 200 years



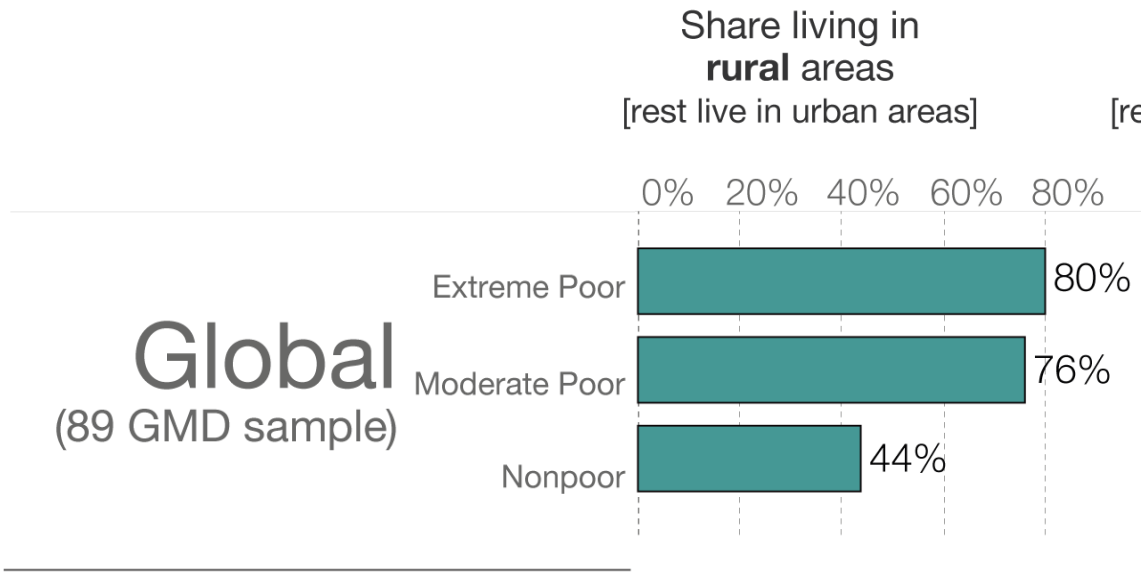
Poverty has been decreasing but is still high in SSA and SA



But numbers are stable in the poorest regions



80% of the global poor live in RURAL areas



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

Two standard views – convergence vs poverty trap

Equal access to opportunity, different fundamentals

- People have different fundamentals (productivity, preferences) which determine their occupational choices and earnings
- In the long run people converge to a steady state determined by fundamentals

Unequal access to opportunity, similar fundamentals

- 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 fundamentals

- People have different fundamentals which determine their occupational choices and earnings
- Convergence to unique steady state occurs if either
  - DRS to factors that can be accumulated

  Or

  - Perfect credit markets

Unequal access to opportunity, similar fundamentals

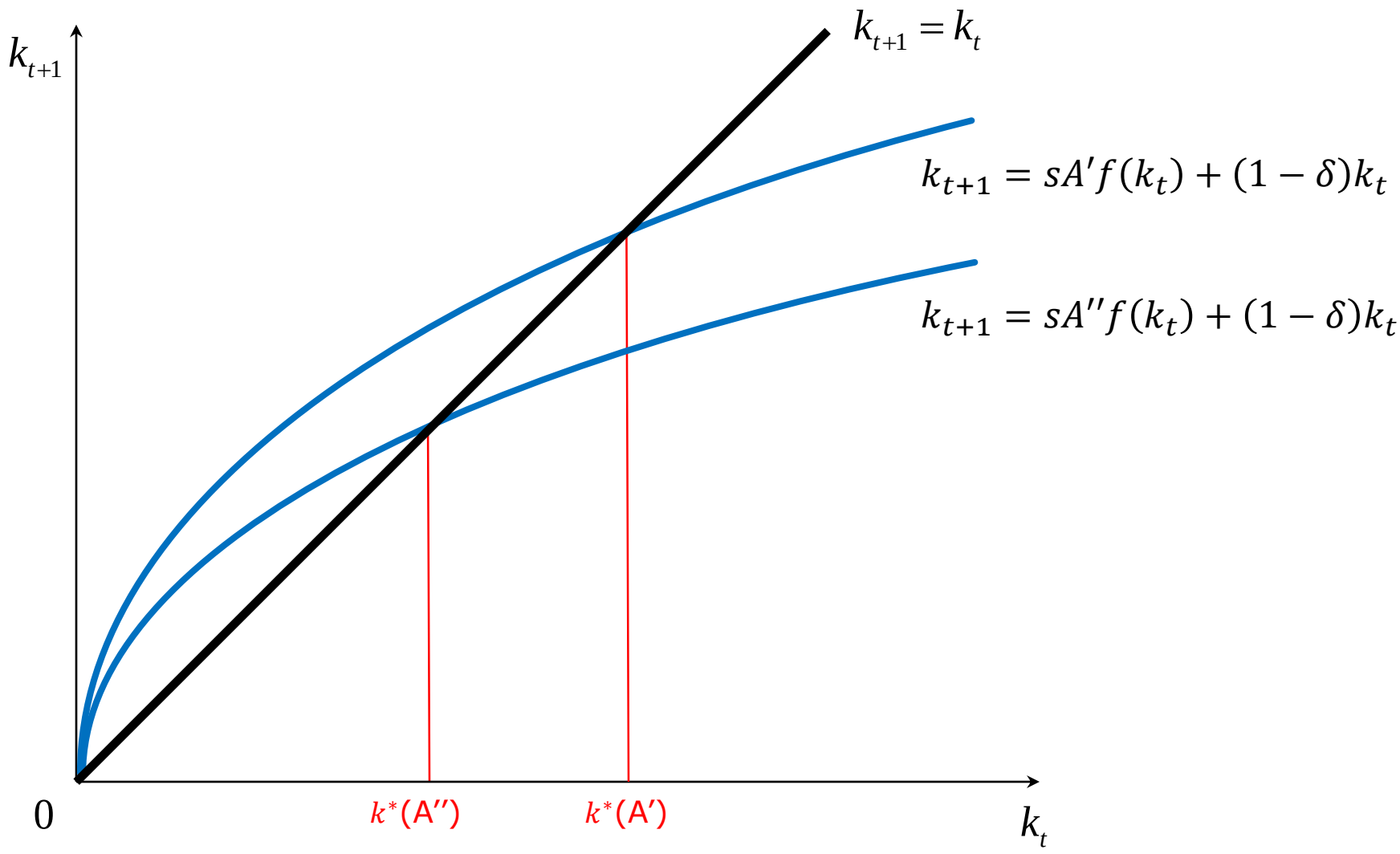
- People have different access to opportunity which determine their occupational choices and earnings
- Multiple steady states may exist if
  - IRS to factors that can be accumulated

  And

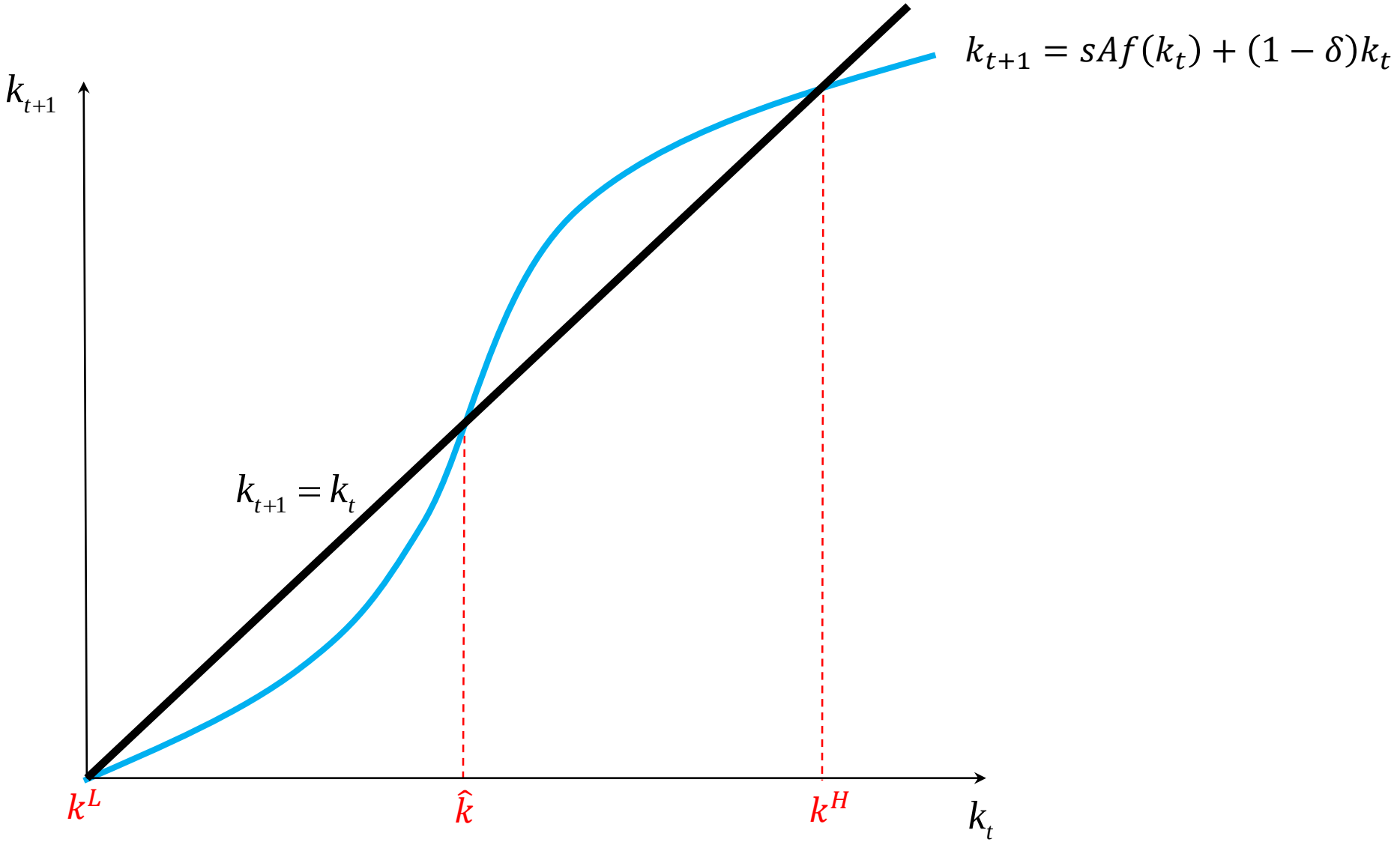
  - Imperfect credit markets

See Ghatak (WBER 2015)

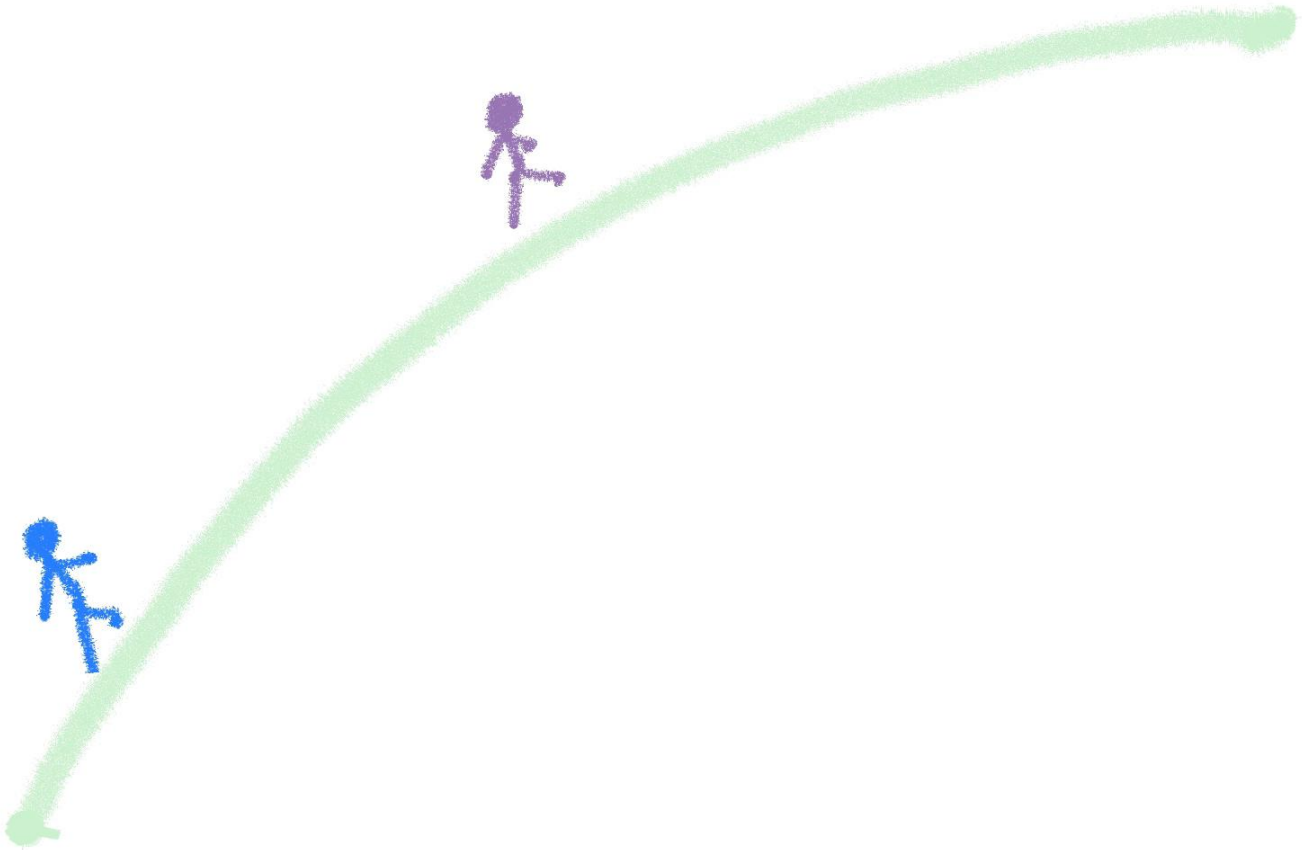
If opportunities do not depend on initial wealth, you need differences in innate traits (A, s) to explain poverty



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



View 1: A hill anyone can climb

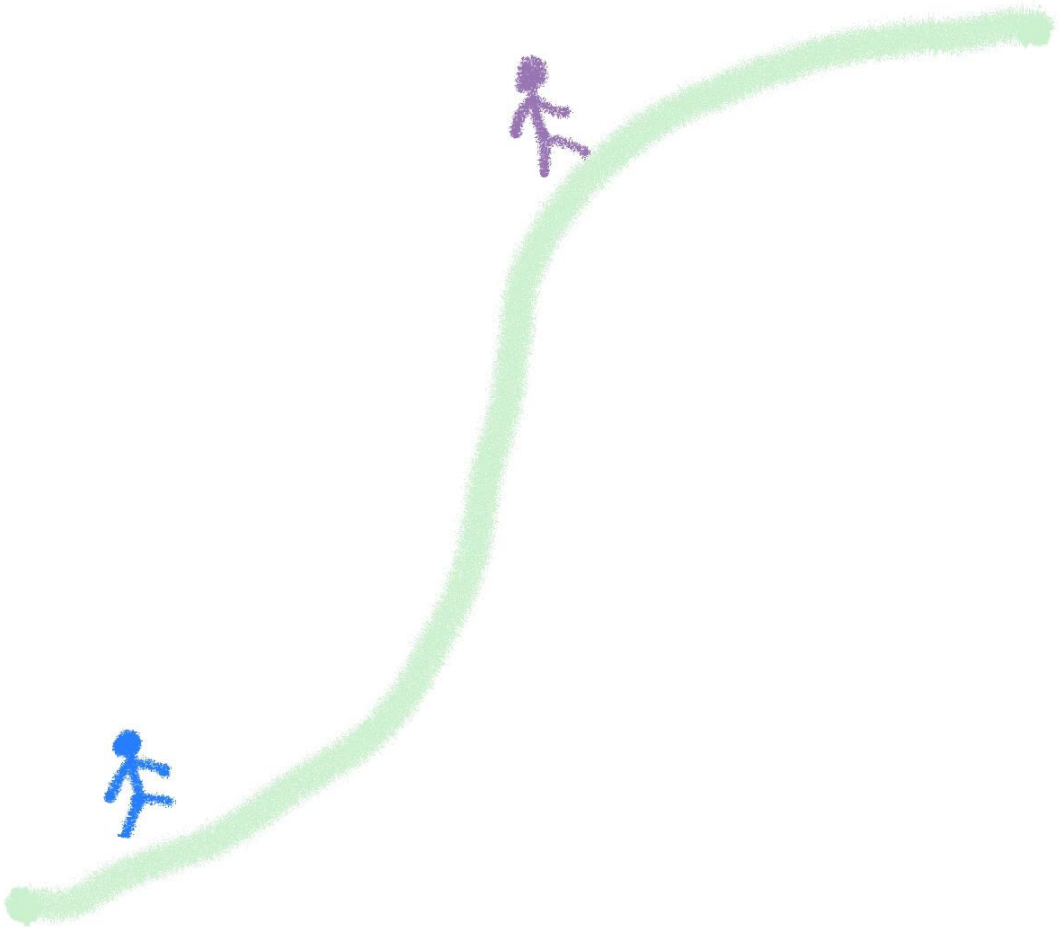


Animation credit: Oriana Bandiera!

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



Animation credit: Oriana Bandiera!

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 potential end up with different standards of living because of accidents at birth → poorer person faces higher barrier

- Inefficient because productive people who are born poor will not be able to exploit their productive potential and will be replaced by a less productive, richer, person

- Unutilized assets – institutional frictions prevent surplus creation (credit markets, long term labour contracts)

Can the poor do better jobs when given the chance?

- Study by Bandiera, Burgess et al QJE 2017
- Sample over 21k households in1309 villages in rural Bangladesh
- 6% of population defined as ultra-poor (does not even qualify for microcredit)
- The poorest women in **randomly chosen villages** receive a large asset (a cow) with some training

- All ultra-poor in these villages get assigned to treatment or control
- Survey all ultra-poor and near-poor, plus 10% sample of upper and middle class
- 4000 beneficiaries engaged solely in casual labor at baseline
- Asset transfer of approximately $560 in PPP in 2007
- Near doubling of baseline wealth for the ultra-poor
- Surveyed again in 2009, 2011, and 2014

Why Focus on the Rural Casual Workers?

- Labor is the sole endowment of the poor → we need to understand what determines earnings
- Earnings= wage X hours worked
- This comes down to occupational choice - why is low return occupations correlated with asset-ownership
  - constraints due to market frictions and/or lumpiness of these assets

    or
  - productivity and sorting?

Laborers represents a large part of the workforce

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

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

Persistence of Poverty - II. Evidence

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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 + earnings from self-employment

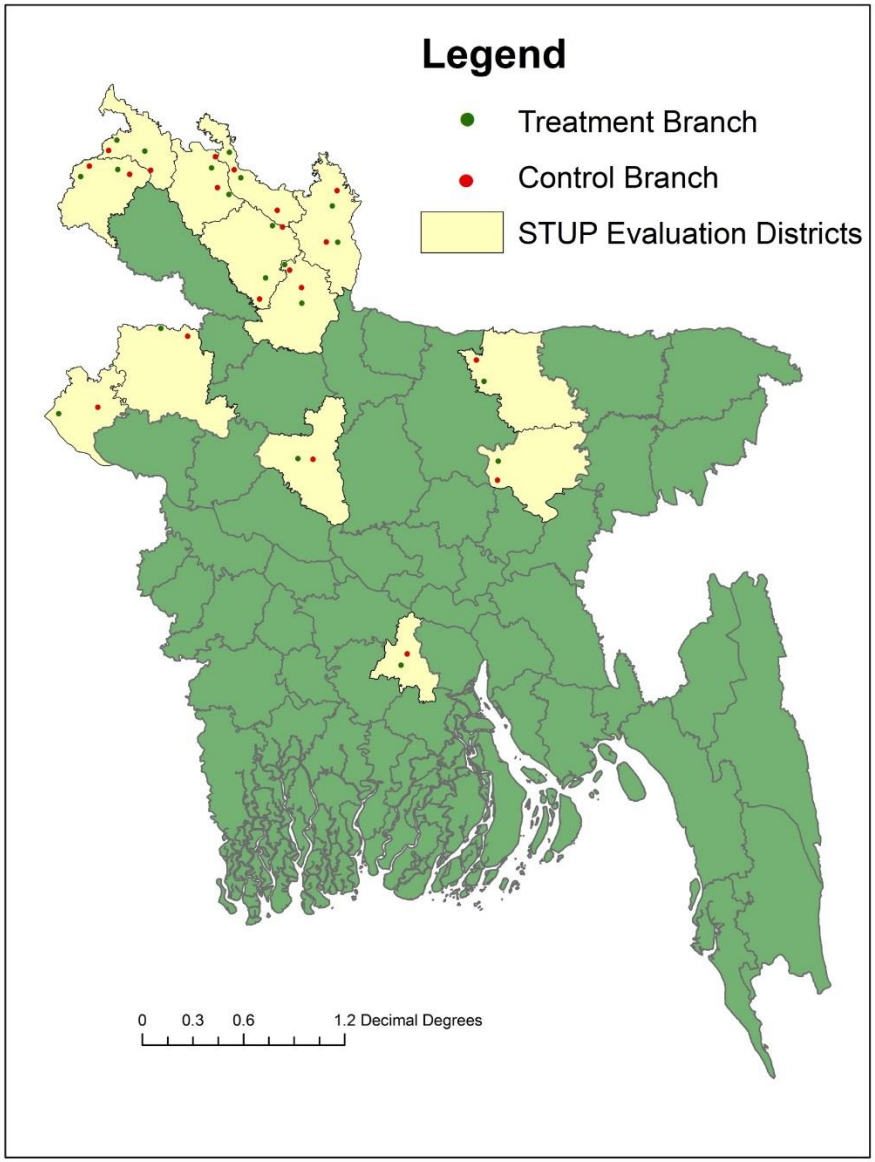
- This comes down to occupational choice, returns to self-employment, the wage rate, seasonality of jobs etc
  - constraints due to market frictions and/or lumpiness of these assets

or

  - productivity and sorting?

Study site: Bangladesh

Lack of demand for casual wage labor, higher grain prices, extreme poverty and food insecurity



Descriptive statistics – household characteristics

HOUSEHOLD CHARACTERISTICS AND ASSET HOLDINGS, BY WEALTH CLASS

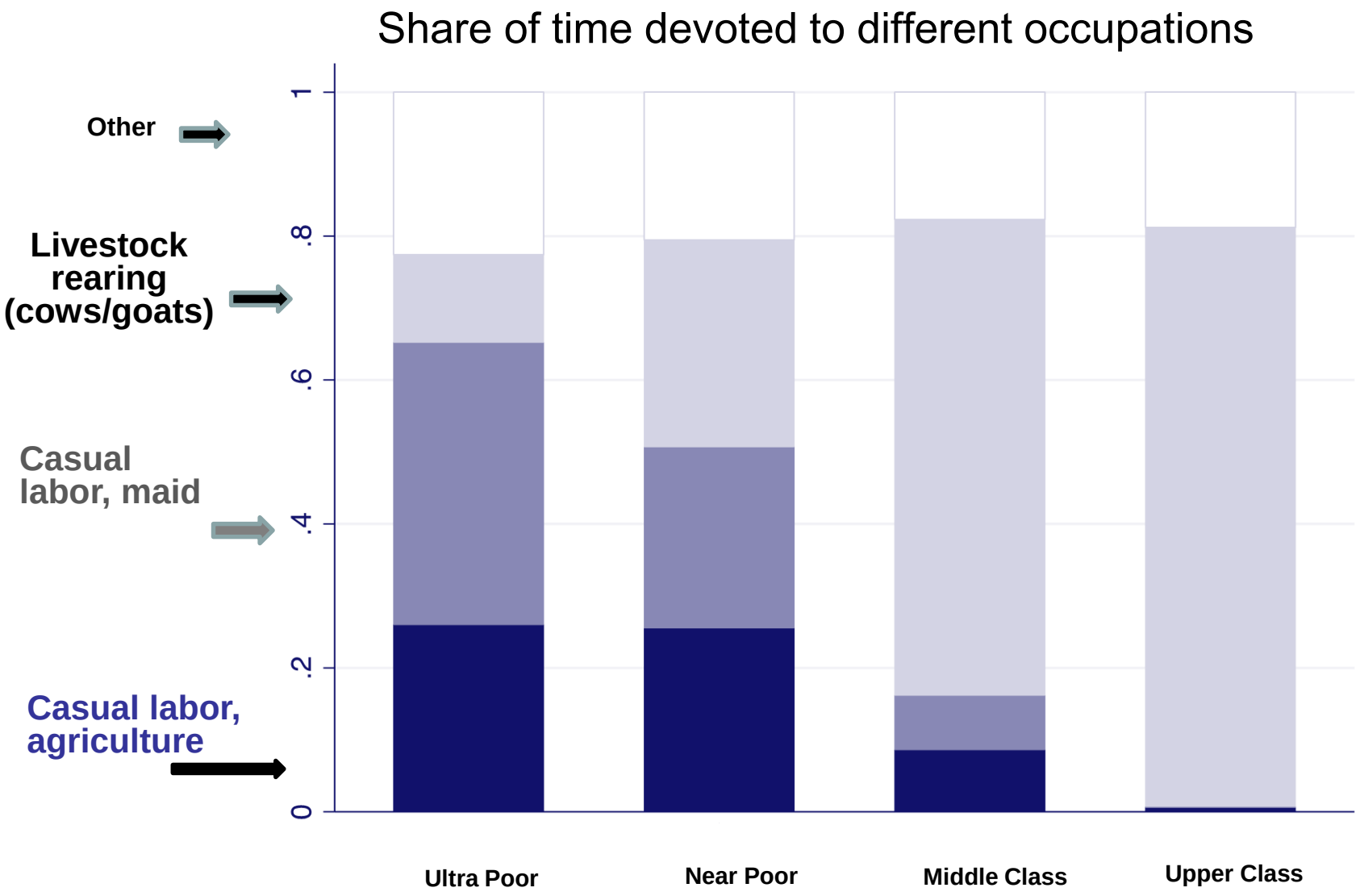
	(1) Ultra-poor	(2) Near-poor	(3) Middle class	(4) Upper class
Household characteristics				
Share of population in this wealth class	0.061	0.219	0.585	0.135
Primary female is the sole earner	0.409	0.250	0.142	0.120
Primary female is illiterate	0.929	0.832	0.736	0.489
Consumption and assets				
Household 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



Casual labor pays less per hour and is available on fewer days

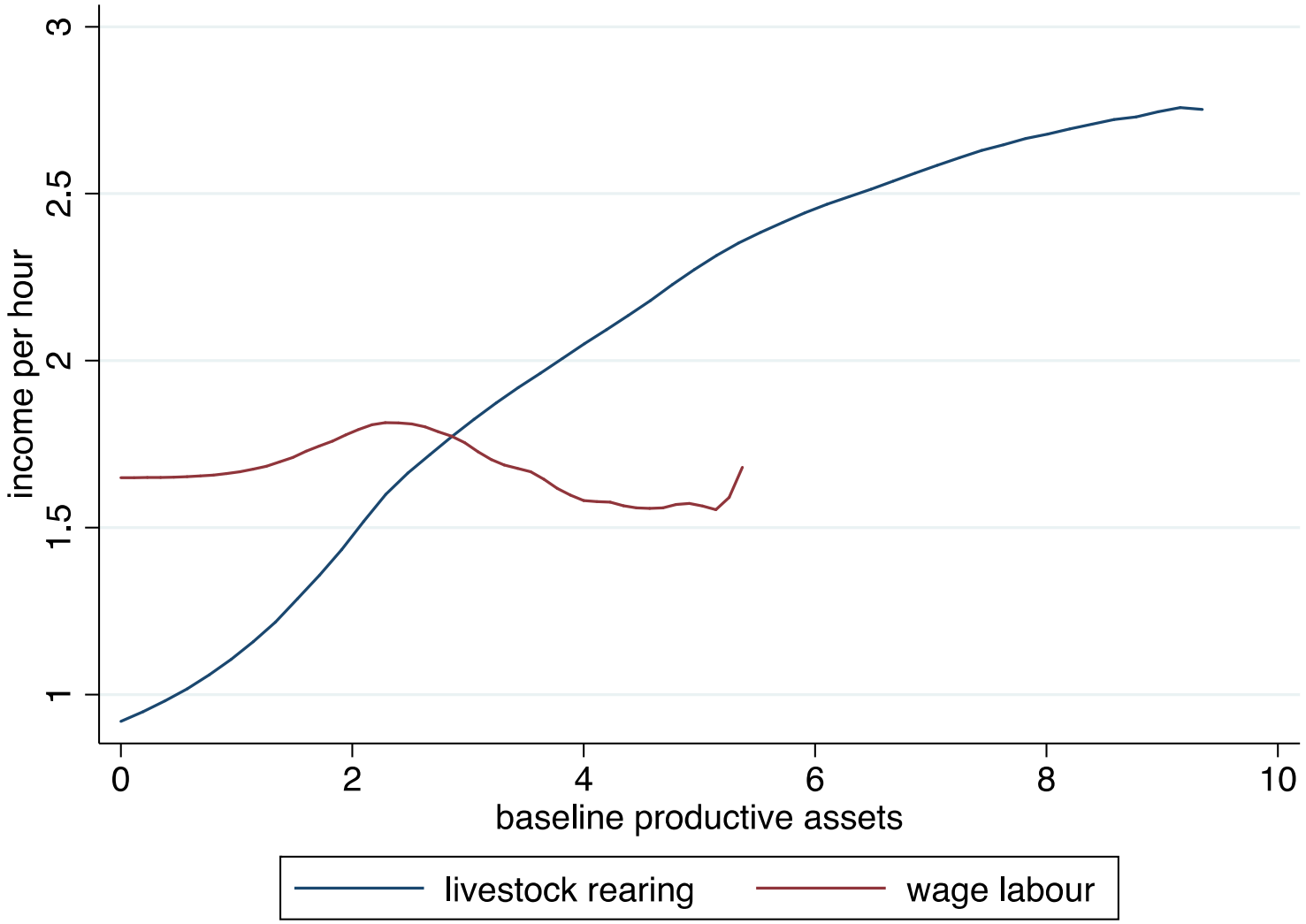
Village Level Statistics, Measured Pre-Intervention

Means, standard deviation in parentheses

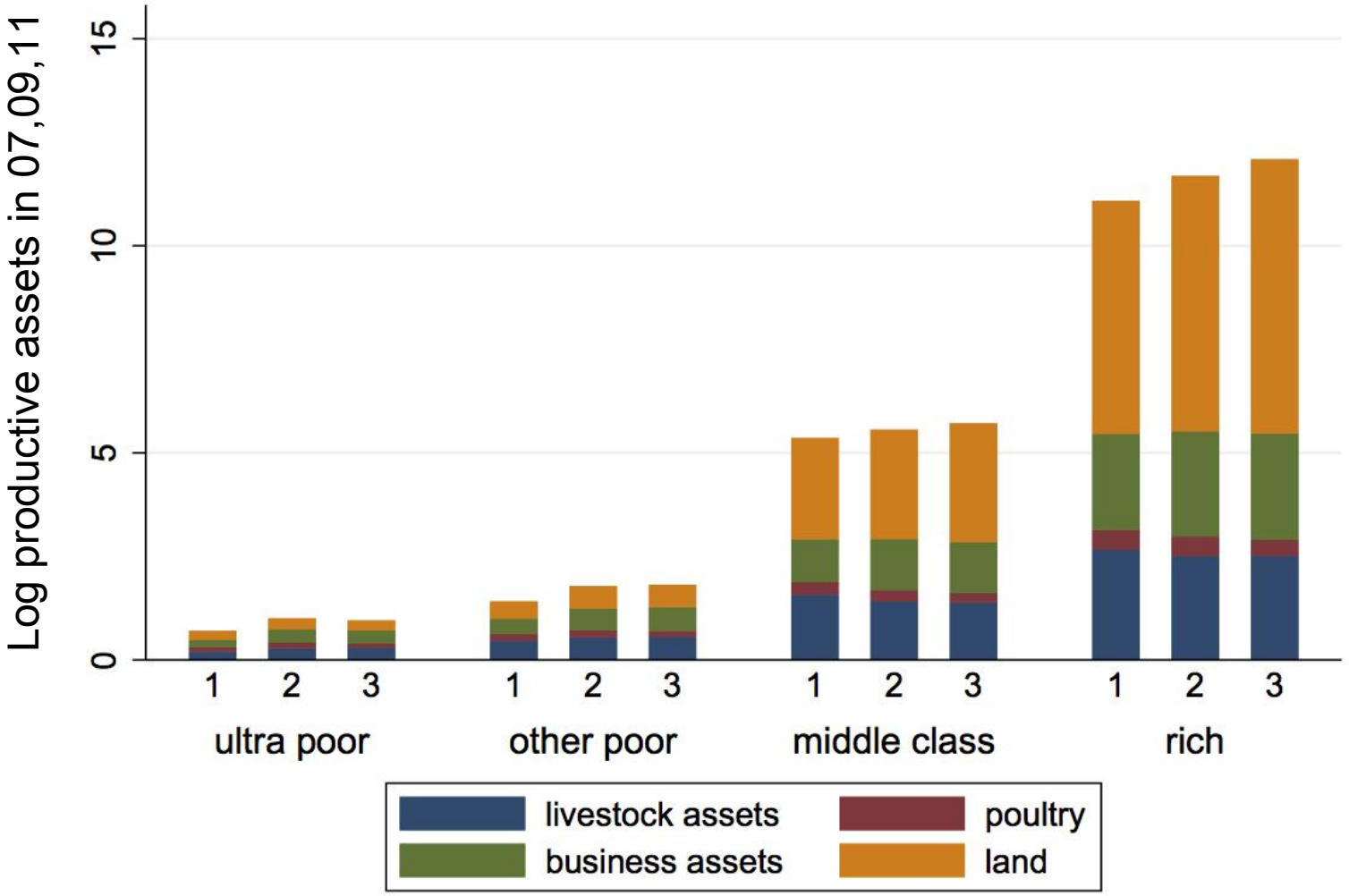
	Casual Wage Labor		Self Employment		
	(1) Agriculture	(2) Domestic Maid	(3) Livestock Rearing [Cows, Goats]	(4) t-test [Col 1 = Col 3]	(5) t-test [Col 2 = Col 3]
Days per year	127	167	334	[.000]	[.000]
	(65.9)	(89.5)	(41.2)		
Hours per day	7.62	7.04	1.83	[.000]	[.000]
	(1.15)	(1.74)	(.771)		
Hourly earnings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

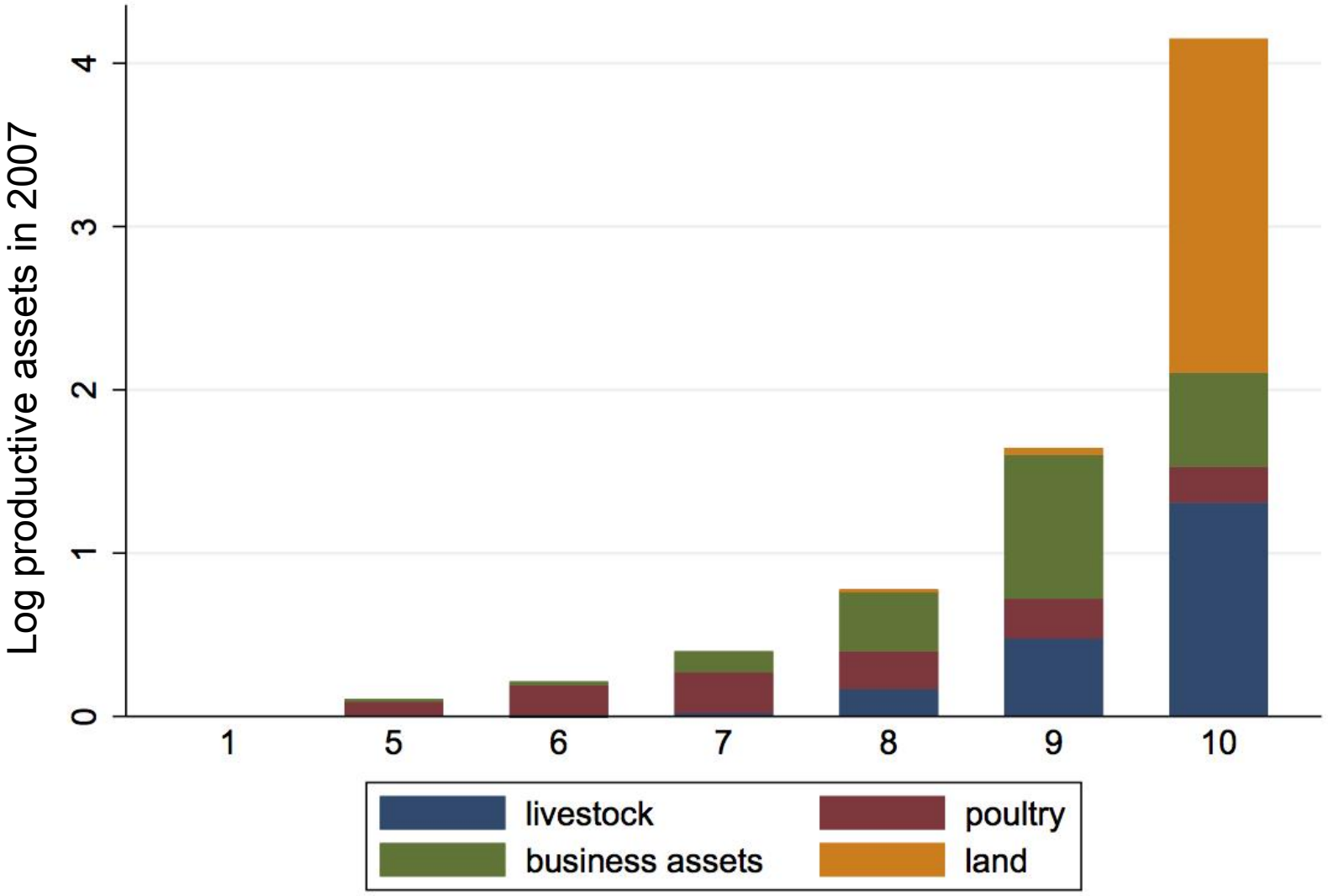
Wage earnings are flat, livestock earnings increasing



The poor have fewer assets and don’t accumulate over time



Composition of assets at baseline by decile – ultra poor



Snapshot

- Wage labor is uncertain, seasonal and pays less per hour
- Occupation correlated with ownership of productive assets (k): livestock, business assets (rickshaws, boats, sheds, agricultural machinery etc.) and land
- Asset holdings stable through time

Targeting the Ultra Poor

- Eligible: poor women, identified by the communities, verified by BRAC employees
  - On avge, 6 women per community (7% of HHs) are eligible
- Asset menu: livestock, small crafts, small retail..
- Commit to retain it for 2 years, free to sell after that
- Almost all choose a livestock combination
- Value of transfer (9500TK= 140USD)
  - 1X yearly PCE; 2X yearly earnings; 9X savings
- Asset specific training - intensive over first year

Evaluation strategy

- Randomise the programme roll-out across 40 BRAC branch offices (1309 communities) in the poorest areas of the country –stratified by subdistrict
  - 20 treated in 2007, 20 in 2011
  - matched pair randomisation
- Randomise at the branch rather than community level to minimise contamination

Evaluation strategy

- Beneficiaries selected in both treatment and control communities
- Beneficiaries + all other poor + a sample of other wealth classes surveyed in 07,09, 11, 14
- Final sample: 6732 eligible beneficiaries & 16,297 HHs from other classes

Can the poor do better when given the chance?

- four years later after the asset transfer programme…

Labor supply, earnings, expenditures ⇑

	All Labor Activities		Net Earnings	Consumption and Poverty	
	(1) Total Hours Worked	(2) Total Days Worked in the Past Year	(3) Net Annual Earnings	(4) Household Expenditures	(5) Below Poverty Line
Program impact after 2 years	341***	72.4***	1267**	763	-.051
	(67.9)	(10.0)	(543)	(498)	(.046)
Program impact after 4 years	206***	61.1***	1646***	1034***	-.084**
	(73.0)	(12.5)	(541)	(374)	(.038)
Baseline mean	916	247	4463	11677	.525
Four year impact: % change	22.4%	25.0%	36.9%	8.77%	-7.84%
Adjusted R-squared	.072	.069	.079	.046	.035
Number of ultra-poor women	6732	6732	6732	6732	6732
Number of observations (clusters)	20196 (40)	20196 (40)	20196 (40)	18882(40)	18882(40)

Savings and investment

	Savings		Livestock, Land and Business Assets					
	(1) Household Cash Savings	(3) Household Assets	(4) Value of Cows	(5) Value of Goats	(6) Rents Land	(7) Owns Land	(8) Value of Land owned	(9) Value of Other Business Assets
Program impact after 2 years	983***	254	9200***	656***	.069***	.005	735	476***
	(90.6)	(160)	(427)	(86.3)	(.020)	(.011)	(1389)	(140)
Program impact after 4 years	1051***	880***	10097***	489***	.110***	.026*	7094**	1196***
	(78.4)	(164)	(865)	(93.1)	(.022)	(.012)	(2605)	(220)
Baseline mean [Tk]	121	817	666	125	.058	.068	3221	423
Mean value of assets transfer	-		8566	736	-	-	-	-
Four year impact: % change (net of transfer)	+869%	+107%	+937%	-197%	+190%	+38.2%	+220%	+282%
Four year impact = Initial transfer [p-value]	-		.085	.000	-	-	-	-
Two year impact = Four year impact [p-value]	.530	.009	.194	.015	.054	.005	.002	.000

Summing up

- By “revealed preference” we learn that the poor had idle capacity at baseline
- Program sets the poor on an upward trajectory
- Contrary to workfare, the effects outlive the programme
- Was it worth it?

A poverty trap?

- Using the estimates of earnings the rate of return 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?

Conditional convergence vs Poverty Trap?

- Capital markets may be absent but people can accumulate and there are no non-convexities.
- The problem is, A is low and training can increase it.
- And, a capital grant will speed up accumulation.
  .
- How do we separate this from view that there are non-convexities and then even if A is not shifted, a capital grant will help individual get out of poverty trap?
- So, both these alternative interpretations of BBDGRS are possible.

- Also, income effects
- Suppose due to non-homothetic utility functions, saving rates are increasing in income
- Then if you give capital grants and incomes go up, people could be saving at a higher rate
- This itself would help break out of poverty trap
- Gives a third interpretation of BBDGRS

- The findings support other mechanisms that are not directly captured by our theoretical framework

- For example, the training component of this program not only involved initial training but also regular visits by livestock specialists and program officers of the NGO that undertook the program over a two-year period after the transfer to cover the life cycle of livestock.

- One could argue that to the extent the poor are subject to behavioural biases, these visits may have helped them overcome these in addition to the stated goal of helping them overcome their limited experience of dealing with livestock.

- What would be the effect of alternative policies?

- The choice of a given policy reflects a researcher's implicit priors about what is the binding constraint or scarce input in a given setting.

- For example, a village that lacks a road that connects it to the market will not benefit much from other interventions.

- This highlights the importance of having a method of diagnosing what are the key frictions in a given setting, and in particular, what is the most binding constraint.

- In the BRAC study, it could well be that learning about one's own comparative advantage in various occupations was an important binding constraint ·

- From that point of view, giving everyone livestock may not have been a good idea as not everyone may be equally good at it

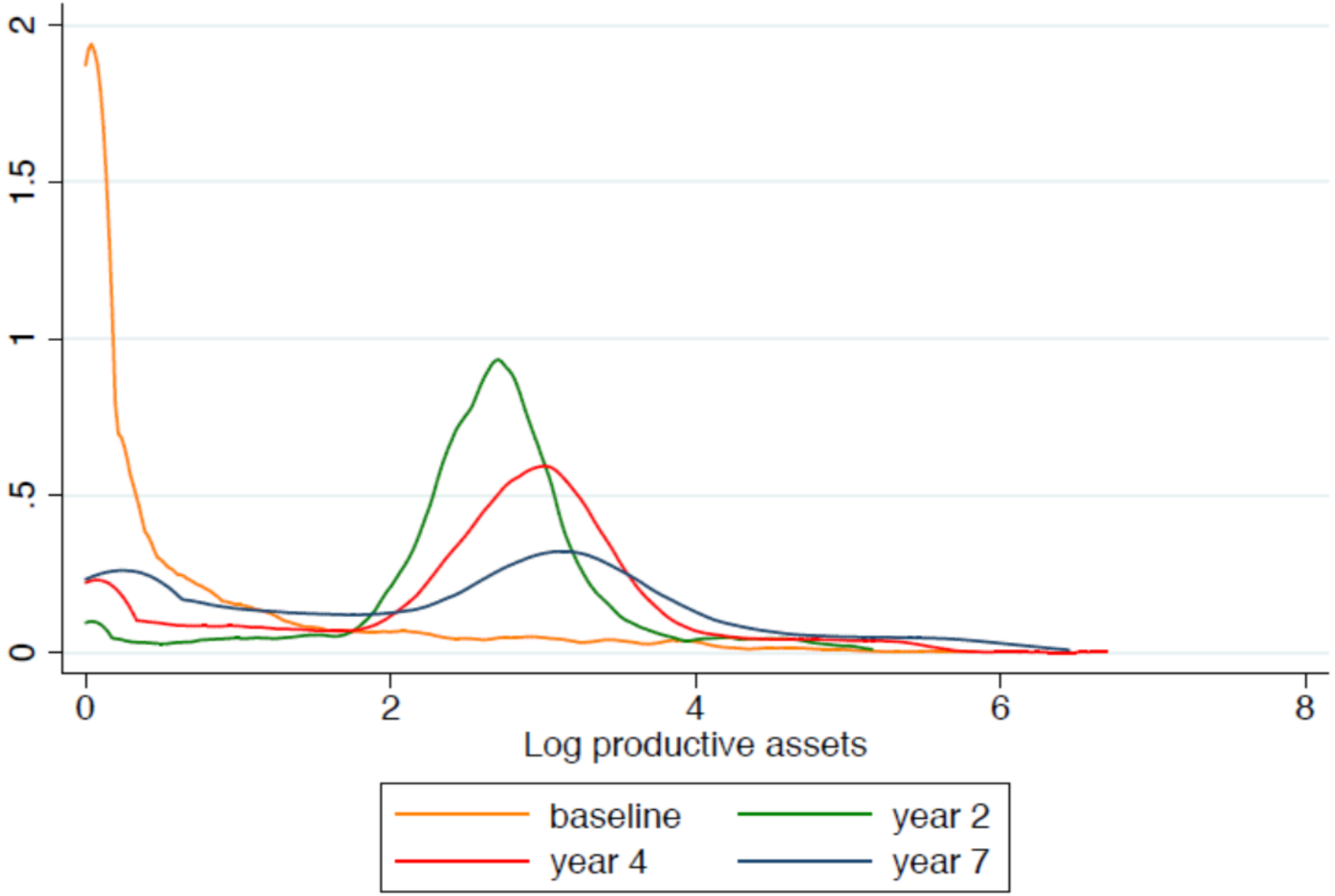
- Cash could have helped, but still would not have overcome the "learning about one's own type" problem
- Training ties down people to one task and so perhaps a broader mentoring approach could be useful

- Very compelling evidence on poverty traps
- Is it the size or the kind of transfer that make it work?
- In particular, is it the combination of assets and training that works?
- If access to capital is the binding constraint, an equivalent transfer of cash or access to credit in suitable terms might have worked too.

Beyond the mean - Heterogeneity

- ATE = average treatment effects
- Intuitive summary measure but could be hiding heterogeneous effects
  - 100% of T gets ATE
  - 50% gets 2 ATE, 50% get 0
  - 25% gets 4 ATE, 75% get 0
  - …
- We want to know this!

Preliminary evidence: some beneficiaries go back



Dynamics

- Heterogeneity in asset accumulation behavior
- What explains that?
- In a poverty trap world, initial endowment should play a key role

Ongoing work “Why do People Stay Poor?” (Balboni, Bandiera, Burgess, Ghatak, Heil)

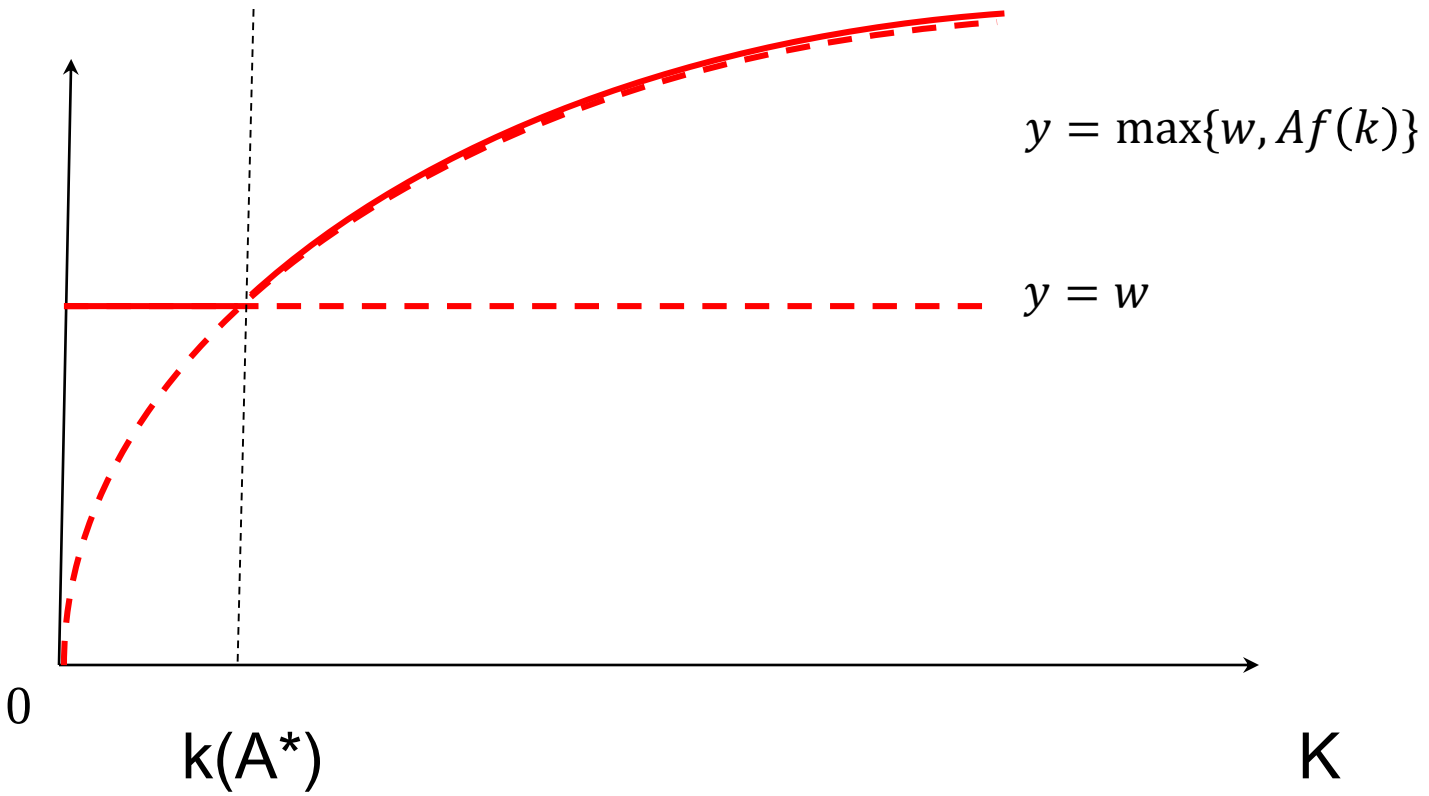
1. Use theory to illustrate how response to exogenous shock to endowments can be used to test between the two views of poverty
2. Implement test using RCT in Bangladesh (Bandiera et al., QJE 2017) tracking 21k HHs across wealth distribution over 7 years
3. Inform the design of policies for poverty reduction

Theoretical Framework

Occupational choice

- Each person i is born with one unit of time, wealth endowment E_i and talent A_i for self-employment
  - 1 is wage labor, pays w
  - 2 is livestock rearing, requires capital K and yields $A_i f(K)$
- Assume occupational choice is discrete
- Can allow for mixing

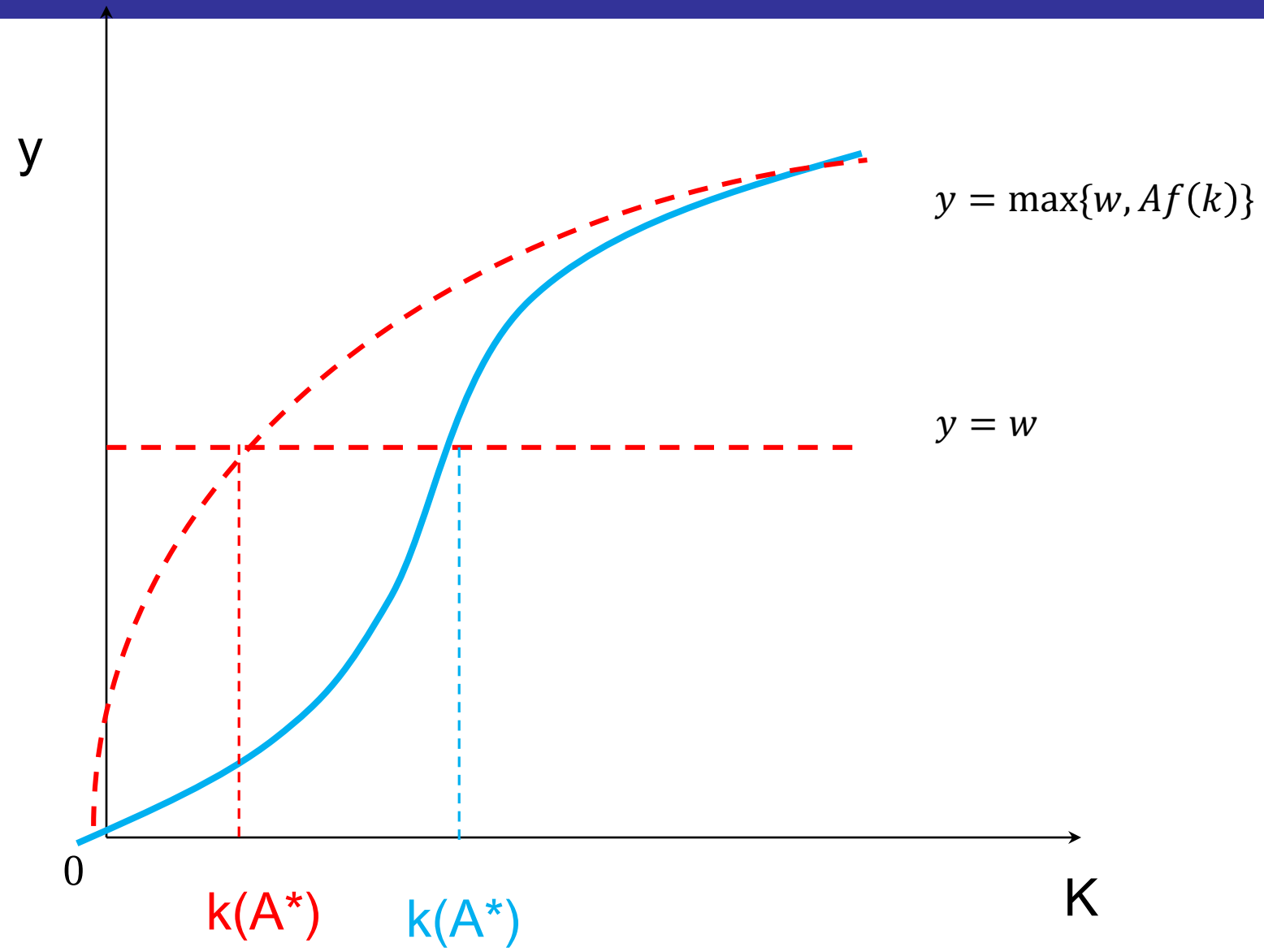
Perfect credit markets + DRS → equal opportunities



No credit markets → poverty trap?

- 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



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

Developing a Test for a Pov Trap vs Equal Opp view

- Assume everyone has the same productivity *A*
- Everyone has a given $k_0 \geq 0$
- Everyone is given the same transfer $\Delta > 0$
- Then the transition equation is

$$k_1 = sAf(k_0 + \Delta) + (1 - \delta)(k_0 + \Delta)$$

- We are interested in

$$\Delta_1 \equiv k_1 - (k_0 + \Delta)$$

- Let us define the function

$$g(k_0) = sAf(k_0 + \Delta) - \delta(k_0 + \Delta)$$

- We want to know
  - If $\Delta_1 \equiv g(k_0)$ is positive or negative
  - If Δ_1 is increasing or decreasing in k_0

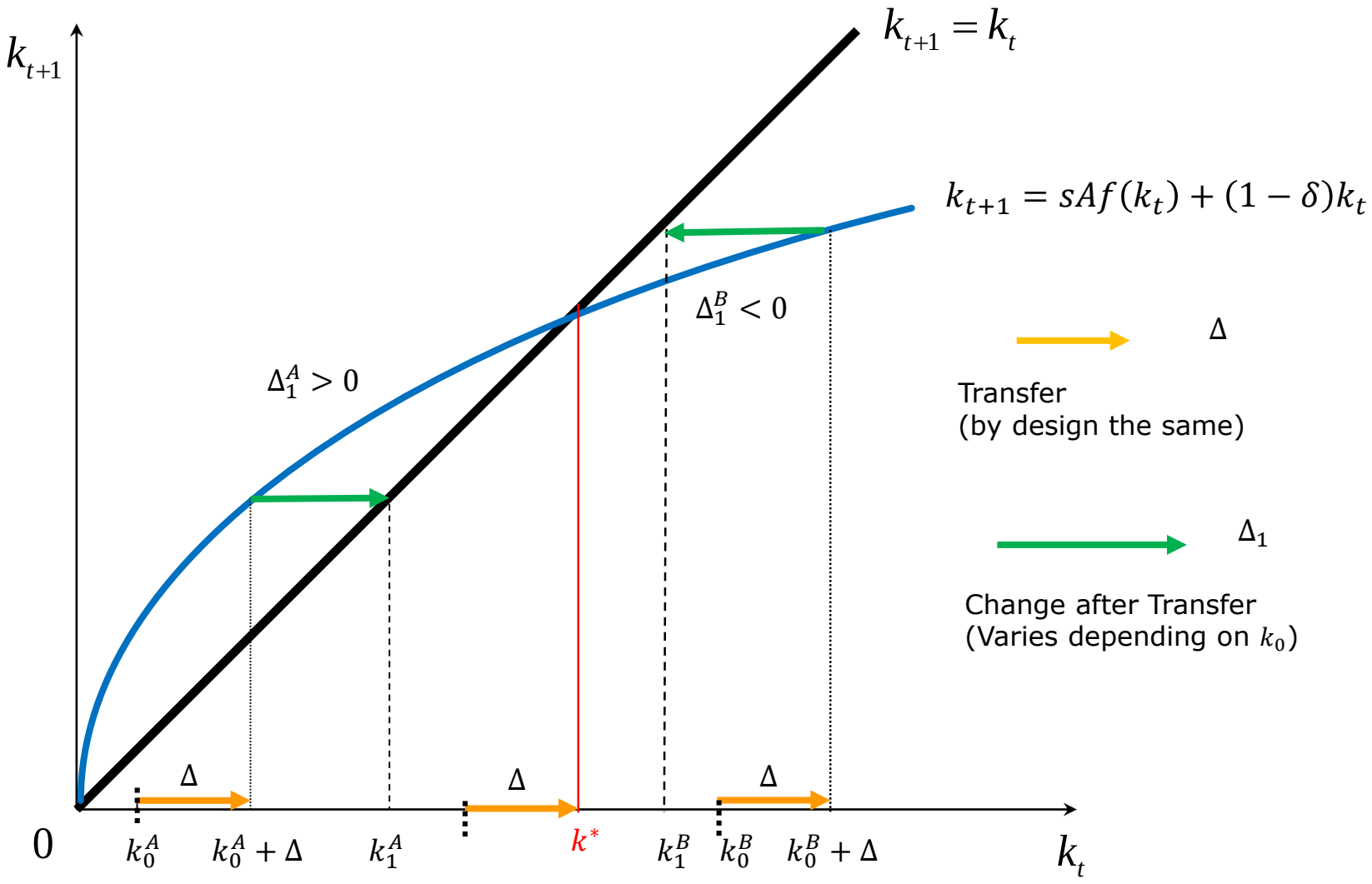
Convergence world

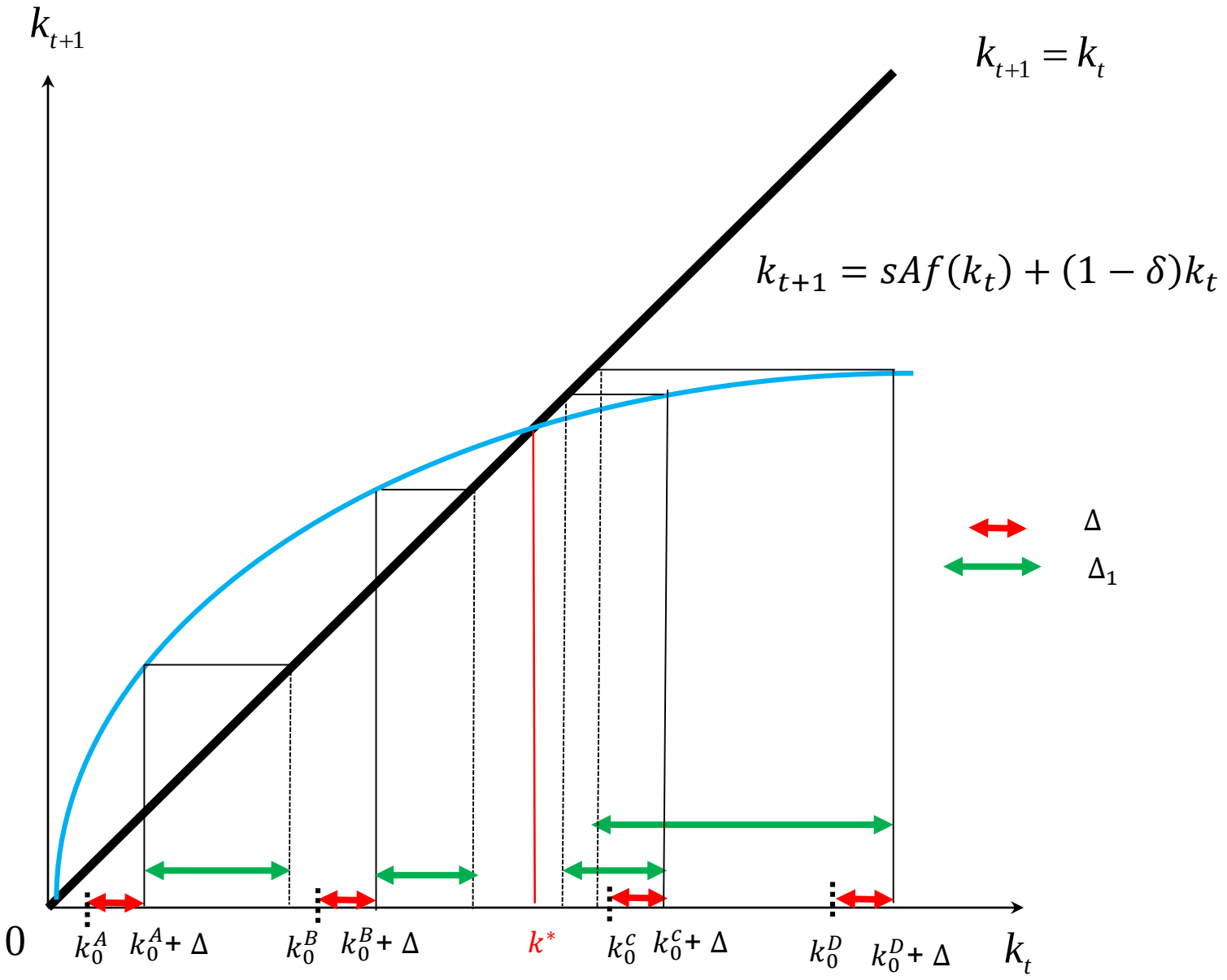
- $g(k_0)$ is strictly concave in k_0
- Depending on the size of Δ one of the following will hold regarding $g(k_0)$:
  - It will first increase, reach a maximum, and then decrease
  - Be decreasing
- It will reach the value 0 at $k_0 = k^*$ (the unique steady state) and after that will become negative

Poverty Trap World

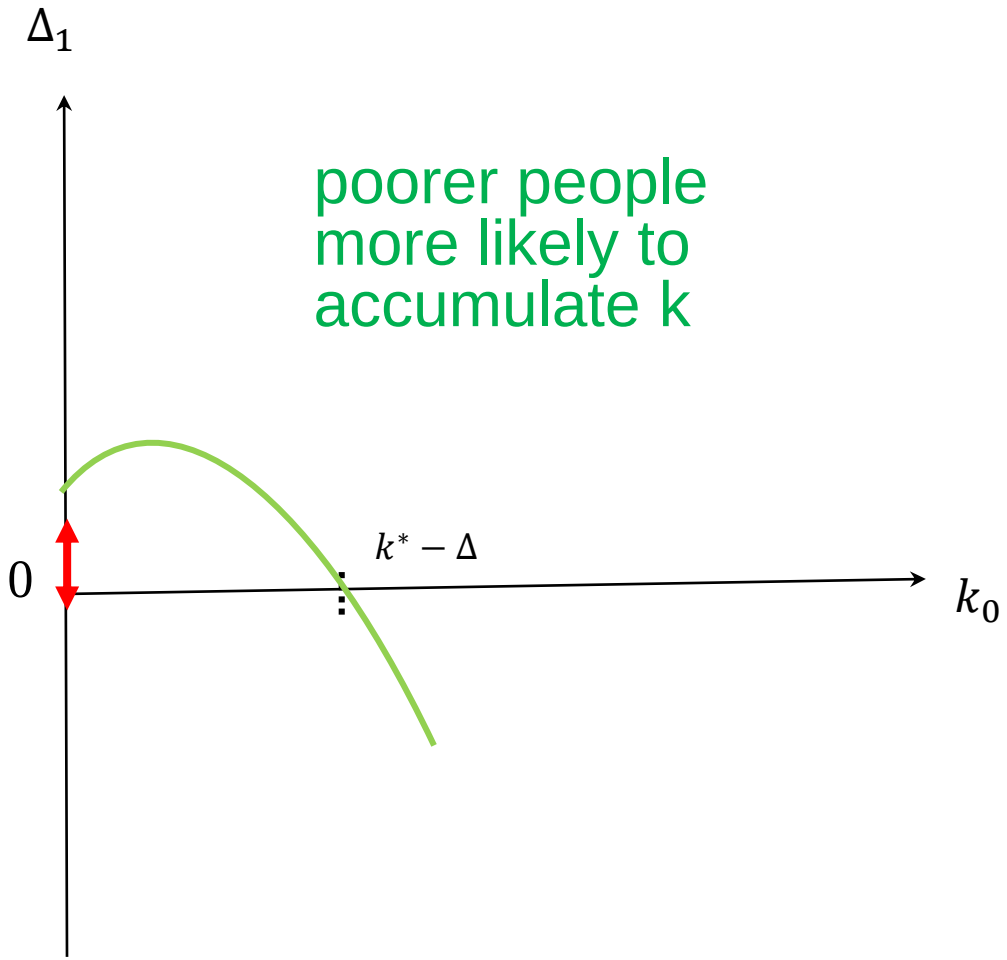
- Let us take the S-shaped production function
- $g(k_0)$ is strictly convex in k_0 for $k_0 \leq \hat{k}$ and strictly concave for $k_0 \geq \hat{k}$
- Also, $g(k_0) < 0$ for $k_0 \leq \hat{k}$
- If the transfer Δ is received for $k_0 = \hat{k} - \Delta$ then the individual reaches the unstable steady state and stays there without further shocks
- However for $k_0 \geq \hat{k}$ the situation is similar to the case of convergence

Response to asset transfer in equal opportunity view



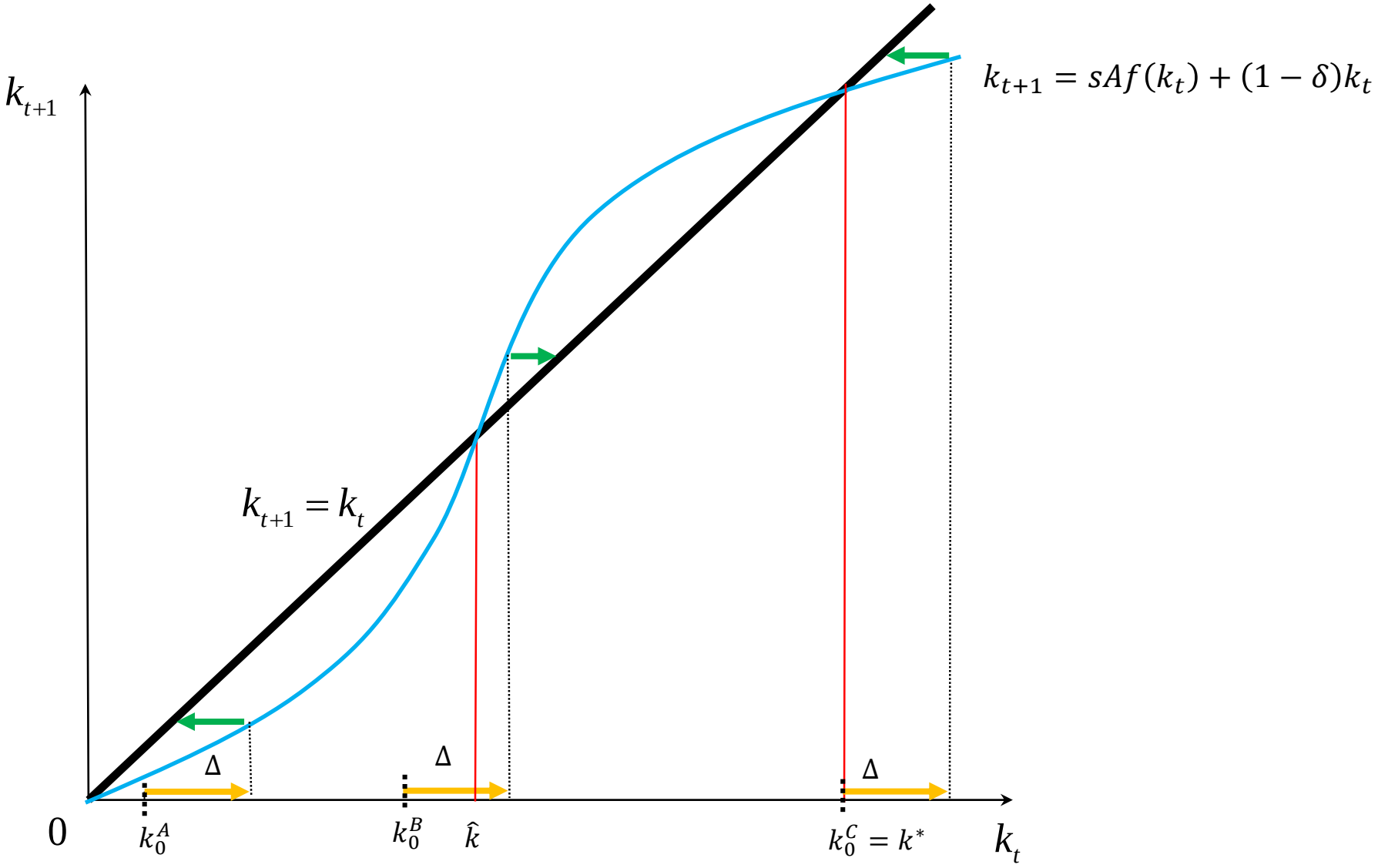


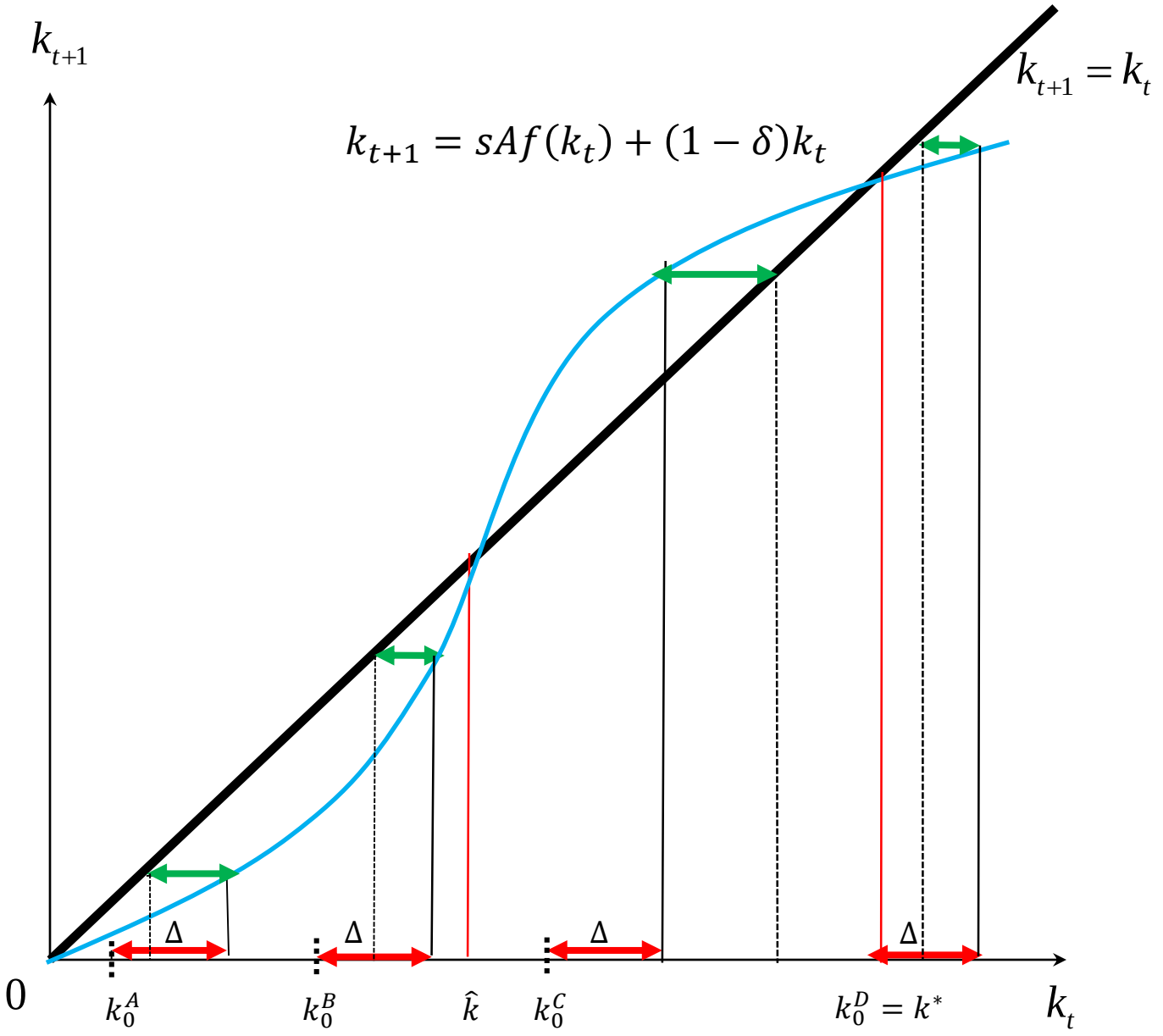
How changes in k depend on k_0



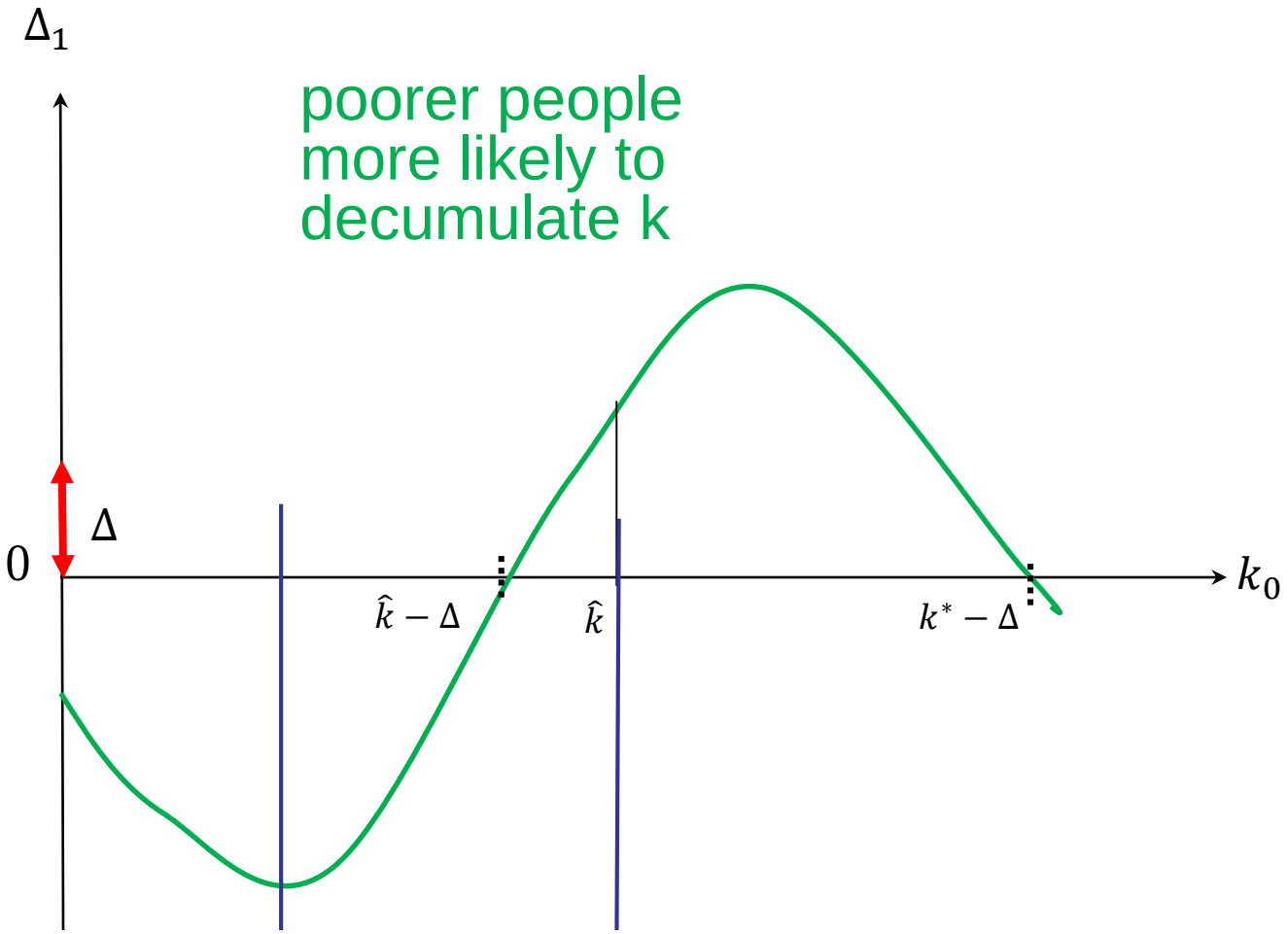
Changes in k plotted against k_0 in Solow world

Response to asset transfer in unequal opportunity view



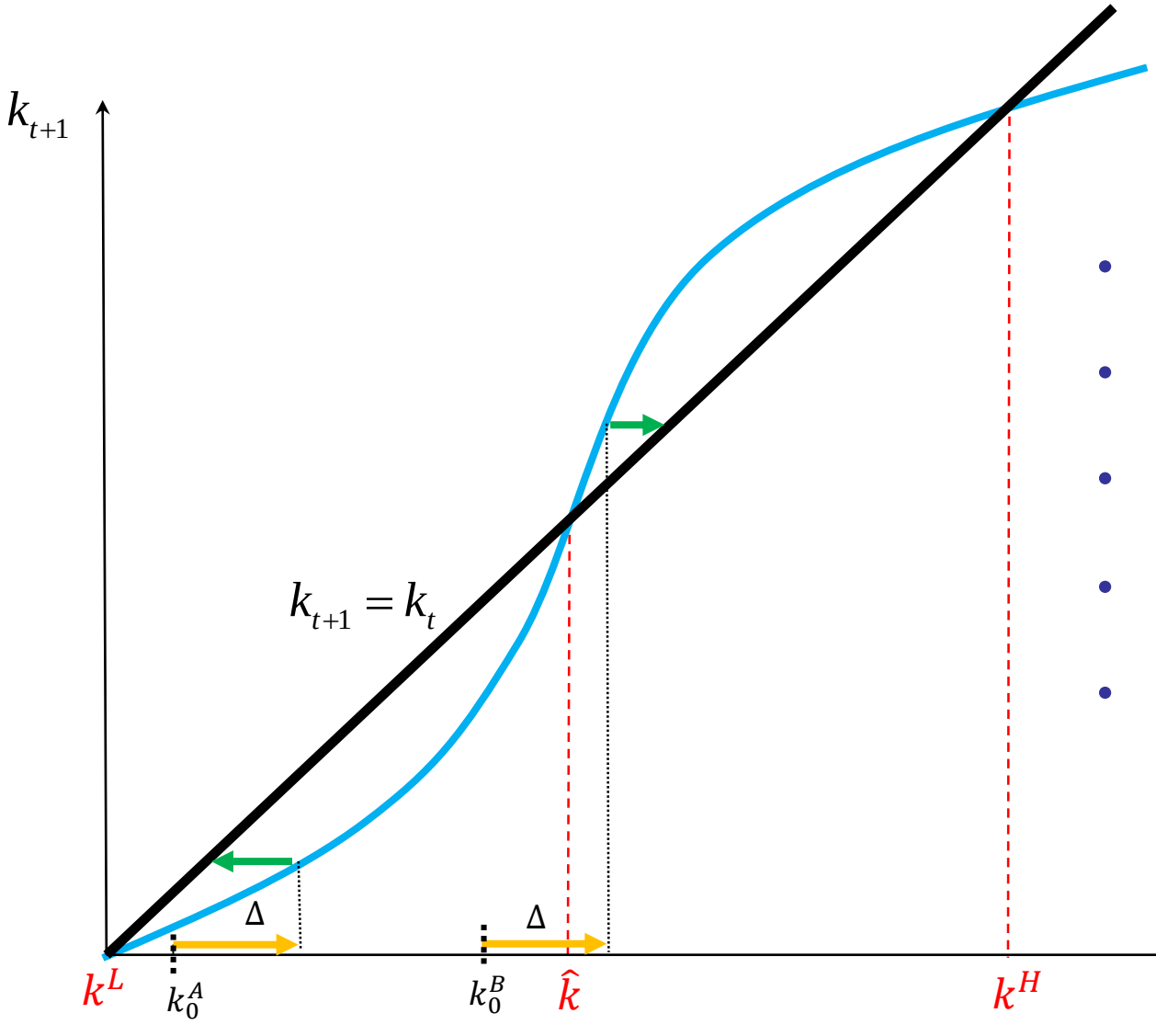


Asset Transfer in Poverty Trap Model



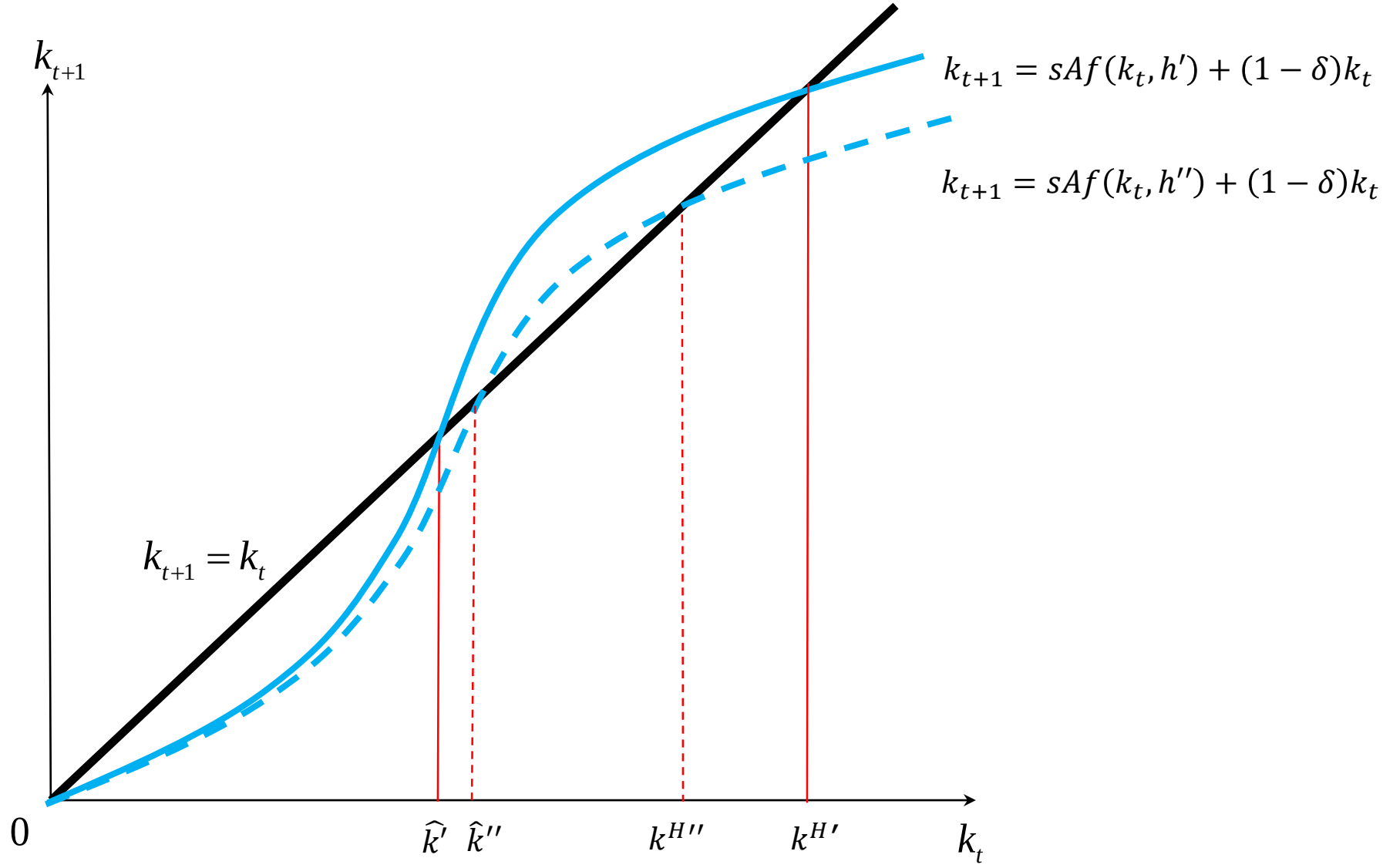
Changes in k plotted against k_0 in Poverty Trap world

We test the joint H0 that (i) there is a threshold and (ii) the program pushes some above and leaves others below



- 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

Role of Training? Shifts the threshold down & high s.s. up

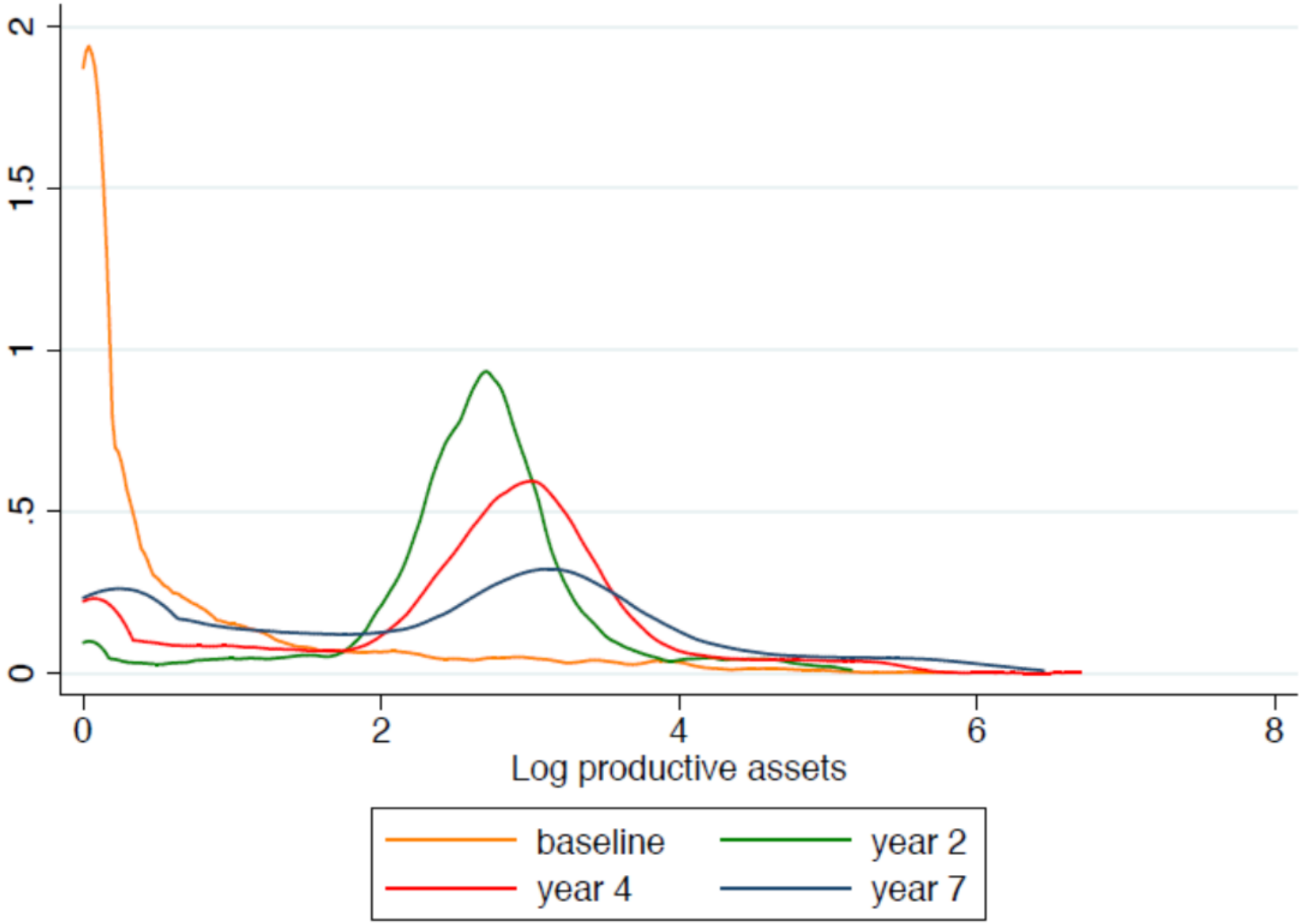


Empirical Analysis

We use BRAC's Targeting the Ultrapoor Program

- 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

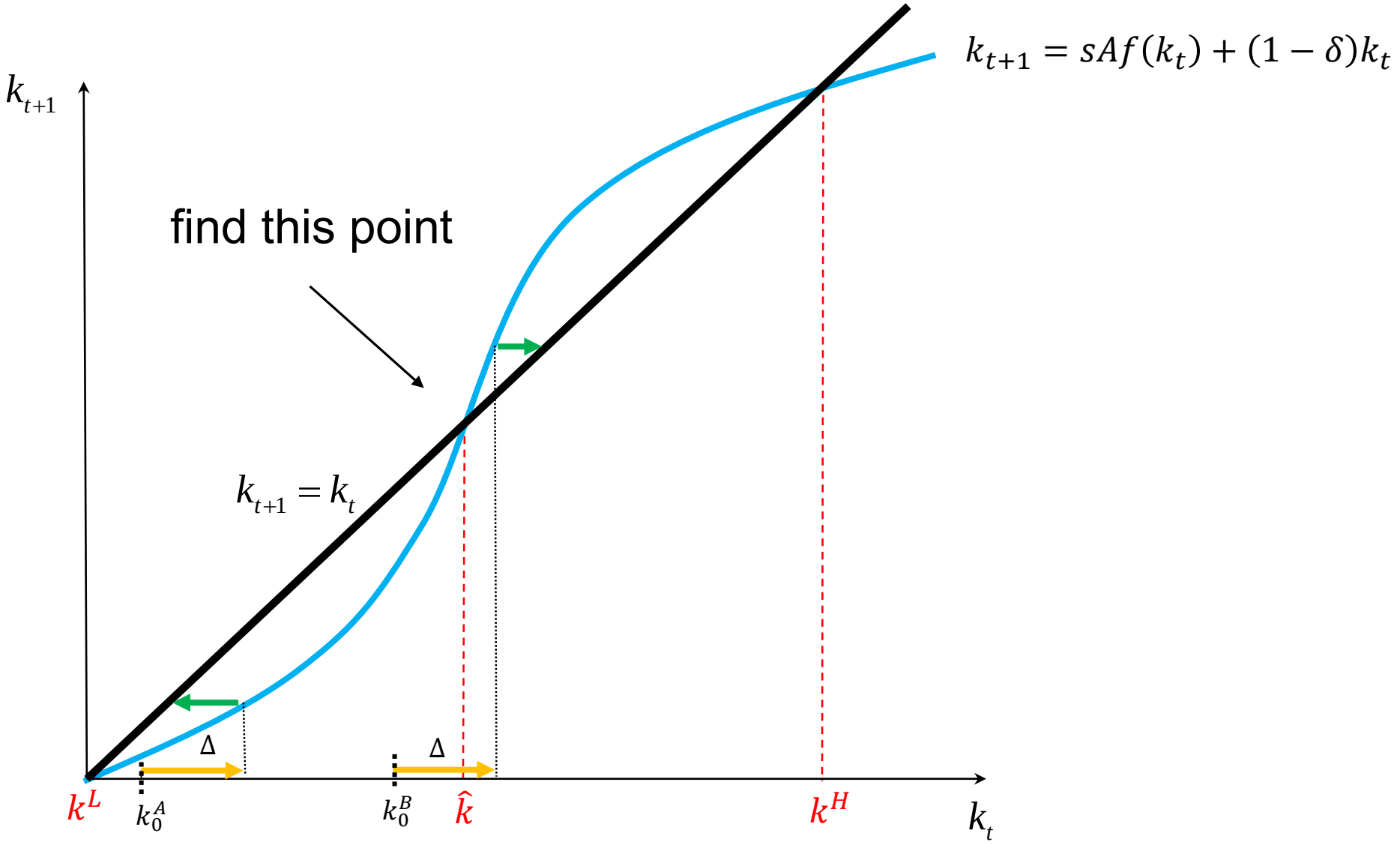
Preliminary evidence: some beneficiaries go back



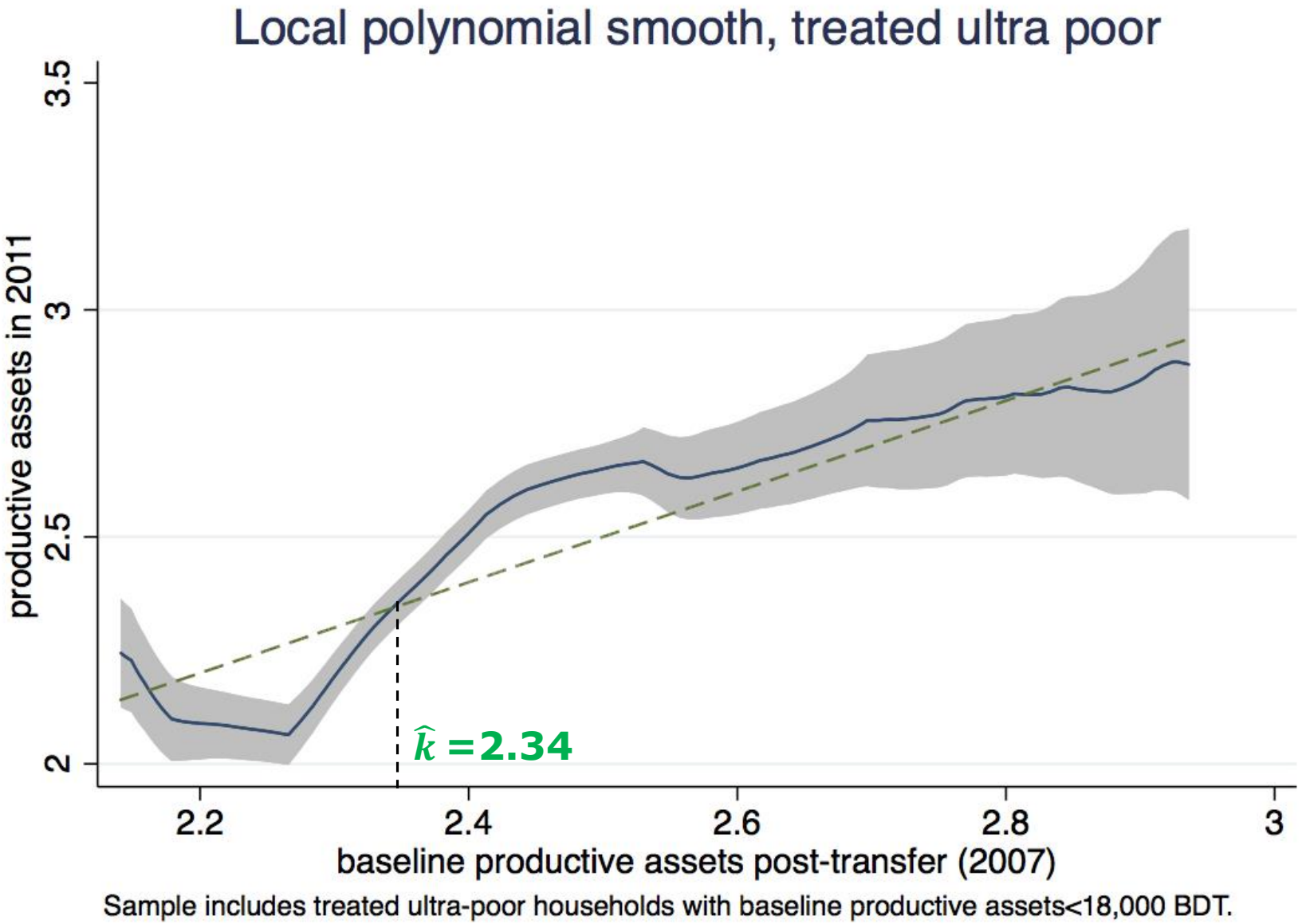
Identifying the threshold

- 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

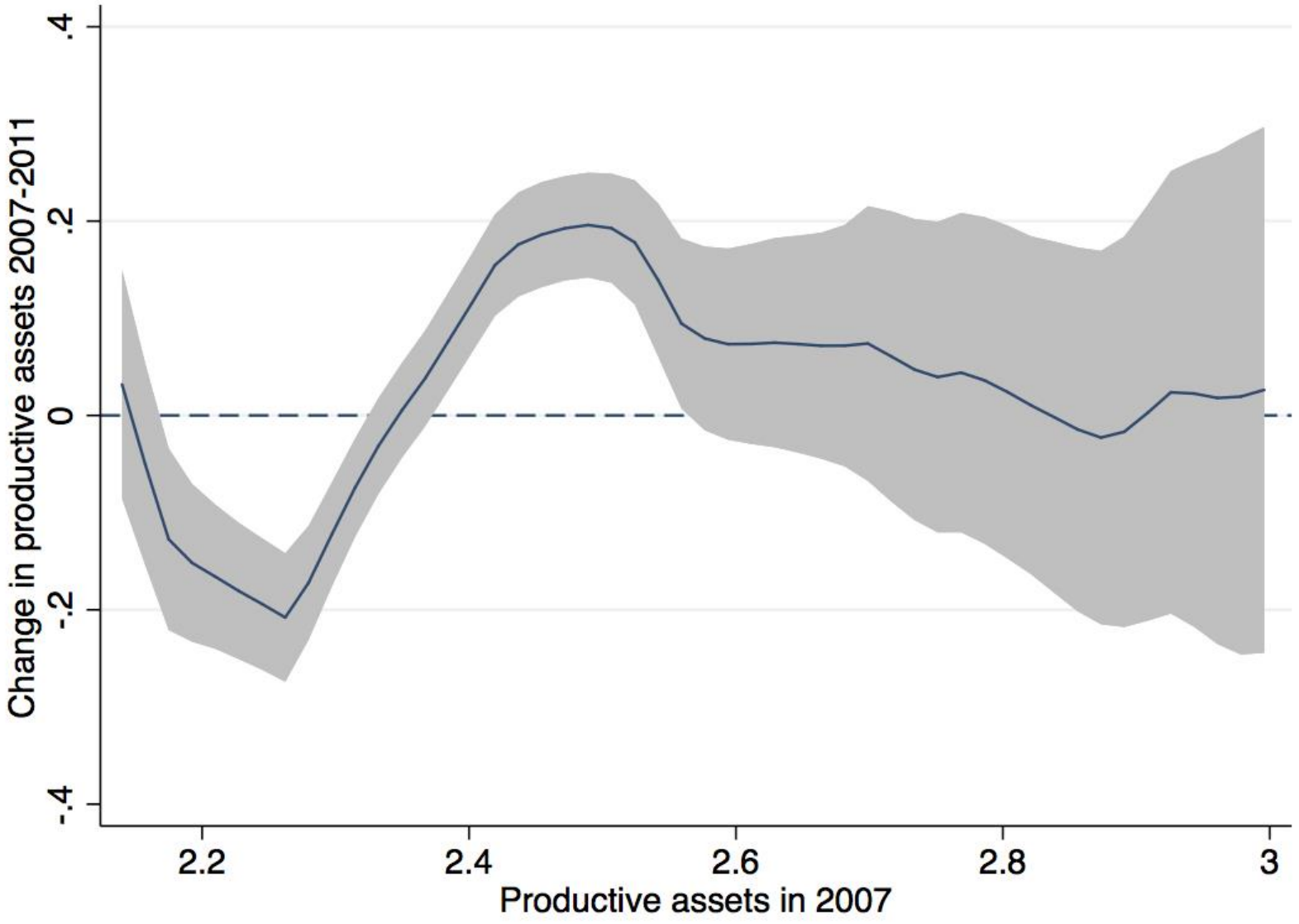
The transition equation



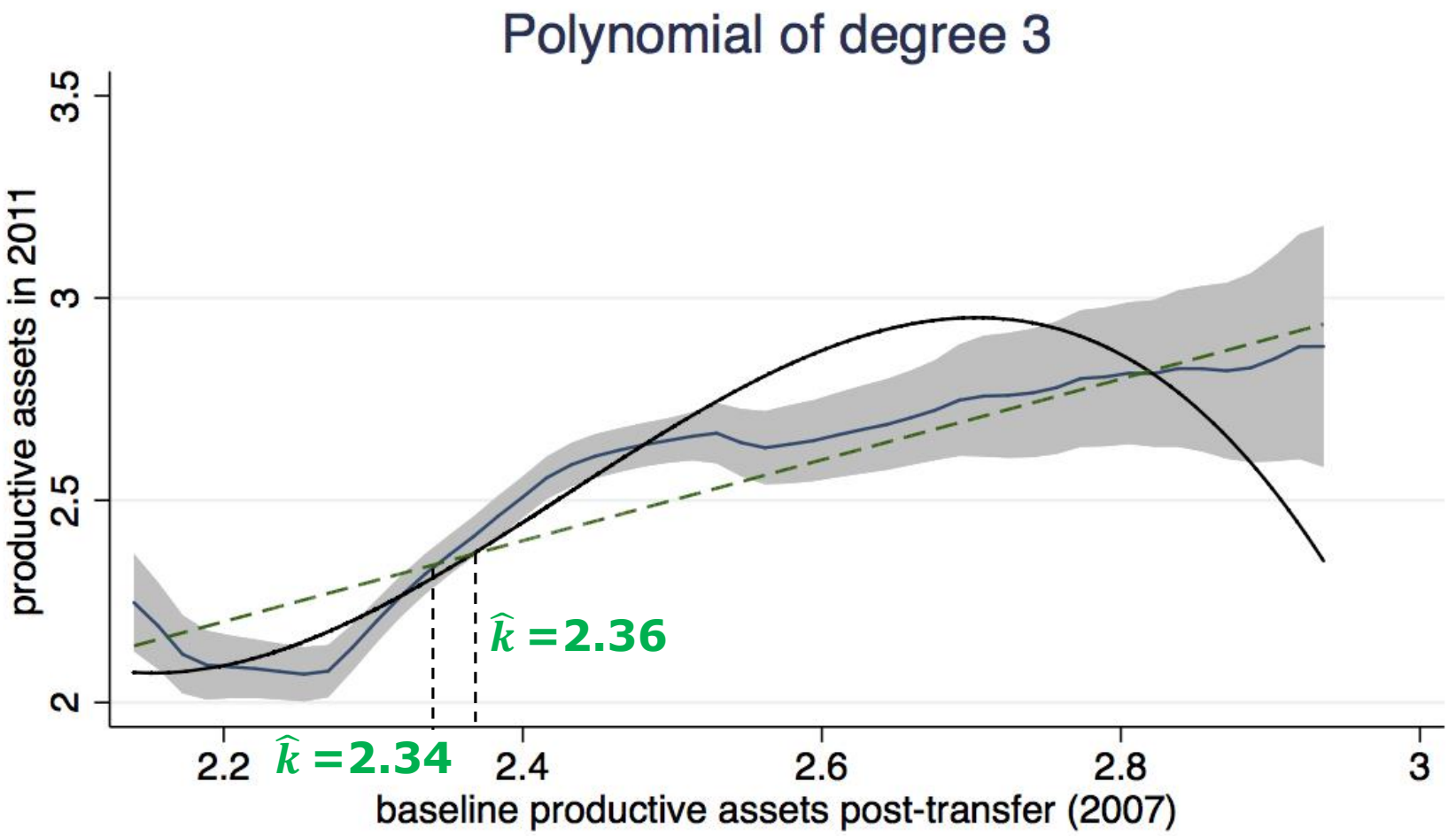
Non-parametric Identification of Transition Equation- Level



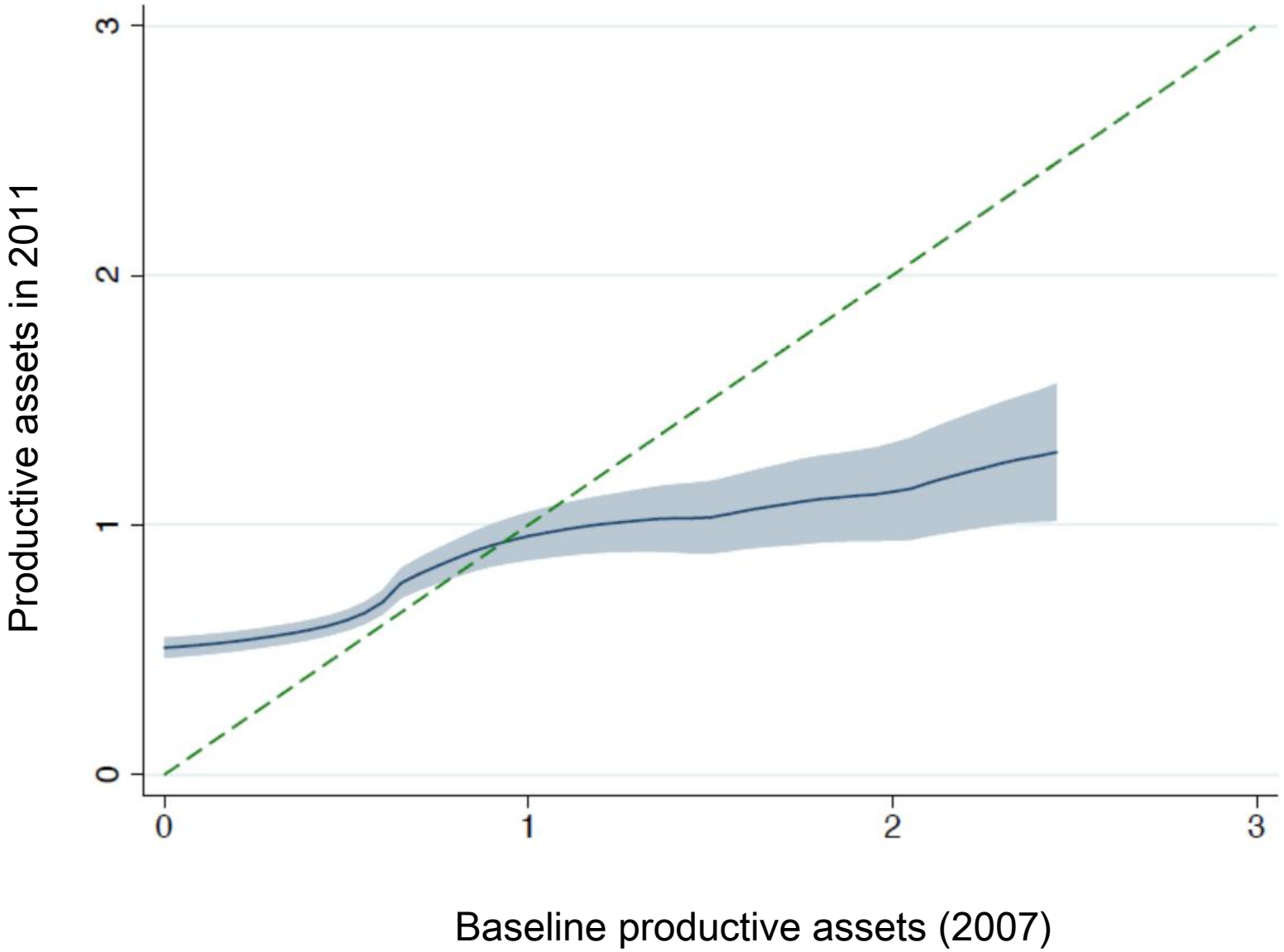
Response to asset transfer in data – Change



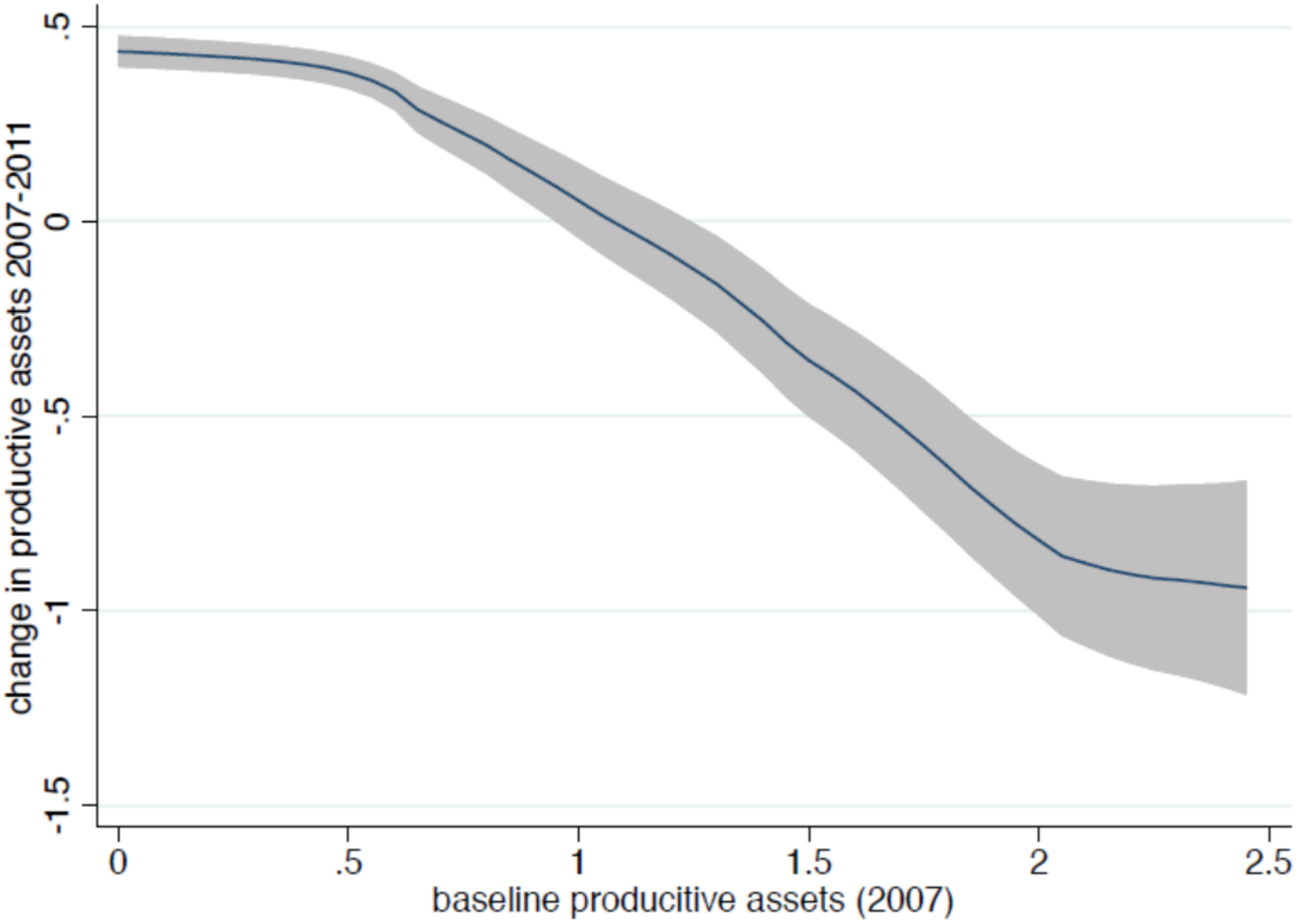
Parametric identification



Transition equation for control group



Change in capital as function of baseline capital - control group



What do we learn from this exercise? 1

- Does the pattern we see in treatment identify a poverty trap as opposed to being driven by shocks that would have occurred anyway?

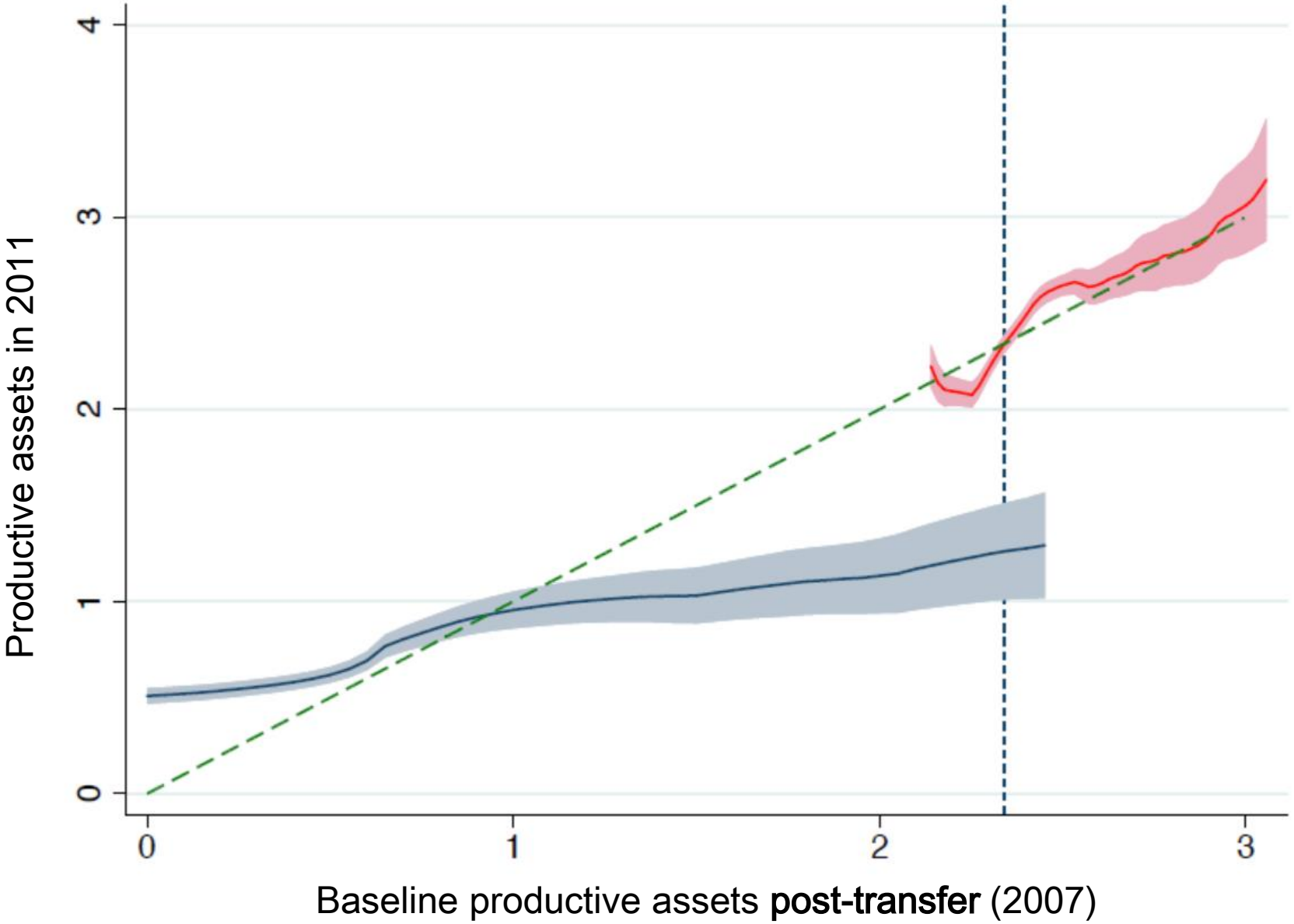
- Without looking at controls we cannot say whether the fact that people below $\hat{k}$ lose k whilst those above accumulate more is due to the fact that $\hat{k}$ is an unstable SS or rather to the fact that a negative (positive) shock hit all the people with $k < \hat{k}$ or $k > \hat{k}$).

- But when we look at controls we see precisely the opposite pattern.

What do we learn from this exercise? 2

- Note that this does not imply that controls live in a Solow world.
- Rather, we observe them around the stable SS, hence the pattern of mean reversion that is consistent with Solow.
- In other words we cannot identify poverty traps from controls because by definition $\hat{k}$ is unstable so we never observe people around it.

Placebo (red) vs Treatment (blue) - Levels



How do we interpret this figure? 1

- There is a "jump" in the transition equation of the treatment group at points of overlapping support on the horizontal axis.

- The control individuals with the biggest k_0's and the treatment individuals with the lowest k_0's seem to have the same initial capital (inclusive of transfer for treatments) and yet for these two groups, k_1 seems different by a discrete amount.

- This could be because of the effect of training.

How do we interpret this figure?

- These two groups are also systematically different
- The treatment individuals with the lowest $k_0 + \Delta$ must have been among the poorest before the transfer, and the control individuals with the highest k_0 were the richest.
- At each point in time the capital of individual i is equal to her SS level of capital (which depends on her fundamentals) plus the net effect of shocks up to that point.

How do we interpret this figure?

- Beneficiaries in both treatment and control are selected to have a very low level of SS capital at baseline, and the programme aims to shift that SS.

- To comply with the selection criteria, someone with high k_0 in control must be losing k in the following years to return to the low SS.

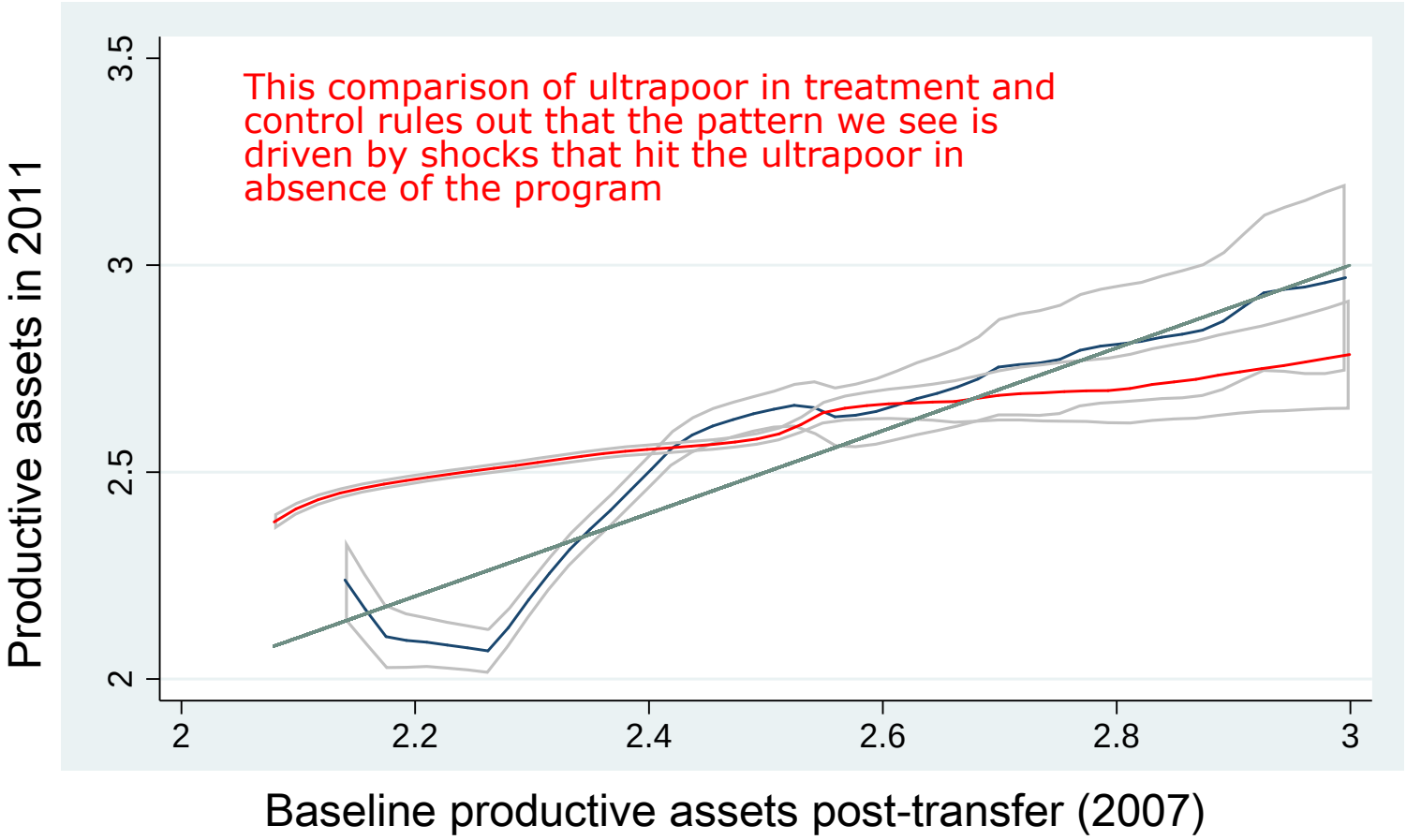
- For instance this could be a recently widowed woman who is well above her SS capital at 0.

How do we interpret this figure?

- This is not comparable to someone with the same k after transfer in treatment because these were the poorest before the transfer so in absence of the transfer they would have accumulated k to get to their SS.

- To compare like with like we have to shift the controls up by the amount of the transfer, which has the problem though that by construction they cannot lose assets

Placebo (red) vs Treatment (blue) - Levels



Control artificially “given” same transfer in both years

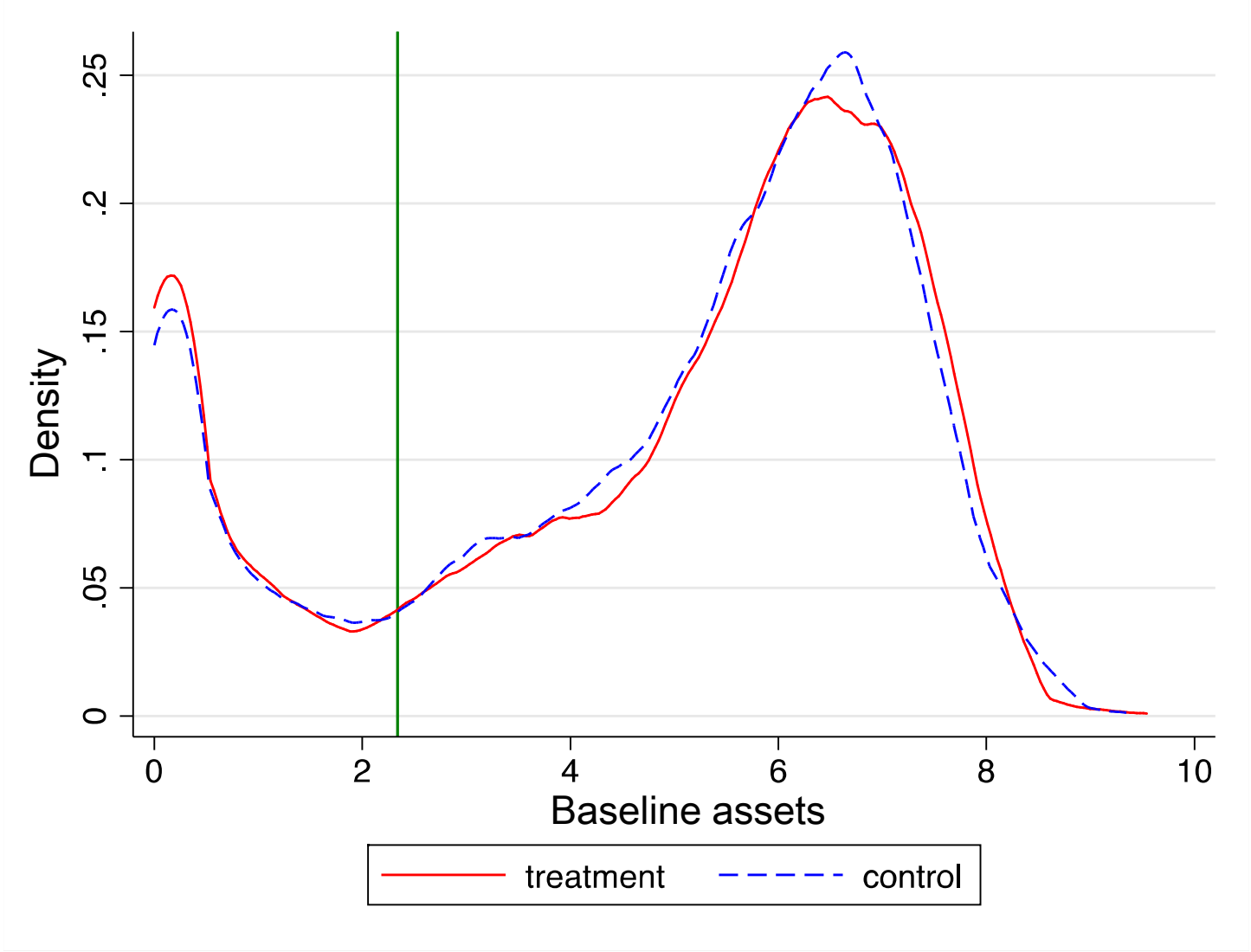
Further Implications of the poverty trap argument

Suppose $\hat{k}$ is an unstable steady state

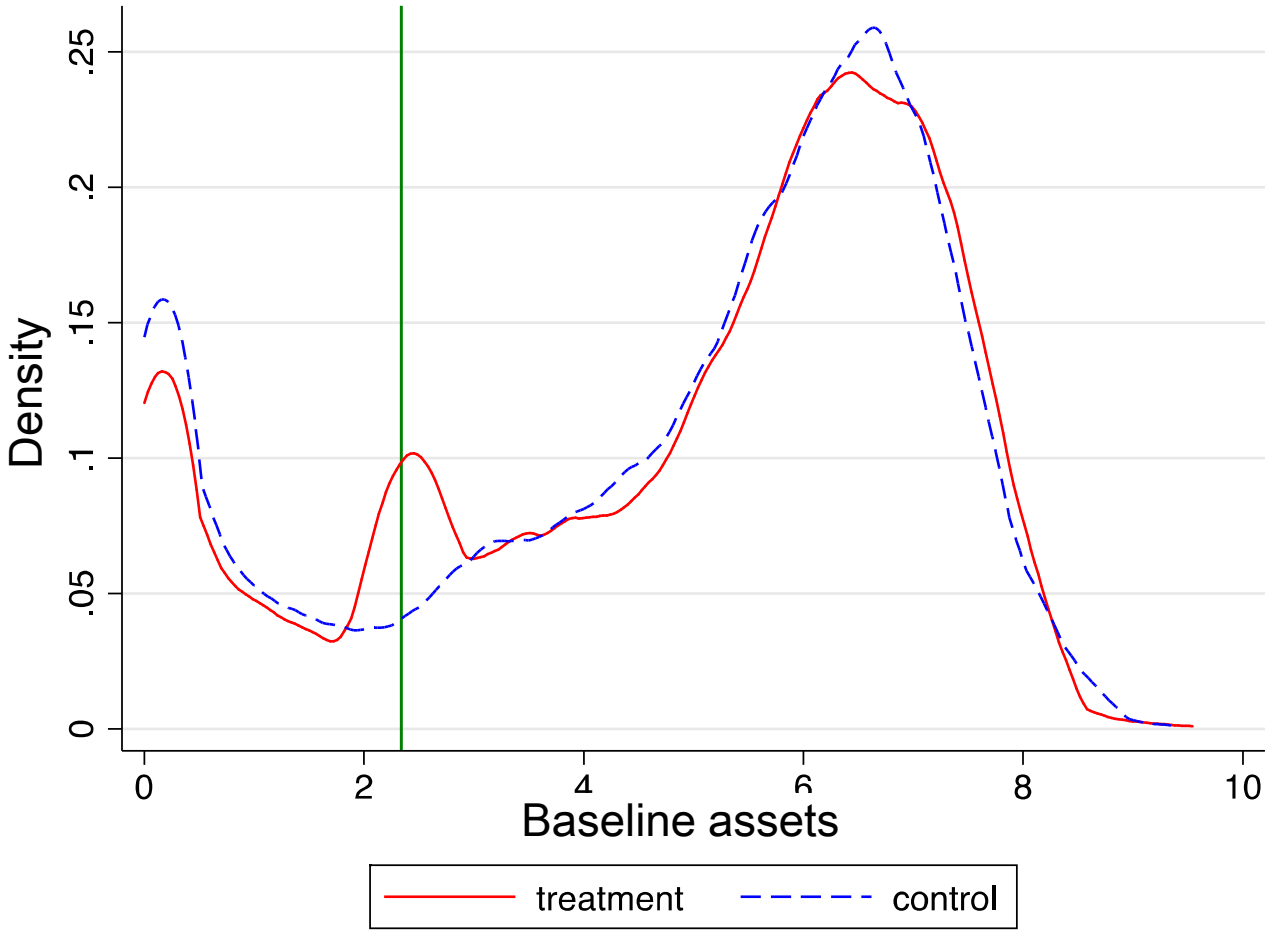
1. In equilibrium there should be no-one around it: people are either at the low or at the high SS

2. People brought by the program to the left of $\hat{k}$ should lose assets, those to the right should accumulate

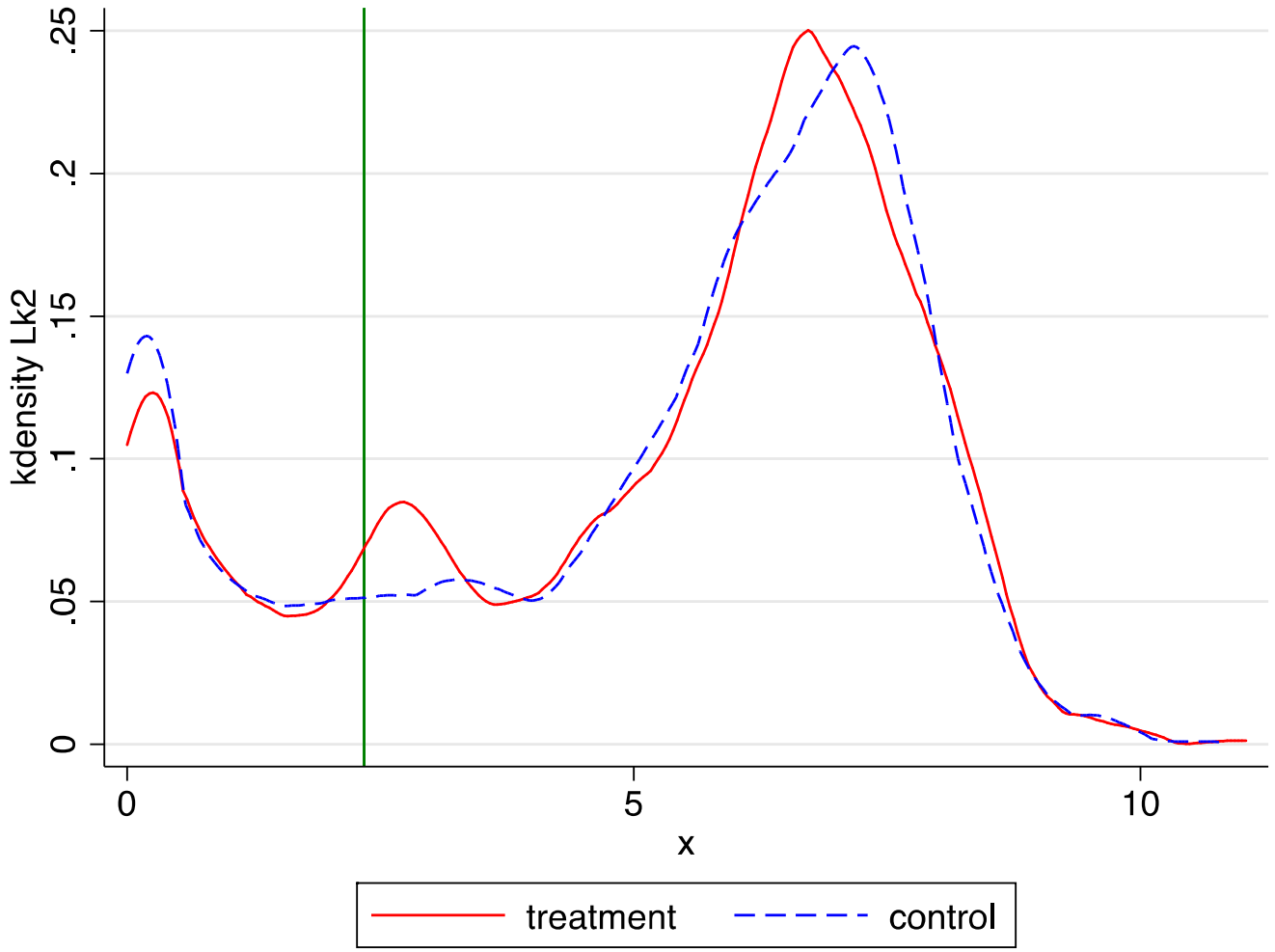
At **baseline** the distribution of assets is bi-modal and density around the threshold is low



After 2 years, some of the ultra-poor have crossed $\hat{k}$

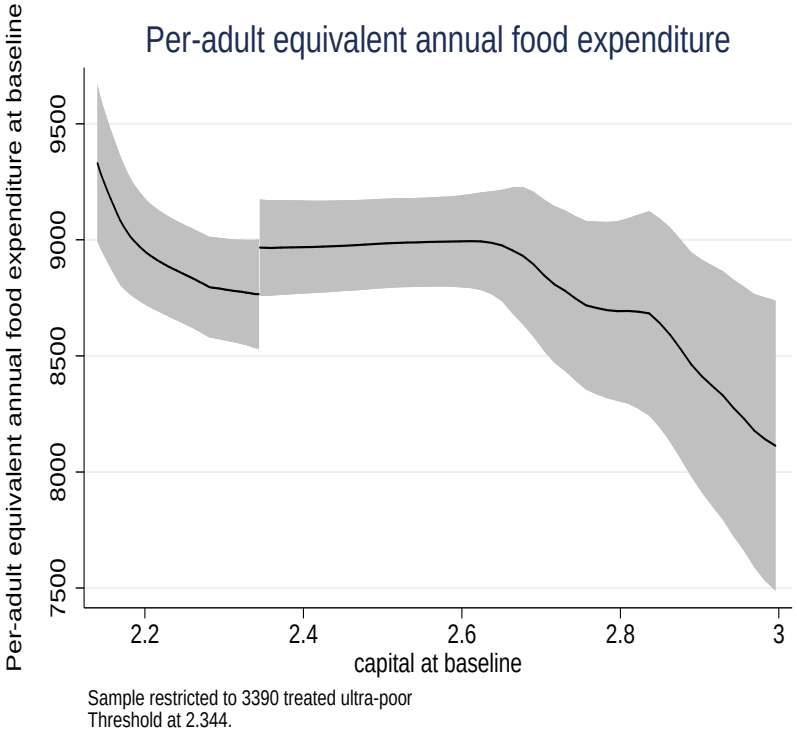


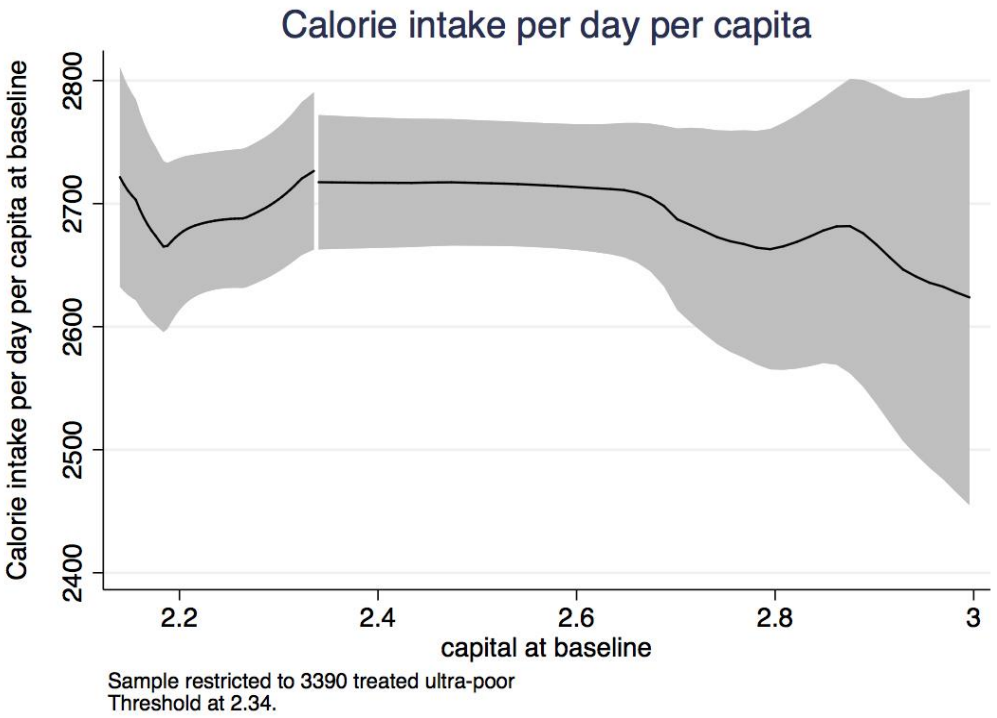
After 4 years, more of the ultra-poor have crossed $\hat{k}$



Mechanisms behind the Discontinuity

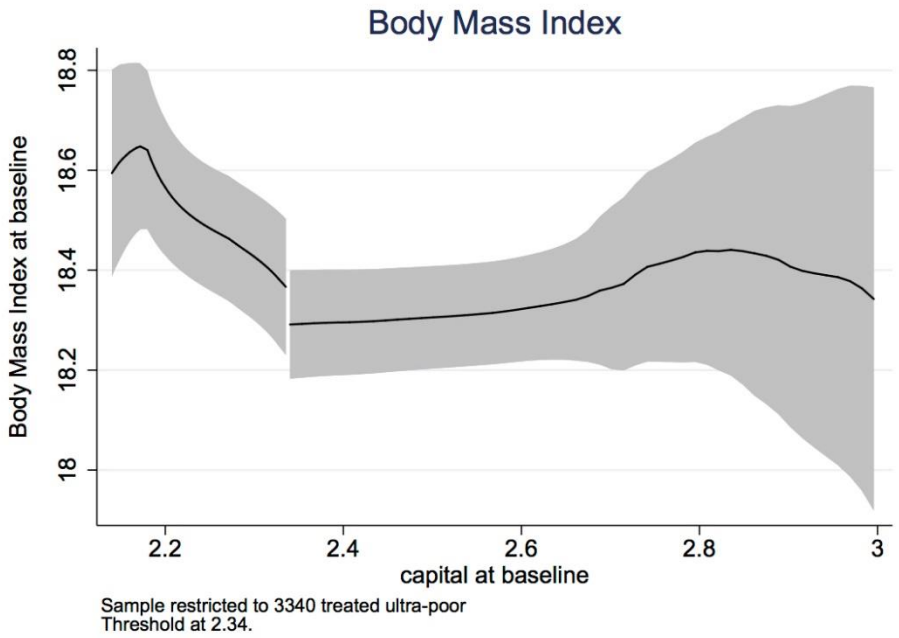
Nutrition

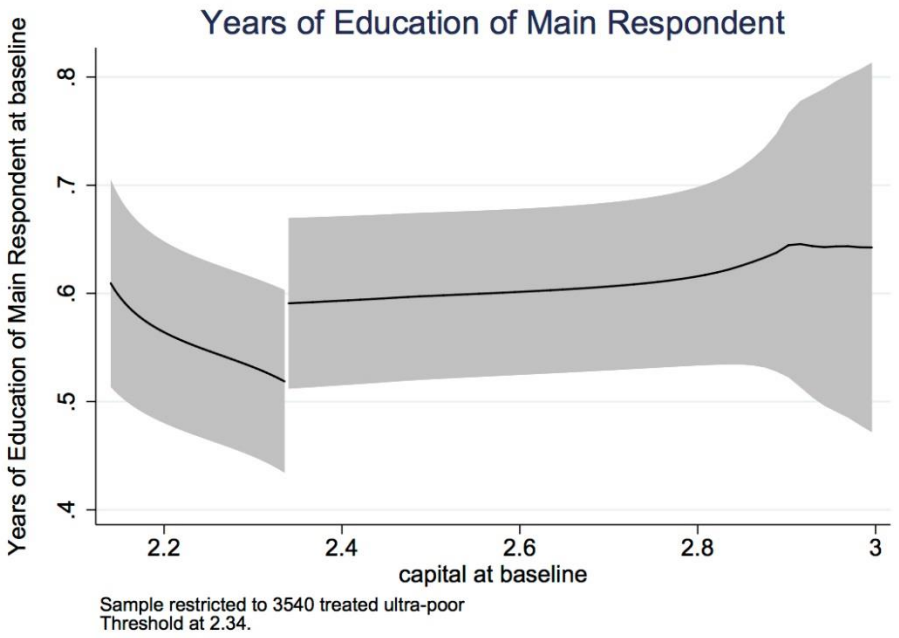




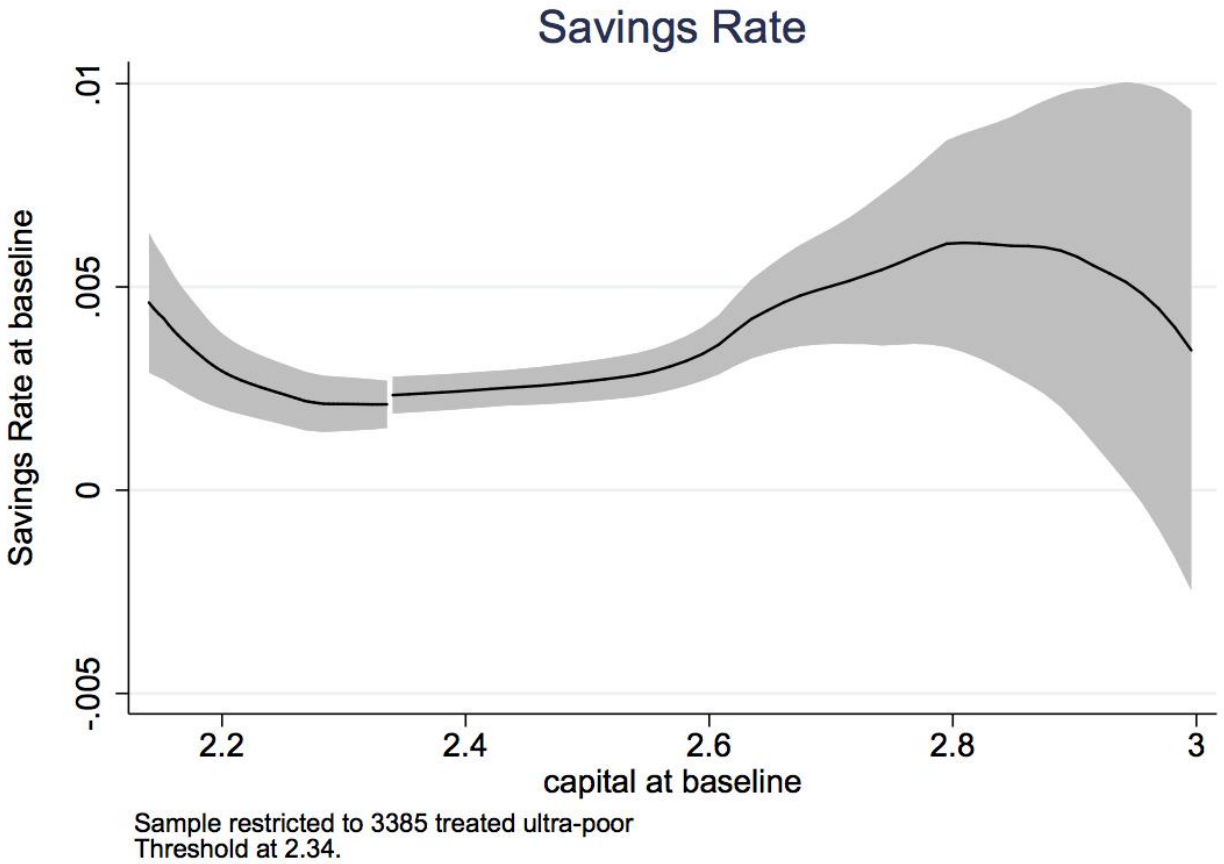
cost of calories low relative to income even of the poorest (Subramanian and Deaton 1997, Banerjee and Duflo 2011)

Human capital



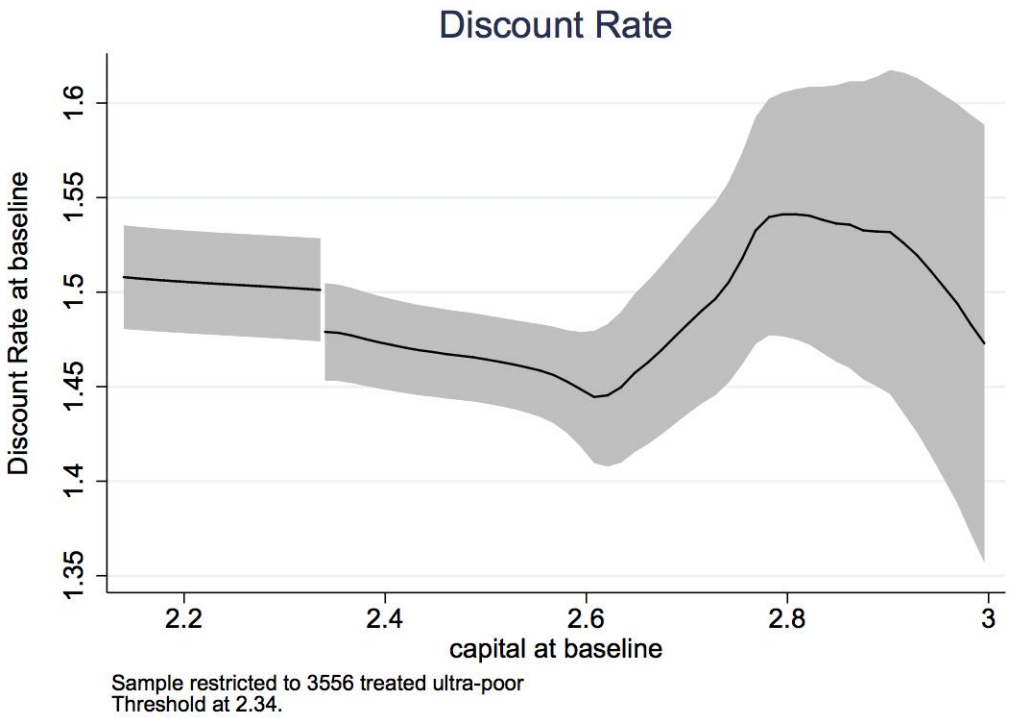


Behavioral 1: impatience



Temptation goods or limited attention lead the poor to make worse choices (Banerjee and Mullainathan, 2010; Shah et al., 2012).

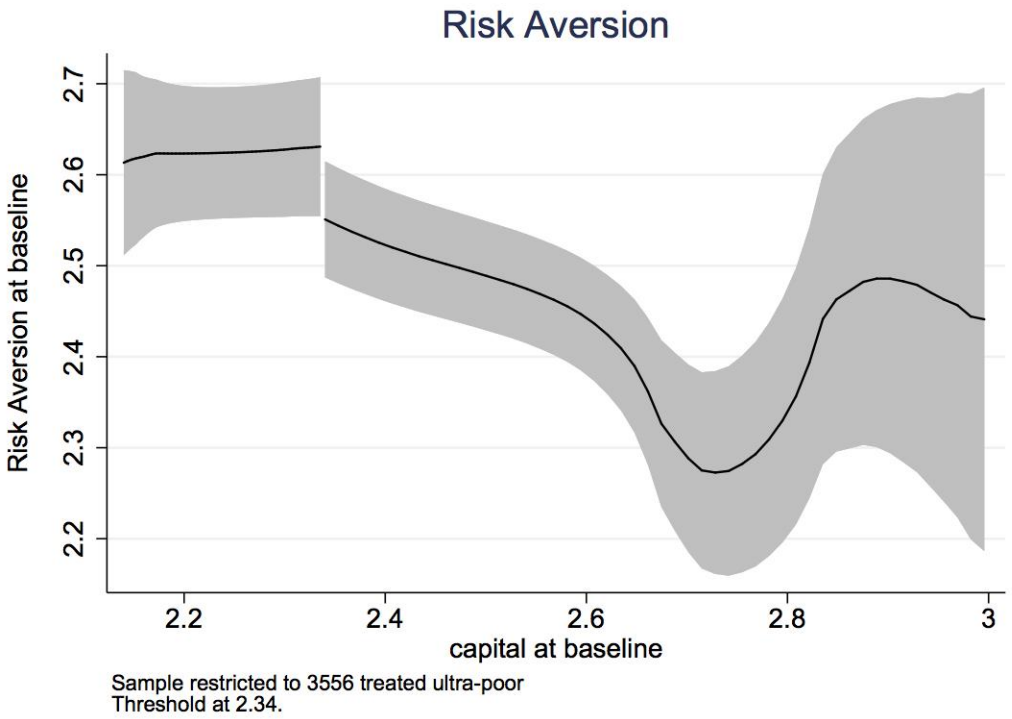
Behavioral 1: impatience



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



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
Baseline productive assets	0.0139	-1.434**	-0.0934	0.0678	-0.298
	(0.00934)	(0.724)	(0.233)	(1.338)	(0.868)
(Baseline productive assets)^2	-0.00196	0.212*	0.00862	-0.00769	0.0415
	(0.00138)	(0.114)	(0.0365)	(0.213)	(0.137)
Above Threshold	-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

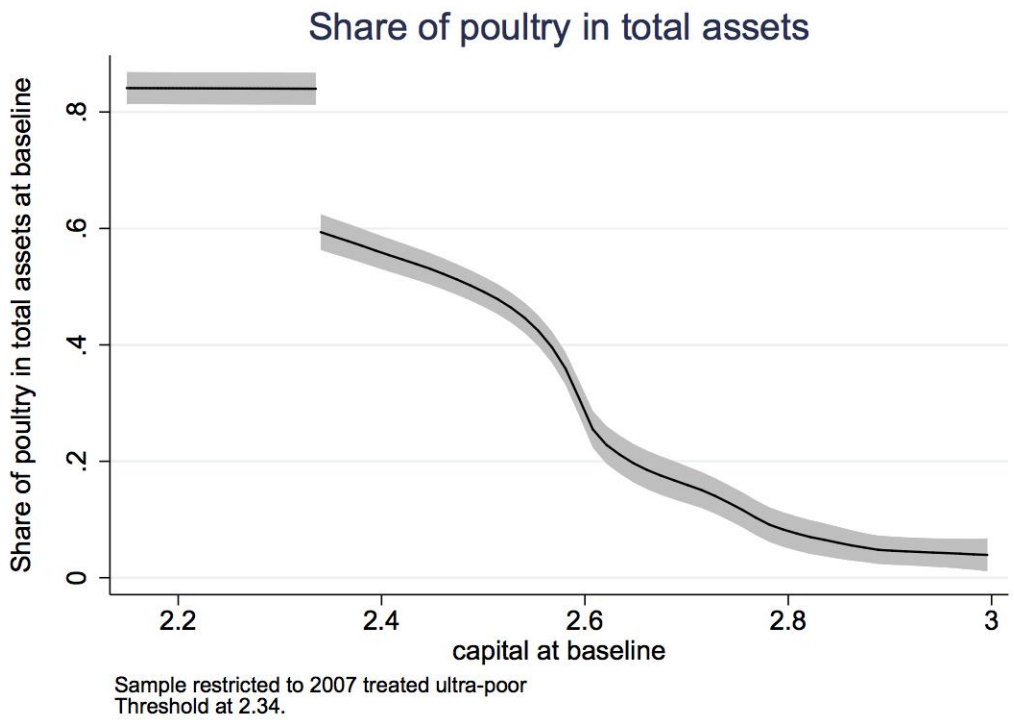
*** p<0.01, ** p<0.05, * p<0.1

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.

Technology

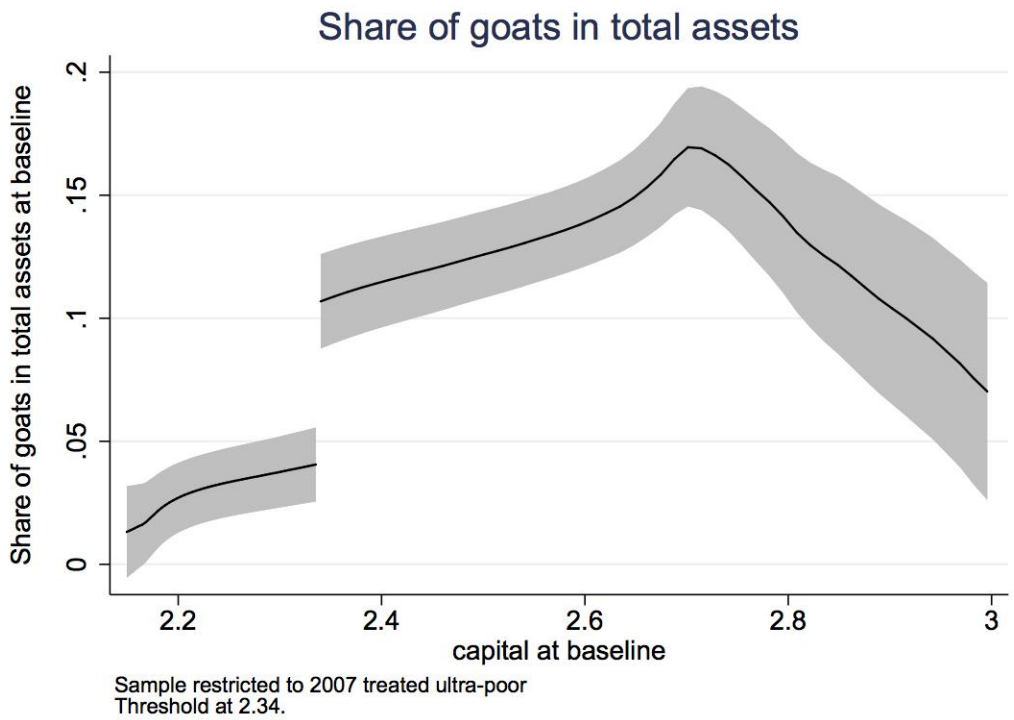
- Why can't the poor get past $\hat{k}$ on their own?
- **Indivisible investments:** Given a limited set of production technologies and borrowing constraints, individuals face a non-convex production function (e.g. Banerjee and Newman, 1993; Aghion and Bolton, 1997).
  - Supporting evidence: Pastoralists 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

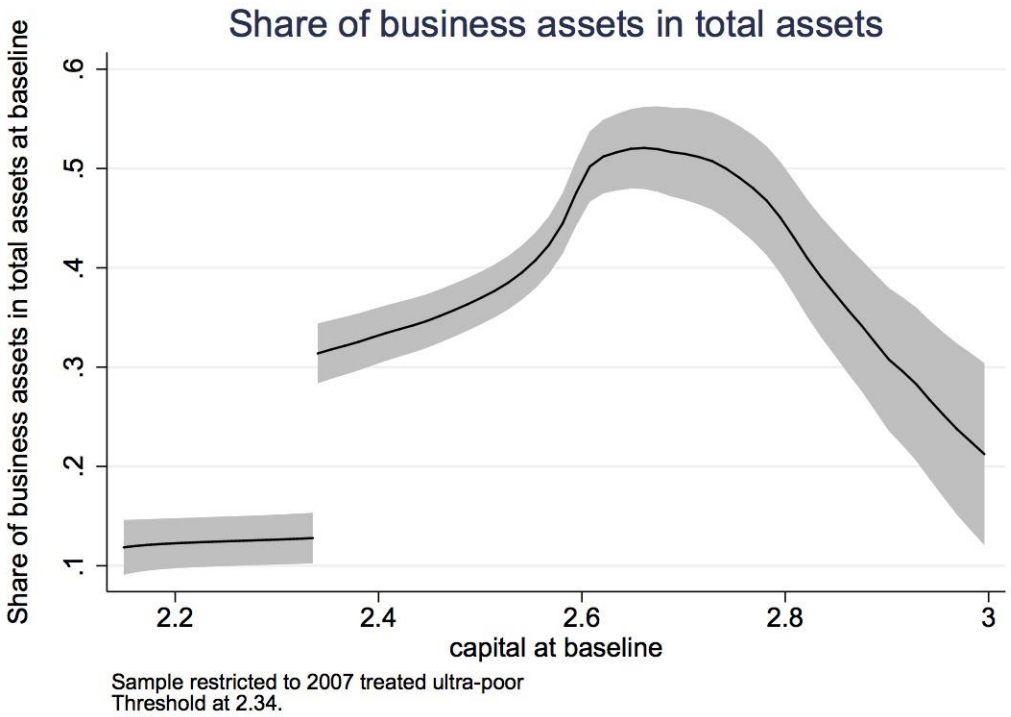


20%
DROP

More goats


Share of goats in total assets
Share of goats in total assets at baseline
0
.05
.1
.15
.2
2.2
2.4
2.6
2.8
3
capital at baseline
Sample restricted to 2007 treated ultra-poor
Threshold at 2.34.

More business assets (esp rickshaw and boats)



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.

Alternative Explanations

Is this really a poverty trap?

- Identification exploits differences in baseline assets
- These could be correlated with traits – e.g. productivity - that determine the return to *k*
  - the estimated $\hat{k}$ is an average of different thresholds
  - no guarantee that people below it would be able to escape poverty had they been given enough

Other explanations?

We consider some other explanations to assess whether the patterns we observe can be explained by differences in productivity correlated with baseline assets

1. Missing mass test

2. Sorting test

1. Missing Mass Test

Could Missing Mass be Driven by the A's?

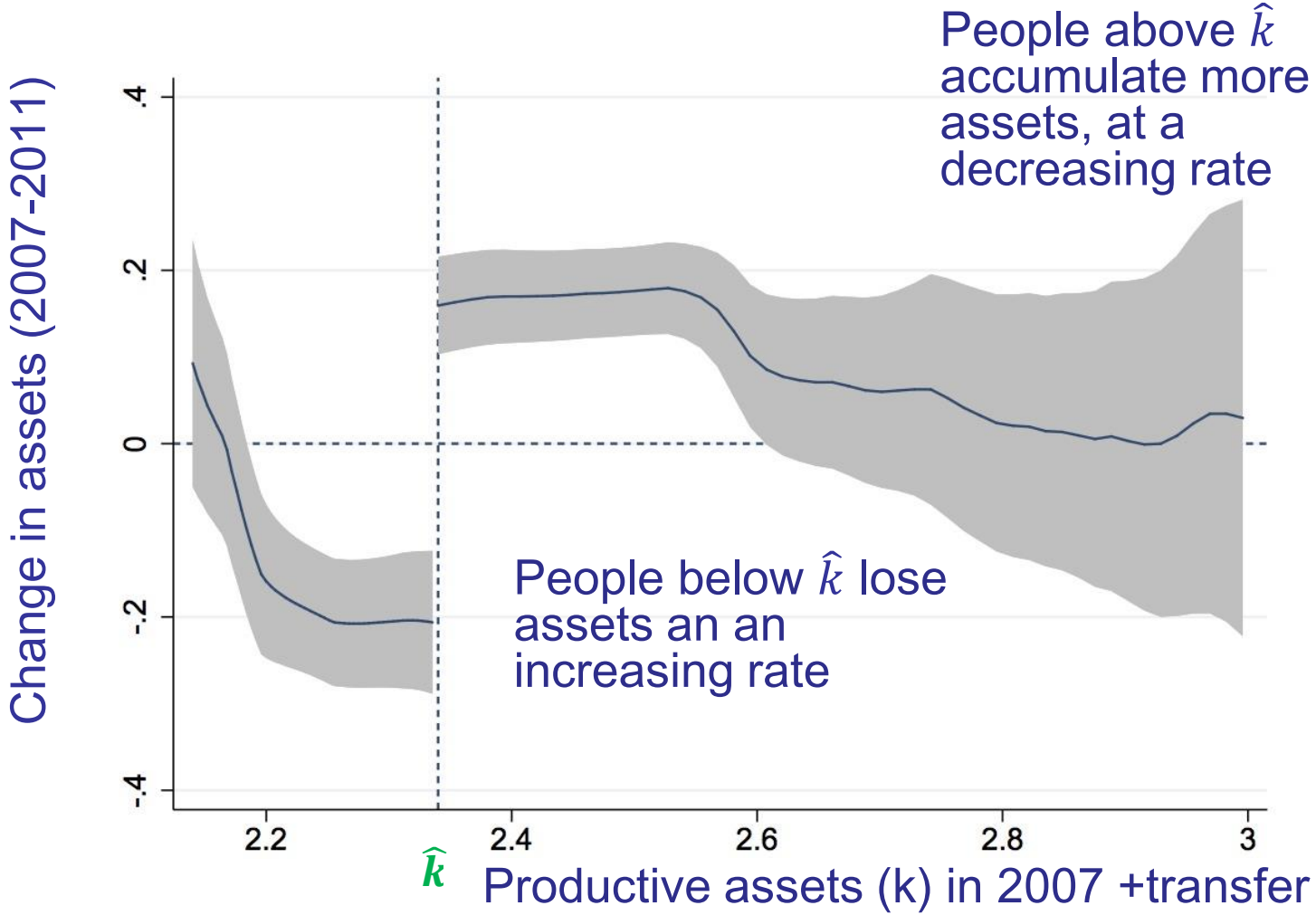
- One alternative explanation is that we are in the convergence world and A is correlated with baseline capital.
  - Individuals with low baseline capital have low A, and hence a low steady state, which they revert back to after the transfer.
  - Individuals with high baseline capital have high A, and hence a high steady state
  - They hadn't fully converged to it before the transfer, but the transfer accelerates their convergence (and training shifts the unique steady state)

Could Missing Mass be Driven by the A's?

- If this explanation was true, we would expect to see the change in assets to be increasing steadily in baseline assets, starting with negative change at low levels of baseline assets.

- Instead, we find the change to be decreasing in baseline assets below $\hat{k}$ and then there being a discontinuous jump.

Response to asset transfer in data, allowing for discontinuity

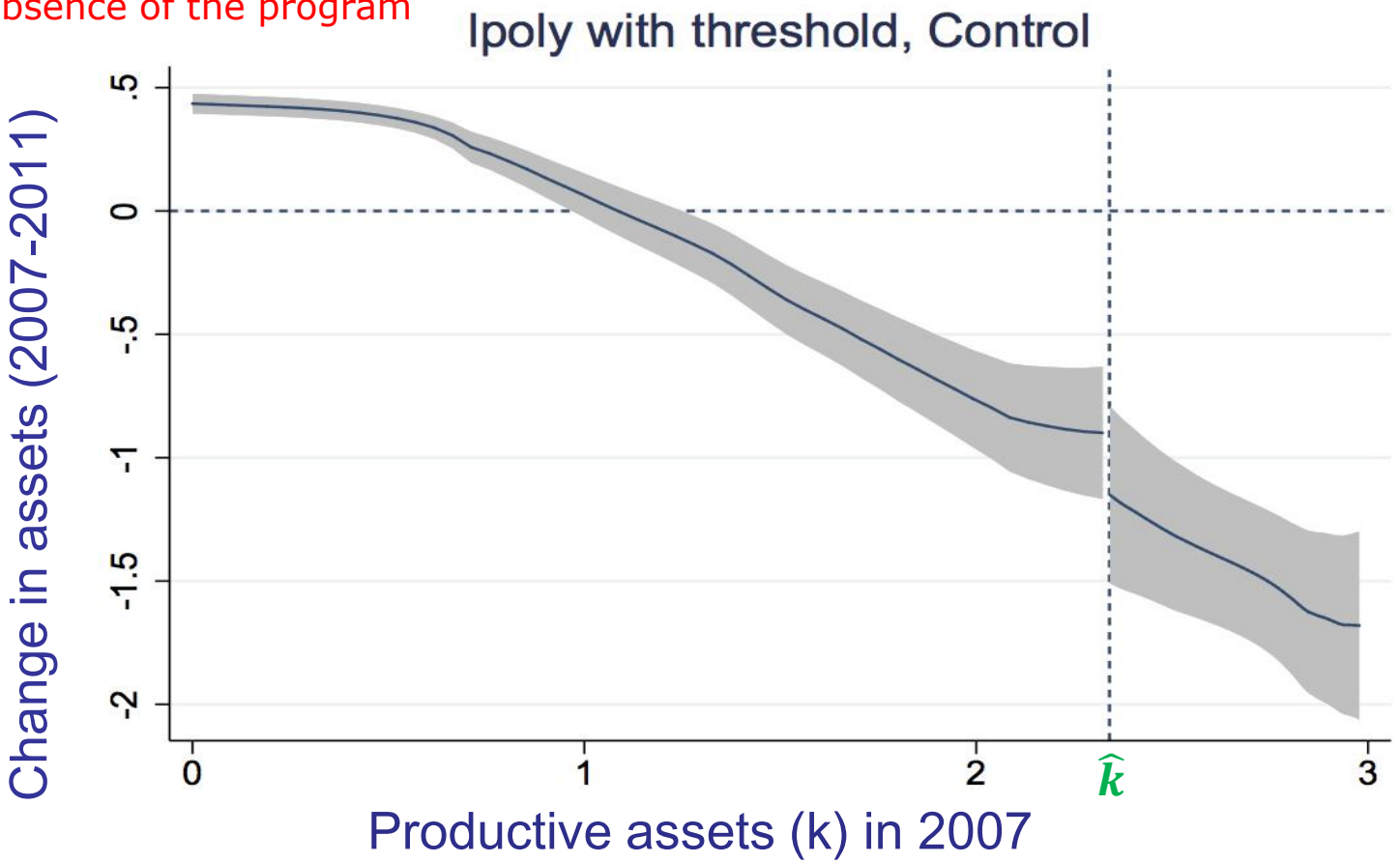


- For this to happen in the alternative explanation above, the relationship between A and baseline capital would have to follow a similar pattern, which is unlikely.

- Difficult to think of distribution of A that would produce the treatment pattern

Similar plot with the control group

This comparison of people with the same k in treatment and control rules out that the pattern we see is driven by shocks that hit at that level of k in absence of the program



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).

- Mean reversion - this is the pattern we would expect if individuals experience random shocks in each time period around some constant mean.

- Had it not been for the programme, people above $\hat{k}$ would have experienced a bigger loss due to mean reversion

- If individuals with higher baseline assets have higher A, hence high steady state level of capital, which they are still converging towards, this graph should be increasing.

- For example, people with high baseline assets have experienced a positive asset shock just before baseline and are more likely to display lower asset level in the next survey round.

- Rules out the conditional convergence explanation

Difference in difference estimates

	above $\hat{k}$	**below $\hat{k}$**	
treatment	.109	-.154	-.262***
control	-.026	.219	.244***
	-.134***	.372***	-.507***

This shows that hadn't it been for the treatment pushing people above $\hat{k}$ to the new high SS, people with higher k would have been more likely to lose assets (mean reversion to low SS)

Innate traits (A)

- Assume 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

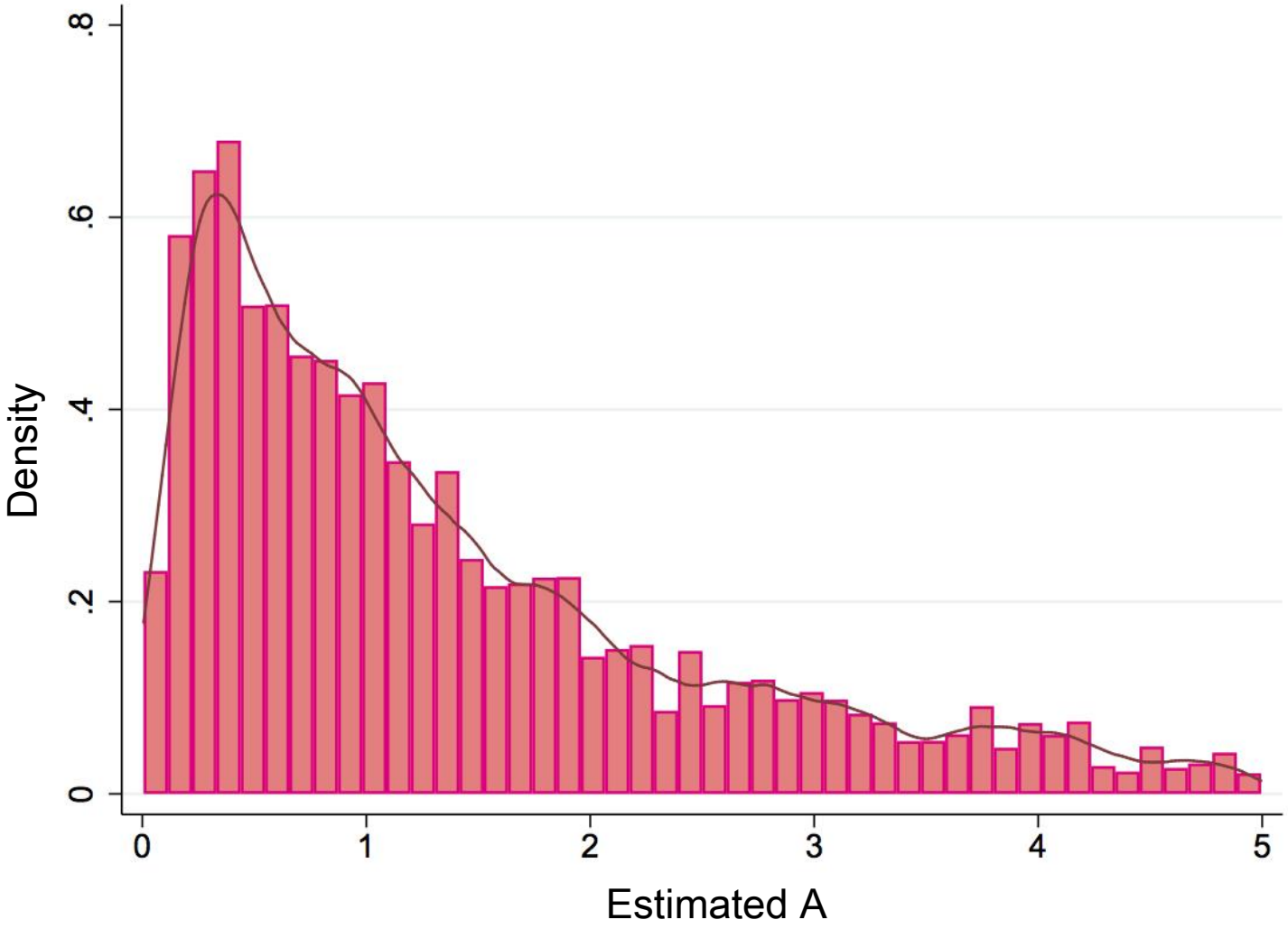
- $y_{i,t}$ is total income of the respondent, $K_{i,t}$ is productive assets, $L_{i,t}$ is total hours worked, $H_{i,t}$ is respondent's years of education, γ_i is an individual fixed effect, δ_t is a time fixed effect, $\varepsilon_{i,t}$ is an idiosyncratic error, and $t \in \{2007, 2009, 2011\}$.

- 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).

Could Missing Mass be Driven by the A's?
But A is unimodal - cannot explain the bimodality in assets



2. Sorting to Occupation Test

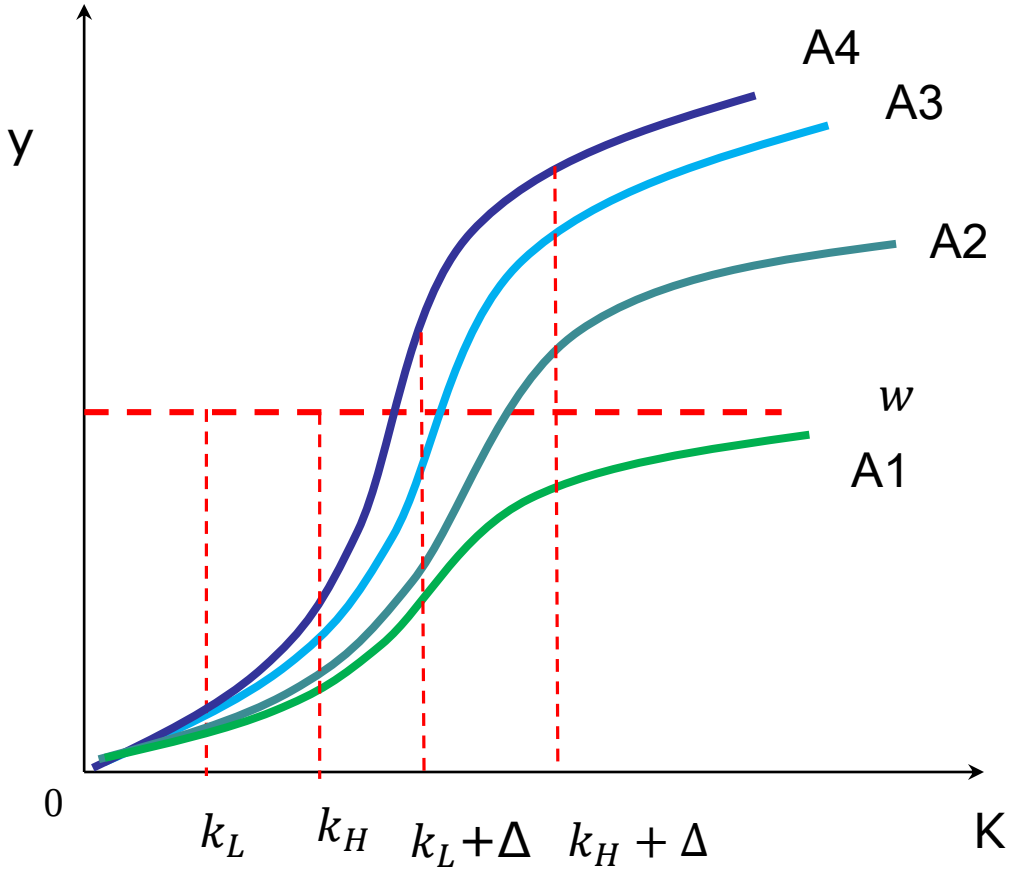
Sorting when A is uncorrelated with k_0

2 types of k_0: low and high

4 As in each type

before transfer both types are in wage labor

after the transfer, only the brightest of low (A_4) but almost all of the high move to livestock



The average A for switchers is ***decreasing*** in k_0
The max A for switchers is ***constant*** in k_0
The min A for switchers is ***decreasing*** in k_0

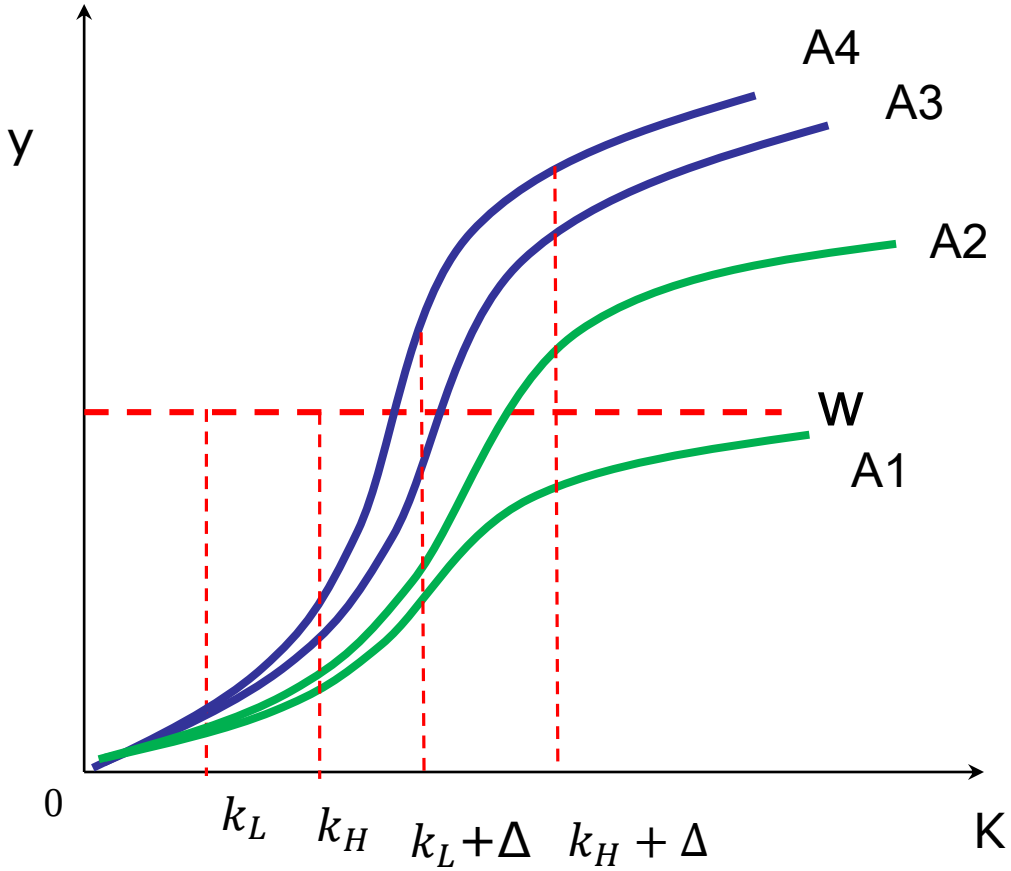
Sorting when A is correlated with k_0

2 types of k_0 : 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

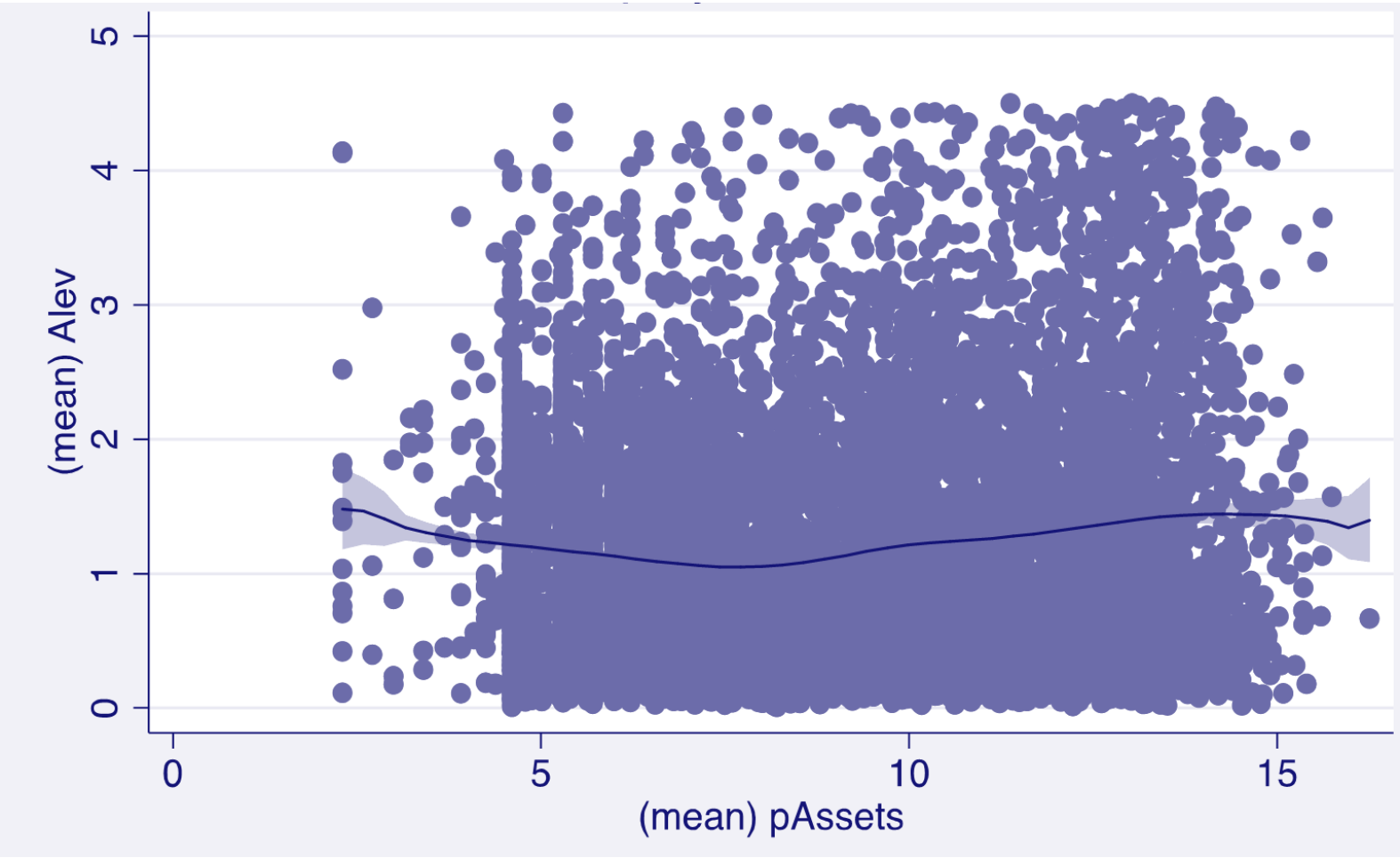


The average A for switchers is ***increasing*** in k_0
The max A for switchers is ***increasing*** in k_0
The min A for switchers is ***increasing*** in k_0

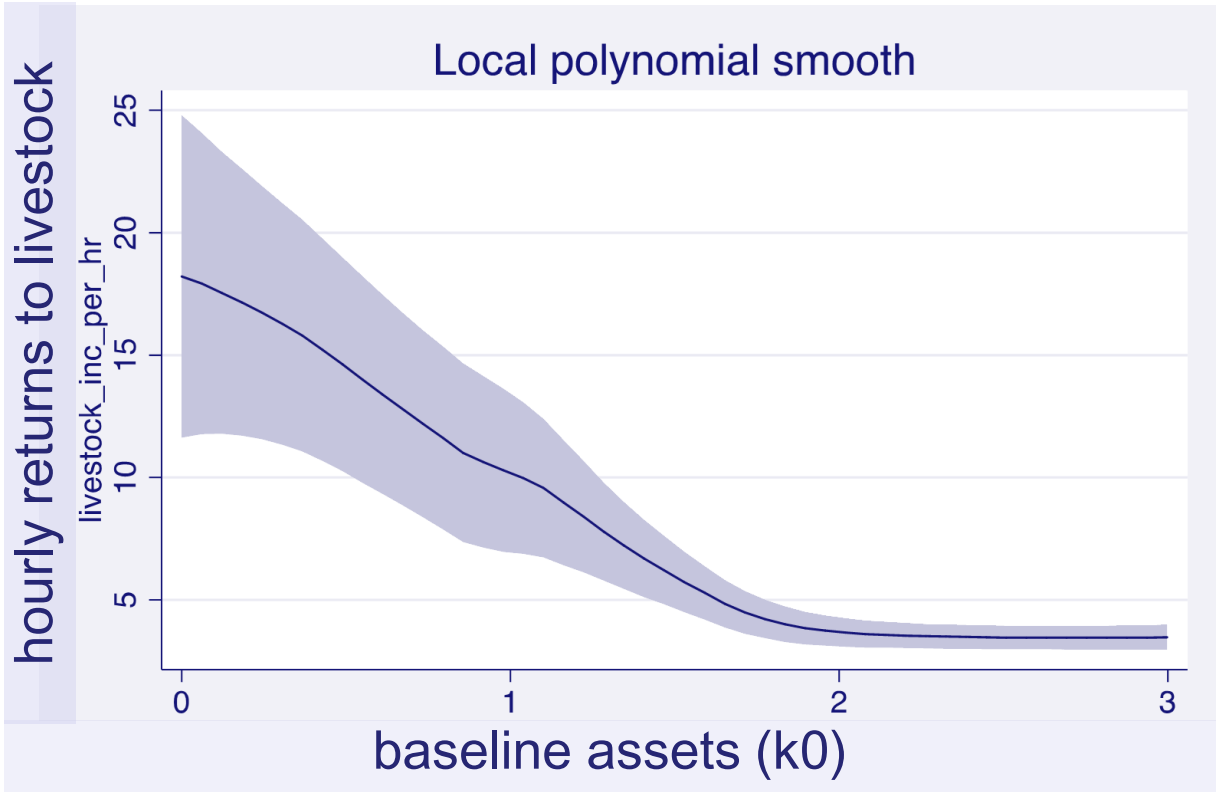
Implications of cov(k_0,A)=0 (vs cov(k_0,A)>0)

1. The average A for switchers is ***decreasing*** in k_0 (increasing)
2. The max A for switchers is ***constant*** in k_0 (increasing)
3. The min A for switchers is ***decreasing*** in k_0 (increasing)

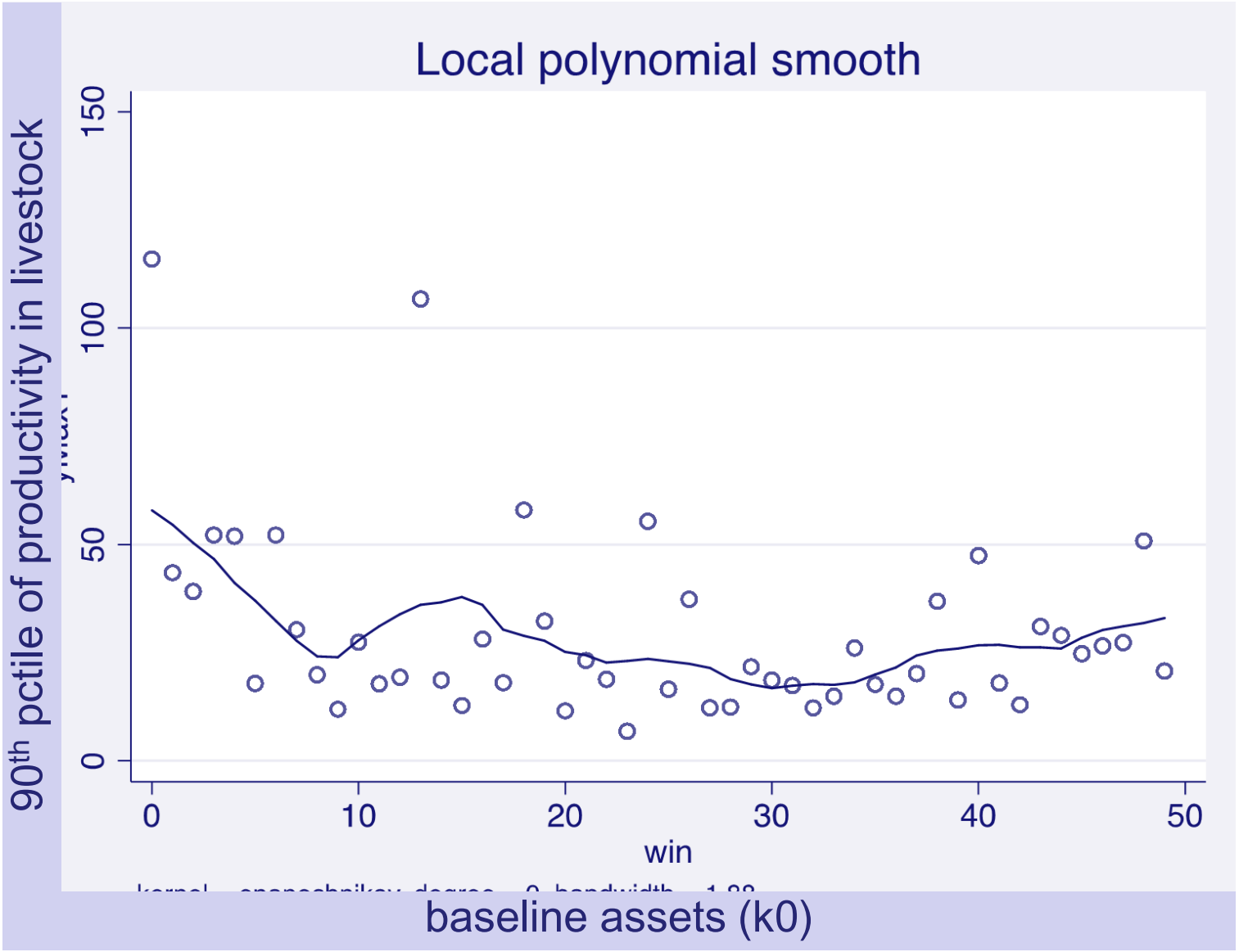
A is not correlated with k_0



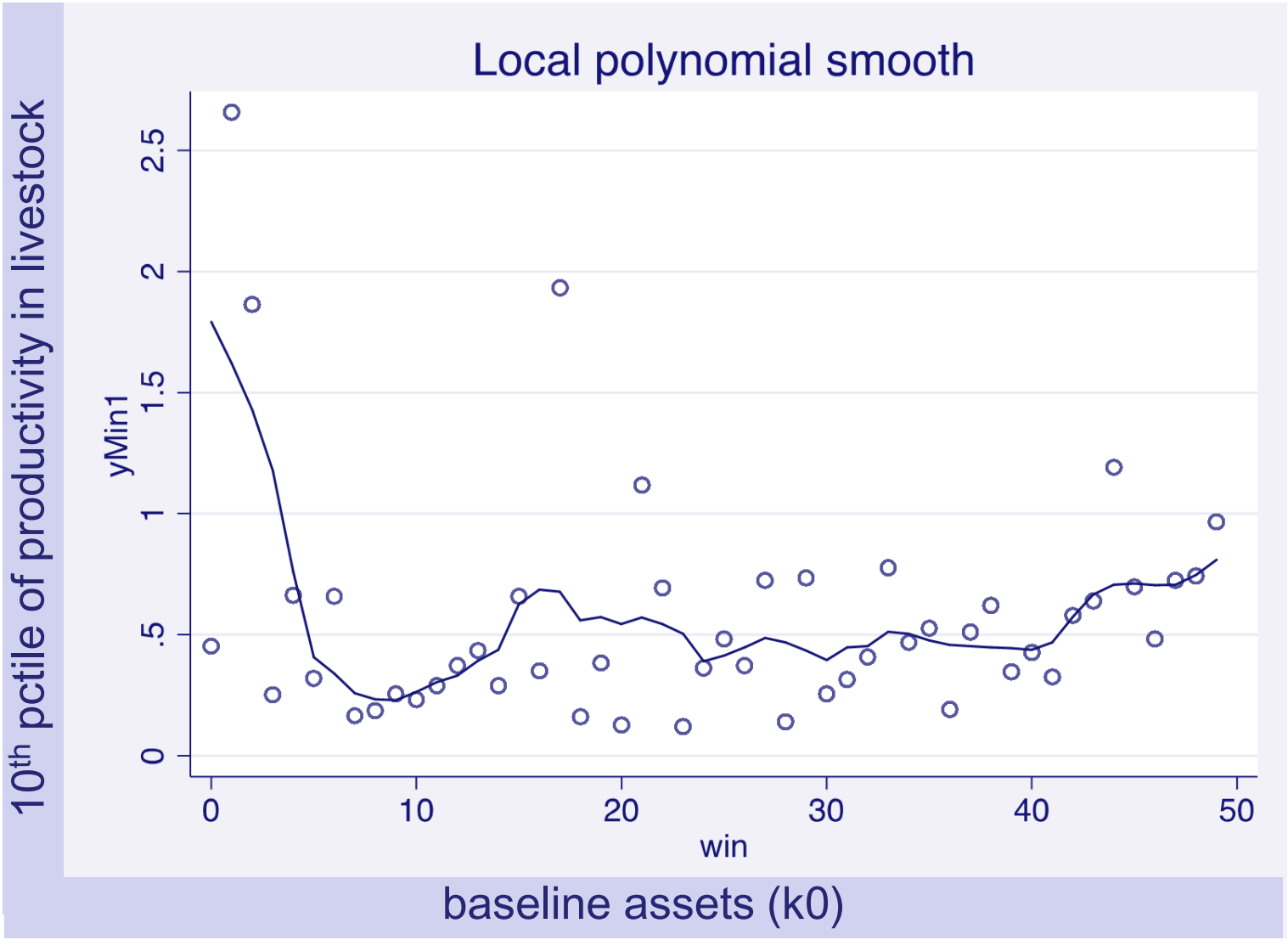
1. Average productivity of switchers is decreasing



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~~) ✓

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

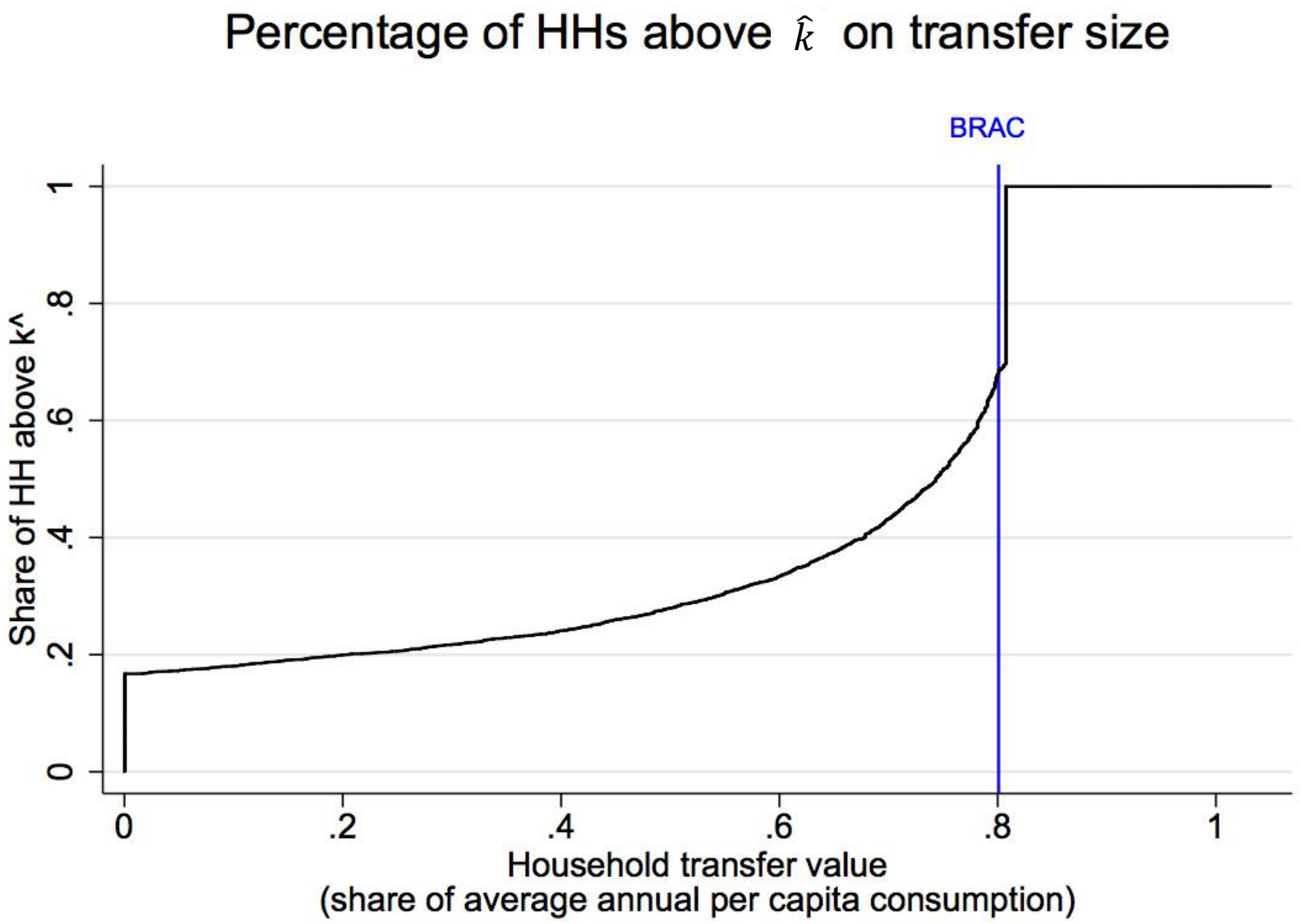
The evidence in one slide

- 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)

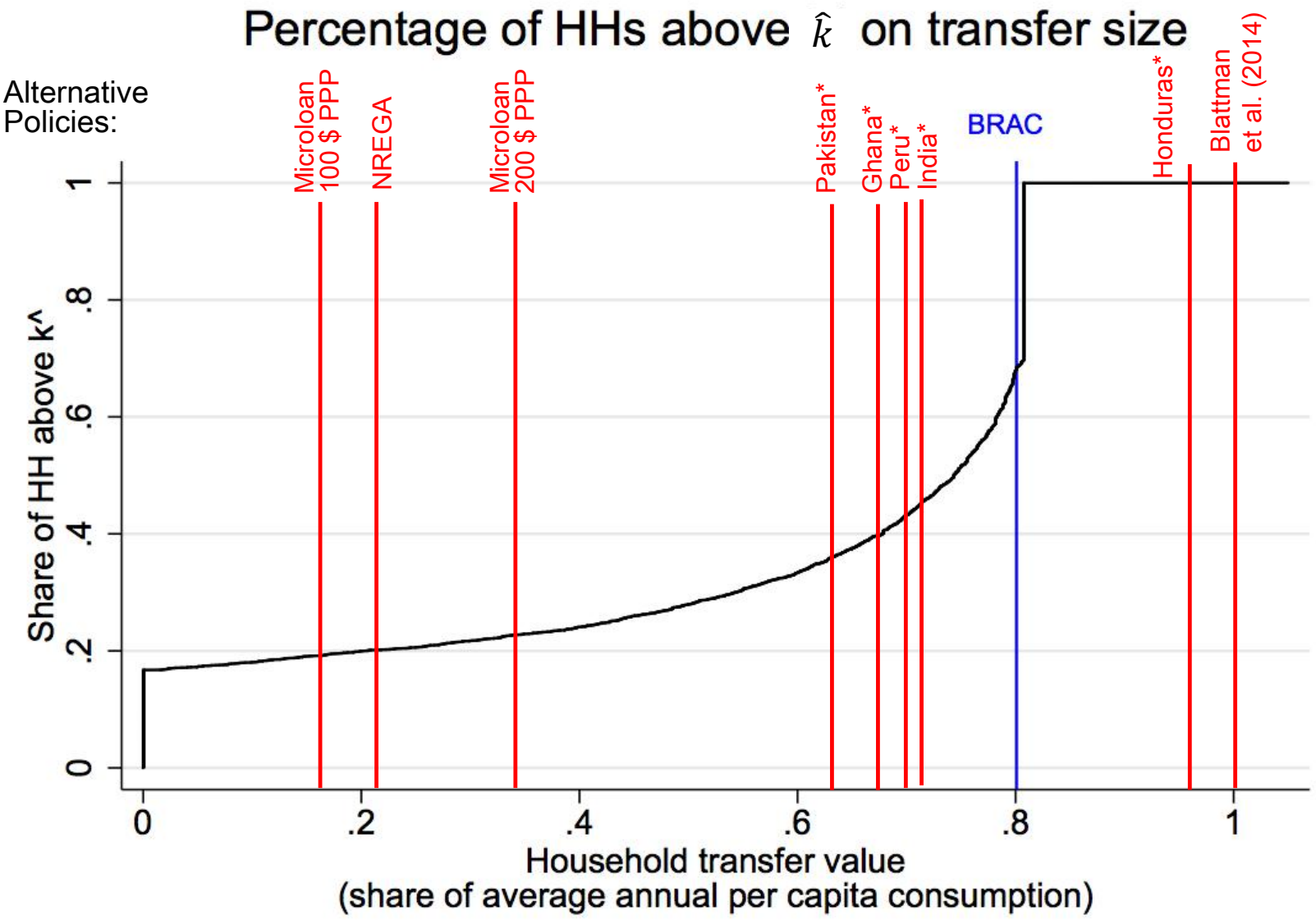
Policy implications

- 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
- For average effects to be high, need large number of people to cross the hump

A big problem requires a big solution



A big problem requires a big solution



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

References of studies mentioned in the figure

- "A multifaceted program causes lasting progress for the very poor: Evidence from six countries" Banerjee et al; *Science,* May 2015. They test a graduation program very similar to the one in Bangladesh in different locations.

- "Generating Skilled Self-Employment in Developing Countries: Experimental Evidence from Uganda" Blattman et al; *QJE,* 2014. They give unsupervised cash grants to groups of young adults who submitted grant proposals for vocational training and business start-up.

- The transfer value of NREGA is calculated from the paper: Imbert and Papp (2015): Labour Market Effects of Social Programs: Evidence from India's Employment Guarantee, *AEJ Applied Economics*.

Policy Implications

- 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