Why Do People Stay Poor?

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with

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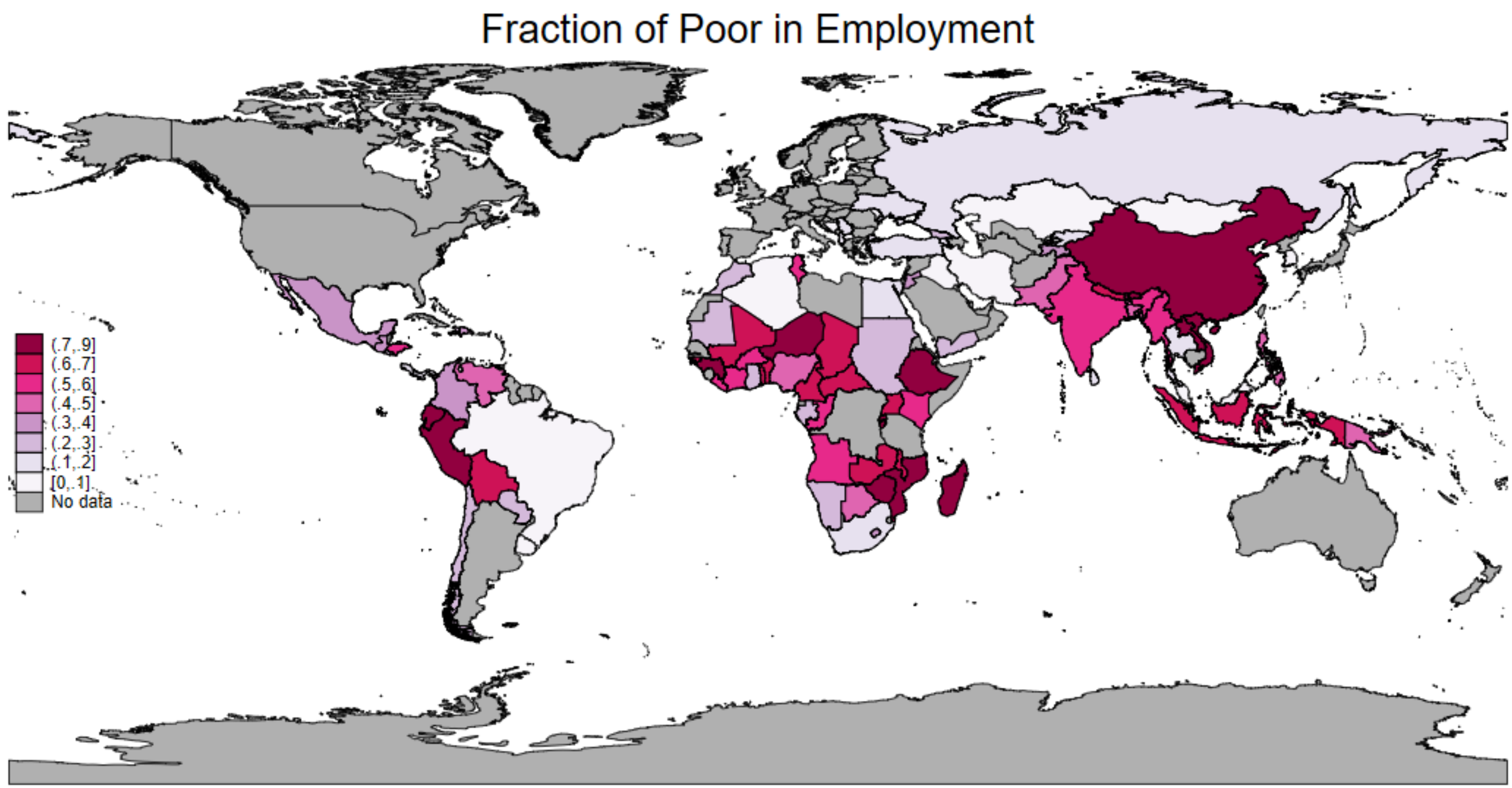
Most of the global poor work



Source: ILO, World Bank Povcal. Poverty is defined as those living on <$1.90 PPP per day

Why do people stay poor?

- Labor is the sole endowment of the poor $\rightarrow$ the link between jobs and poverty is key
  - Over 65% of workers (2bn people) are in low-productivity, informal jobs with low earnings (WB 2013)
  - 98% of agricultural wage employment in India is through casual jobs in spot markets (Kaur 2017)

We ask

Do people stay poor because they are only able to do bad jobs or do they do bad jobs because they are poor?

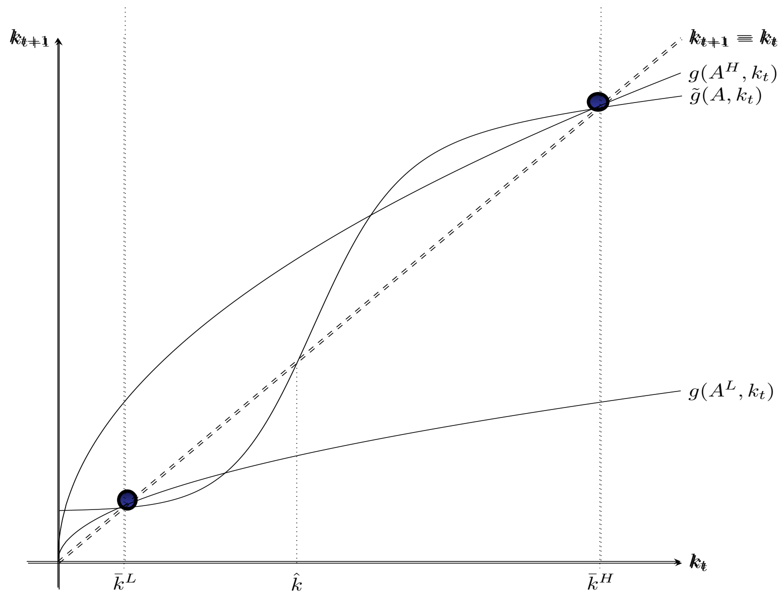
Poverty traps

- The idea of poverty traps (multiple steady states/ equilibria) has a long history in macro and micro development theory (Rosenstein-Rodan 43, Nelson 56, Dasgupta & Ray 86, Banerjee & Newman 93, Galor & Zeira 93, Azariadis 96, Azariadis & Stachurski 06, Ghatak 16)

- Empirical investigations include calibrations with cross-country data (Graham & Temple 06), structural approaches with household data (Kabowski & Townsend 11), micro studies with observational data (Kraay & McKenzie 14, Lybbert et al 04, Barrett et al 06, Santos & Barrett 11)

- Recent field experiments relating to big push approaches (Banerjee et al 19, Blattman et al 13, 19, Haushofer & Shapiro 16, 18 – see Banerjee 20 for an overview)

People (countries) are observed at two equilibria, H and L



- Is it because of productivity differences?
- Or poverty traps?

Finding the answer is key for policy

- In the first world people with the same productivity will reach the same steady state → climb out of poverty no matter how low they start
- In this world, anti-poverty policies support *consumption*
  - drip feeding transfers will help people climb the hill
- In the second world, wealth at birth determines the steady state → in this world there is no way out without a big push
- In this world, anti-poverty policies support *production*
  - a large increase in productive assets is needed to get out of the poverty trap

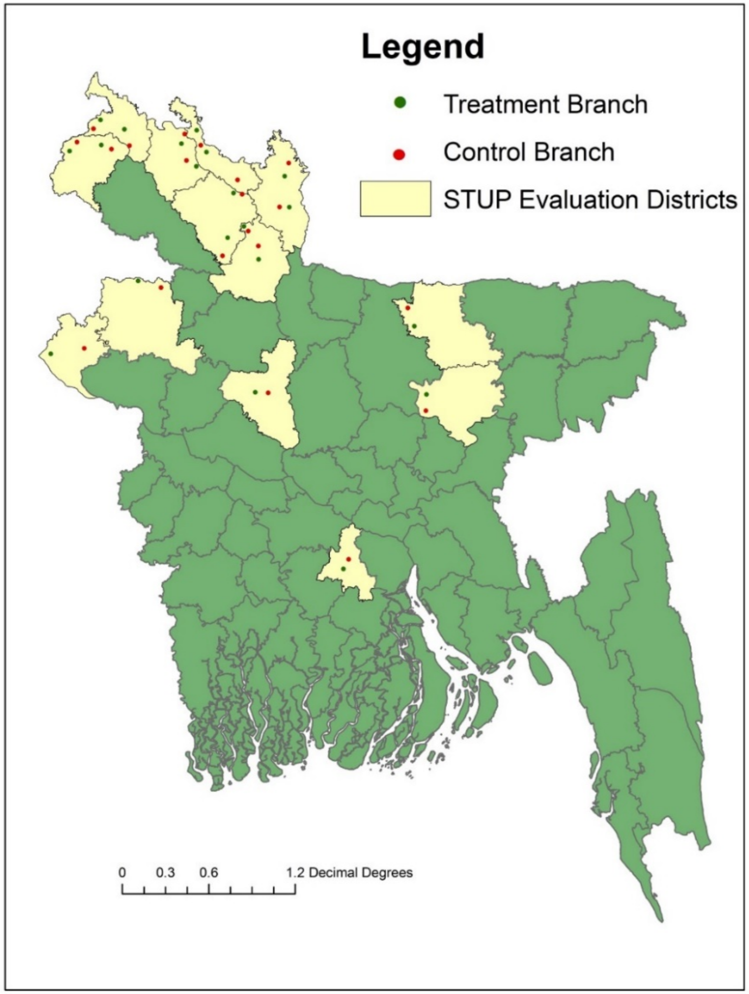
This paper

- We use the RCT of a large asset transfer program in Bangladesh and trace effects over 11 years to test directly for a poverty trap
- We estimate a structural model of occupational choice to back out the implied misallocation

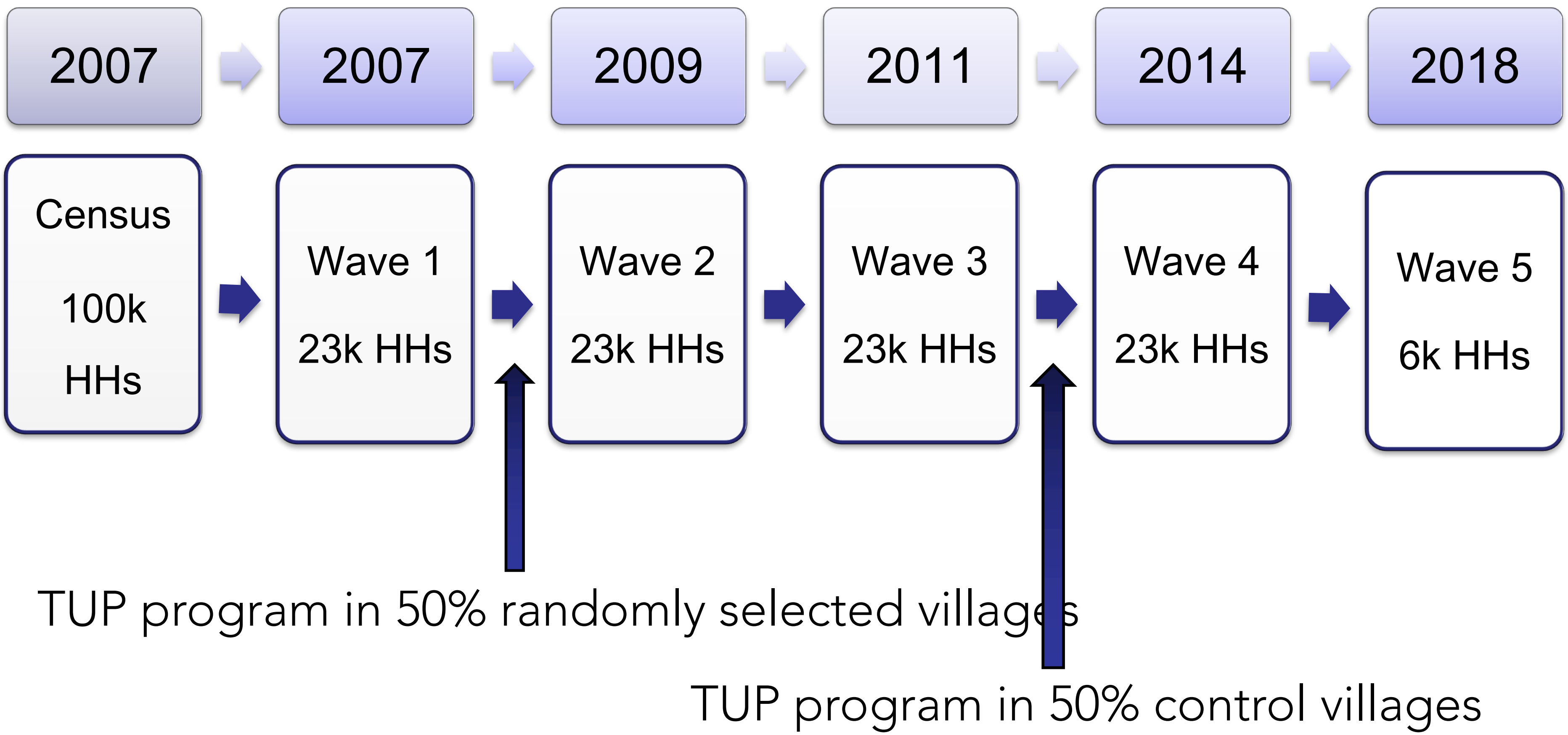
Setting

Study site: 23,000 HHs in 1,309 villages in Northern Bangladesh

Monga (famine) region: irregular demand for casual wage labor, higher grain prices, extreme poverty and food insecurity



We collect a five wave panel over 11 years



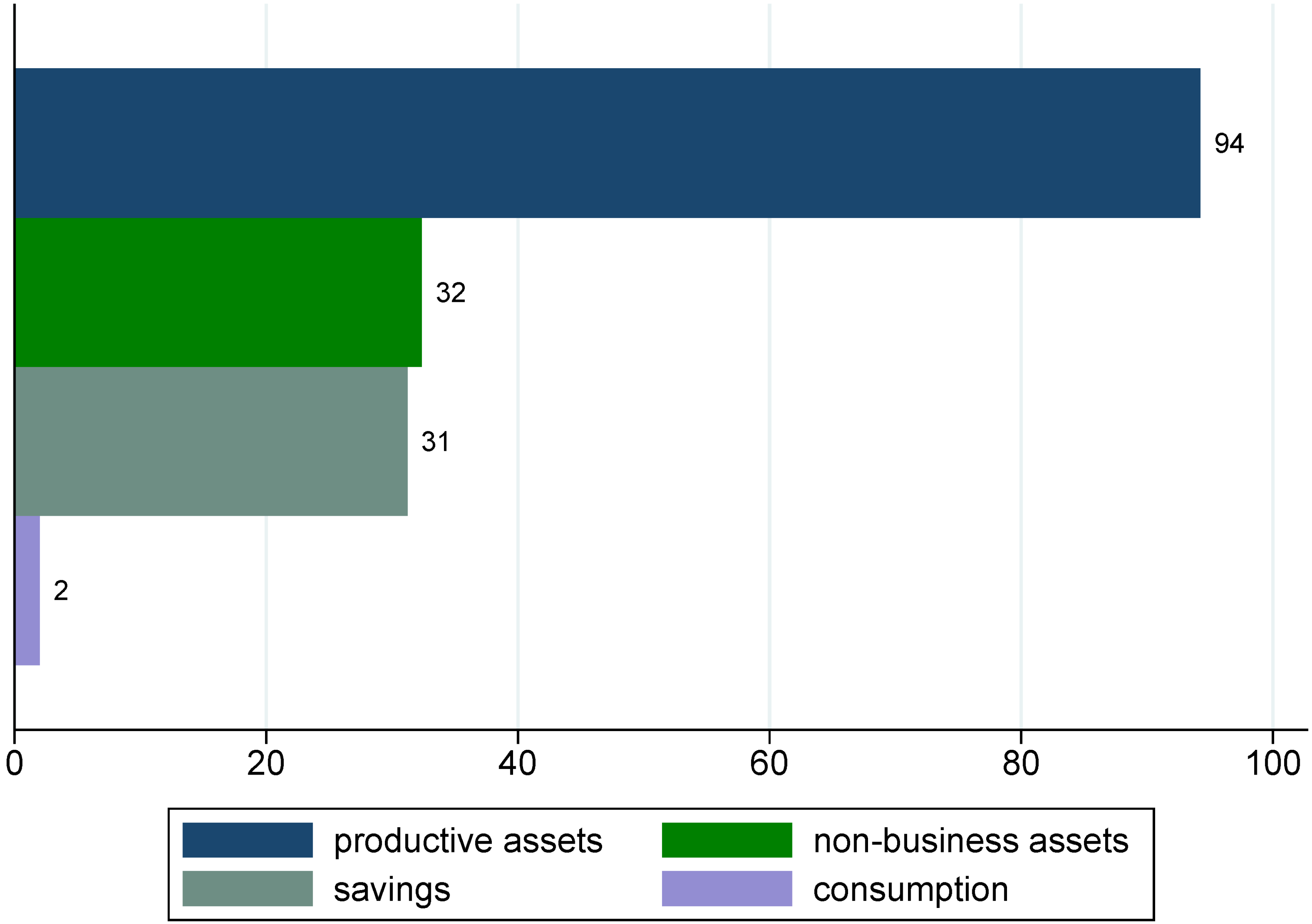
Poverty, occupational choice and assets

1. The poor stay poor
   - 3% poor control households reach median middle class assets

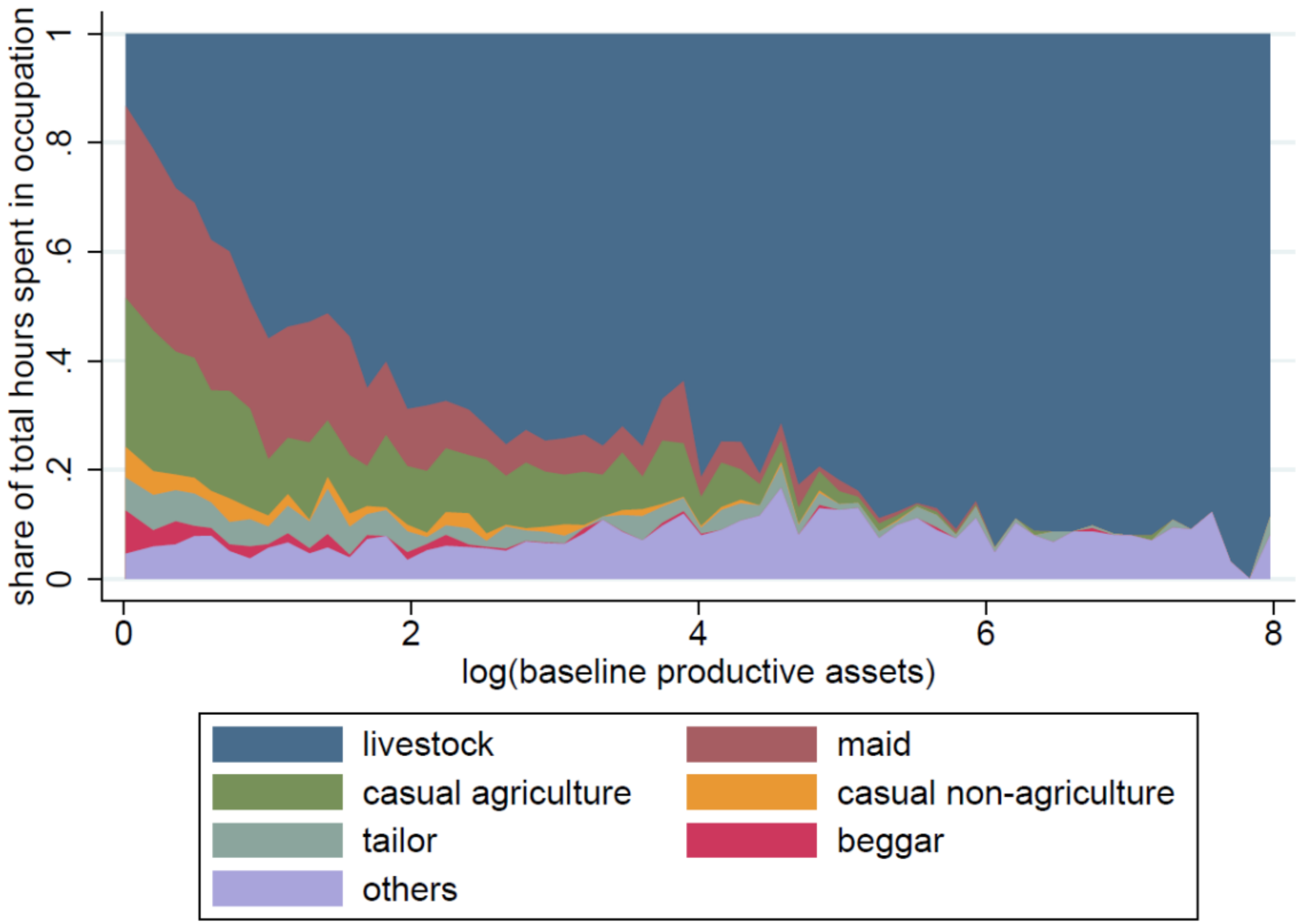
2. Hierarchy of jobs correlated with community-defined poverty
   - Poor casually employed in agriculture and domestic service
   - Richer self-employed in livestock rearing and land cultivation

3. Better jobs require productive assets
   - Productive assets set apart rich and poor: 94 times higher
   - Richer households own more expensive, indivisible assets

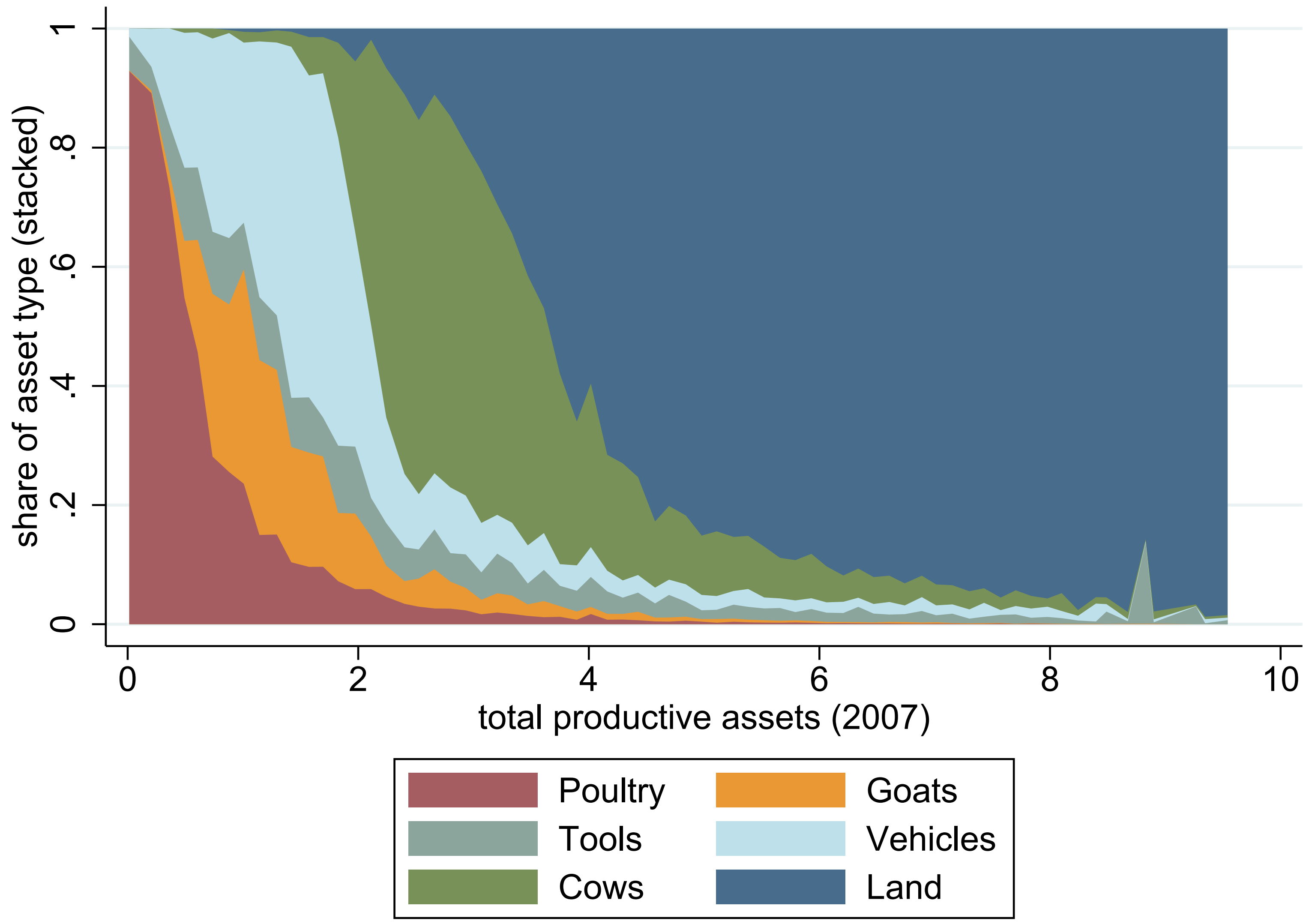
Fact 1: Key difference between classes is productive asset holdings



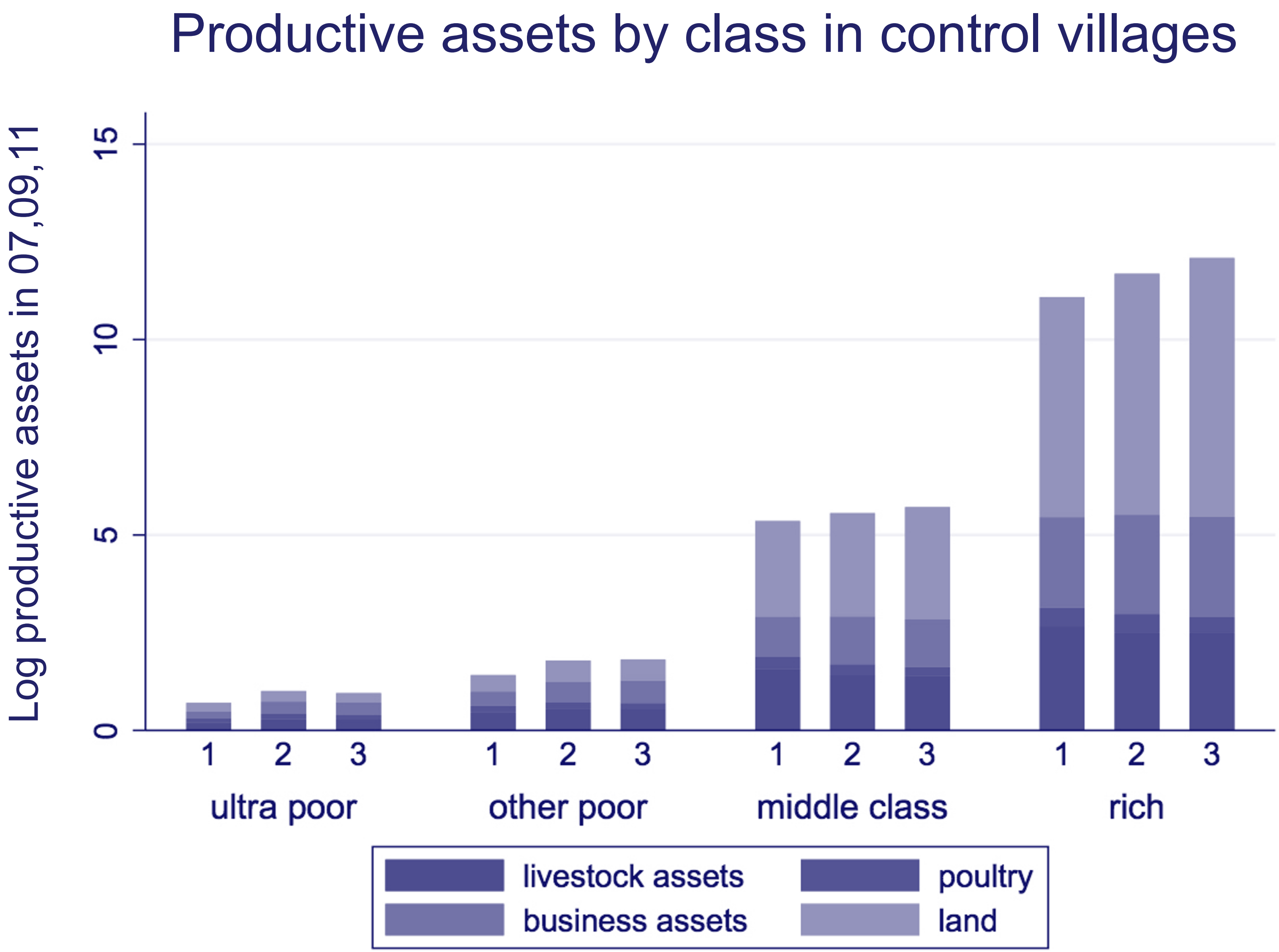
Fact 2: Occupational choice reflects differences in asset ownership



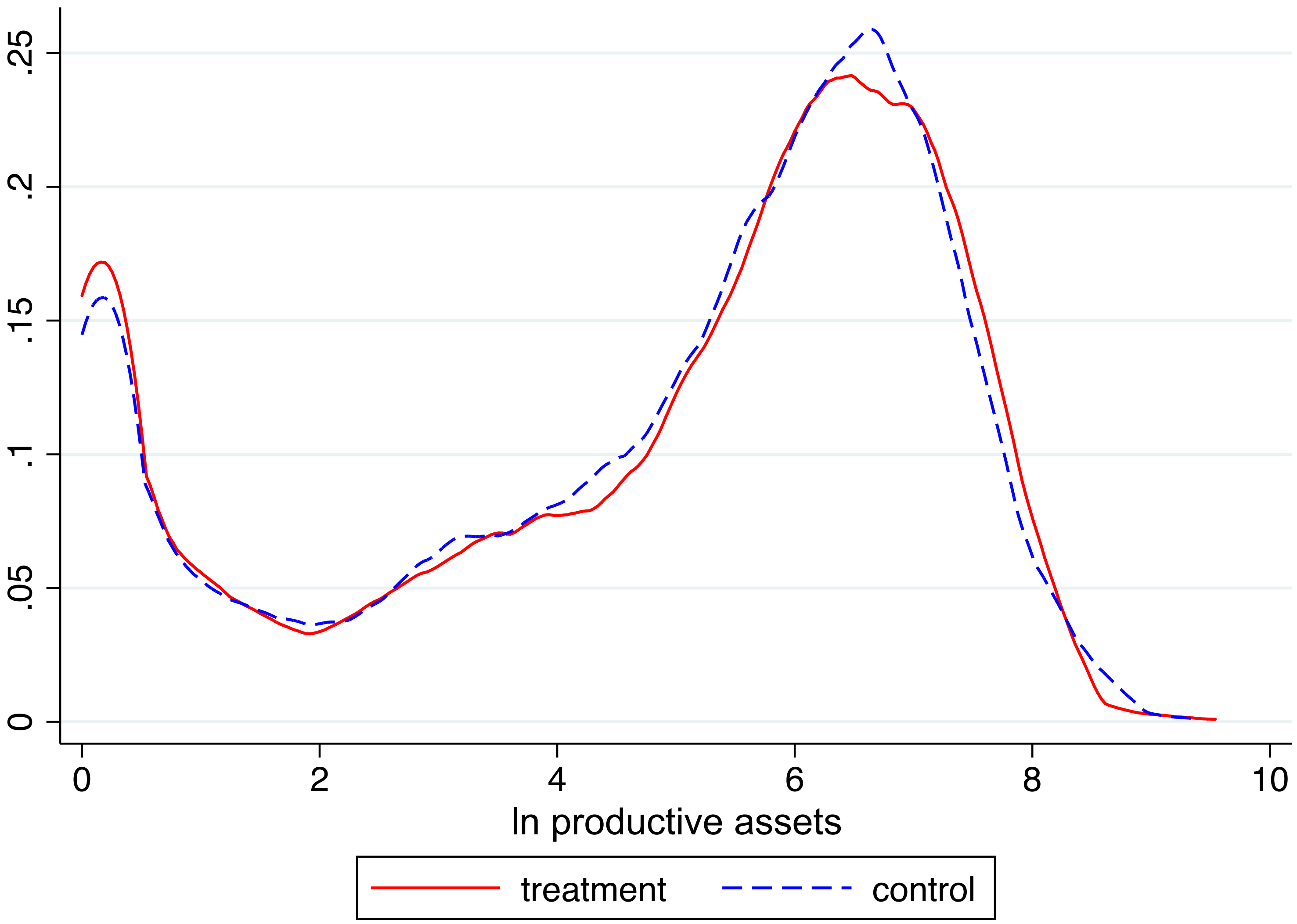
Fact 3: More assets → more expensive assets



Fact 4: Poor people stay poor



Fact 5: The distribution of productive assets is bimodal

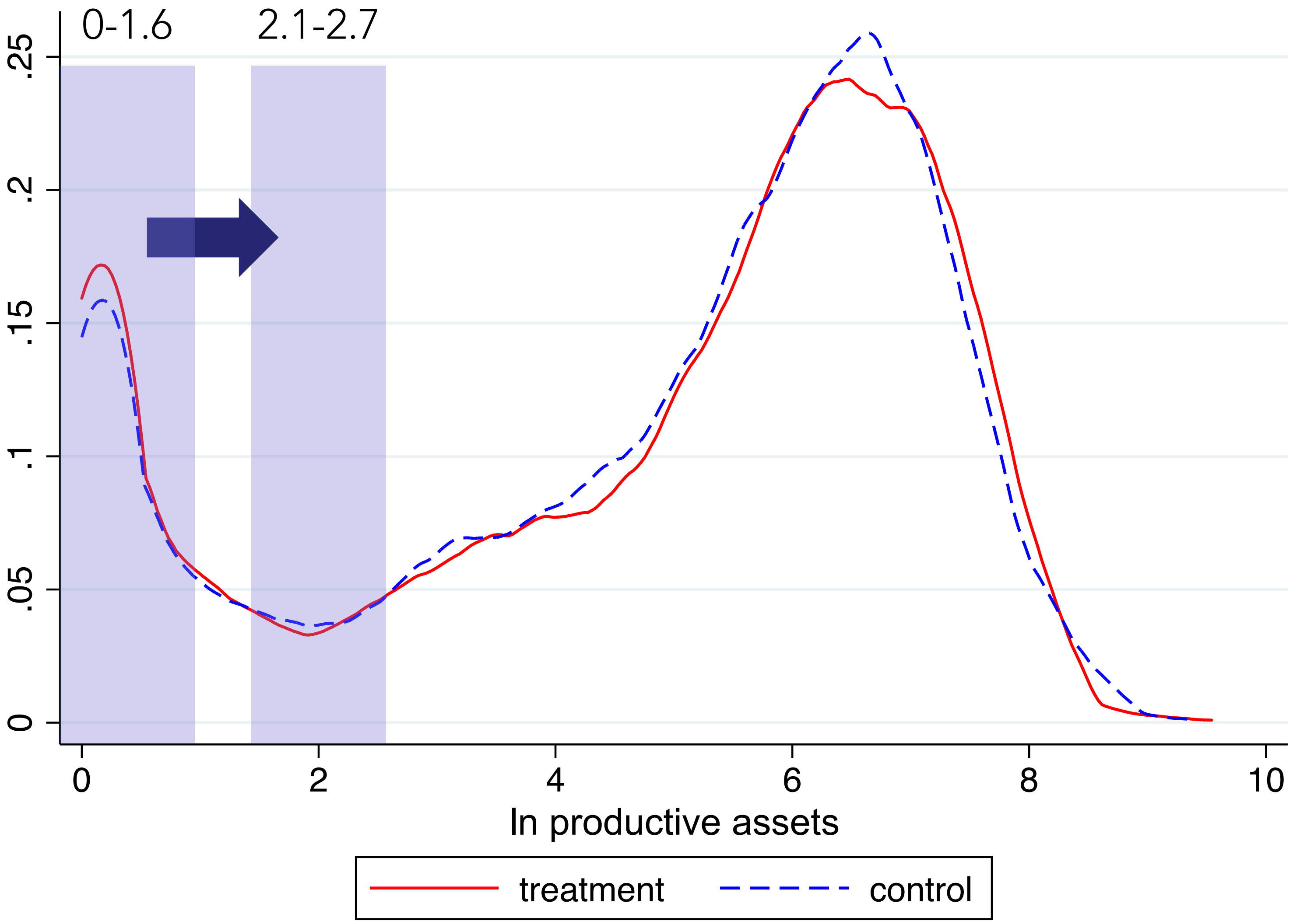


Test

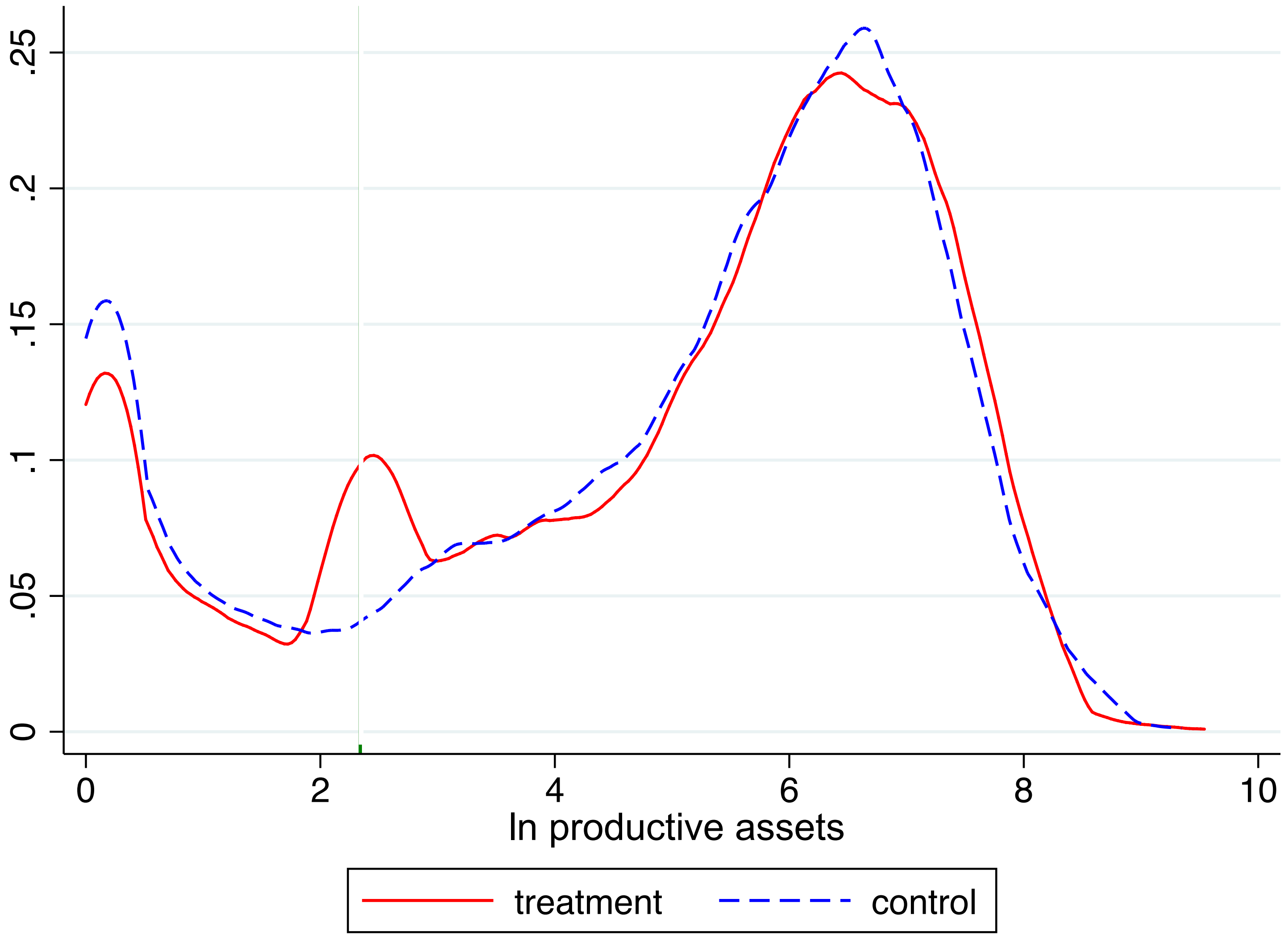
BRAC's Targeting the Ultra-Poor program

- Randomly allocated across areas
- Beneficiaries are the poorest women in these villages
- Program transfers a large asset (a cow) and training
- Value of the asset = 1 year of PCE (5x typical microloan)

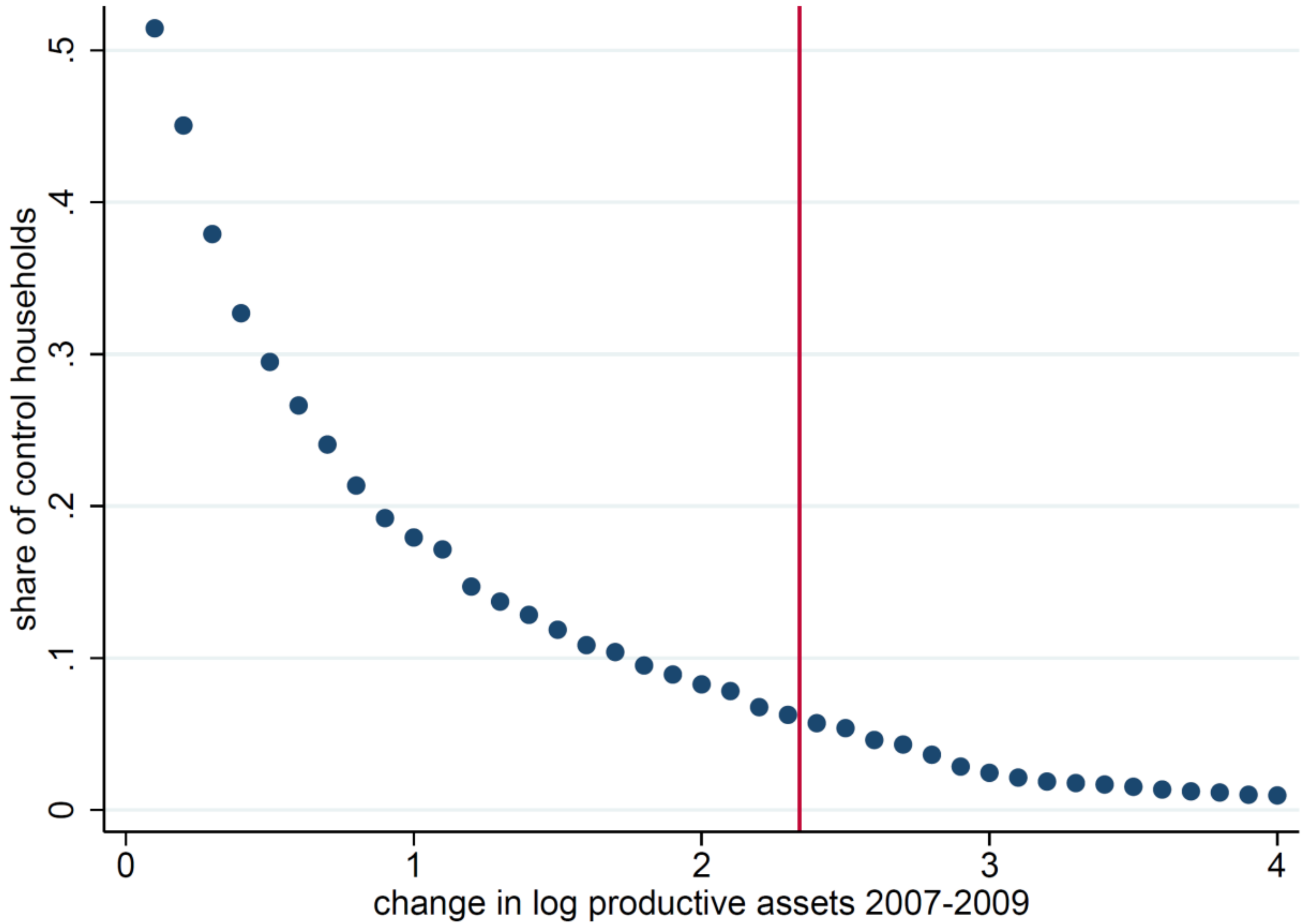
Program moves the poorest into the lowest density area



After transfer



Shocks of this magnitude are very rare

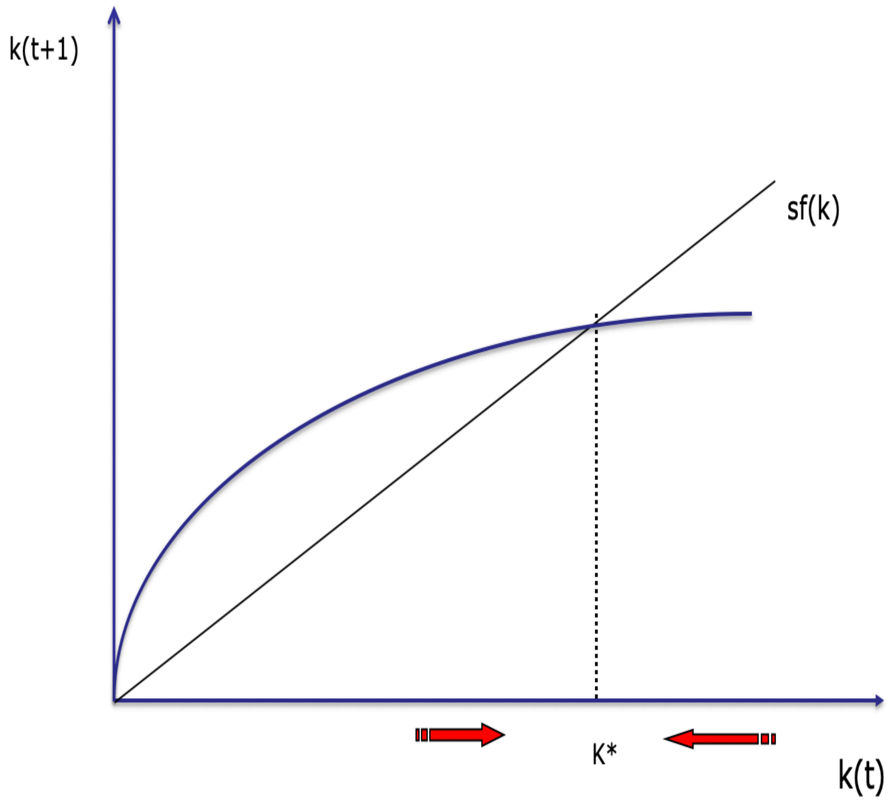


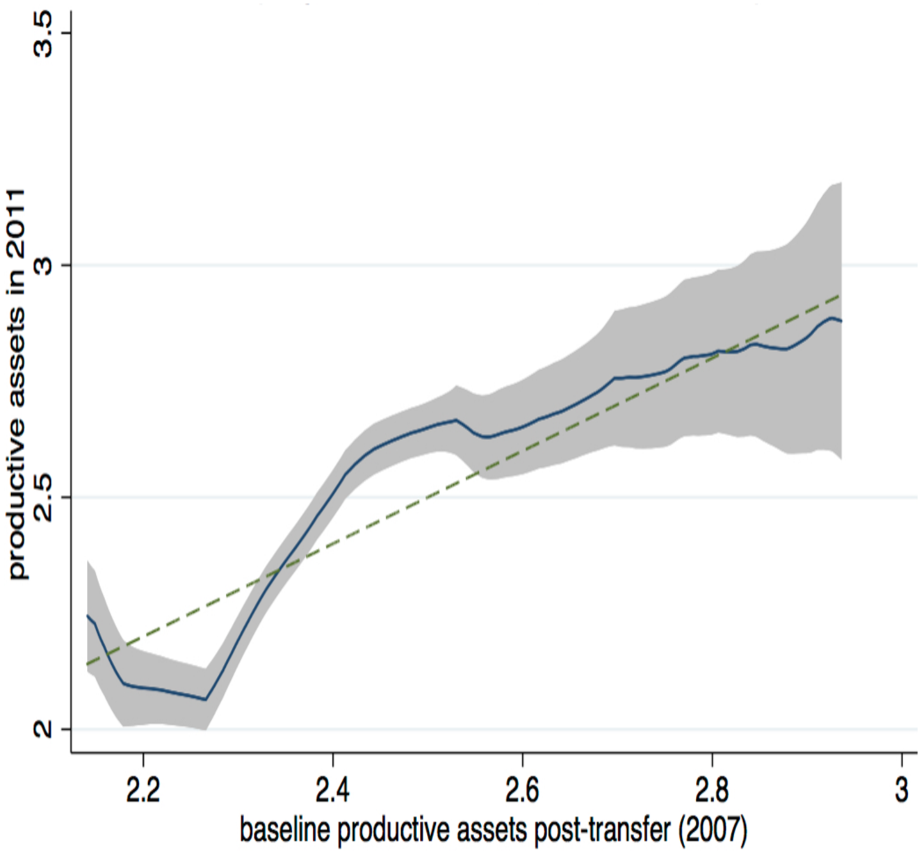
Our test

- Poverty traps and differential productivity are observationally equivalent in steady state
- But they produce different transition equations
- A necessary condition for poverty traps is that the transition equation is not concave
  - Exploit differences in baseline assets to estimate transition equation from k_{2007} to k_{2011}
  - Test predictions of poverty trap model up to 11 years post-transfer

Findings

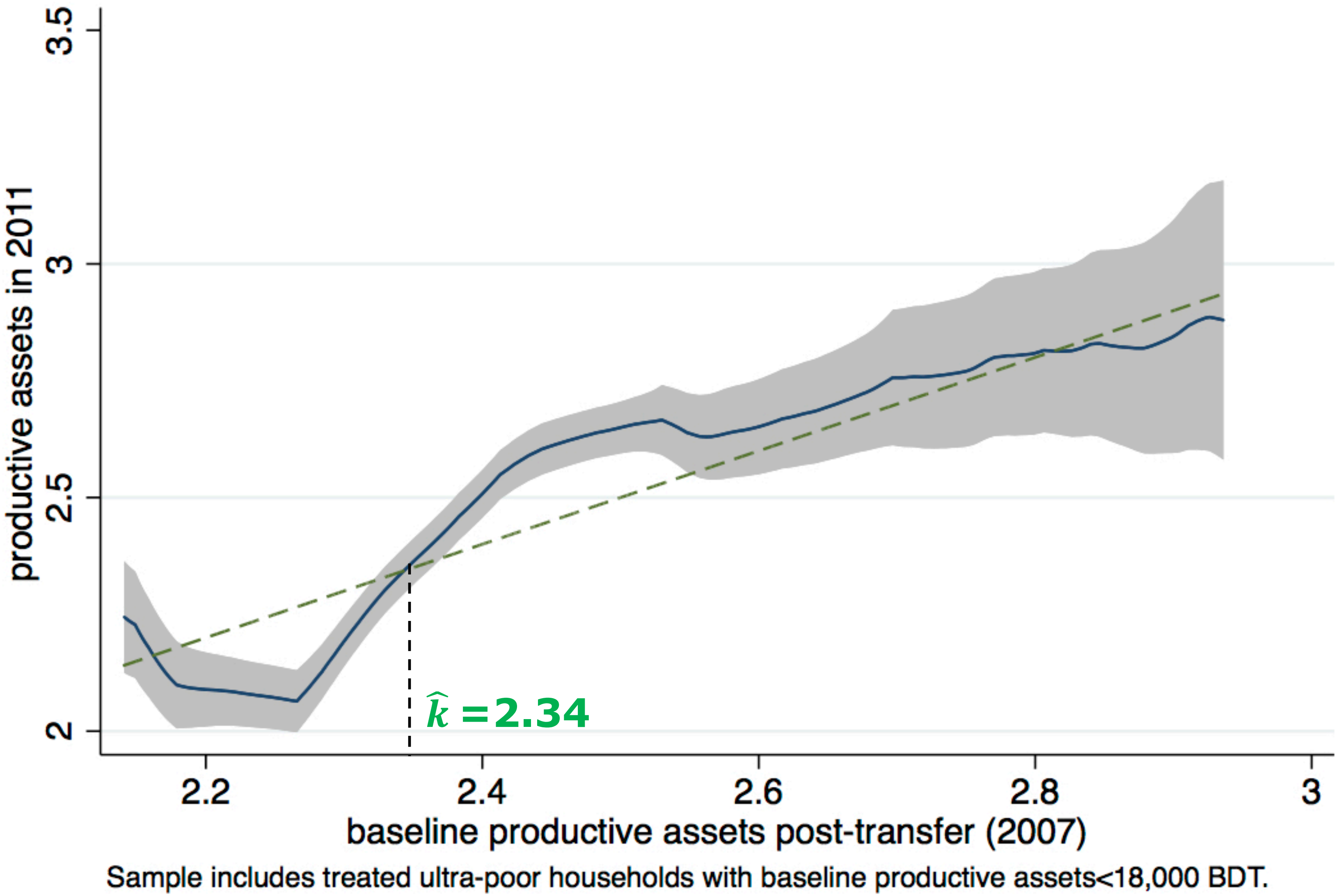
The transition equation and the poverty trap



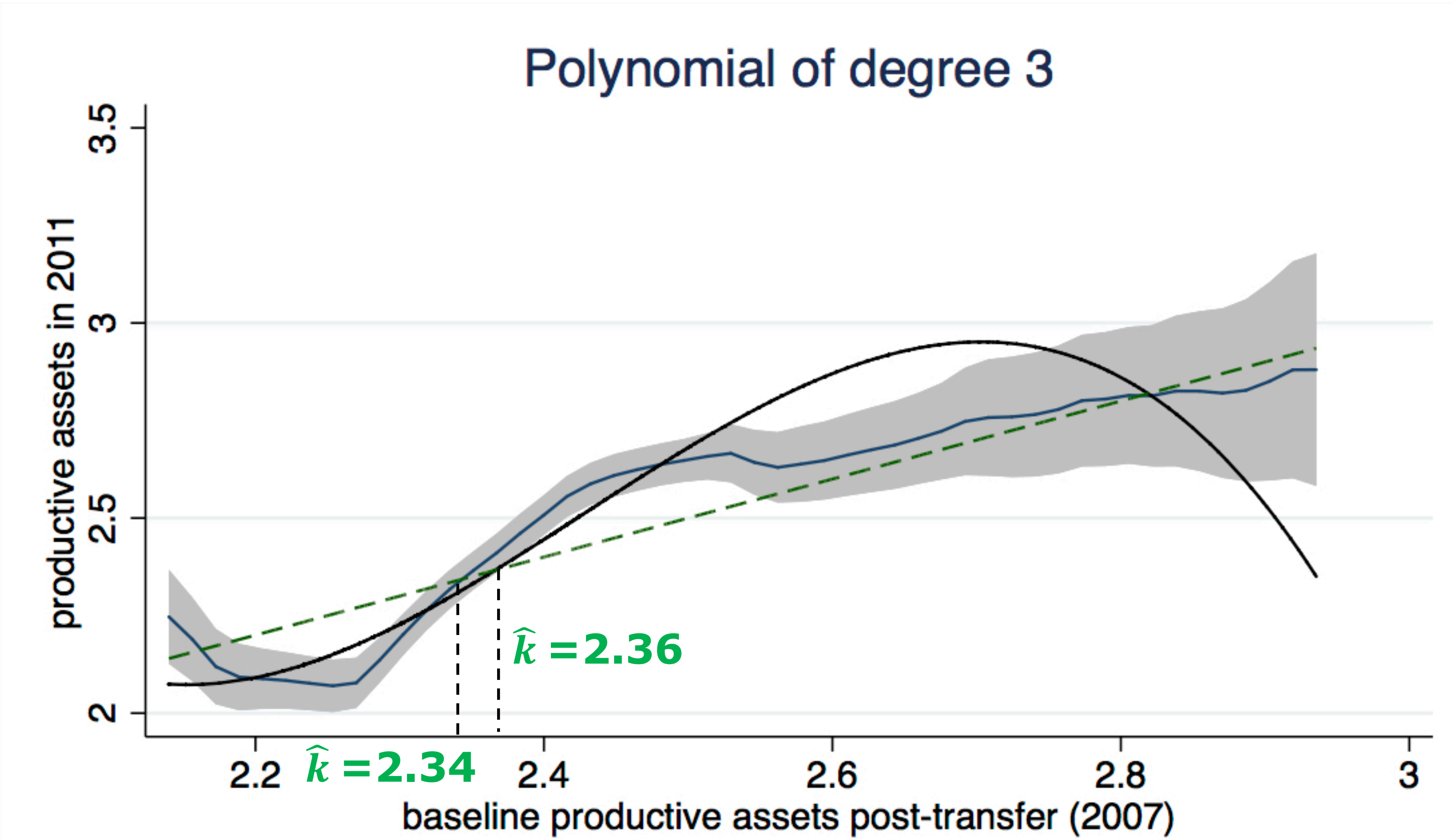


Sample includes treated ultra-poor households with baseline productive assets<18,000 BDT.

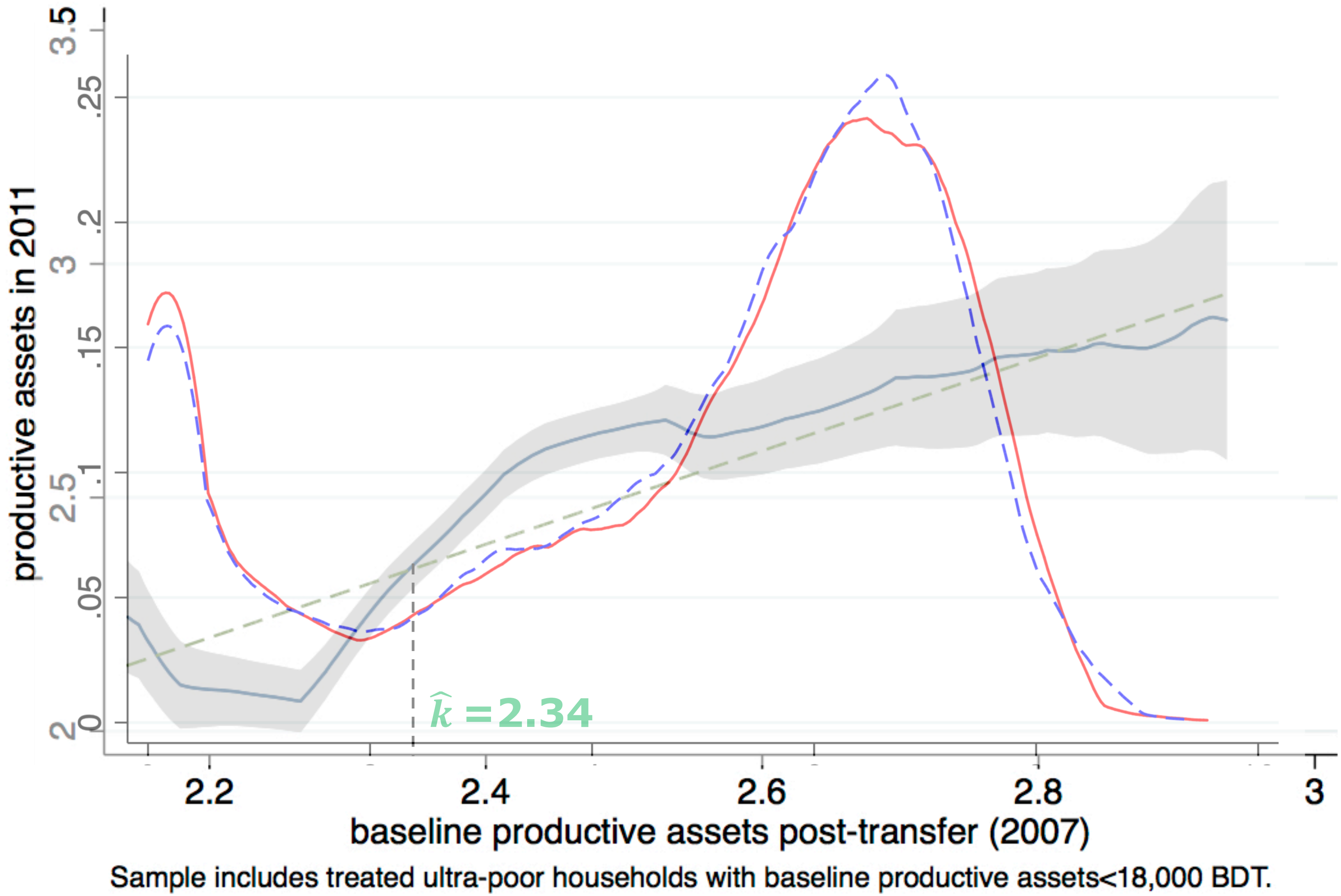
The transition equation is S-shaped



Parametric identification gives similar answers



The unstable steady state is at the point of lowest density



K^ is unstable

	Dependent variable: Δ_i				
	(1)	(2)	(3)	(4)	(5)
	Treatment	Treatment	Control	Control	Both
above $\hat{k}$	0.297***	0.475***			
	(0.043)	(0.070)			
Baseline assets		-2.199***			
		(0.698)			
above $\hat{k}$ × Baseline assets		1.969***			
		(0.729)			
Treatment					
above $\hat{k}$ × Treatment					
constant	-0.138***	-0.282***			
	(0.033)	(0.057)			
N	3292	3292			

Identification

- Identification is based on differences in initial assets that are extremely small relative to the transfer but not randomized

- creating random variation in initial assets sufficient to estimate the whole transition equation is challenging as it requires several treatments

- individual randomization of transfer value problematic on ethical grounds and also likely to violate SUTVA

- village level randomization would require many villages

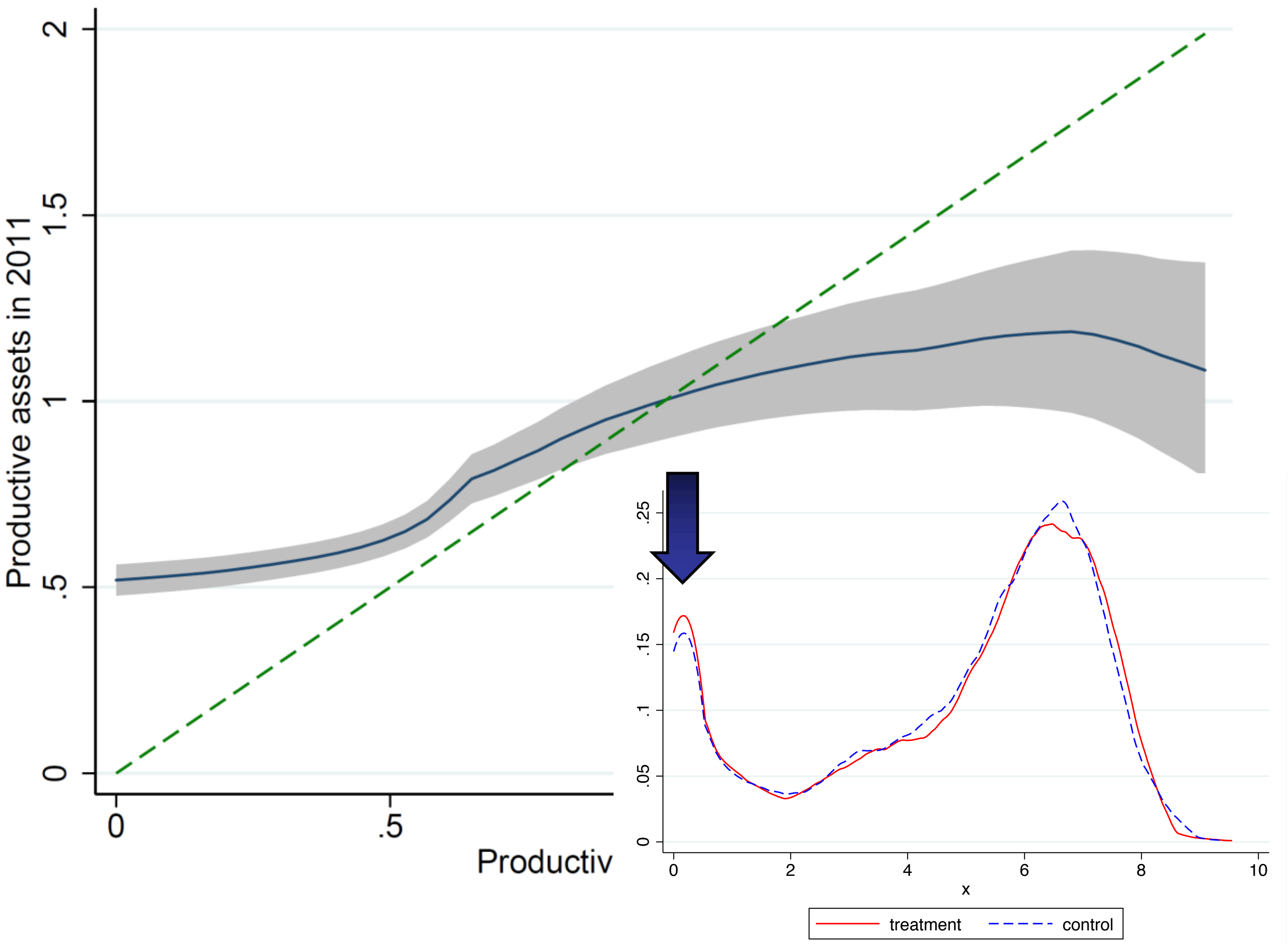
Identification

Identification is based on differences in initial assets that are extremely small relative to the transfer but not randomized → consider evidence in support of identifying assumption

1. Endogenous shocks

- k_0 correlated with shocks to Δk
- Placement is randomized → use controls to account for shocks

Transition equation in control villages



Cannot be explained by common shocks correlated with k_0

	Dependent variable: Δ_i				
	(1)	(2)	(3)	(4)	(5)
	Treatment	Treatment	Control	Control	Both
above $\hat{k}$	0.297***	0.475***	-0.020	-0.097	-0.020
	(0.043)	(0.070)	(0.052)	(0.598)	(0.057)
Baseline assets		-2.199***		-0.463*	
		(0.698)		(0.266)	
above $\hat{k}$ $\times$ Baseline assets		1.969***		-0.097	
		(0.729)		(0.269)	
Treatment					-0.483***
					(0.059)
above $\hat{k}$ $\times$ Treatment					0.318***
					(0.070)
constant	-0.138***	-0.282***	0.345***	-0.680	0.345***
	(0.033)	(0.057)	(0.046)	(0.592)	(0.050)
N	3292	3292	2450	2450	5742

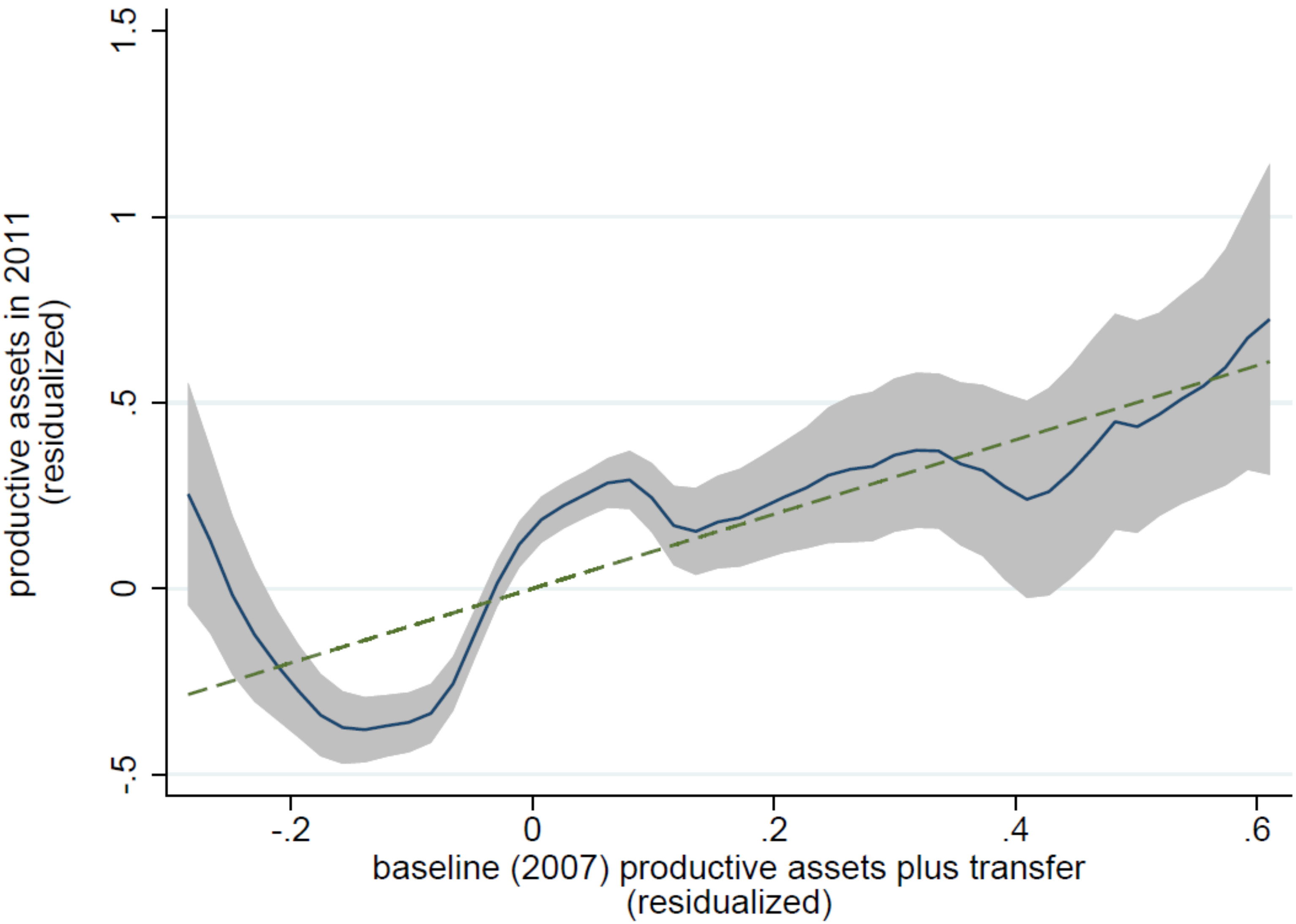
Identification

Identification is based on differences in initial assets that are extremely small relative to the transfer but not randomized → consider evidence in support of identifying assumption

2. Correlates of k_0

- k_0 correlated with traits that determine response to programme
- these should discontinuously change at k_0
- residualise k on a large vector of individual traits

conditional transition



The story behind the transition equation

The transition equation links assets across time periods, it tells us about the shape of the underlying production function

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

S-shape indicates that there are increasing returns to scale at low levels of assets – there's a minimum viable scale of operations

People with more assets at baseline are more likely to meet that

The story behind the transition equation

The threshold however also depends on the rate at which people can transform assets today into assets tomorrow

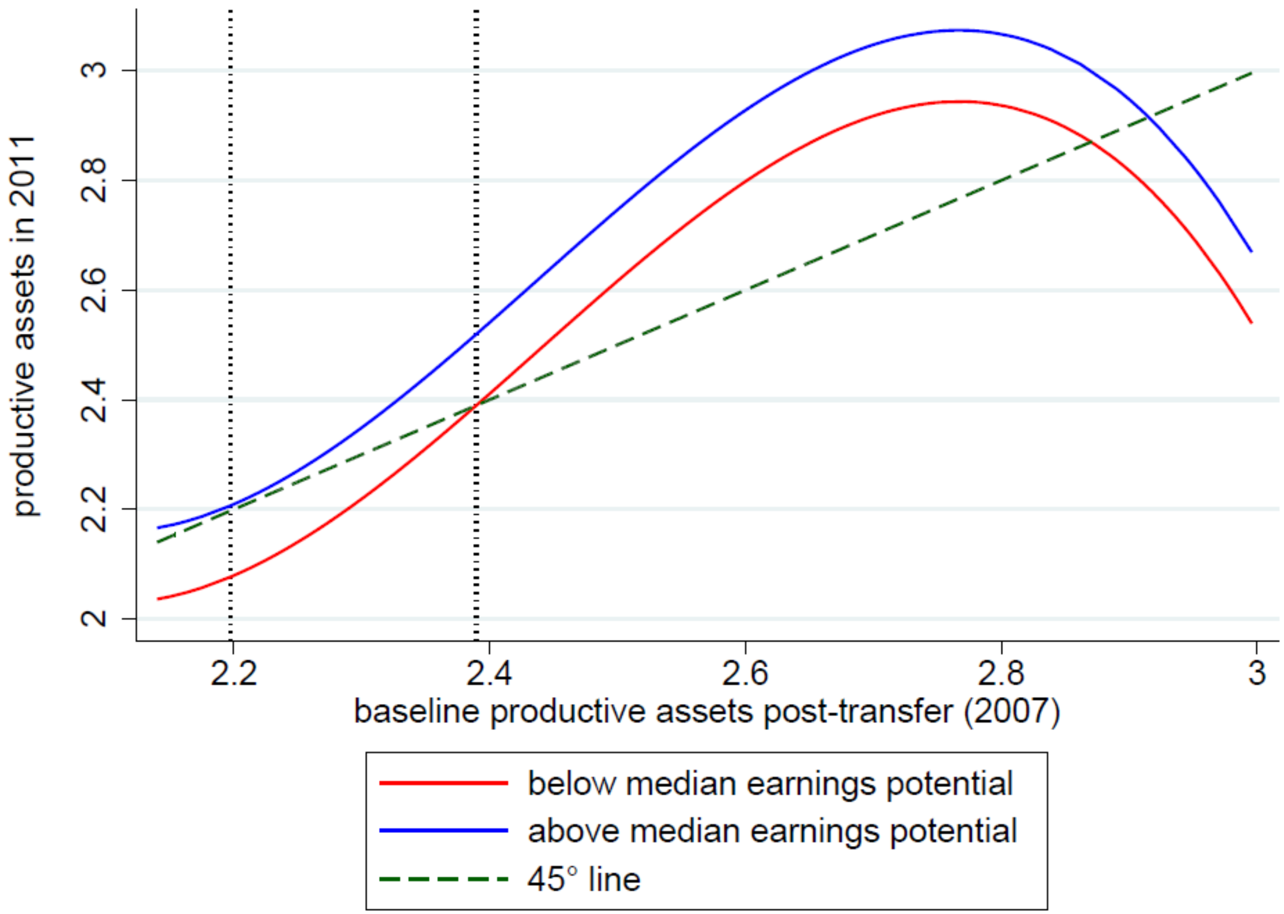
$$k_{t+1} = sAf(k_t) + (1- \boldsymbol{\delta})k_t$$

which depends:

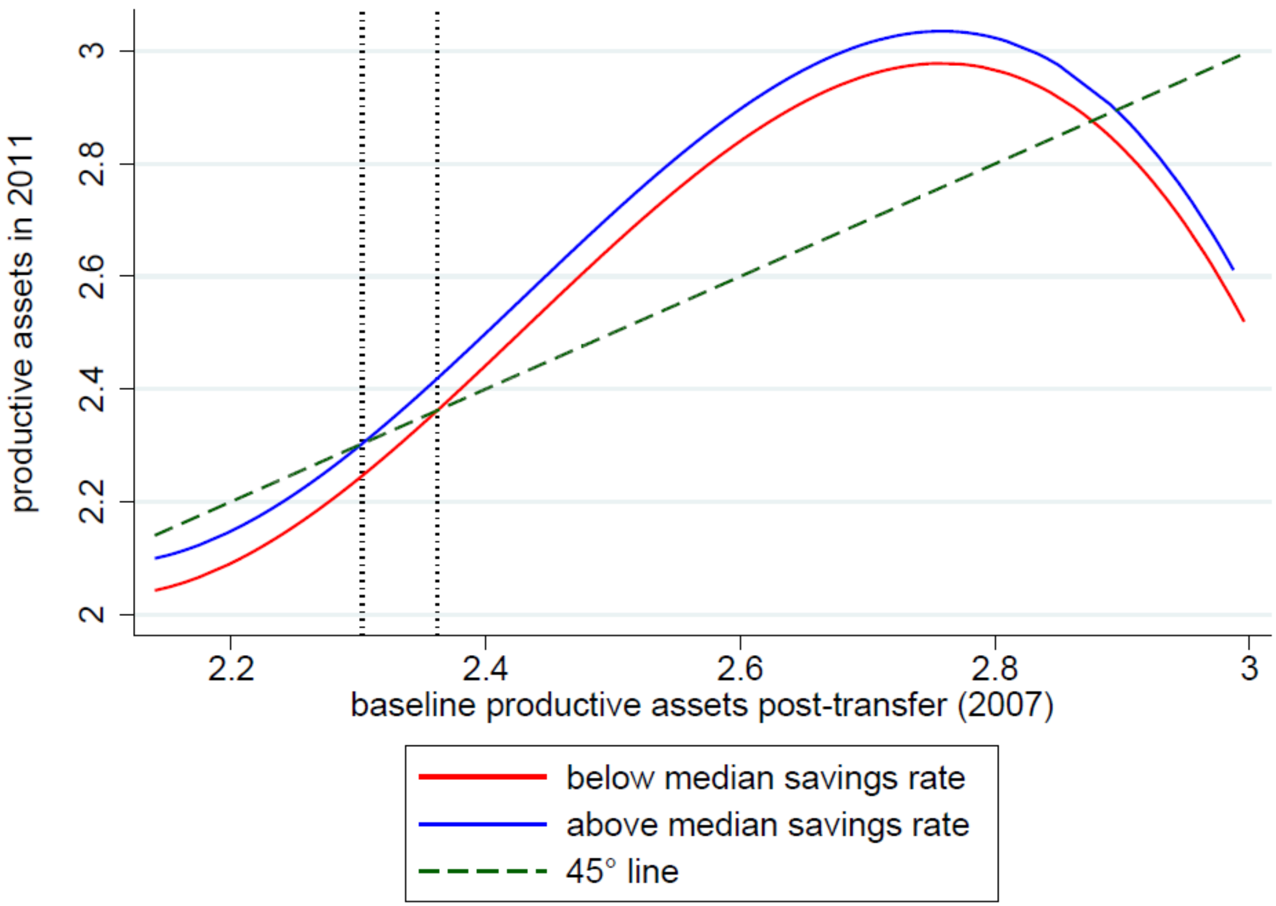
1. on their ability to generate income for a given level of assets
2. on their saving rate

We use proxies of A and s to shed light on the mechanism and provide identification that does not depend on k_0

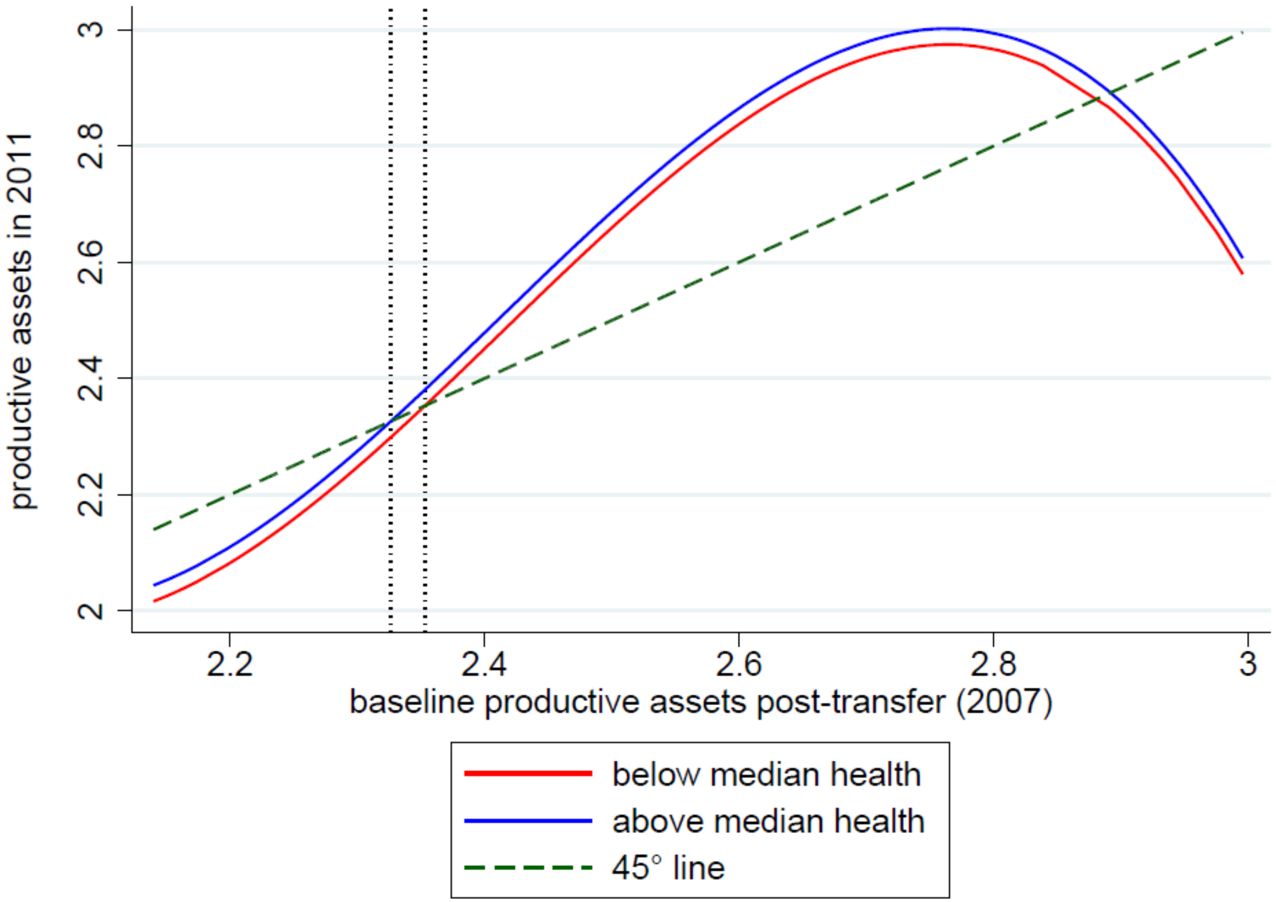
Earnings Potential by village



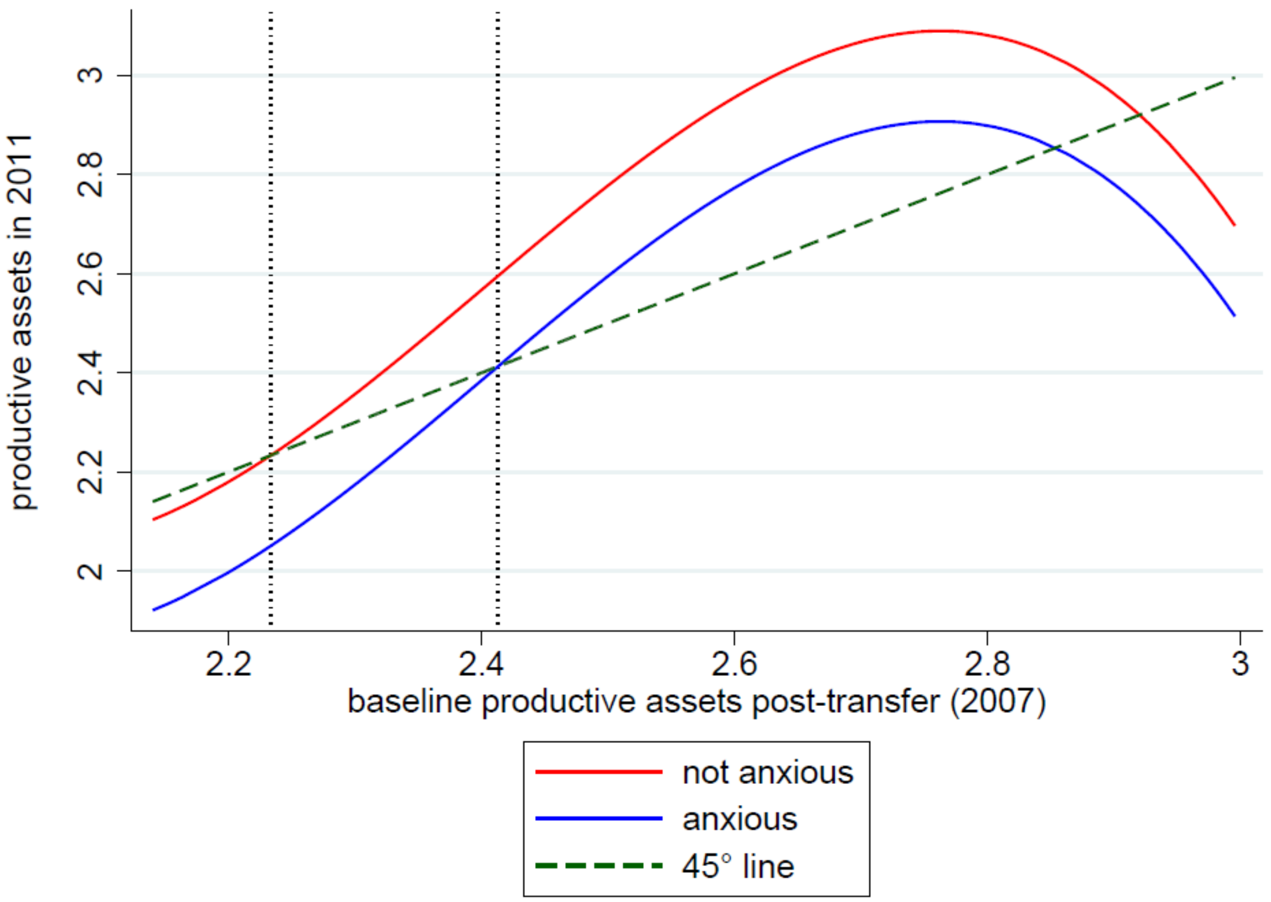
Savings rate



Ability to perform physical activities

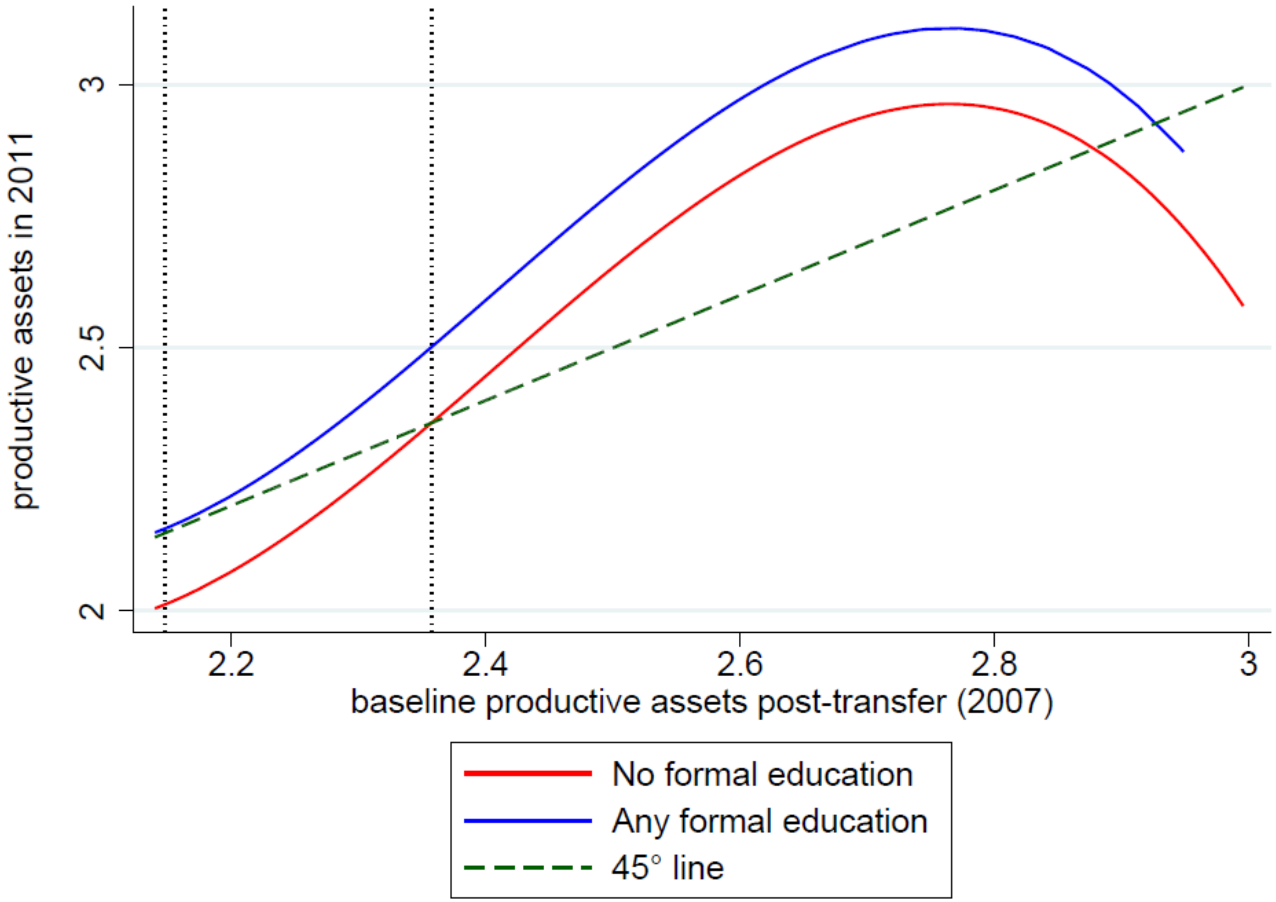


Anxiety



productive assets in 2011
2
2.2
2.4
2.6
2.8
3
2.2
2.4
2.6
2.8
3
baseline productive assets post-transfer (2007)
not anxious
anxious
45° line

Any formal education

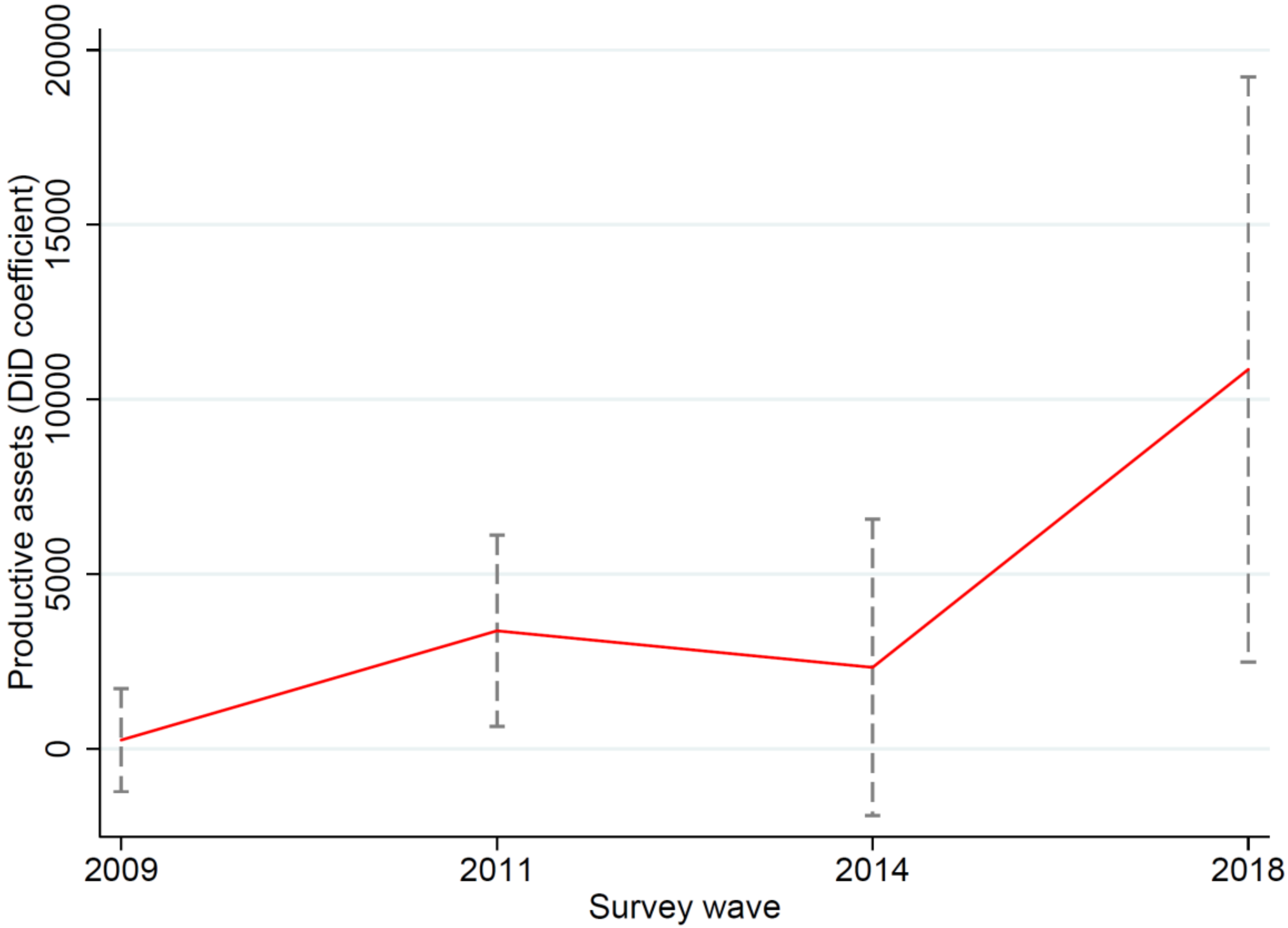


Exploiting heterogeneous thresholds for identification

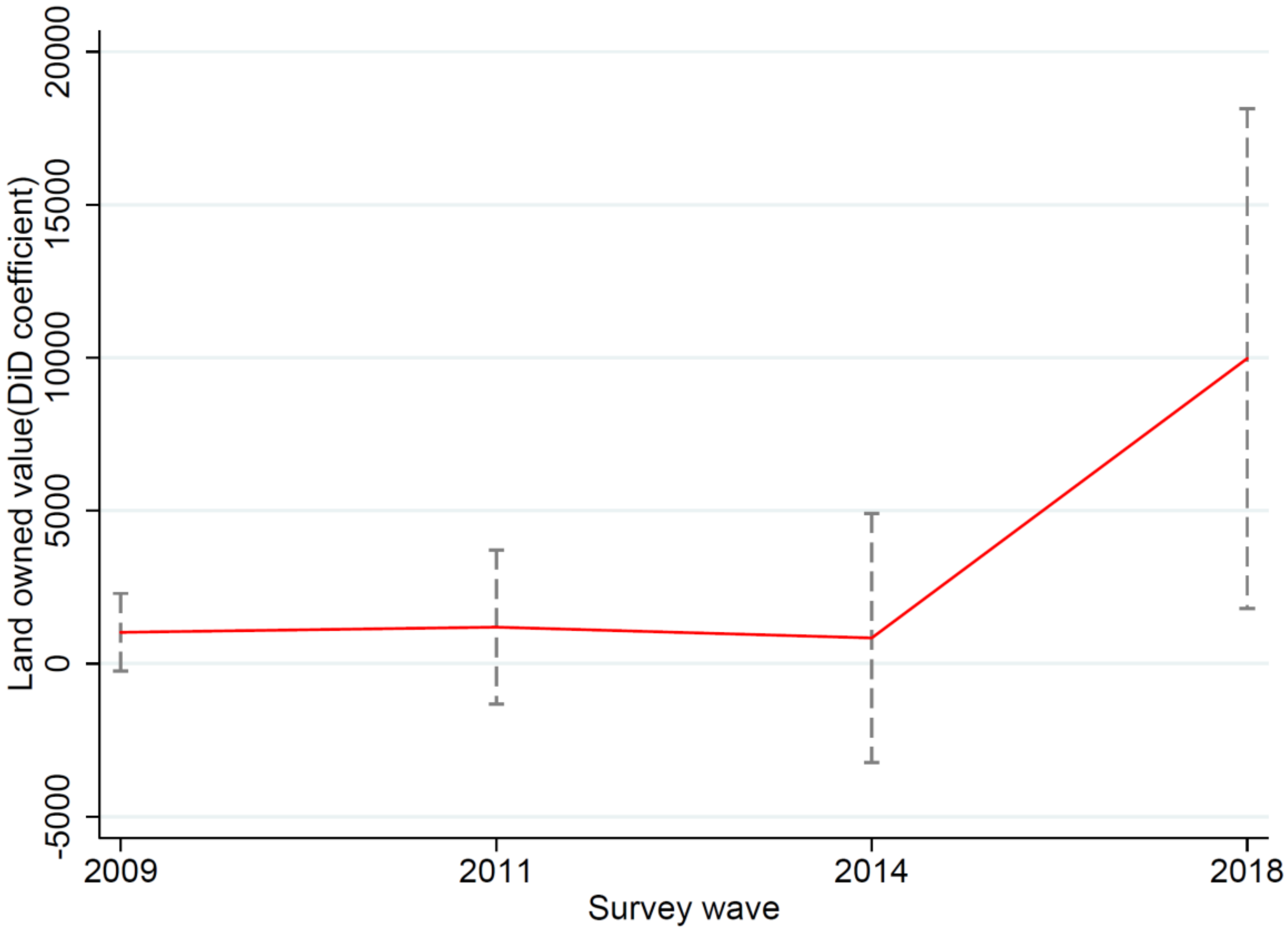
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	Earnings Potential			Savings Rate			No Anxiety		
Above $\hat{k_i}$	0.319***	0.325***		0.345***	0.381***		0.245***	0.238***	
	(6.75)	(6.31)		(7.66)	(7.76)		(5.57)	(4.84)	
Above $\hat{k_L}$			-0.190			0.0372			0.0111
			(-1.13)			(0.31)			(0.08)
Above $\hat{k_H}$			0.434***			0.403***			0.399***
			(6.08)			(3.73)			(4.48)
Constant	-0.176***	-0.180***	-0.0503	-0.169***	-0.191***	-0.236**	-0.106**	-0.102**	-0.182
	(-4.34)	(-4.19)	(-0.32)	(-4.45)	(-4.79)	(-3.27)	(-2.99)	(-2.71)	(-1.38)
Baseline k_0 FE	NO	YES	YES	NO	YES	YES	NO	YES	YES
N	3292	3292	1656	3292	3292	1542	3292	3292	1659

Long run

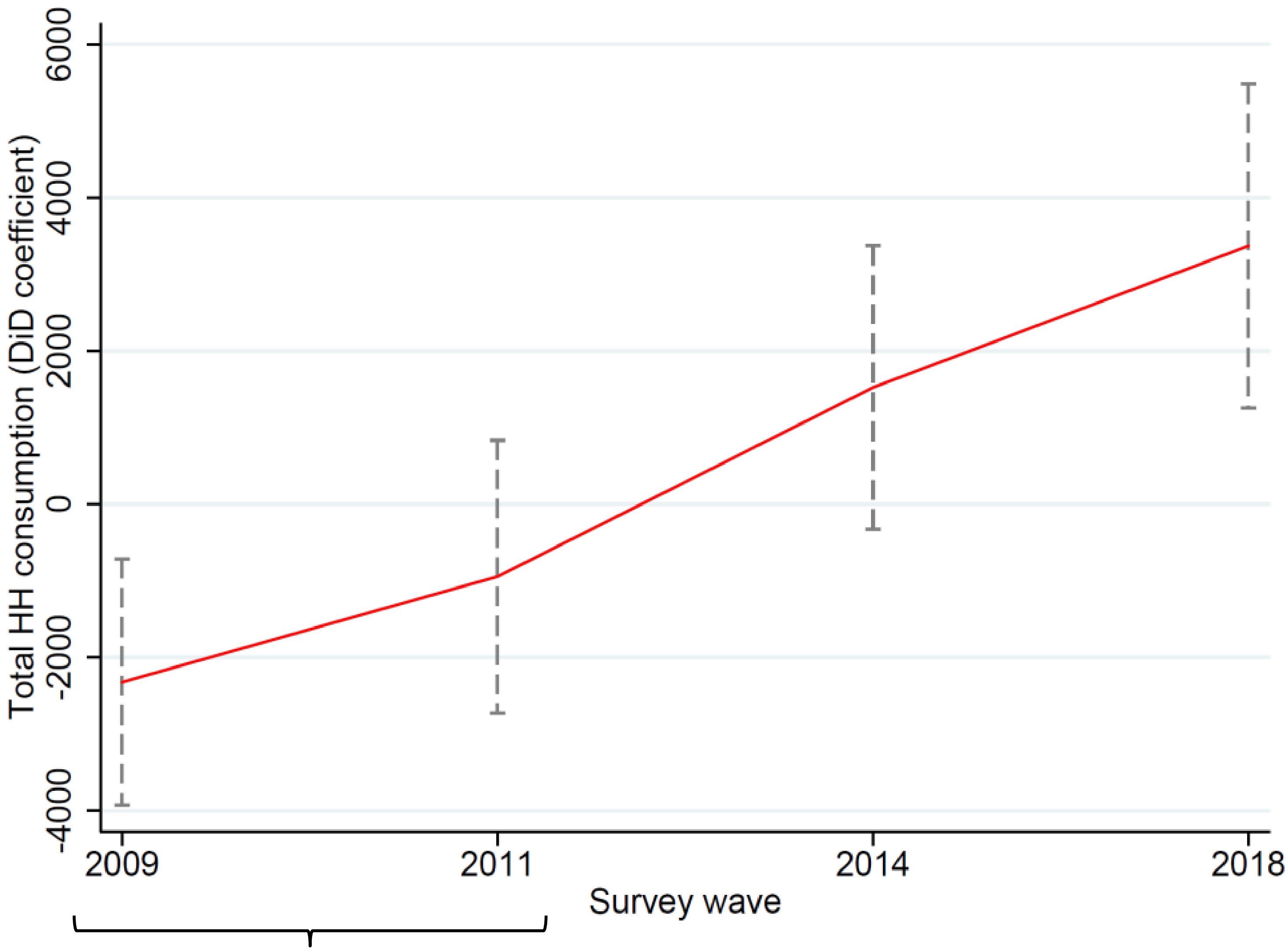
Differences in productive assets grow over time



Change in composition of assets

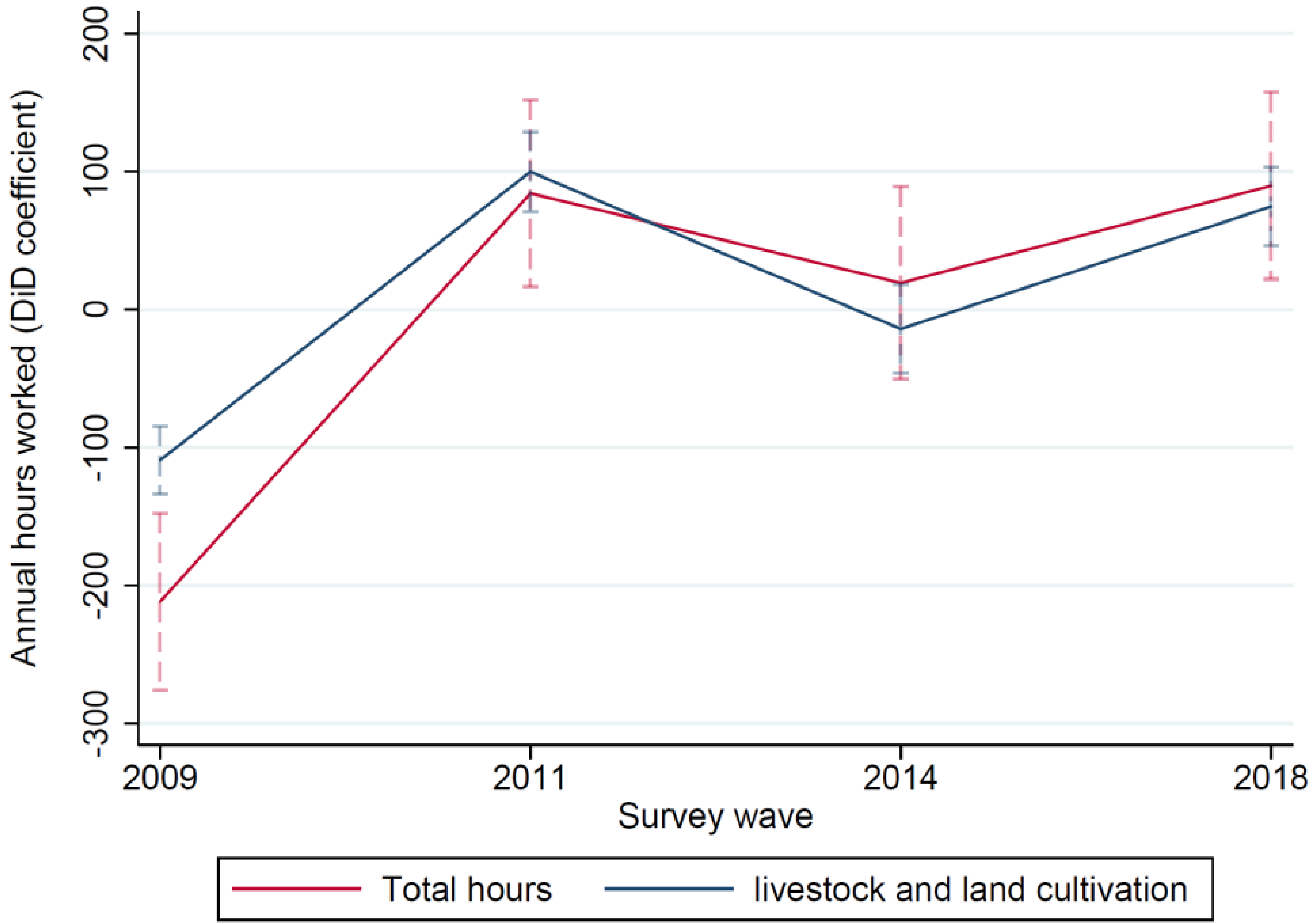


Average gap in consumption increases



Initially negative as those above threshold save to buy assets

Average gap in hours worked



Structural Estimation

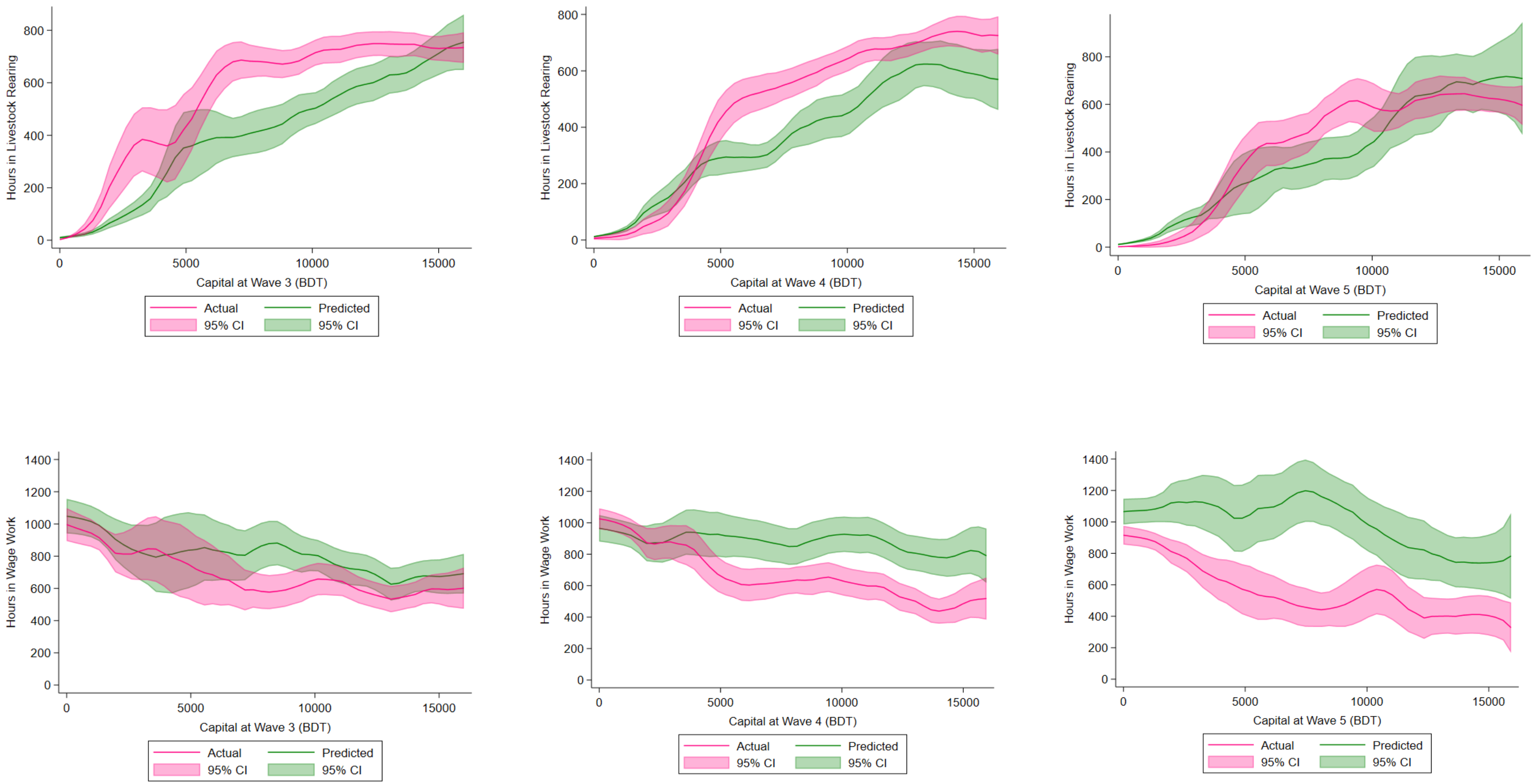
Aims of structural analysis

- Reduced form findings suggest ultra-poor not in their first best occupation given their productivity and preference parameters
- Use structural estimation of model of occupational choice to:
  - Estimate individual-level productivity and cost of effort parameters
  - Determine optimal occupations in absence of capital constraints
  - Quantify extent of misallocation at baseline

Steps of structural analysis

- Develop simple model of individual occupational choice
- Calibrate individuals' productivity and labor disutility parameters from baseline and year 2 data
  - unique feature: at t=0 they can only do wage labor, at t=2 they must try out livestock → no selection
- Evaluate model performance using year 4&11 data
- Simulate the model to estimate each individual's optimal steady-state occupational choice and quantify misallocation at baseline

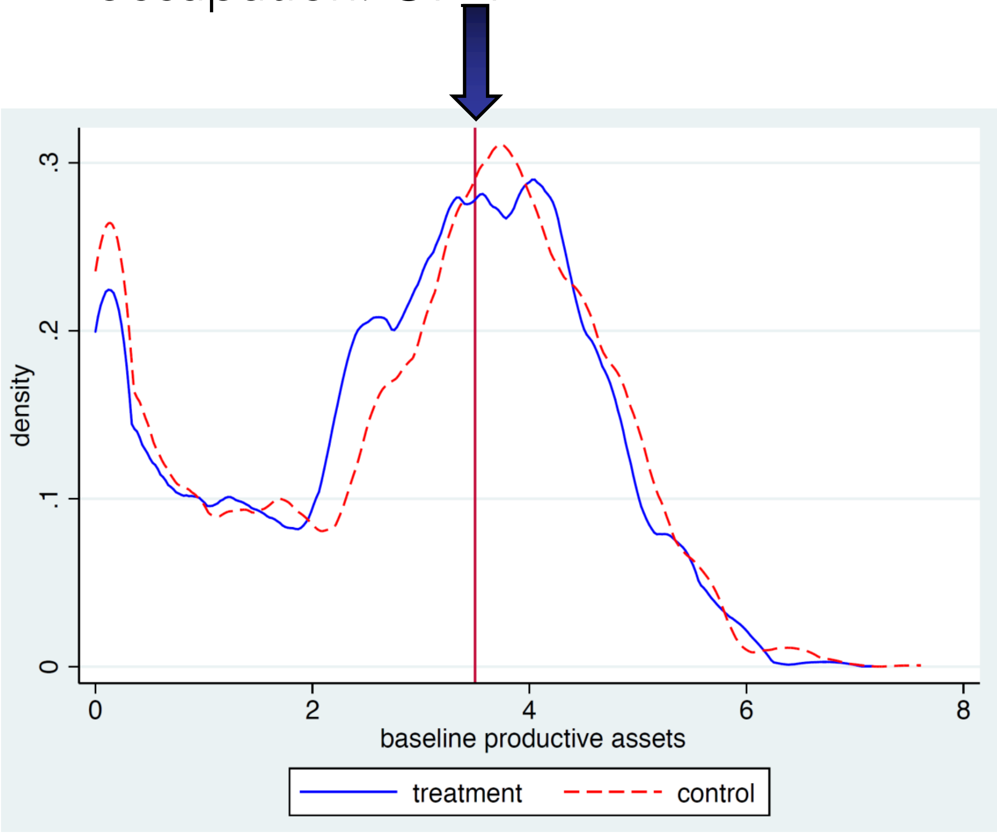
Testing the model using year 4, 7 and 11 data



Calibrating misallocation

1

- Assume UP had assets=upper mode
- Use model estimates to compute optimal occupation
- Compute payoff at optimal occupation: OP_i



2

Compute payoff at actual occupation: AP_i

3

Misallocation value for person i:

OP_i – AP_i

4

Total misallocation value:

SUM(OP_i – AP_i)

Estimating misallocation

1

- Assume ultra-poor had assets = upper mode
- Use model to estimate optimal occupation
- Compute payoff at optimal occupation

2

Compute payoff at actual occupation

Total misallocation value:
$15 million pa

Total cost of transfers needed to bring all above the threshold:
$1 million one-off

Quantifying misallocation

- Model suggests 96% of individuals are misallocated at baseline
- Estimated total value of misallocation across all HHs 15 times larger than transfers needed for all HHs to escape the trap
- Value of misallocation >> cost of eliminating trap robust with:
    - General equilibrium price effects
    - Doubling of wage rate
    - Halving disutility of wage labor

Policy Counterfactuals

C1: Scale-up and GE effects

- Price drop isomorphic to drop in A
- When all A values scaled down by 50%
  - Number specializing in livestock falls from 90% to 71%
  - Value of misallocation falls by 57%
- How big a drop do you need to break even?
  - value of misallocation =estimated cost of eliminating the poverty trap
  - 89%

C2: higher wages

- When wage rate is doubled
  - Number specializing in livestock falls from 90% to 60%
  - Value of misallocation falls by 8%
- When wage rate is x10
  - Number specializing in livestock falls from 90% to 30%
  - Value of misallocation falls by 6%

C3: higher wages and no demand constraint

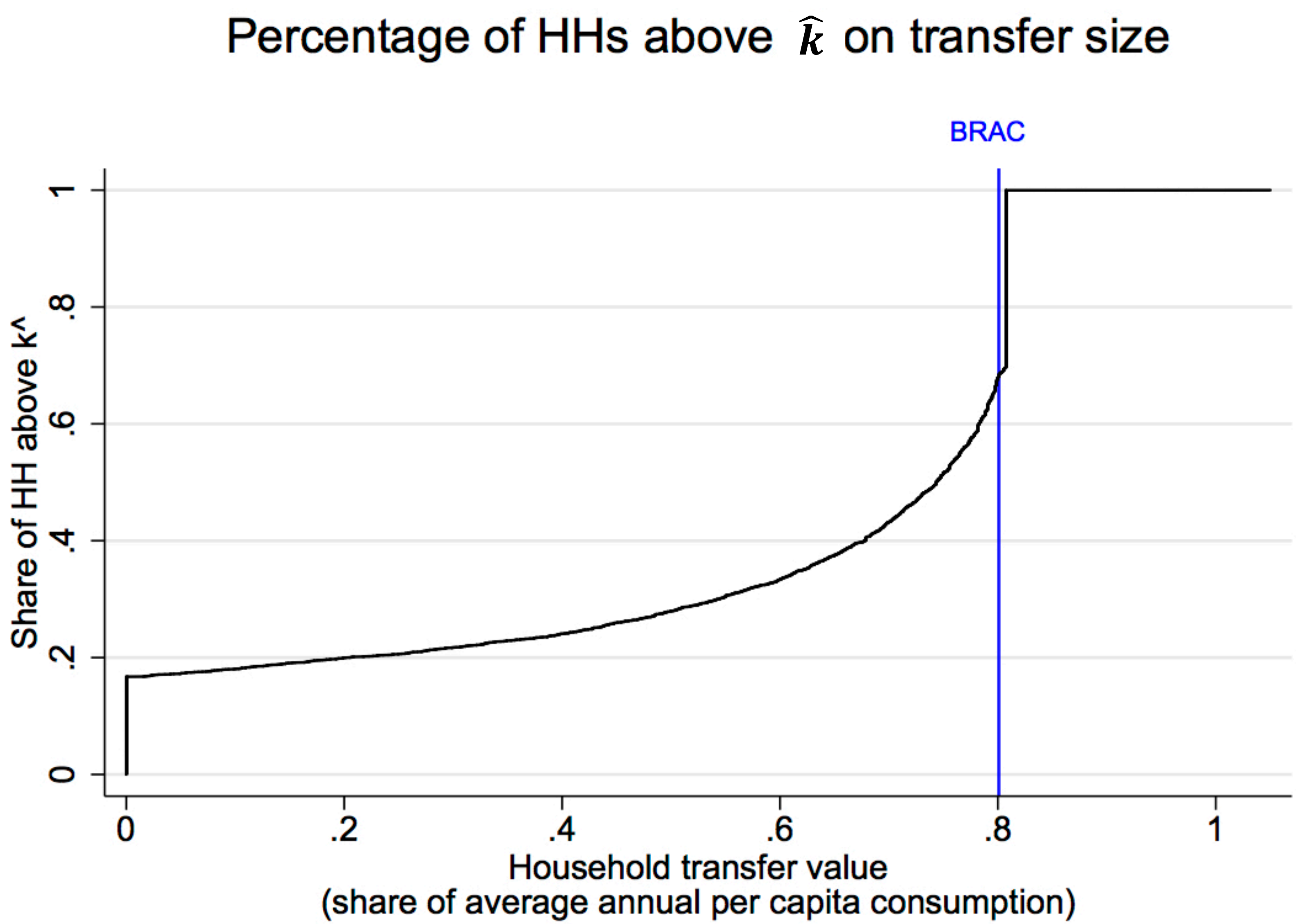
- When wage rate is doubled and wage labour demand constraint removed
  - Number specializing in livestock falls from 90% to 60%
  - Value of misallocation falls by 3%
- When wage rate is x10 and wage labour demand constraint removed
  - Number specializing in livestock falls from 90% to 30%
  - Value of misallocation falls by 14%

C4: reducing the disutility of wage labour hours

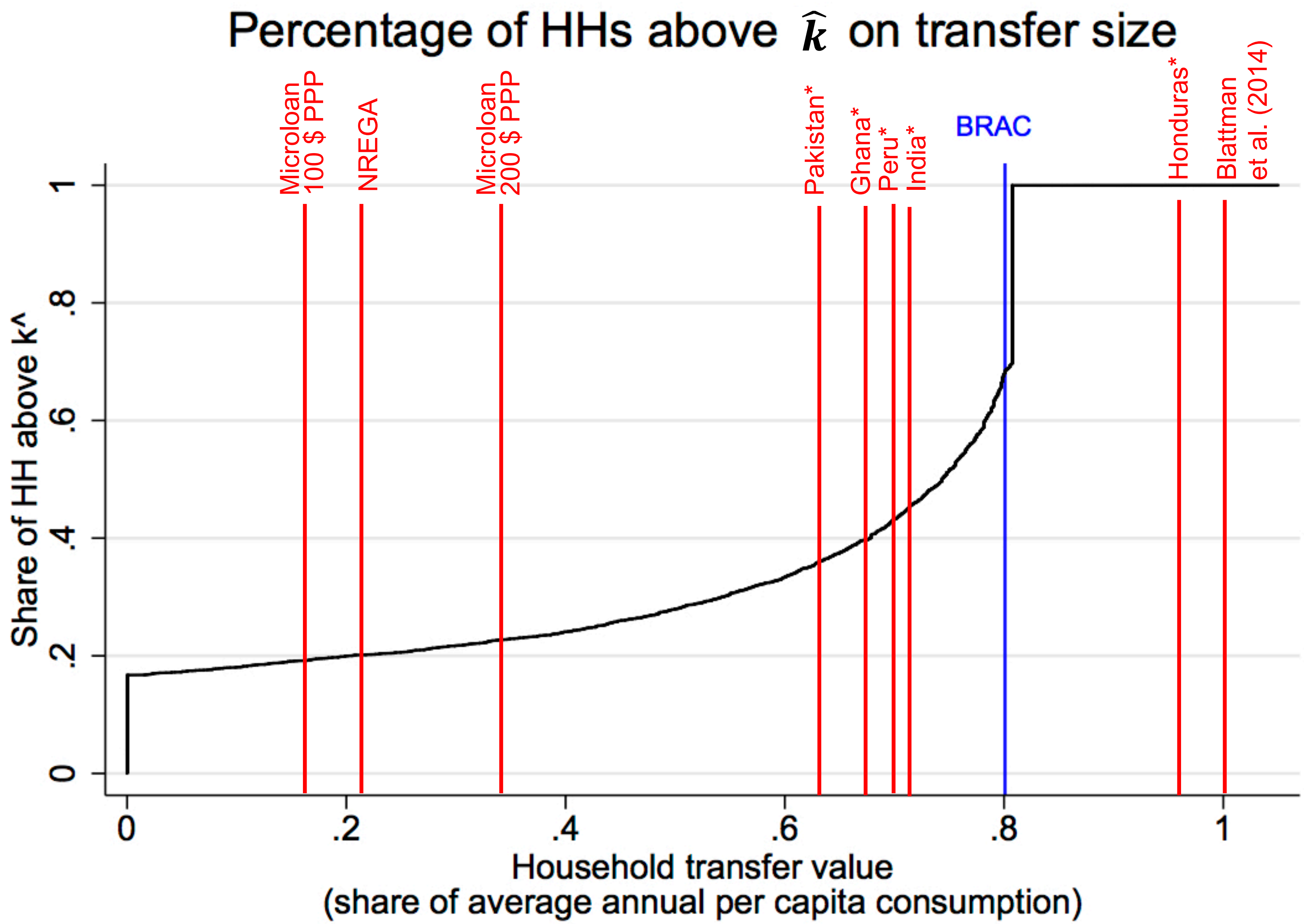
- When all ψ_h values scaled down by 50%
  - Number specializing in livestock falls from 90% to 79%
  - Value of misallocation falls by 1%

Policy

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)

Conclusions

- Poor people are not unable to take on more productive employment activities, they just lack the required capital
- Misallocation results suggest lack of opportunity prevents 96% from engaging in optimal occupation
- 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
- Key policy conclusion – to tackle persistent poverty, need big push policies that tap into the talents of the poor rather than just propping up their consumption

A common pattern (external validity)