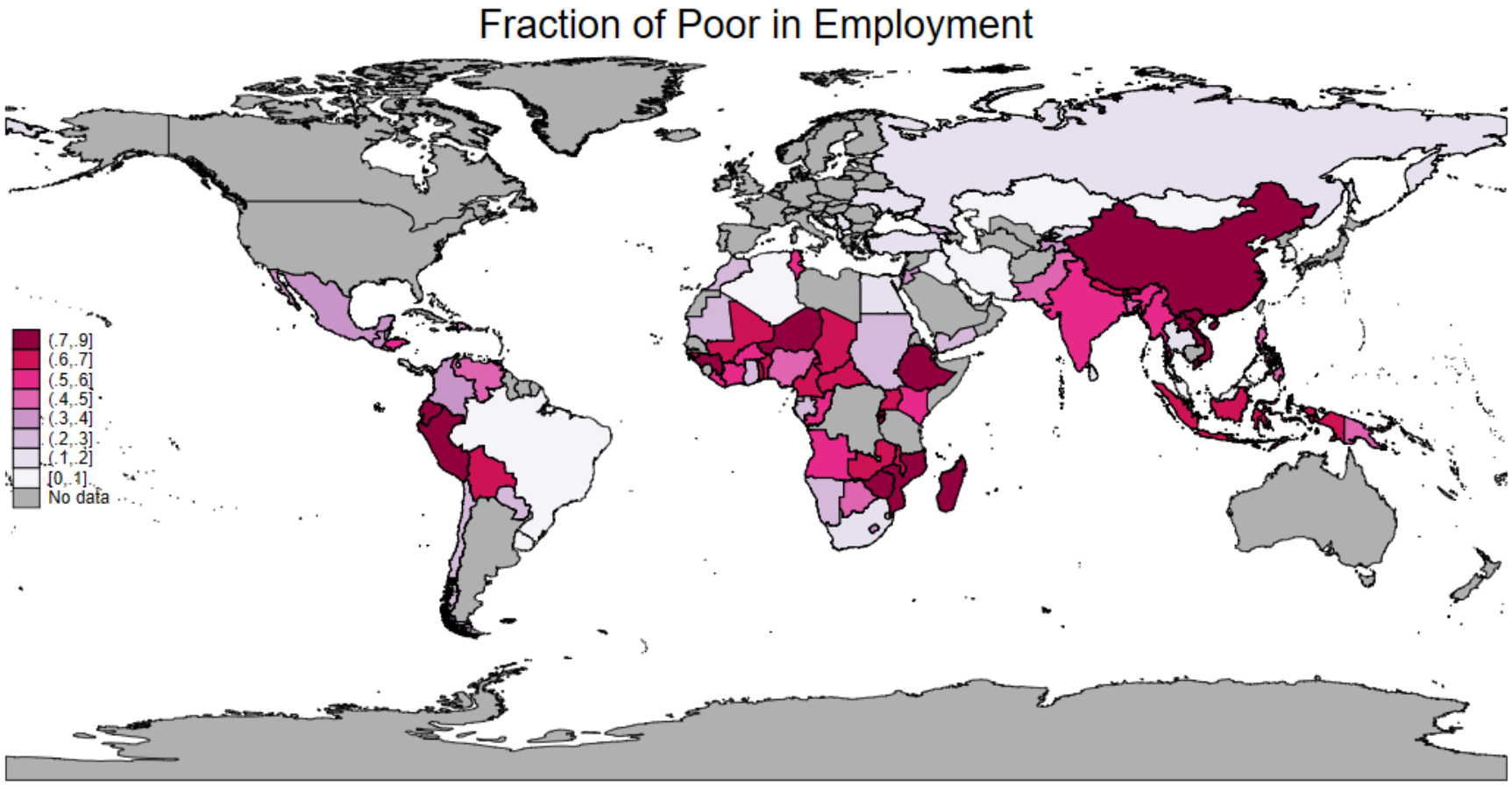
Why Do People Stay Poor?

Oriana Bandiera (LSE)

with

Clare Balboni (MIT), Robin Burgess (LSE) , Maitreesh Ghatak (LSE) and Anton Heil (Berkeley)

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 → 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?

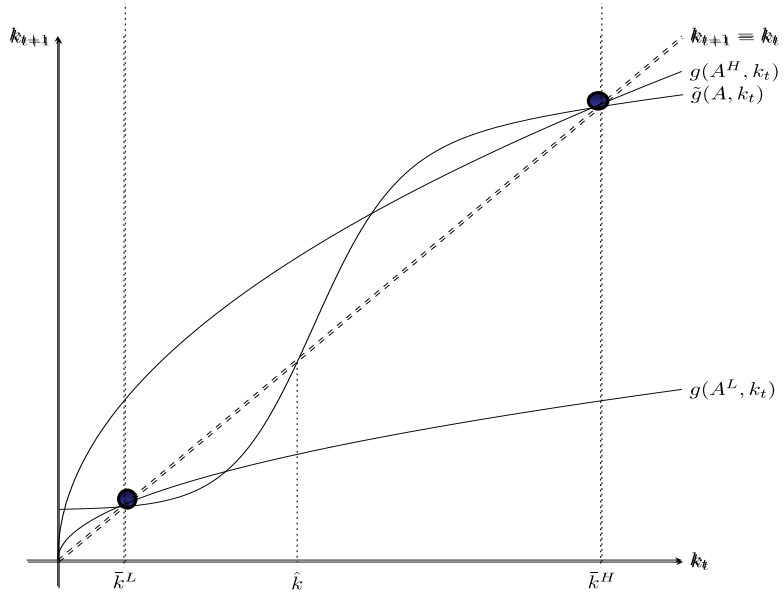
Poverty traps

- 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

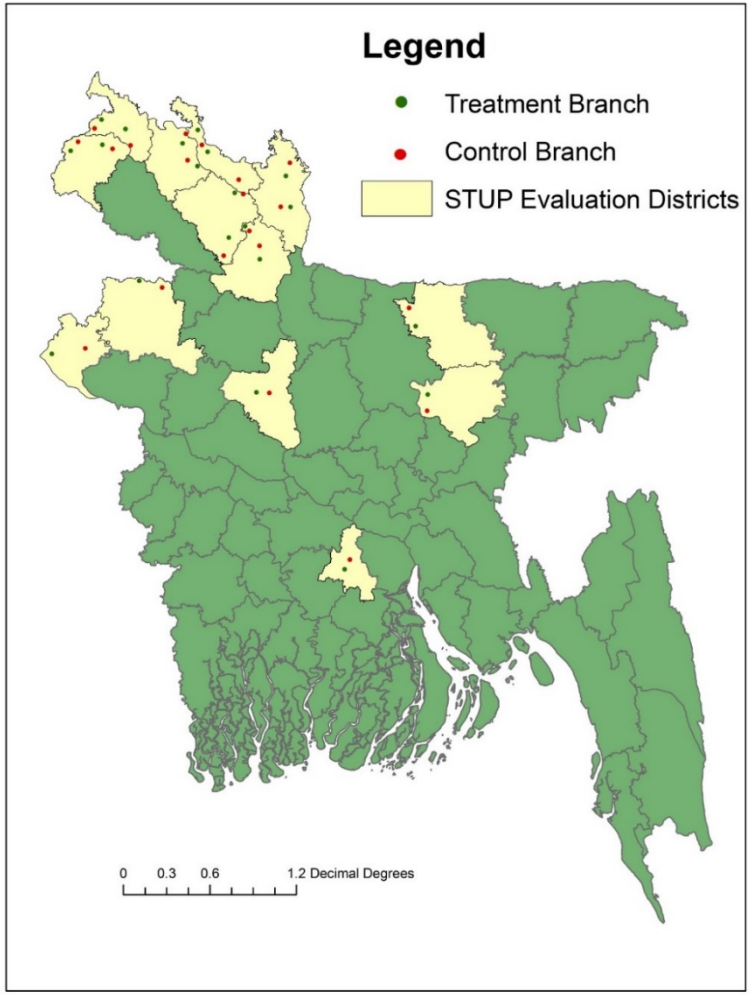
This paper

- 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

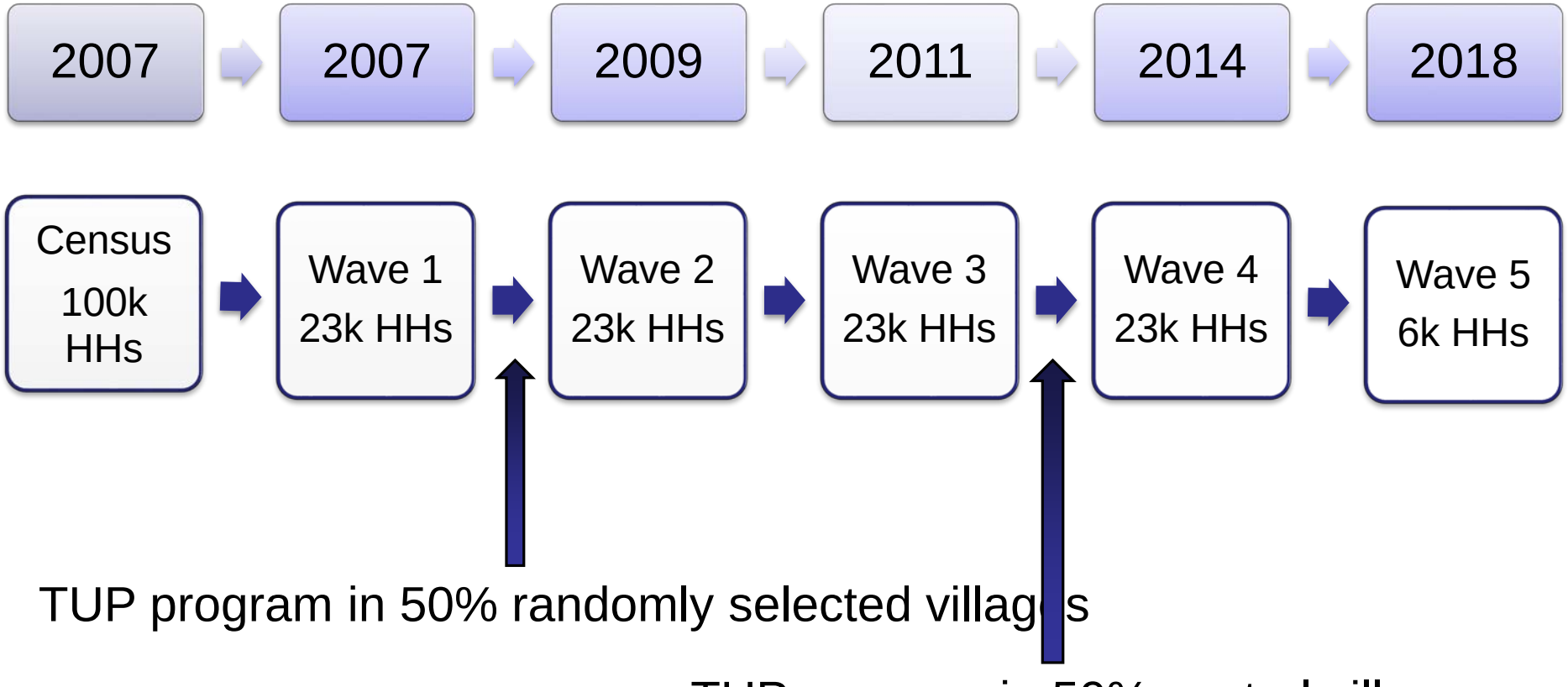
Setting

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

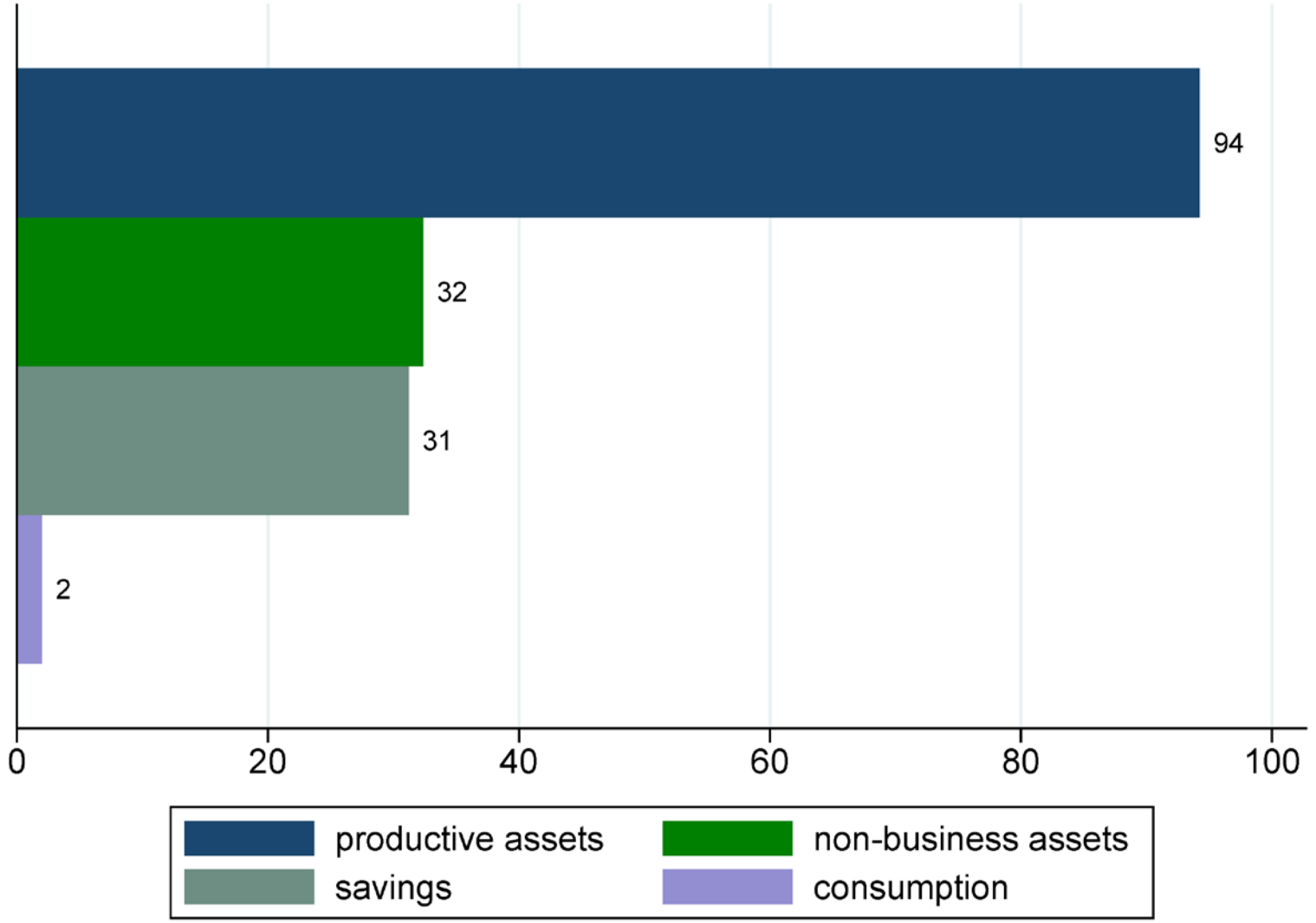
3. Better jobs require productive assets
   - Productive assets set apart rich and poor: 94 times higher
   - Richer households own more expensive, indivisible assets

Jobs and assets at baseline

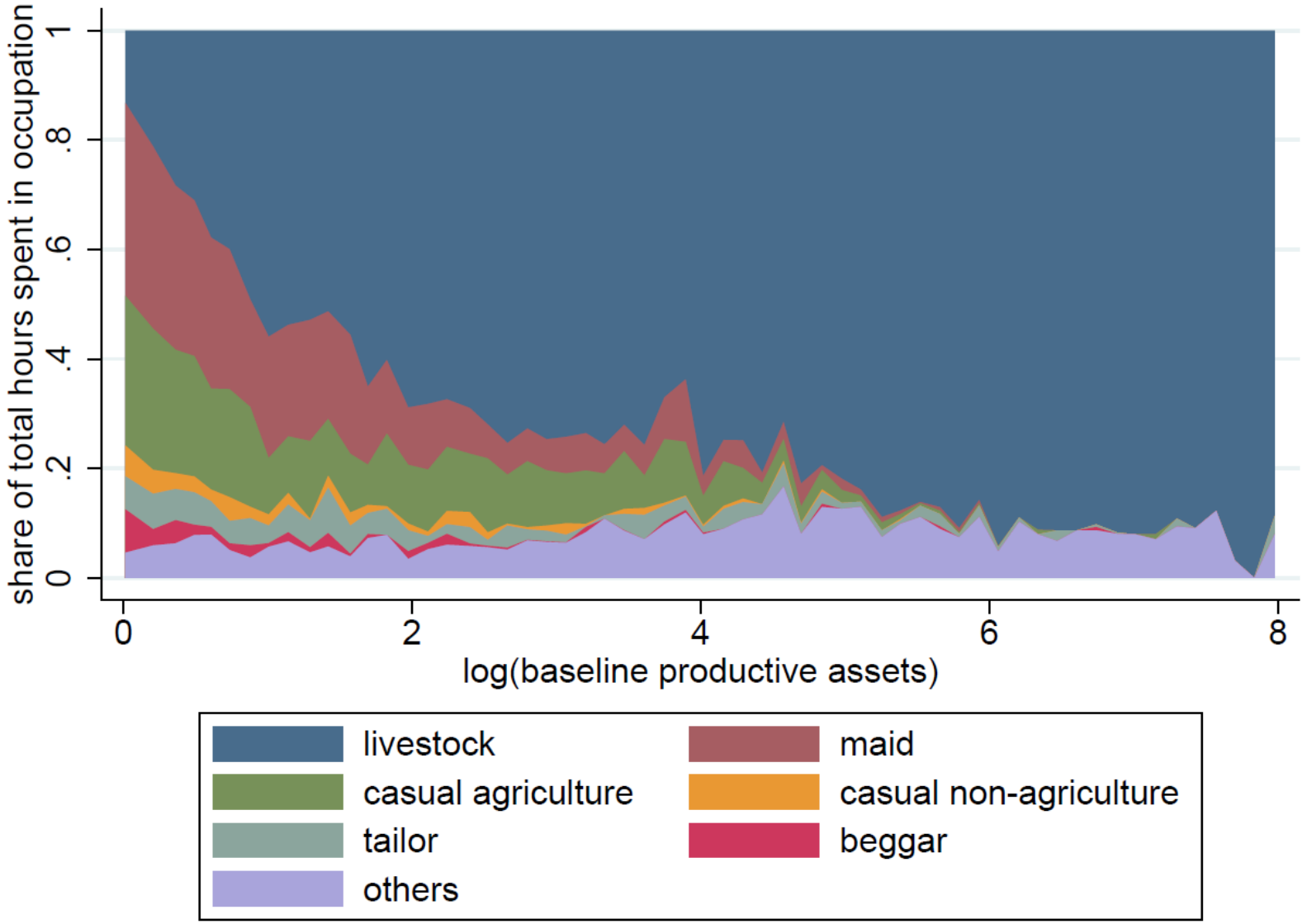
Table 1: JOBS AND ASSETS AT BASELINE

	(1) ultra-poor	(2) near poor	(3) middle class	(4) upper-class
A) Labour Outcomes				
In labour force	0.84	0.81	0.87	0.91
	(0.36)	(0.39)	(0.34)	(0.29)
Total hours worked per year	1134.31	938.53	819.82	820.79
	(888.38)	(821.22)	(639.08)	(549.77)
Total days worked per year	252.06	265.07	303.55	325.62
	(136.74)	(141.27)	(122.21)	(102.25)
Hourly income (BDT)	4.65	4.27	5.98	12.55
	(19.35)	(7.37)	(17.69)	(40.61)
B) Human and Physical Capital				
Years of formal education	0.56	1.26	1.99	3.72
	(1.63)	(2.43)	(2.99)	(3.74)
Literate	0.07	0.17	0.27	0.51
	(0.26)	(0.37)	(0.44)	(0.50)
Body mass index (BMI)	18.25	18.58	19.17	20.53
	(2.27)	(2.25)	(2.28)	(3.02)
Household Savings (1000 BDT)	0.15	0.40	1.62	8.61
	(0.83)	(1.24)	(10.62)	(29.29)
Productive assets (1000 BDT)	9.92	12.94	145.38	801.77
	(30.63)	(71.59)	(310.49)	(945.29)
Productive assets + Loans (1000 BDT)	10.53	14.83	150.23	812.83
	(31.10)	(72.47)	(312.50)	(947.65)
Observations	6732	7340	6742	2215

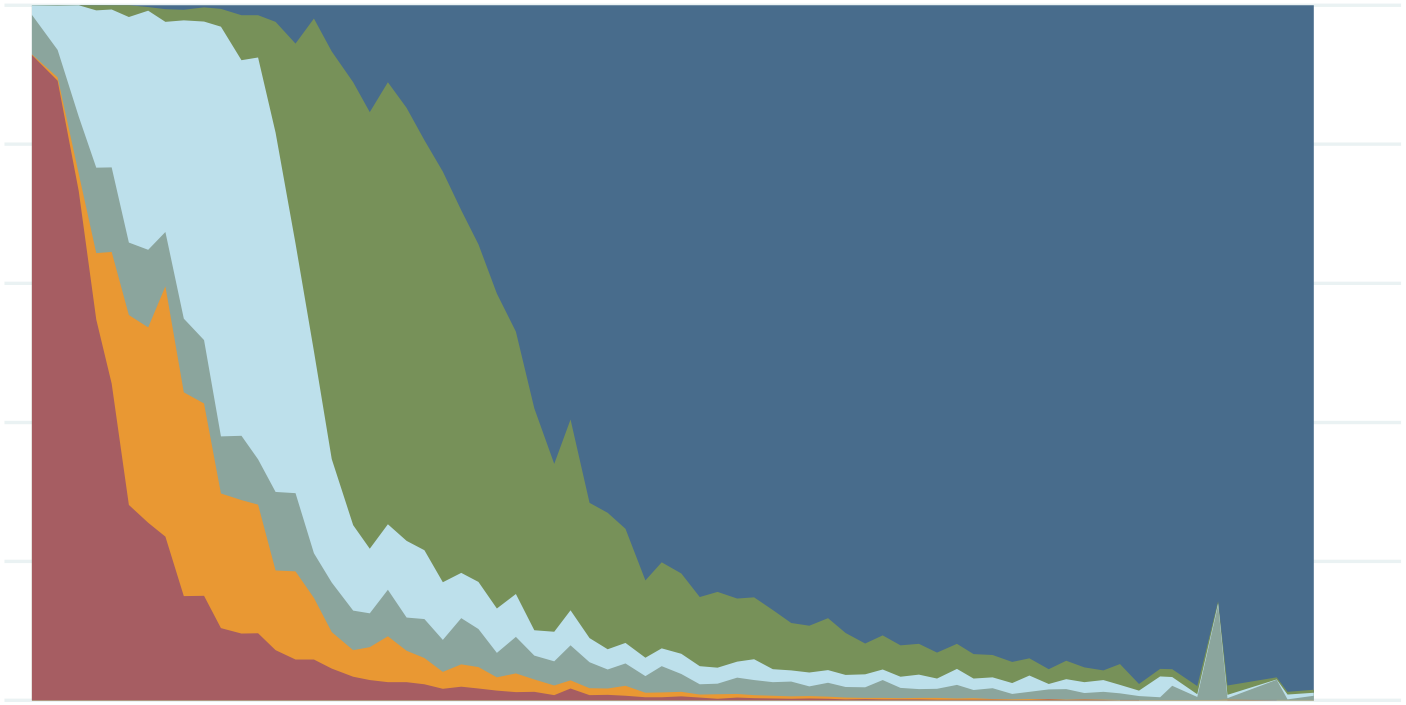
Fact 1: Key difference between classes is productive asset holdings



Fact 2: Occupational choice reflects differences in asset ownership



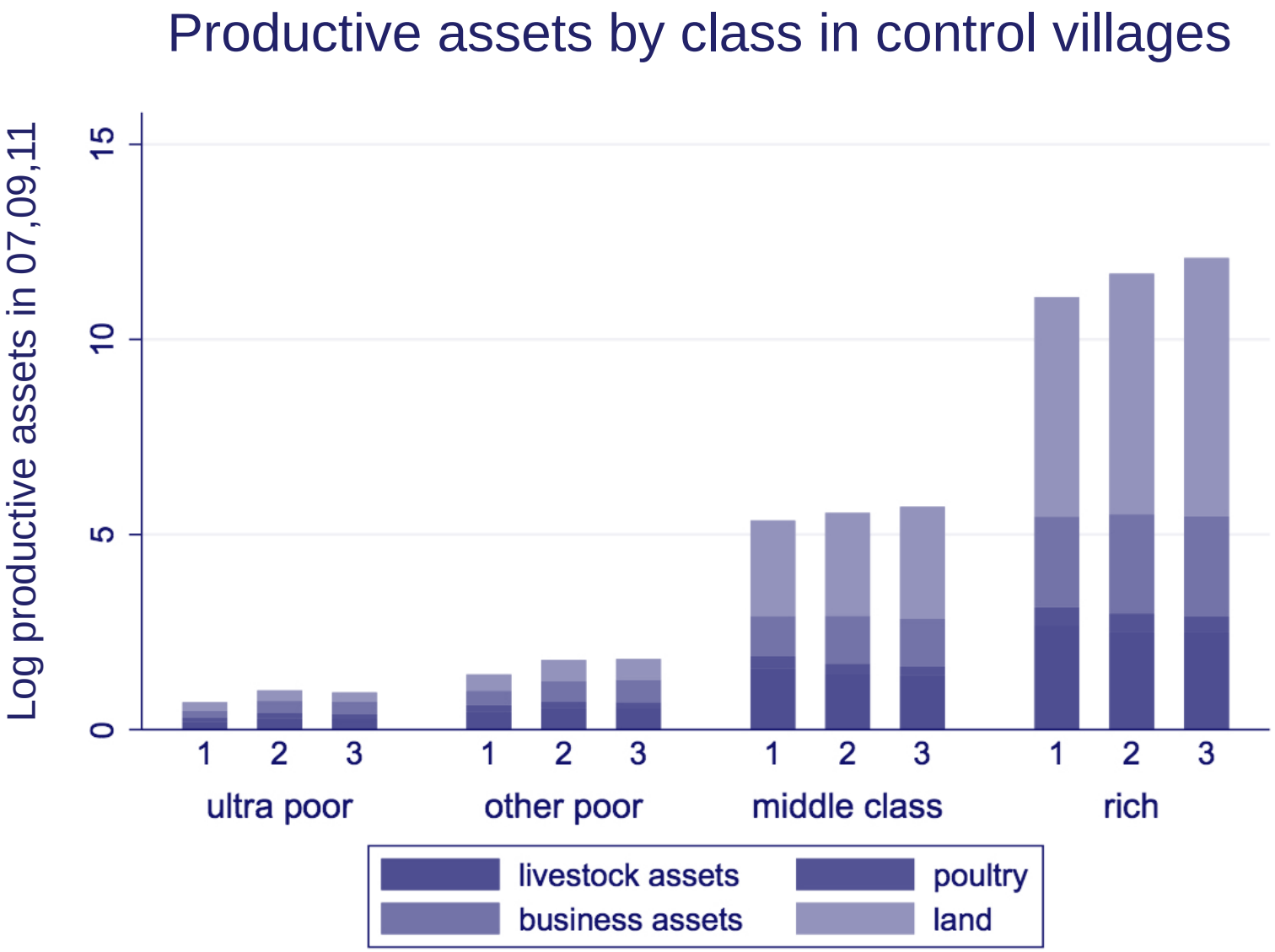
Fact 3: More assets → more expensive assets



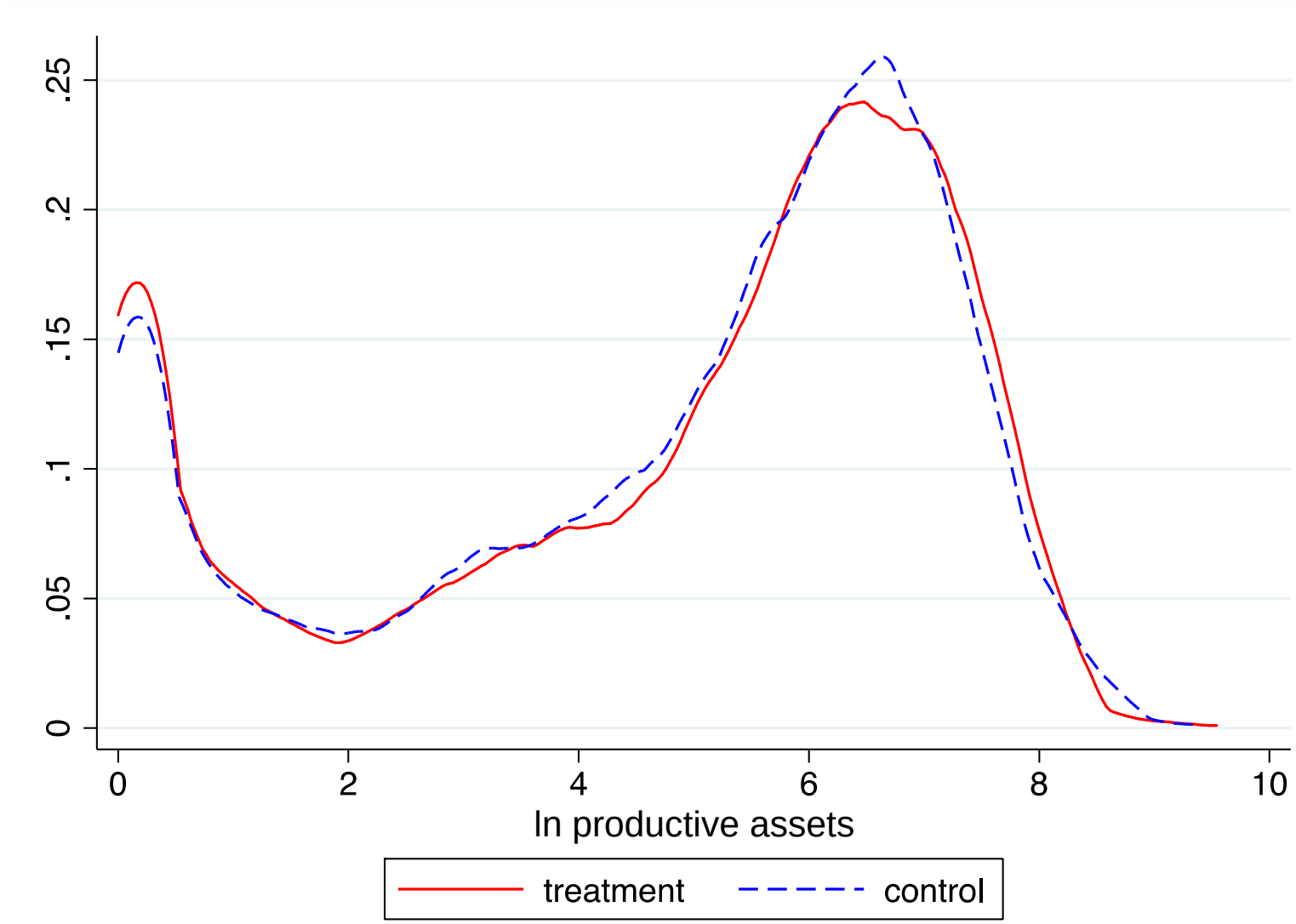
s Vehicles

Cows Land

Fact 4: Poor people stay poor



Fact 5: The distribution of productive assets is bimodal

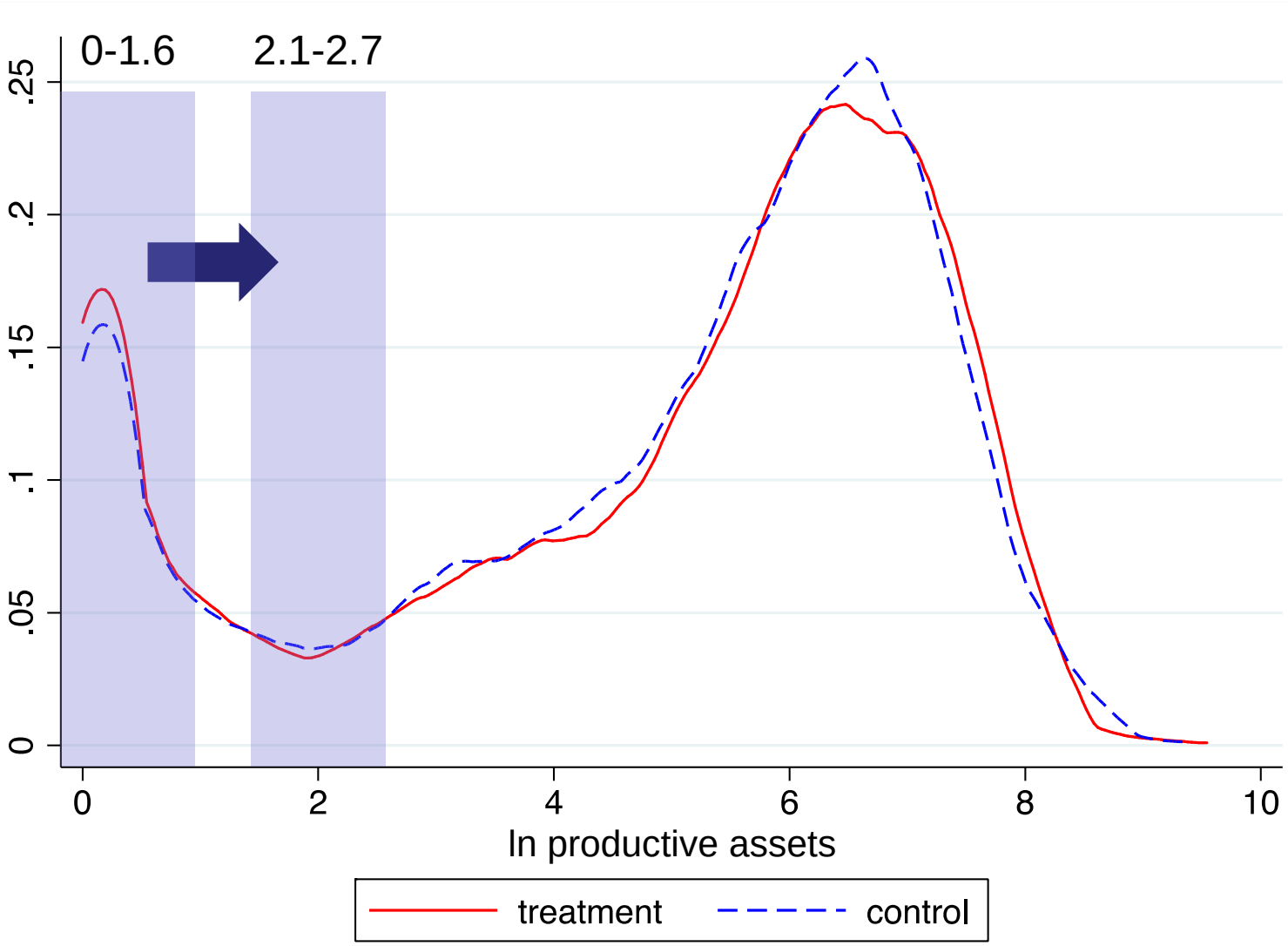


Test

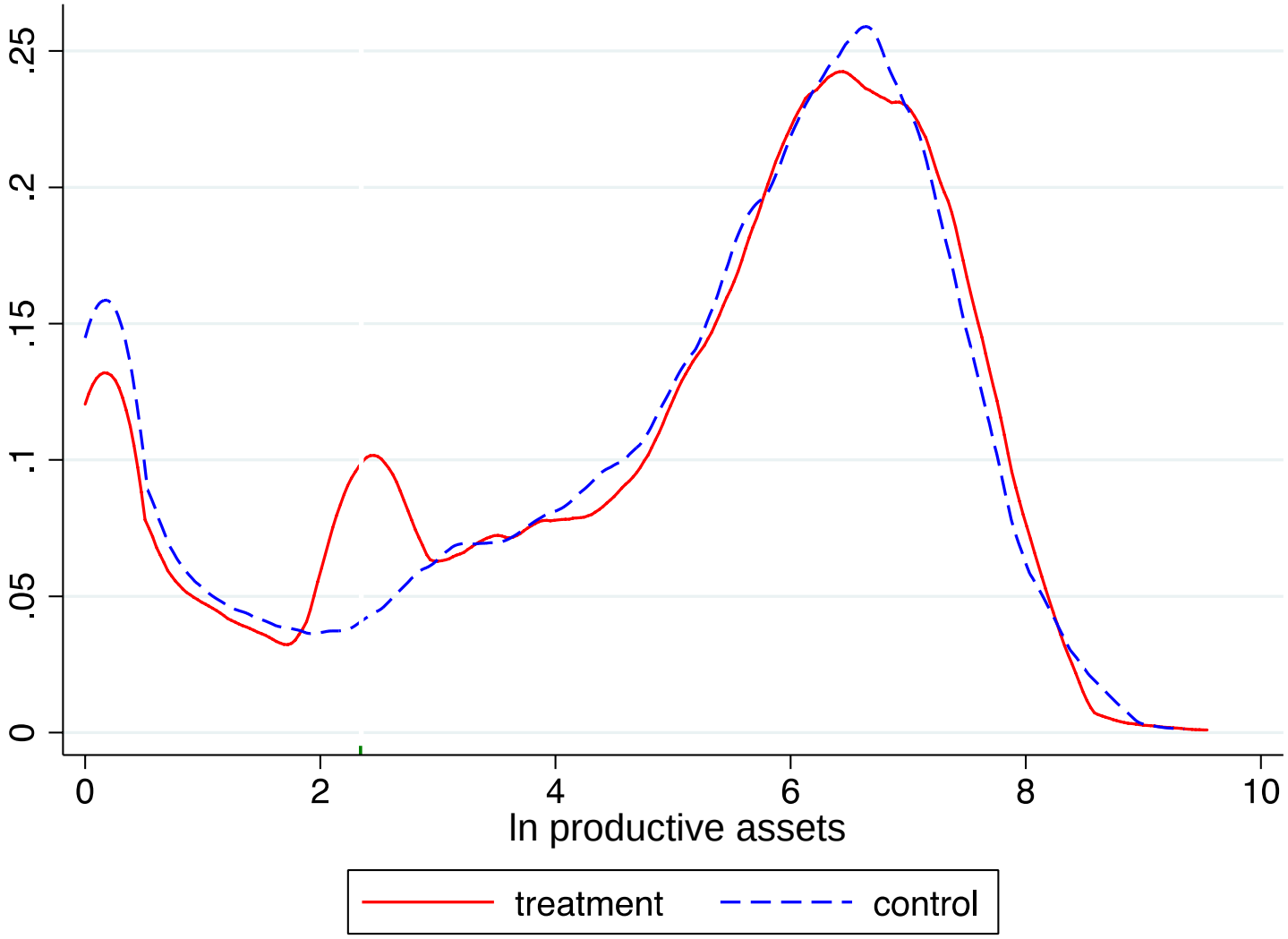
BRAC's Targeting the Ultra-Poor program

- 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)

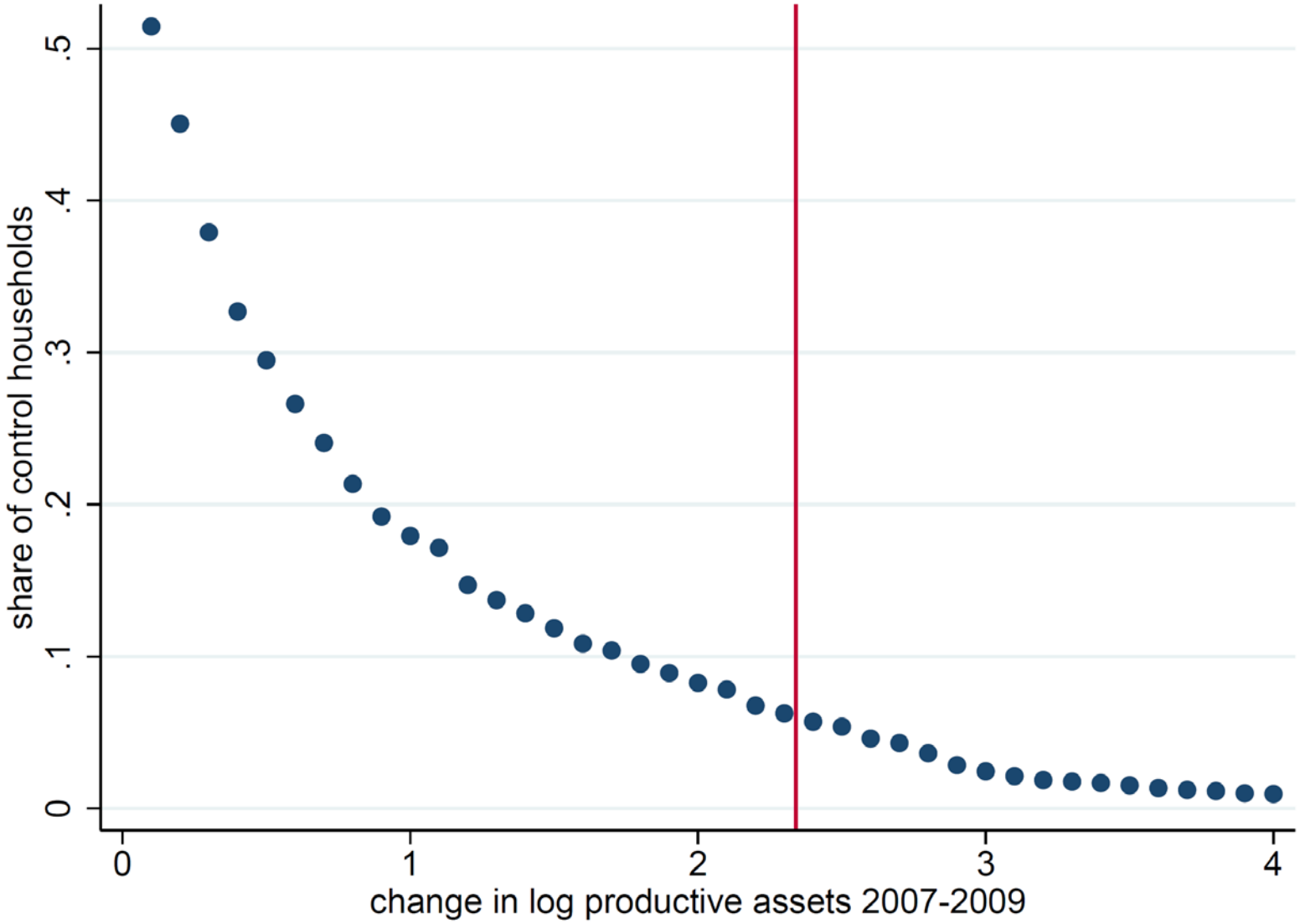
Program moves the poorest into the lowest density area



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
  - Test using fact beneficiaries differ slightly in baseline assets
  - Exploit to estimate transition equation from k_{2007} to k_{2011}
  - Test predictions of poverty trap model up to 11 years post-transfer

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

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

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

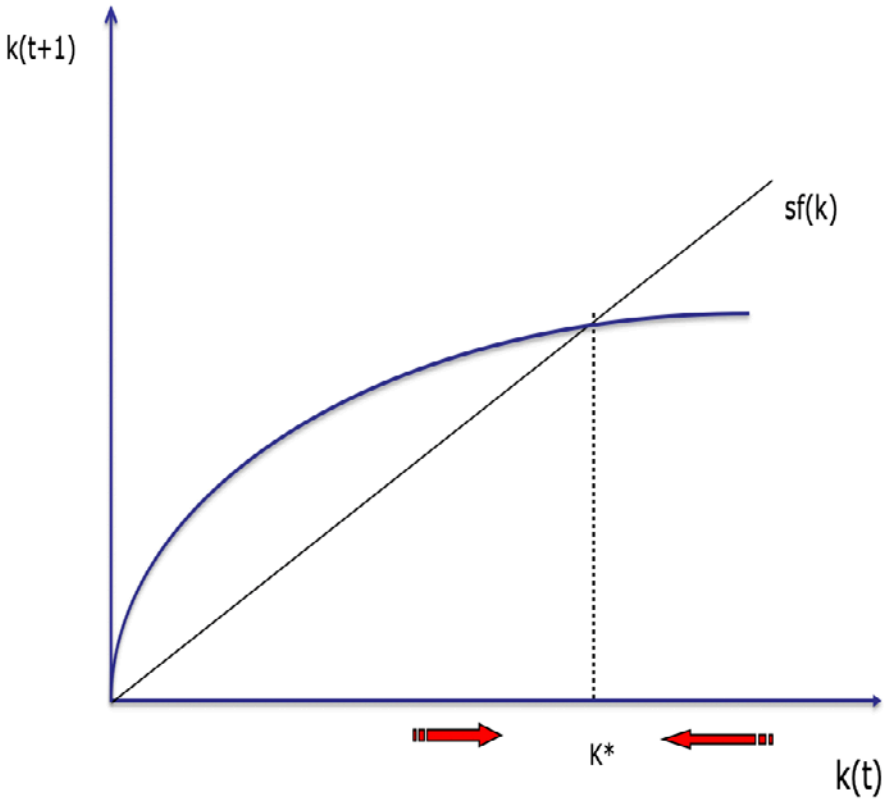
2. Endogenous program responses
   - k_0 correlated with response to the program
   - Use different source of variation to compare those with same k_0:

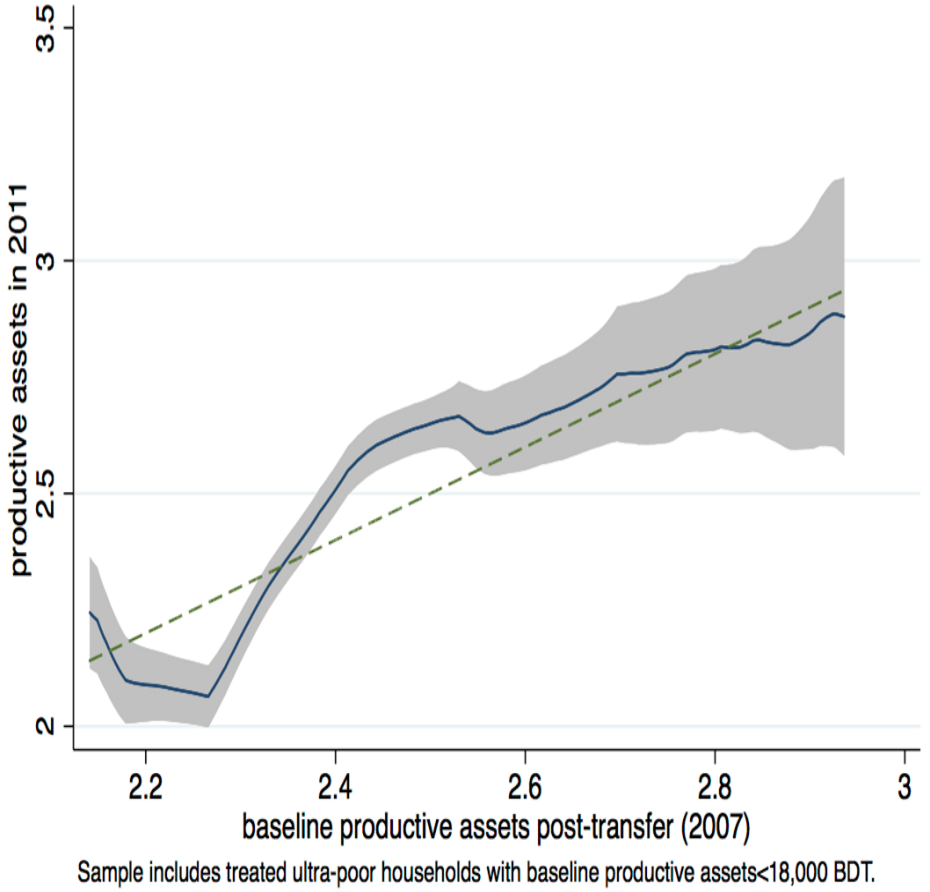
     $k_{t+1} = sf(A, k_t) + (1- \delta)k_t$

     Higher s → lower threshold, higher A → lower threshold

Findings

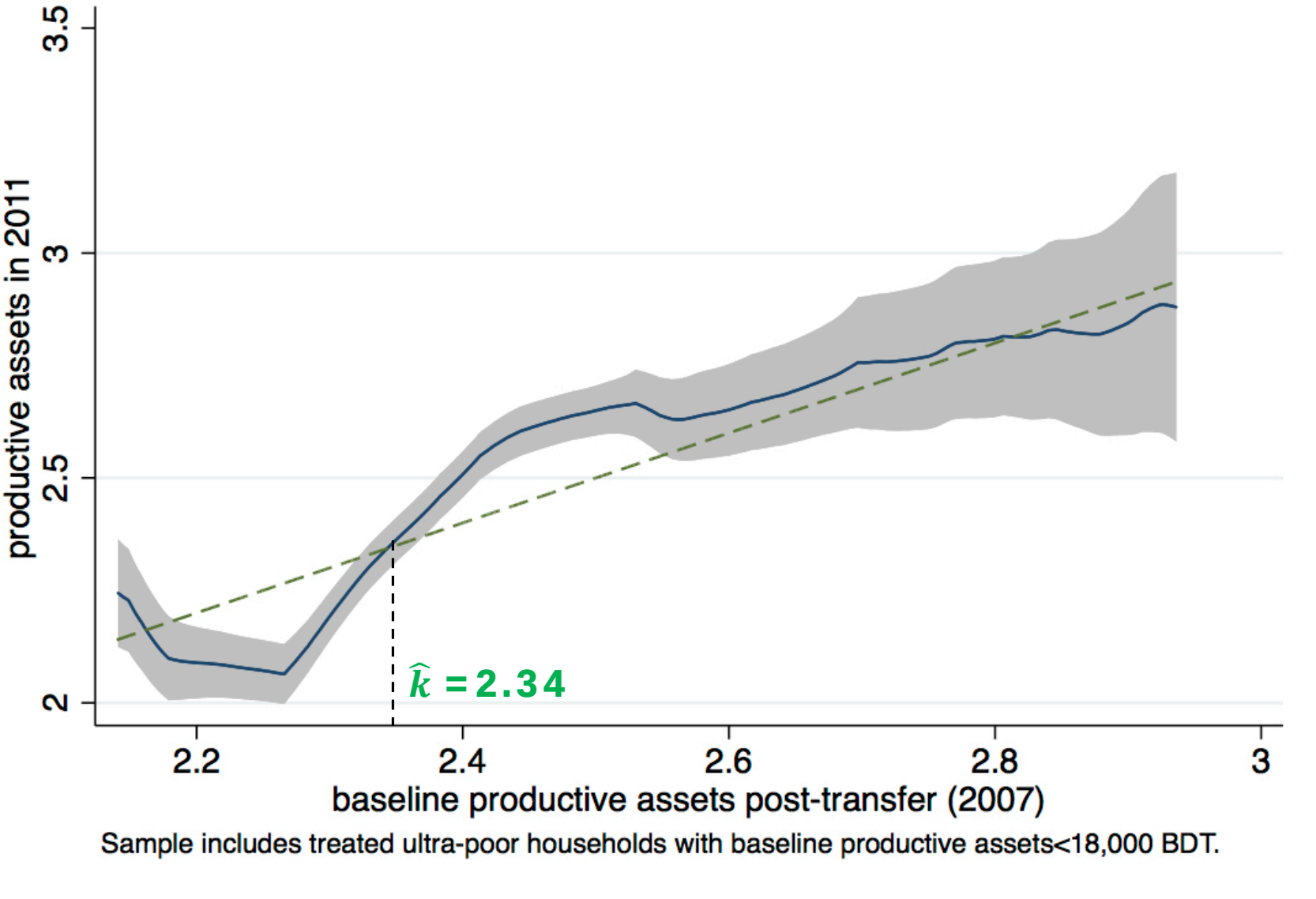
The transition equation without and with a poverty trap





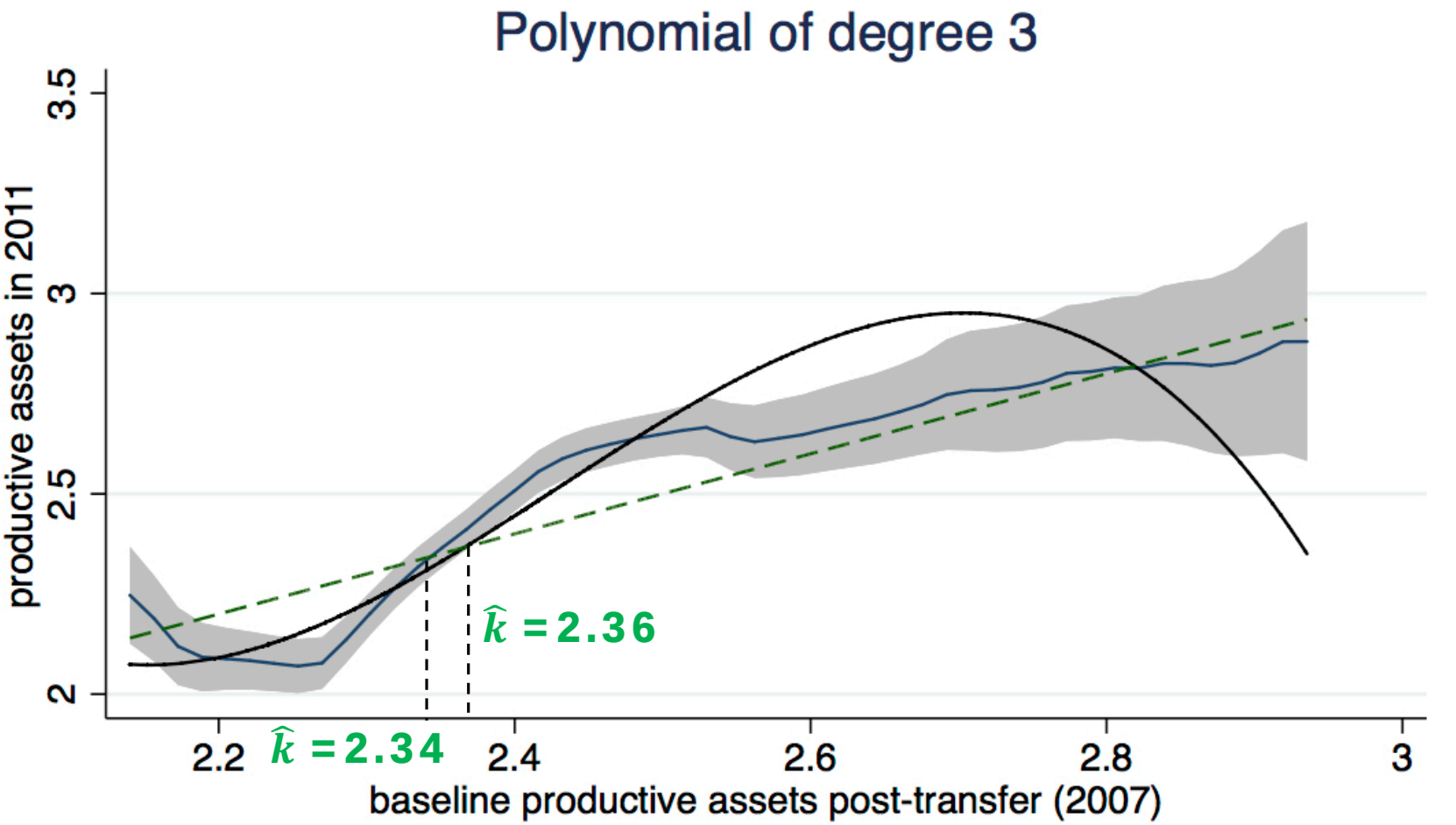
Sample includes treated ultra-poor households with baseline productive assets<18,000 BDT.

The transition equation is S-shaped

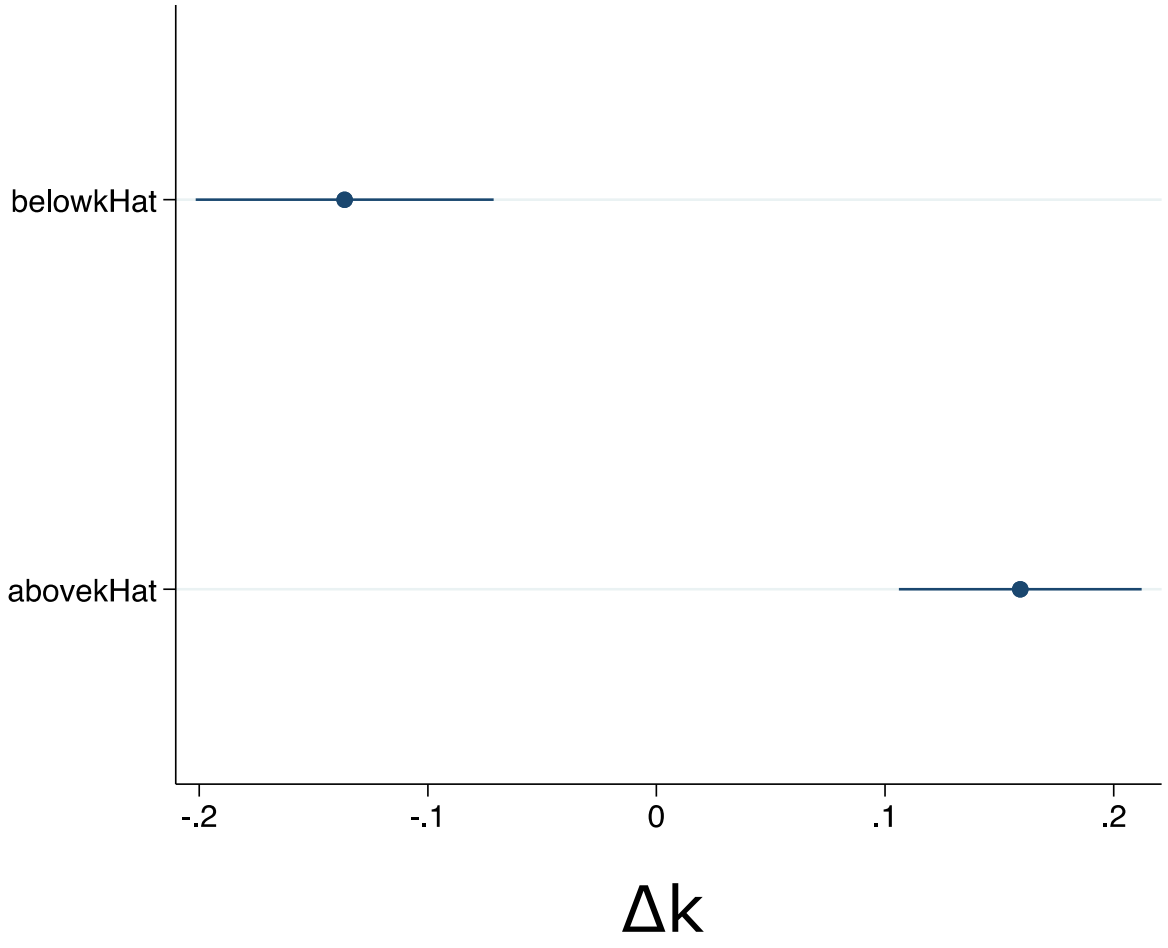


Sample includes treated ultra-poor households with baseline productive assets<18,000 BDT.

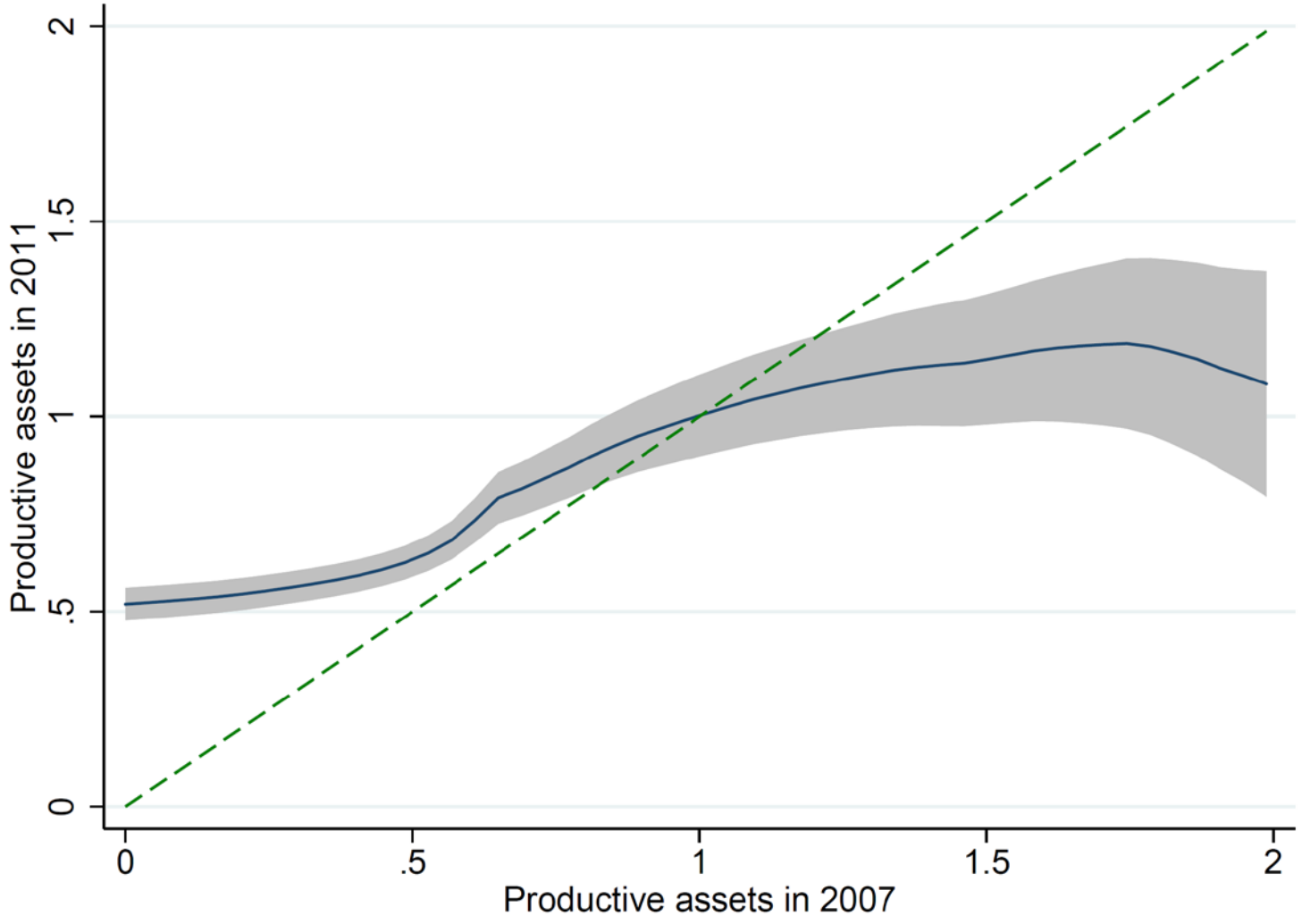
Parametric identification gives similar answers



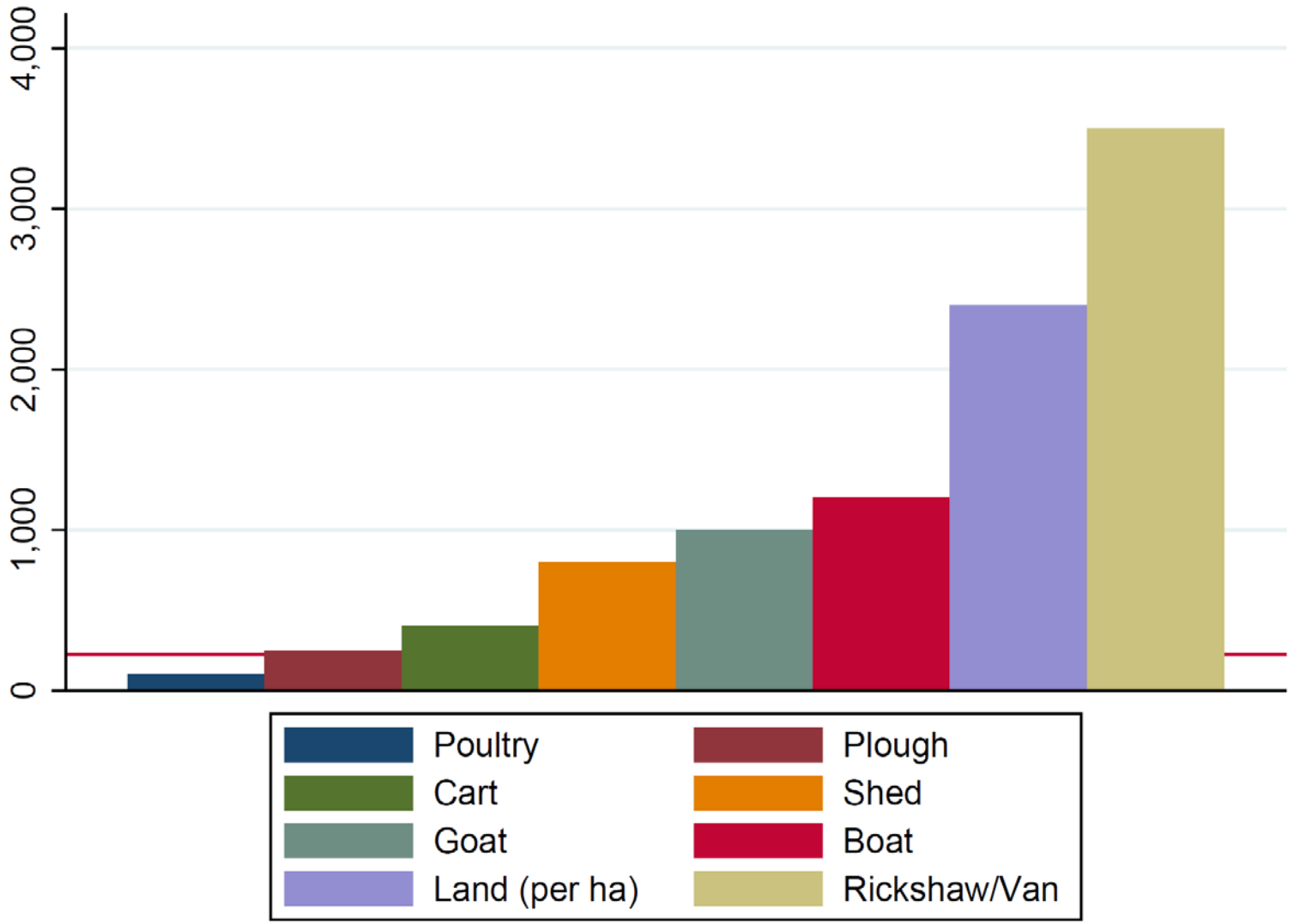
K^ is unstable: Δk<0 to the left, Δk>0 to the right



Transition equation in control villages



What does the difference in assets correspond to?

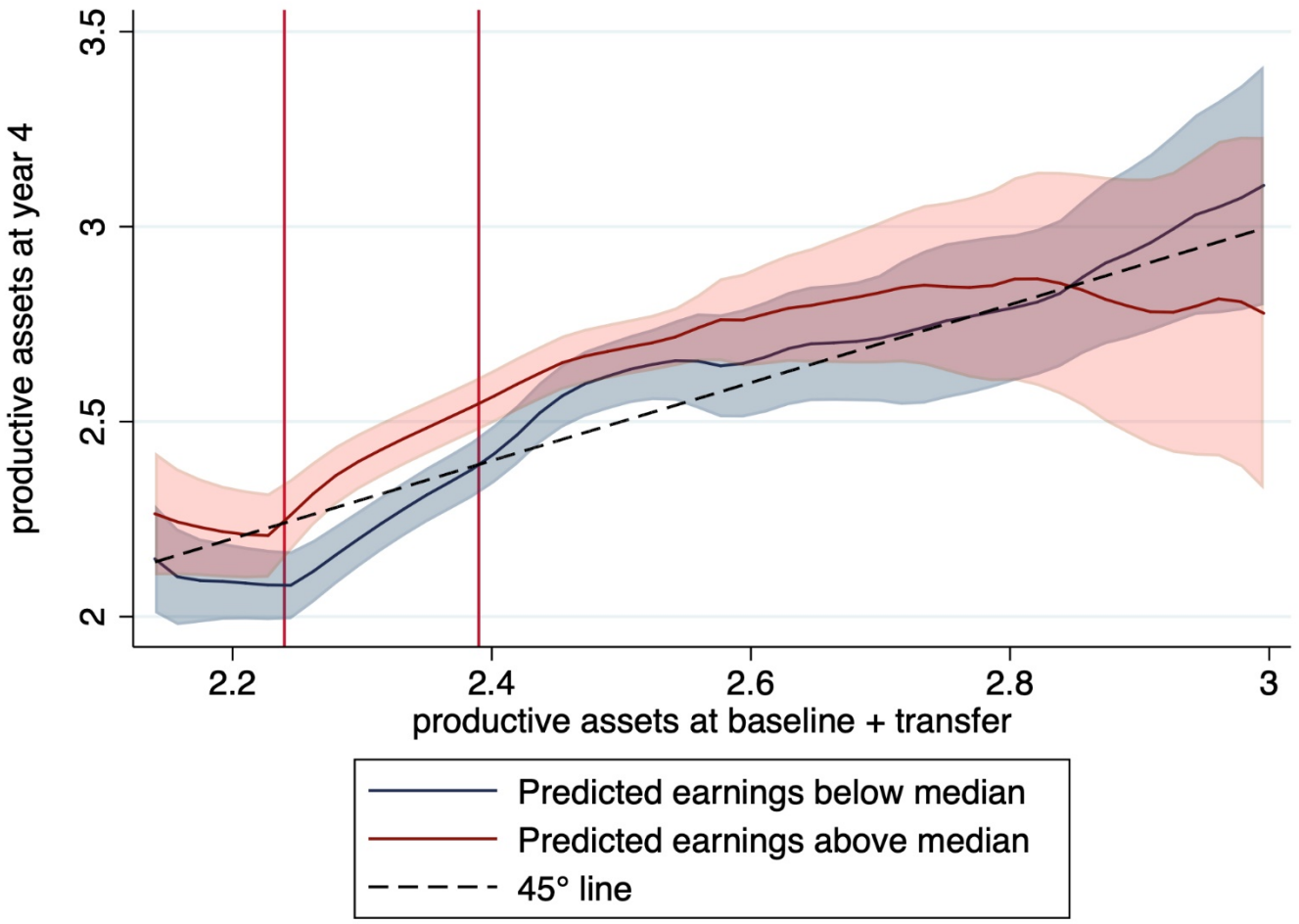


Cannot be explained by common shocks correlated with k_0

	Treatment (1)	Control (2)	Both (3)
Above $\widehat{k}$	0.296^{***}	-0.010	-0.010
	(0.043)	(0.051)	(0.057)
Treatment			-0.473^{***}
			(0.059)
Above $\widehat{k}$ × Treatment			0.305^{***}
			(0.069)
Constant	-0.136^{***}	0.336^{***}	0.336^{***}
	(0.033)	(0.045)	(0.050)
N	3,292	2,450	5,742

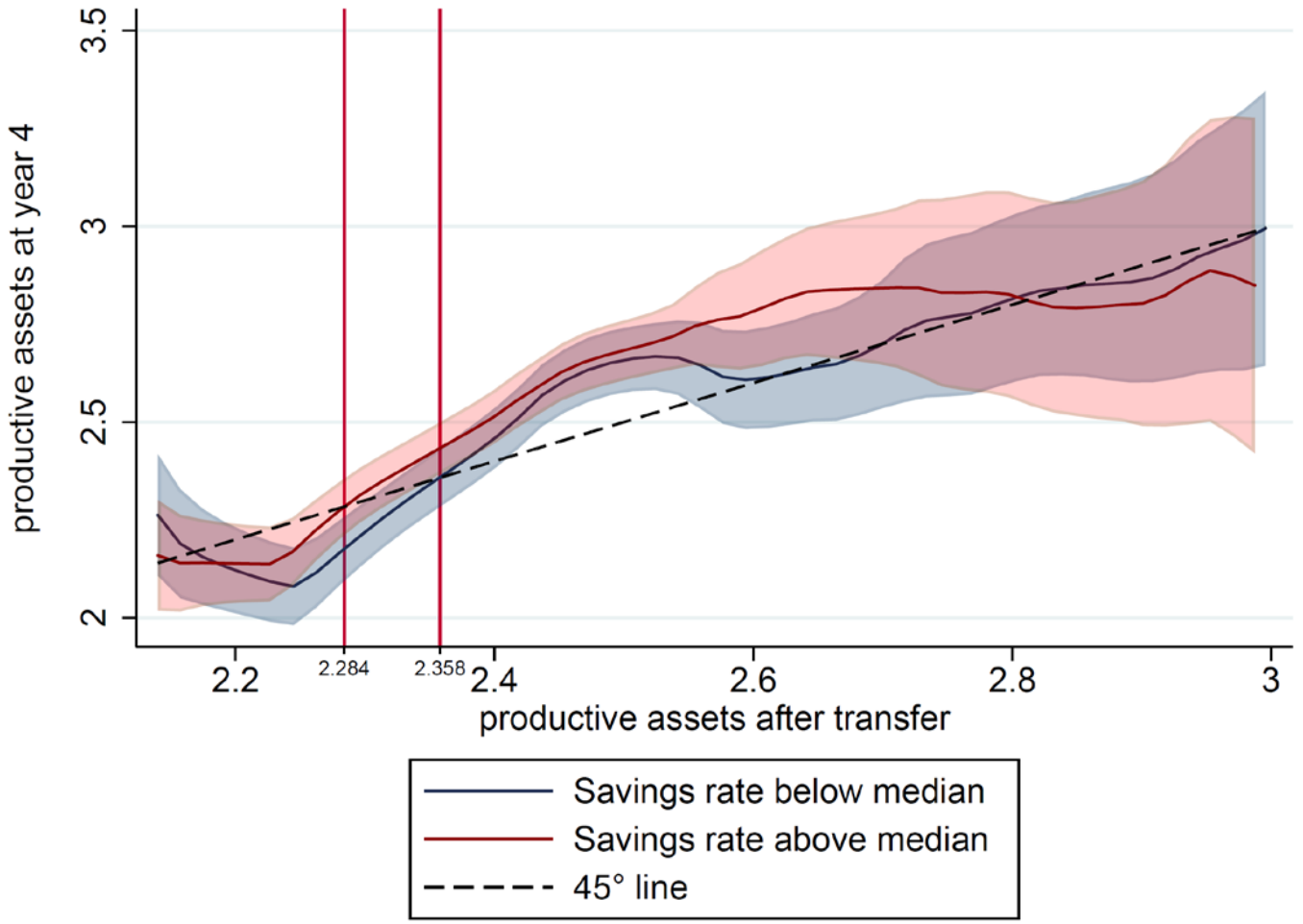
*: $p < 0.1$, **: $p < 0.05$, ***: $p < 0.01$. Standard errors in brackets.The dependent variable is the difference between log productive assets in 2011 and log of productive assets in 2007. Above $\widehat{k}$ equals 1 if the capital stock plus the transfer is larger than 2.34, 0 otherwise. Treatment = 1 if village is treated.

Individual thresholds I: earnings potential



Measure earnings potential using returns to cows in different villages

Individual thresholds II: savings potential



Instrument for savings rate using dependency ratio

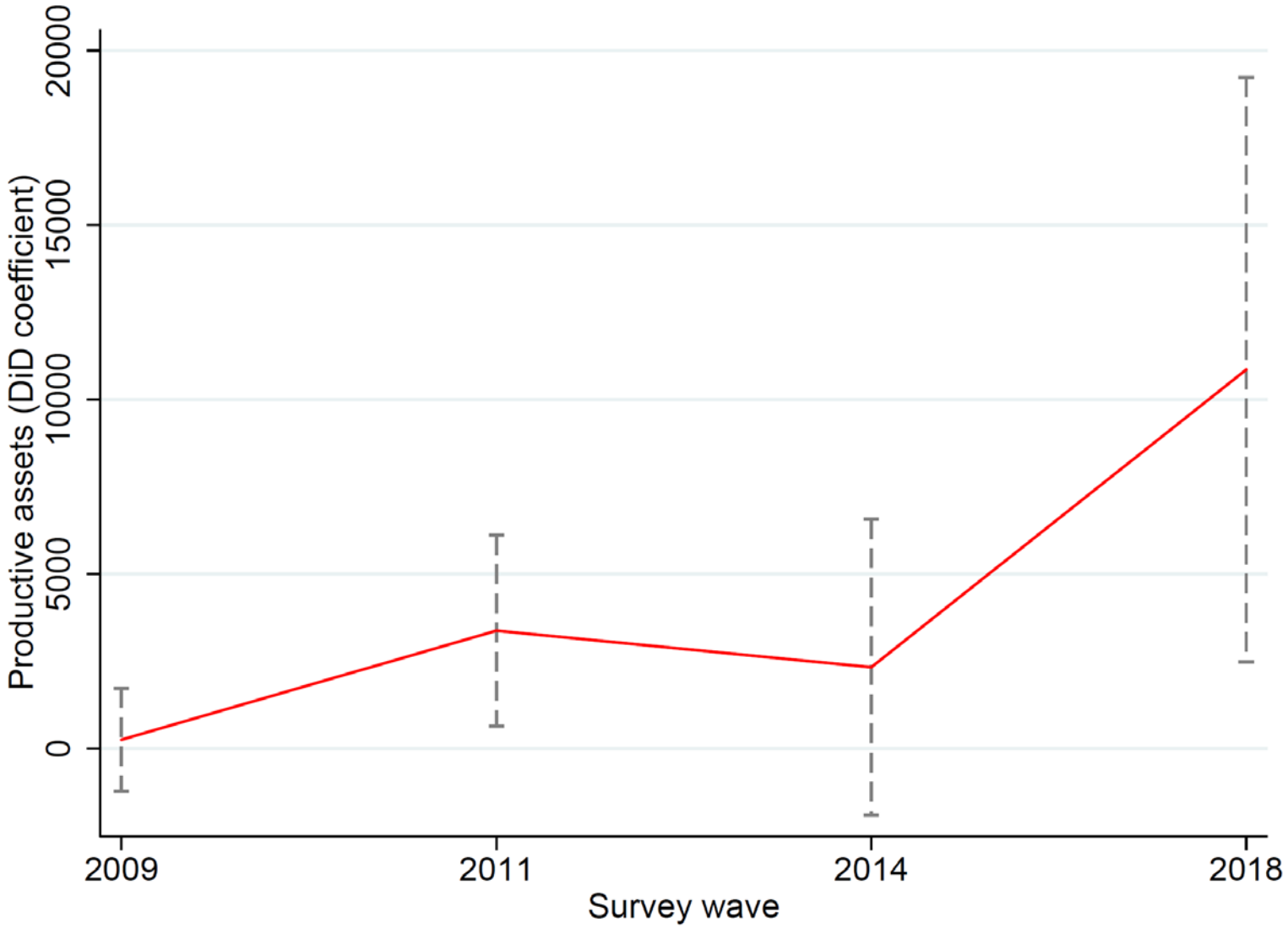
Poverty traps using variation in thresholds

	Earnings Potential			*Savings Potential*		
	Baseline (1)	FE (2)	Placebo (3)	Baseline (4)	FE (5)	Placebo (6)
Above $\widehat{k}_i$	0.301*** (0.044)	0.307*** (0.047)		0.319*** (0.045)	0.357*** (0.048)	
Above $\widehat{k}_L$			−0.268 (0.047)			0.172 (0.878)
Above $\widehat{k}_H$			0.474*** (0.072)			0.484*** (0.102)
Constant	−0.157*** (0.038)	−0.161*** (0.038)	−0012*** (0.09)	−0.154*** (0.035)	−0.177*** (0.037)	−0.262*** (0.07)
Baseline $\ln K_0$ FE	N	Y	Y	N	Y	Y
N	3,292	3,292	1,656	3,135	3,135	1,352

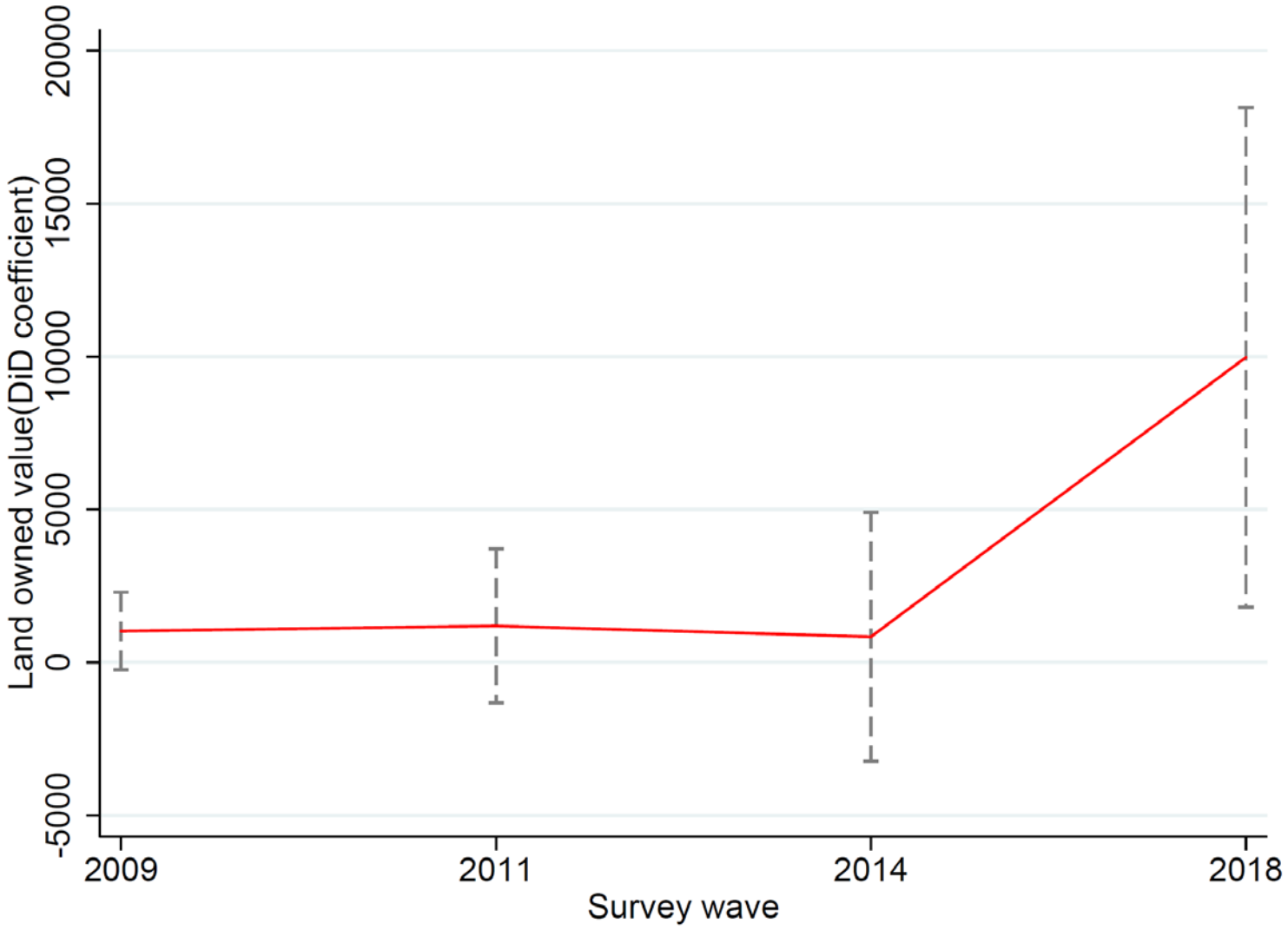
*: $p < 0.1$, **: $p < 0.05$, ***: $p < 0.01$. Standard errors in parenthesis. The dependent variable is the difference between log productive assets in 2011 and log of productive assets in 2007. Above $\widehat{k}_i$ equals 1 if the capital stock plus the transfer is larger than the individual specific value based on earnings potential in columns 1-3 and savings in columns 4-6. Above $\widehat{k}_{L/H}$ equals 1 if the capital stock plus the transfer is larger than the thresholds for individuals below/above the median of earnings potential in columns 1-3 and savings in columns 4-6.

Long run

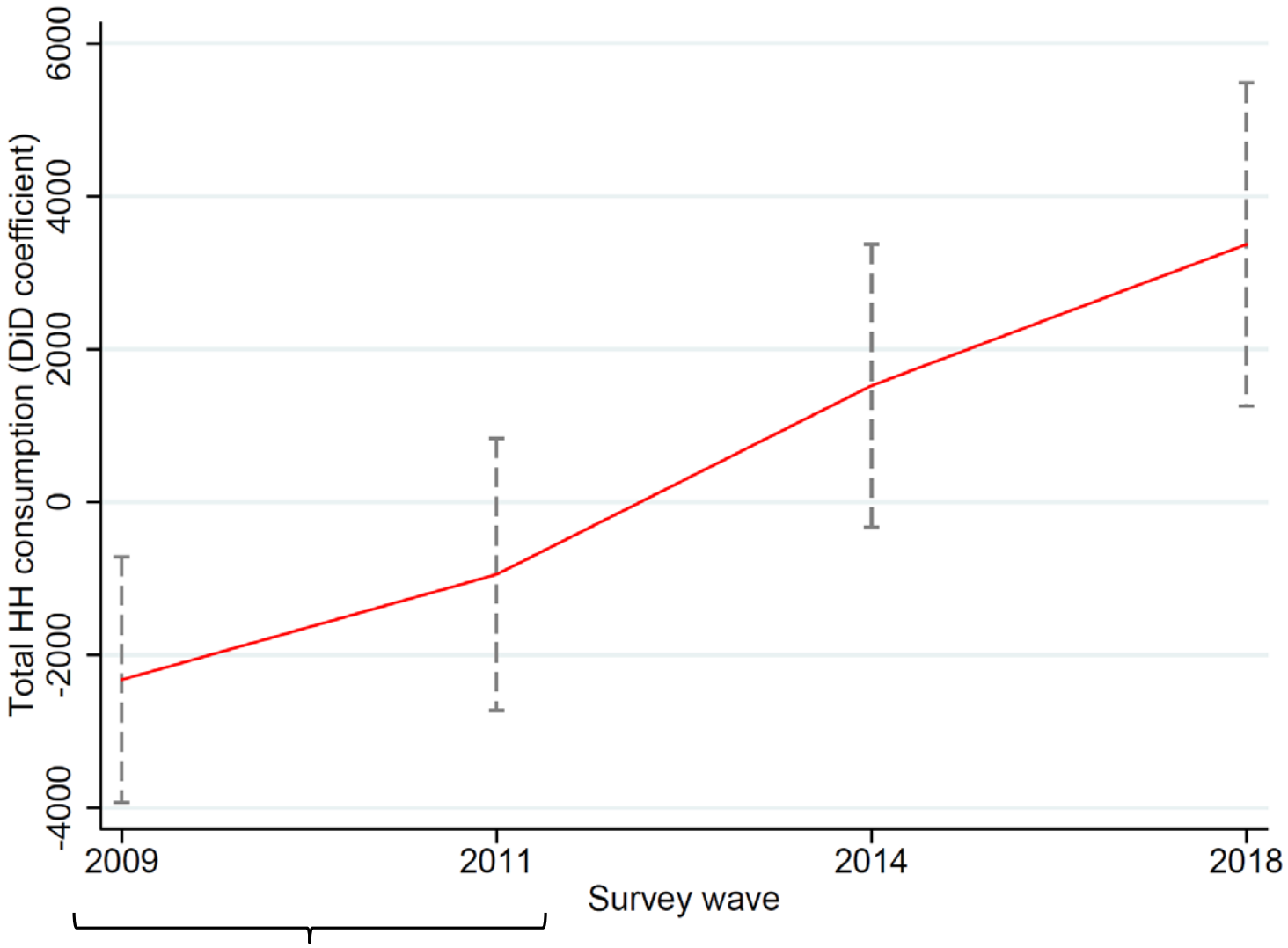
Differences in productive assets grow over time



Change in composition of assets

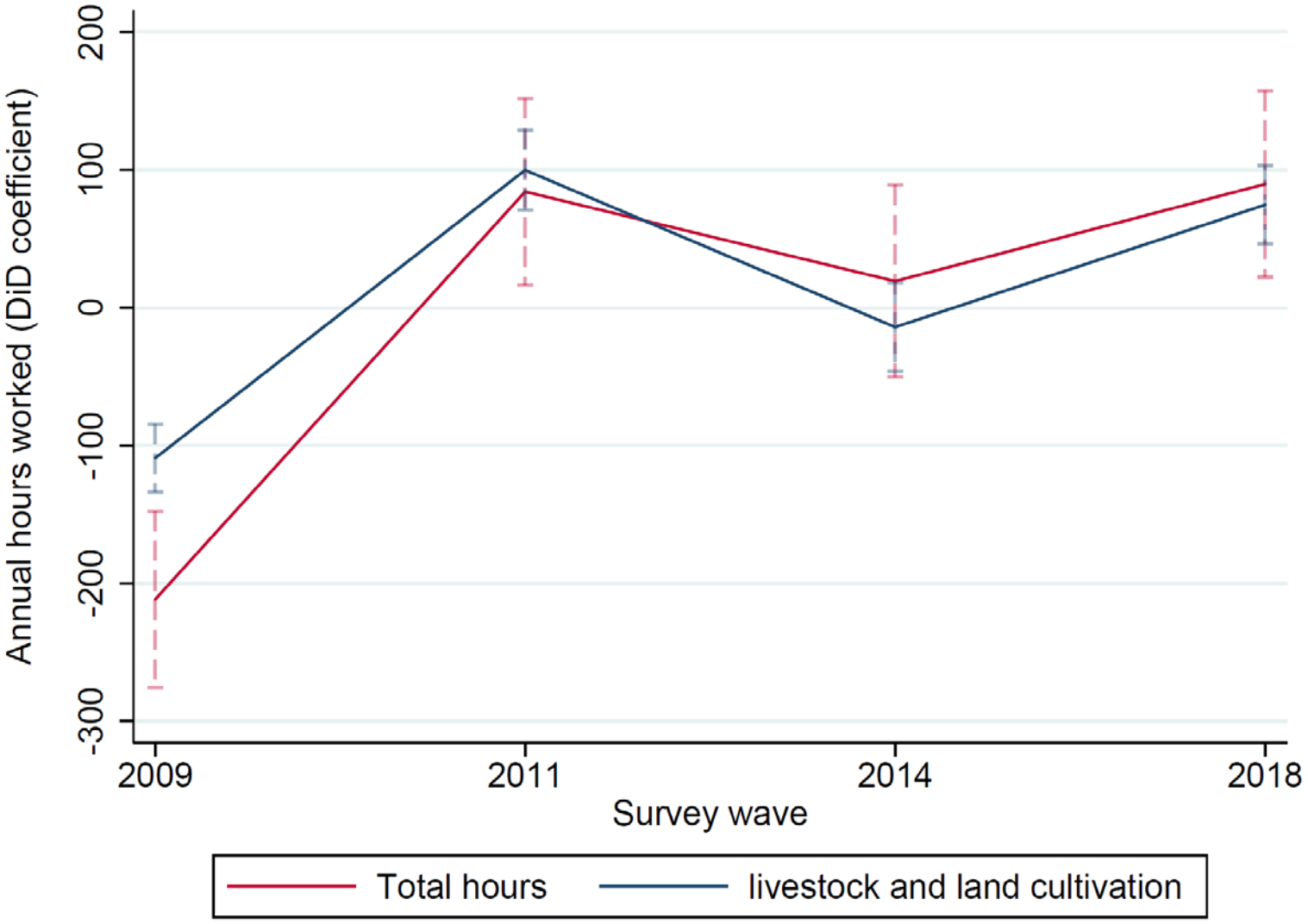


Average gap in consumption increases



Initially negative as those above threshold save to buy assets

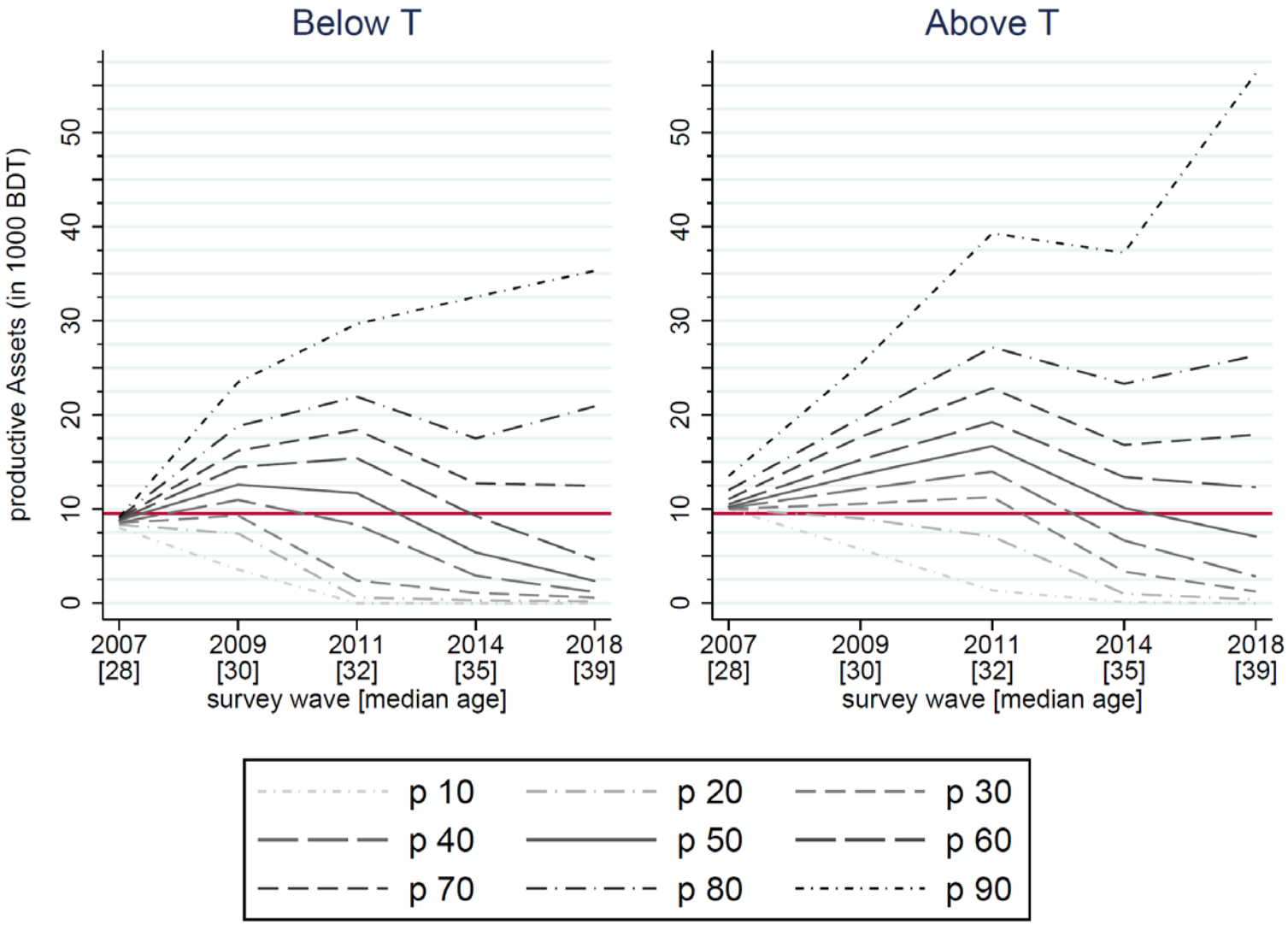
Average gap in hours worked



Life cycle effects

- Over 11 years, life cycle savings also affect asset stocks
- Asset dynamics reflect convergence to steady state and aging
  - Both lead to decreasing assets below threshold
  - Countervailing forces above threshold
- Evident above and below threshold but differences persist
- Stronger effects for younger beneficiaries: those above threshold 20pp more likely to grow assets by year 11

Differences persist and inequality increases over time



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 data
- Simulate the model to estimate each individual's optimal steady-state occupational choice and quantify misallocation at baseline

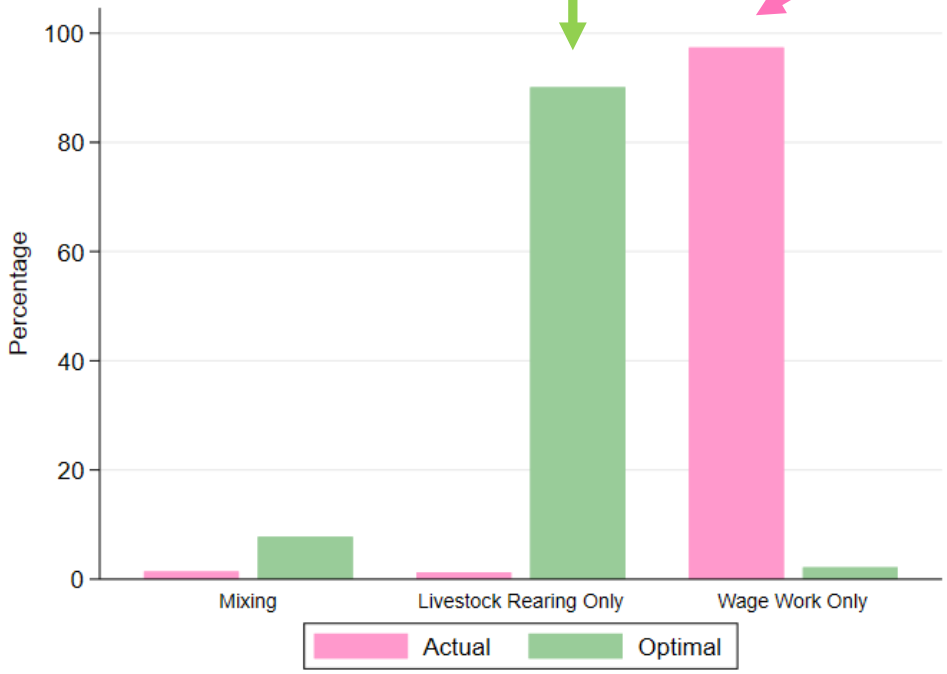
Estimating misallocation

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:

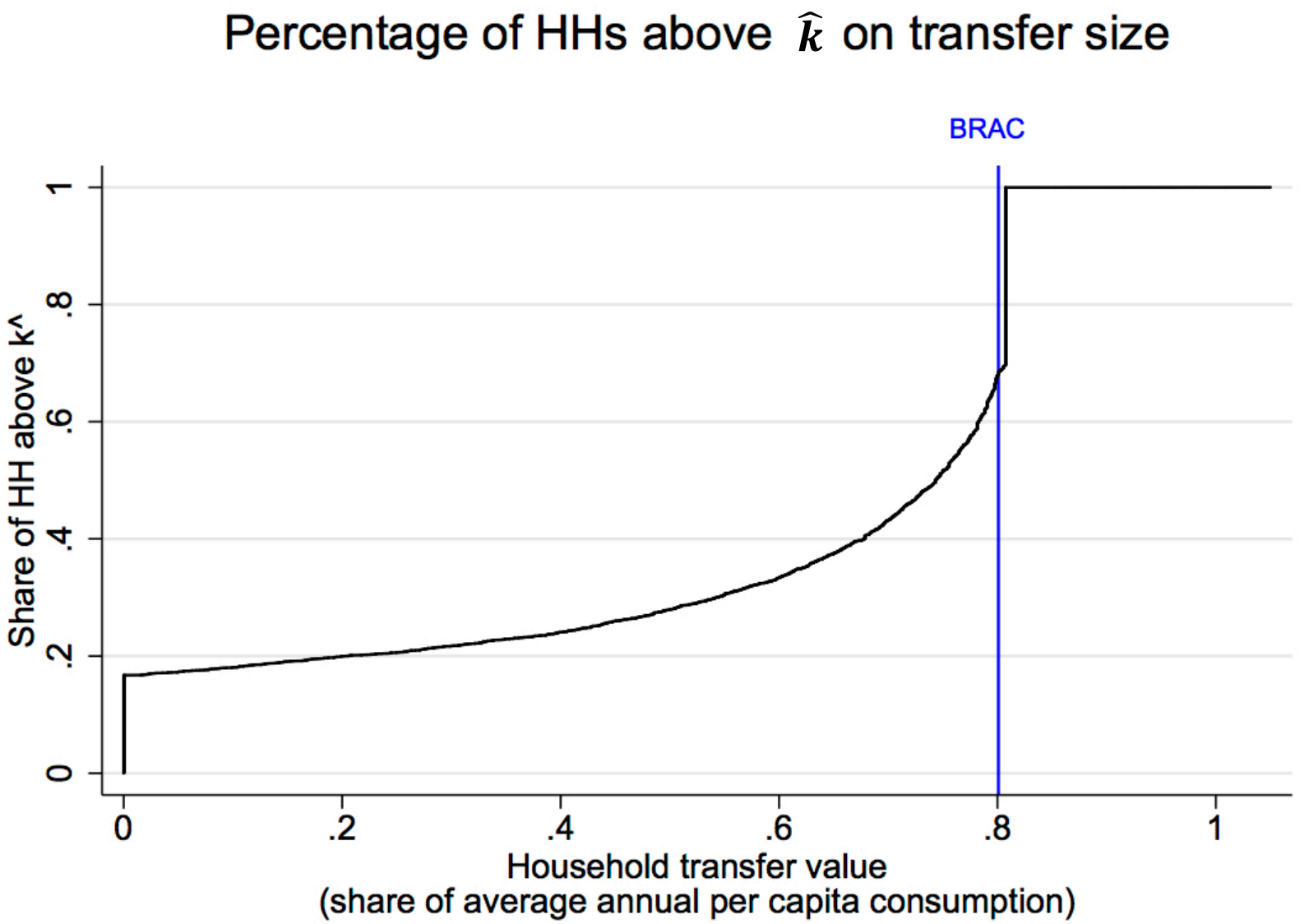
$1 million one-off

Quantifying misallocation

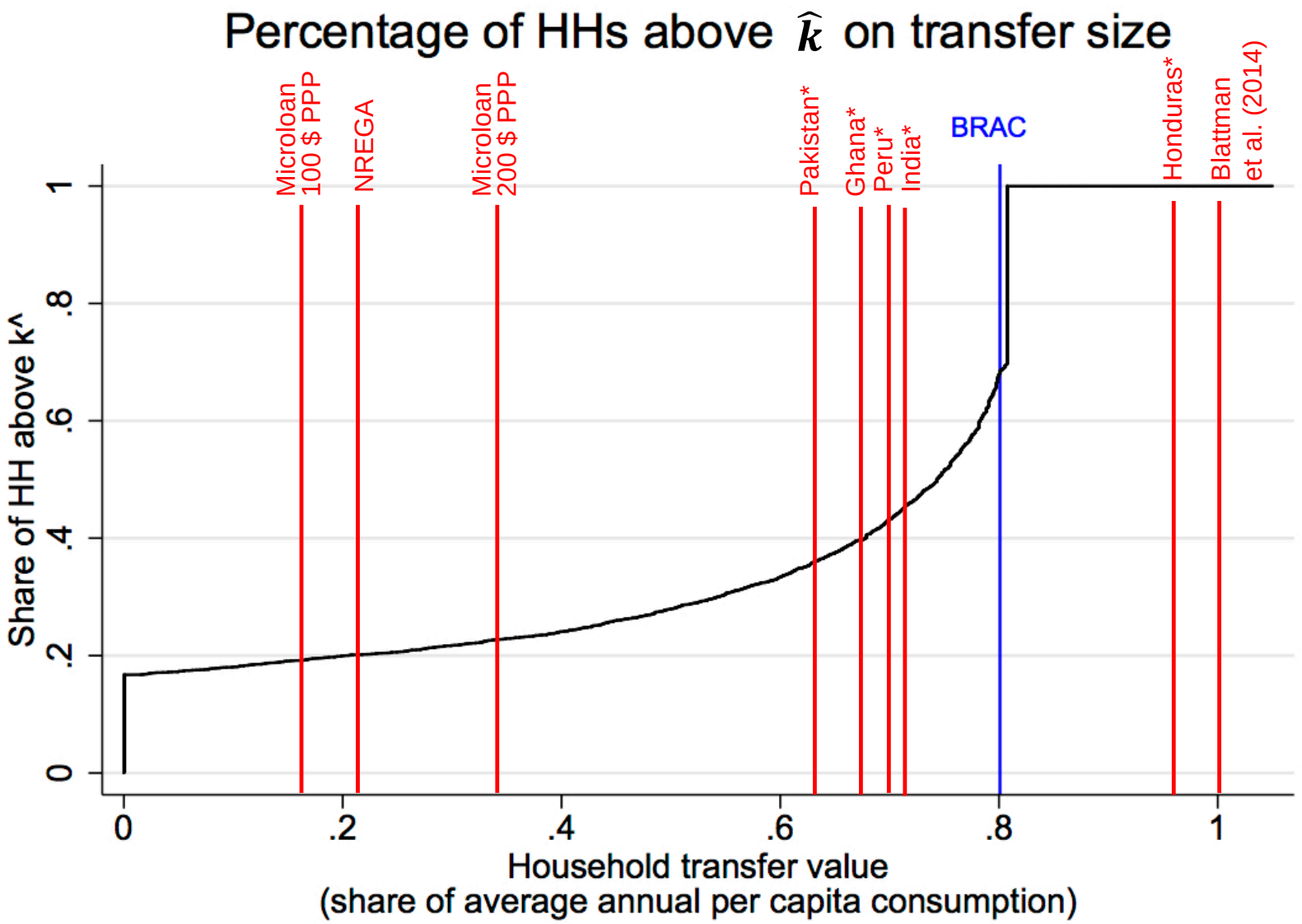
- Model suggests 96% of individuals are misallocated at baseline
- Estimated total value of misallocation across all HHs 15 times larger than transfers needed for all HHs to escape the trap
- Value of misallocation >> cost of eliminating trap robust with:
  - General equilibrium price effects
  - Doubling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

Policy

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