Taking Stock of the Evidence on Micro-Financial Interventions

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Taking Stock: Goals

Two-fold goal:

1. review of empirical findings in attempt to line up the salient patterns.
2. assessment of our understanding of these patterns through the lens of economic theory

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Lucas (1993):

> *"If we understand the process of economic growth – or of anything else – we ought to be capable of demonstrating this knowledge by creating it in these pen and paper (and computer-equipped) laboratories of ours. If we know what an economic miracle is, we ought to be able to make one."*

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Again, Lucas (1993):

> *"simply advising a society to 'follow the Korean model' is a little like advising an aspiring basketball player to 'follow the Michael Jordan model'. To make use of someone else's successful performance at any task, one needs to be able to break this performance down into its component parts so that one can see what each part contributes to the whole, which aspects of this performance are imitable and, of these, which are worth imitating. One needs, in short, a theory."*

Taking Stock: Outline of Analysis

1. review of empirics
    - grants to micro-entrepreneurs
    - grants to ultra-poor
    - microcredit
2. assessment of theory
    - returns to poor entrepreneurs
    - redistributive grants to ultra-poor
    - microcredit (new analysis: vary int. rate subsidies)

Taking Stock: Findings

1. review of empirics
    - grants to micro-entrepreneurs: increase k, profits
    - grants to ultra-poor: increase k , y, and c
    - microcredit: some increase i, but little y, c, low take up
        - village funds: bigger impacts, higher take up
2. assessment of theory
    - returns to poor entre.: up to 75% in low wealth decile
    - grants to poor: impacts transient, smaller than in data
    - microcredit:
        - small agg. impacts, but GE wage effects can redistribute
        - interest rates potentially quite important

Taking Stock: Broader Conclusions

Both empirically and in theory:

1. no widescale escapes from poverty traps
    - empirics: some policies have persistent gains, but not long run growth
    - simulations: no aggregate poverty traps, only individual
2. responses are heterogeneous:
    - across individuals: wealth, intervention size, gender, ability, entrepreneurial status, financial access, and time frame
    - across interventions: environment (?), measurement (?)
3. GE and dynamic effects can matter
    - dissaving after receiving grants
    - large-scale wage effects can impact non-participants

Empirical Evaluations

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Grants to Micro-entrepreneurs

Study	de Mel et al. (2008)	McKenzie Woodruff (2008)	Fafchamps et al. (2014)	Karlan et al. (2015)	McKenzie (2015)
Country	Sri Lanka	Mexico	Ghana	Ghana	Nigeria
Sample	408, non-employer	198, self-employed	793, self-employed	160, tailors employing 3 or fewer	1,831, young applicants, "ordinary merit" winners
Intervention	$460 to 920 PPP (cash or in-kind)	$210 (cash or in-kind)	$280 (cash or in-kind)	$370 (cash), plus consulting	$98,200 (cash), plus business training
Time horizon	24 months	12 months	12 months	14 months	12 months
Profit (chg. rel. to grant)	4–6% per month	20–33% per month	15% per month	-67%	23%
Capital (chg. rel. to grant)	70–130%	N/A	20–105%	-250%	N/A

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Grants to Ultra-Poor

Study	Bandiera et al. (2011)	Banerjee et al. (2015b)	Banerjee et al. (2011)	Morduch et al. (2011)	Blattman et al. (2014)	Blattman et al. (2016)	Haushofer and Shapiro (2013)
Country	Bangladesh	Various	India (WB)	India (AP)	Uganda	Uganda	Kenya
Sample	6,700, women	10,500 (900 to 2,600 per country), women	800, women	3,500, women	1,900, younger adults	1,800, younger women	1,380, men and women
Randomization level	Village	Village and individual	Individual	Village	Groups of 10–40	Village	Village and individual
Intervention	$520 PPP or 2 cows, plus technical training	$440–1,280 PPP, plus consumption support	$330 PPP, plus consumption support, technical training, forced saving	$510 PPP, plus technical training, forced saving, health service, group building	$1,310 PPP, plus artisan training	$380 PPP, plus business training, group building	$404–1,520 PPP, plus mobile money access
Horizon	48 months	36 months	18 months	18 months	47 months	16 months	$\approx$ 4 months
Income change	+44%	Sig. positive	+39%	Insignificant	+43%	+70–150%	+34%
Income activity	Specialized self-emp +15 p.p., self-emp hours +106%	14% increase in productive assets	48% increase in hours worked, income from business labor	Increase in livestock income	Non-agri hours +56%, overall labor supply +19%	Hours +60%, non-agri hours +100%	Business, agri expenses rise
Increase in assets	137% of grant	8–97% of grant	Sig. positive	No impact, except the prob. of owning livestock	34% of transfer, 68% of original investment	Sig. positive	35% of grant
Consumption change	10%	5%	29%	Insignificant	Sig. positive	30%	23%

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3. Microcredit access to new populations
   - low take up
   - some impacts on entry, i but few impacts on y, c
   - "village funds" have positive impacts on y, possibly c

Micro-Credit Evaluations

Study	Attanasio et al.	Crépon et al.	Tarozzi et al.	Banerjee et al.	Angelucci et al.	Augsburg et al.	Kaboski and Townsend	Cai et al.
Country	Mongolia	Morocco	Ethiopia	India	Mexico	Bosnia and Herzegovina	Thailand	China
Sample	600, rural, women micro-entrepre.	5,600, rural, at least partly self-employed	6,300, rural, poor, potential entrepre.	6,900, urban, women	16,600, women	1,000, marginal borrower	1,000, rural, no targeting	1,200, rural, no targeting
Random. level	Village	Village	Peasant assoc.	Neighborhood	Village, neigh.	Individual	Village	Village
Average loan size	$700 PPP	$1,080 PPP	$500 PPP	$600 PPP	$450 PPP	$1,820 PPP	$1,450 PPP	$1,570 PPP
Nominal APR	27%	15%	12%	24%	110%	22%	7%	8%
Average loan term	6 months	16 months	12 months	12 months	4 months	14 months	12 months	12 months
Horizon	19 months	24 months	36 months	39–42 months	27 months	14 months	24 months	24 months
Take-up	50–57%	13%	31%	17%	19%	99%, by design	54%	29%
Overall credit chg.	+67%	+64%	+195%	+63%	+18 p.p. (frac. with loan)	+19 p.p. (frac. with loan)	+50%	+23 p.p. (frac. with loan)
Change in Entrepre.	Fraction of entrepre. +8 p.p.	Insignificant, as expected	Livestock revenue and crop exp. rise	Fraction of entrepre. +2 p.p	Revenue and crop exp. rise	Insignificant	Insignificant	Cash crop land +63%
Change in capital	Insignificant	+29%	Insignificant	+25%	-18%	Insignificant	Insignificant	+47% (in husbandry)
Labor supply change	+57%	Decreased non-self-emp hours	Insignificant	Insignificant	N/A	Insignificant	N/A	+8%, driven by migrant labor
Profit chg.	Insignificant	+40%	+68% insignificant point est.	+57% insignificant point est.	Insignificant	+34% insignificant point est.	Income +35%	Income +50% (husbandry income +53%)
Consumption change	+11%	Insignificant	N/A	Insignificant	Insignificant	-16% insignificant point est.	+10%	+8% insignificant point est.

Patterns *Across* Interventions

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3. No sustained growth impacts
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4. Impacts: grants $>$ village funds $>$ other microcredit
    - repayment burden (interest rate?, timing of payment?)
    - targeted population (wealthier?, women?)

Quantitative Theory Features

Based on earlier work (BKS, 2011,12,14,15, and BS, 2013)

- extensive entrepreneurship decisions
- intensive investments
- financial frictions (quantitatively important: BKS, 2011)
- individual heterogeneity in assets/wealth, a, entr. ability, z, labor opportunities, x
- forward-looking behavior in entre., investment, saving
- stochastic shocks to productivity, labor opportunities

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- forward-looking behavior in entre., investment, saving
- stochastic shocks to productivity, labor opportunities
- quantitative result: Individual poverty traps, but no aggregate poverty traps

Model: Plant Technology

$$f(z, k, l) = zk^{\alpha}l^{\theta}$$

- z: entrepreneurial productivity
- 1 unit of entrepreneur's time
- k: capital input
- l: labor input (workers)
- $\alpha + \theta < 1$

Process of Worker Productivity

Two-state symmetric Markov chain with

$$x = \{x_L, x_H\}$$

and

$$\text{Prob}(x_{t+1} = x | x_t = x) = \rho.$$

ρ controls persistence of labor income

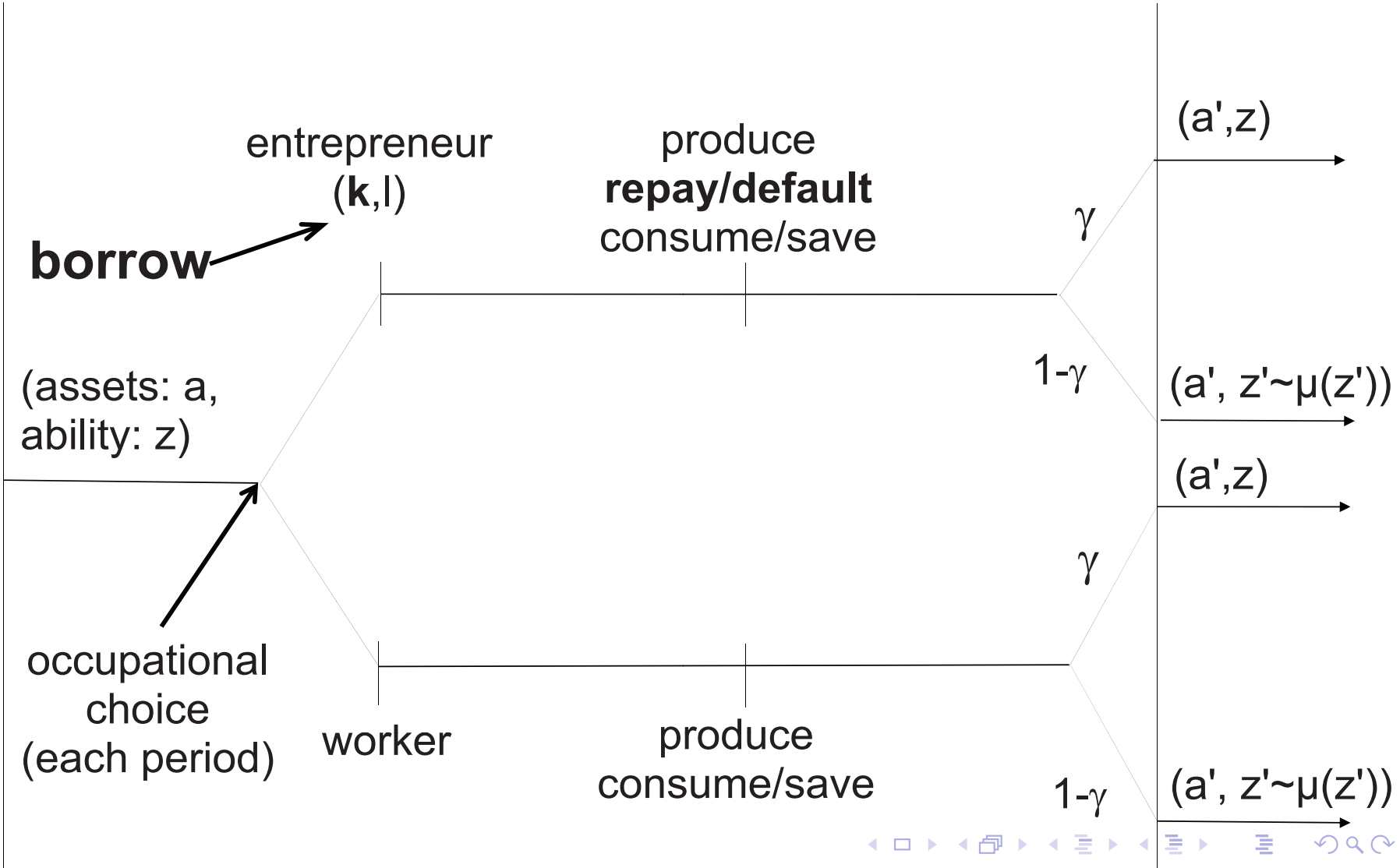
Process of Entrepreneurial Productivity

$$z_s = \begin{cases} z_{s-1} & \text{w/ prob. } \gamma \\ \zeta_s & \text{w/ prob. } 1-\gamma \end{cases}$$

$$\zeta_s \overset{iid}{\sim} \eta \zeta^{-\eta-1},\ \zeta \geq 1$$

- γ controls persistence of entr. productivity
- $-\eta$ controls the thickness of firm size tail
- $z \perp x$

Model Timeline



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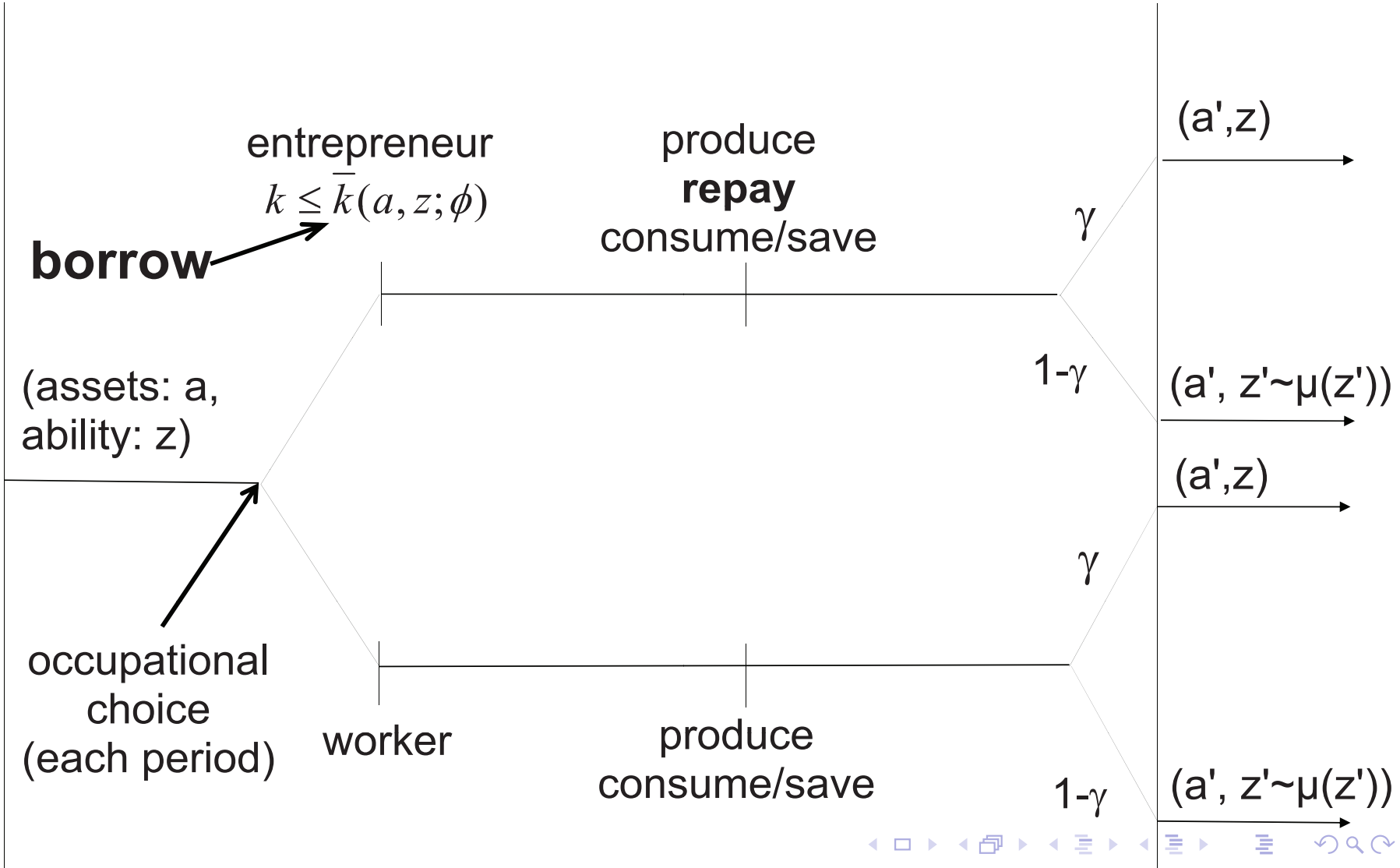
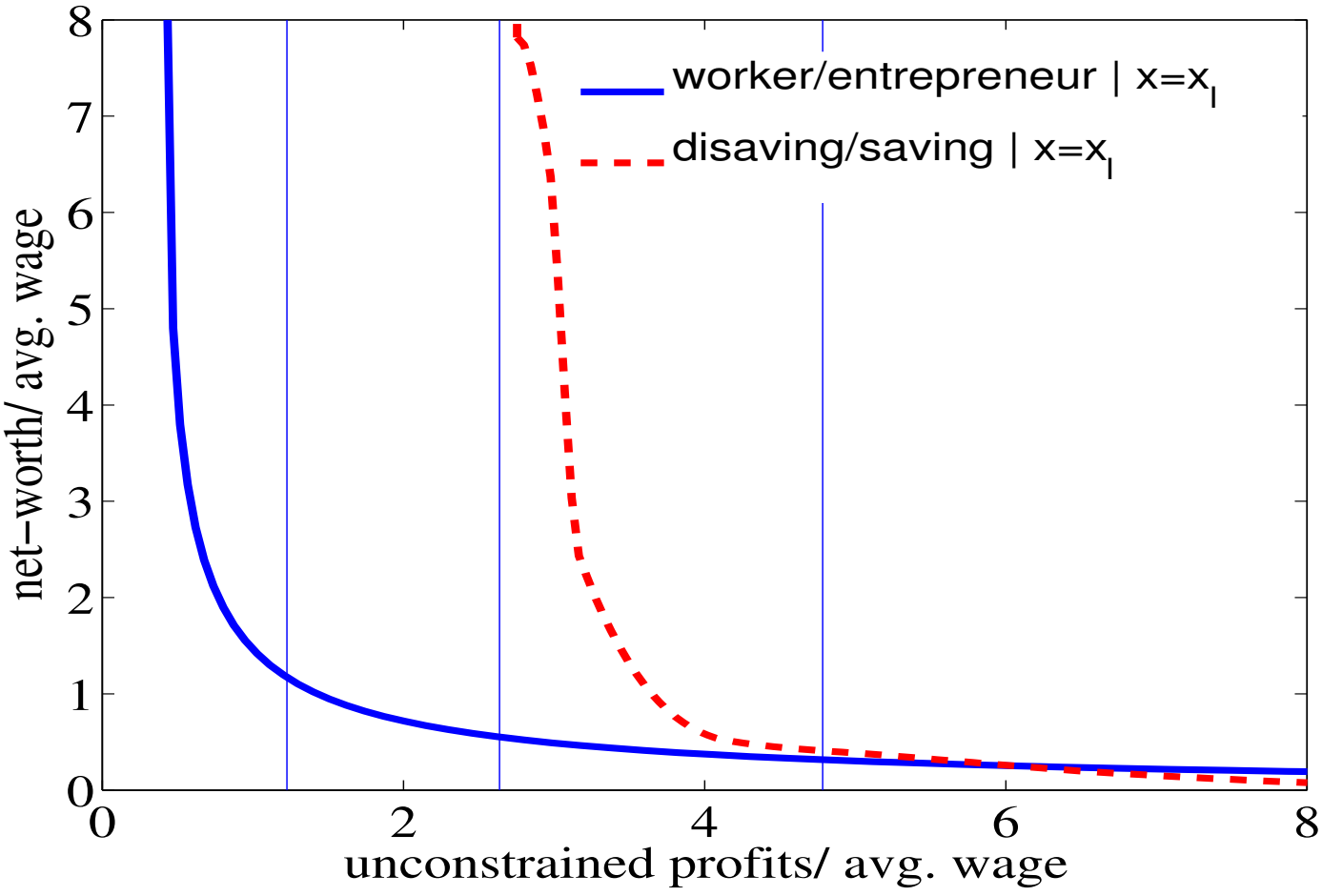


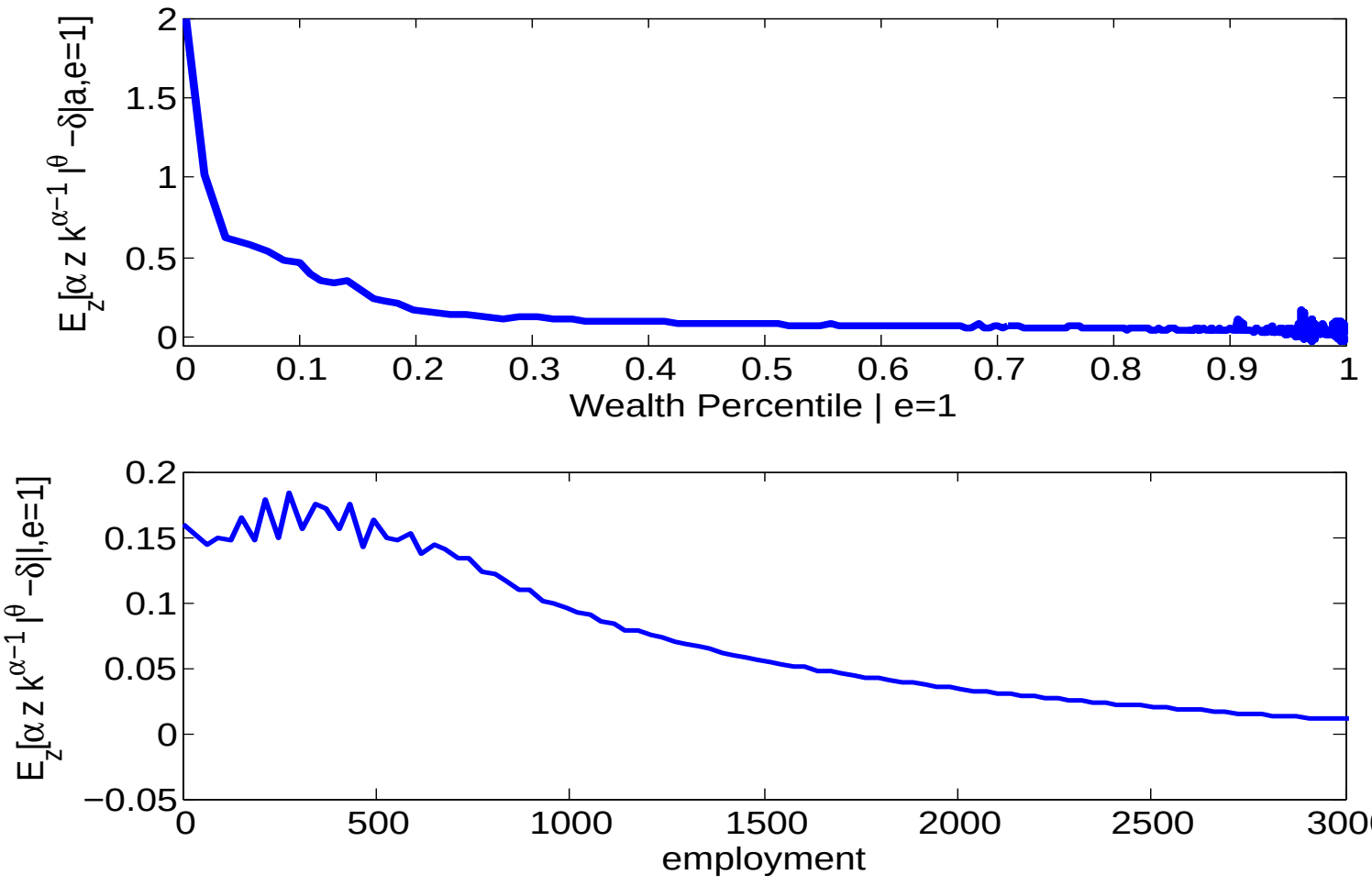
Quantitative Strategy

- Choose technologies and productivity process to match data on the distribution and dynamics of establishments and income in developing country (India)
- Calibrate the quality of contract enforcement in developing countries to match their credit to GDP data
- Contrast the PE implications of the model to the micro experimental evidence
- Evaluate GE and long run implications

Savings and Occupational Choice



Average MPK by Wealth and Firm Size



Assets Grants, BKS(2014)

- Model as initial transfer to the poorest, $a\ leq\underline{a}$,

$$S_0(a) = \max\{2E[xw] - a, 0\}$$

- financed by one-time taxes on the richest, $a \geq \bar{a}$,

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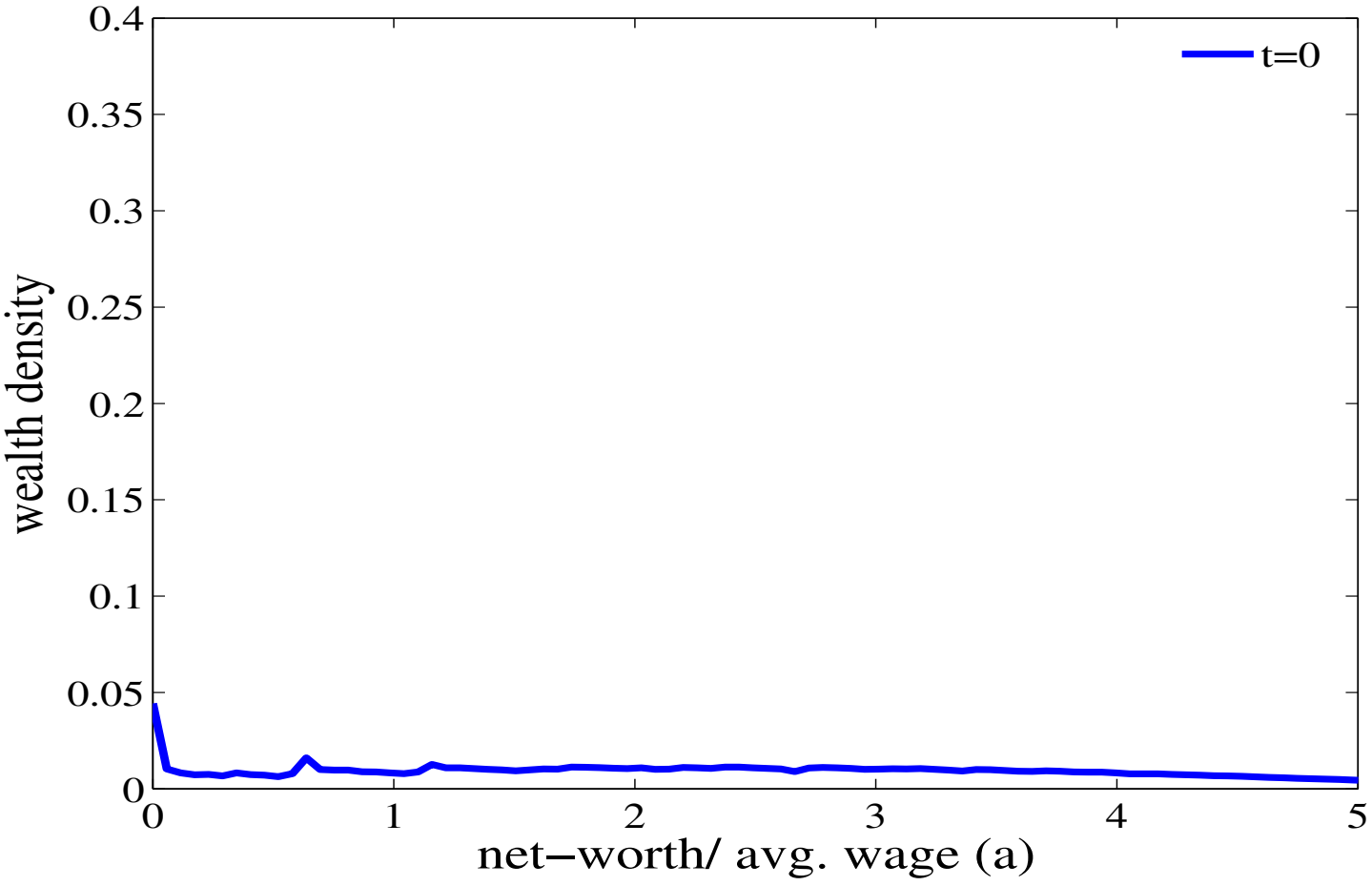
- Results
  - entrepreneurship results comparable
  - Shortcoming: income increase too small (4% $\ll$ 34-150%)
    - Not targeted toward higher ability/marginal entrepreneurs
    - Does ag. training increase ability?
    - Income measurement?
  - Impacts persist at 4 years but ultimately transitory

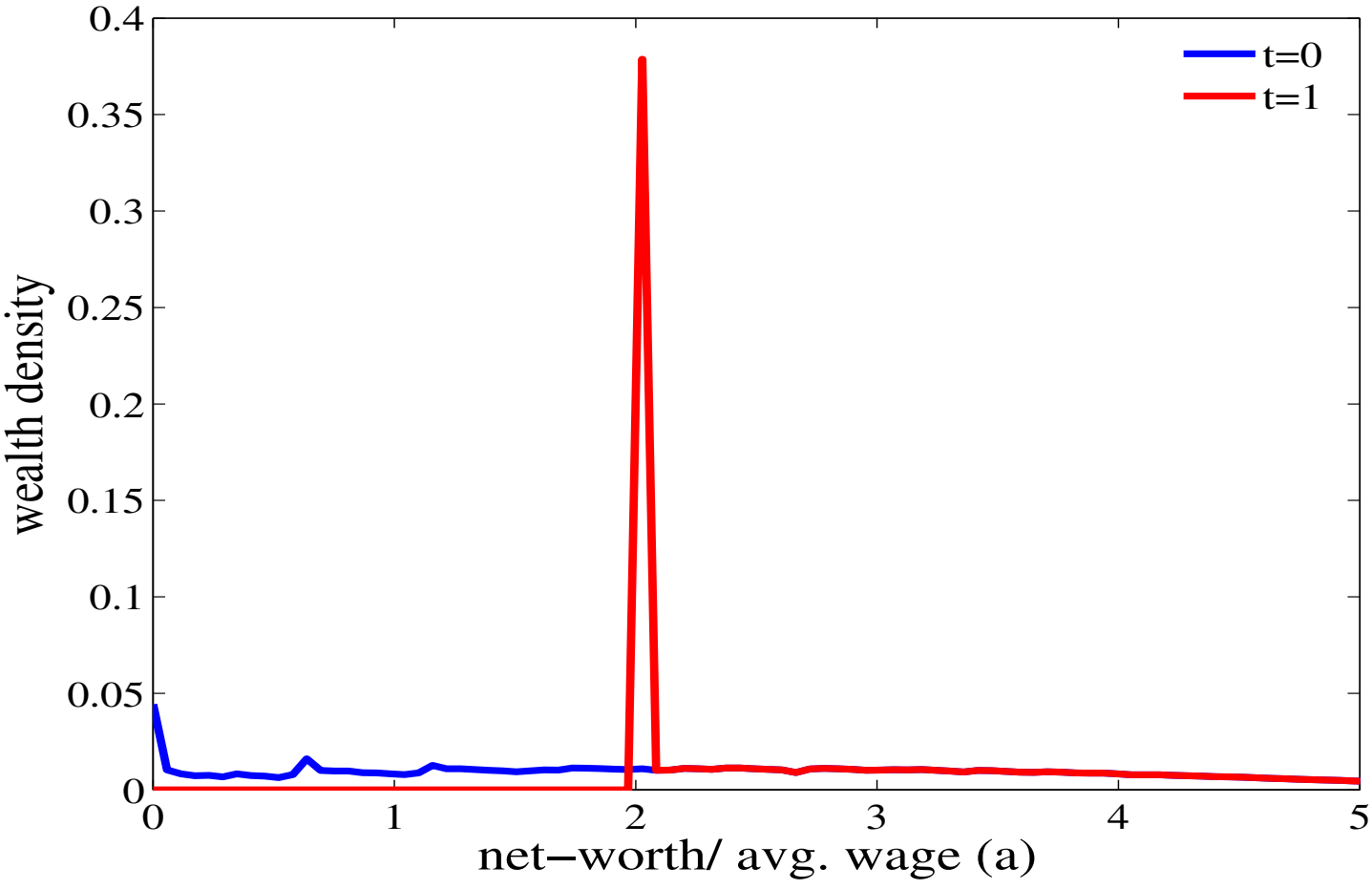
Wealth Distribution in the Initial Stationary Equilibrium

$t = 0$



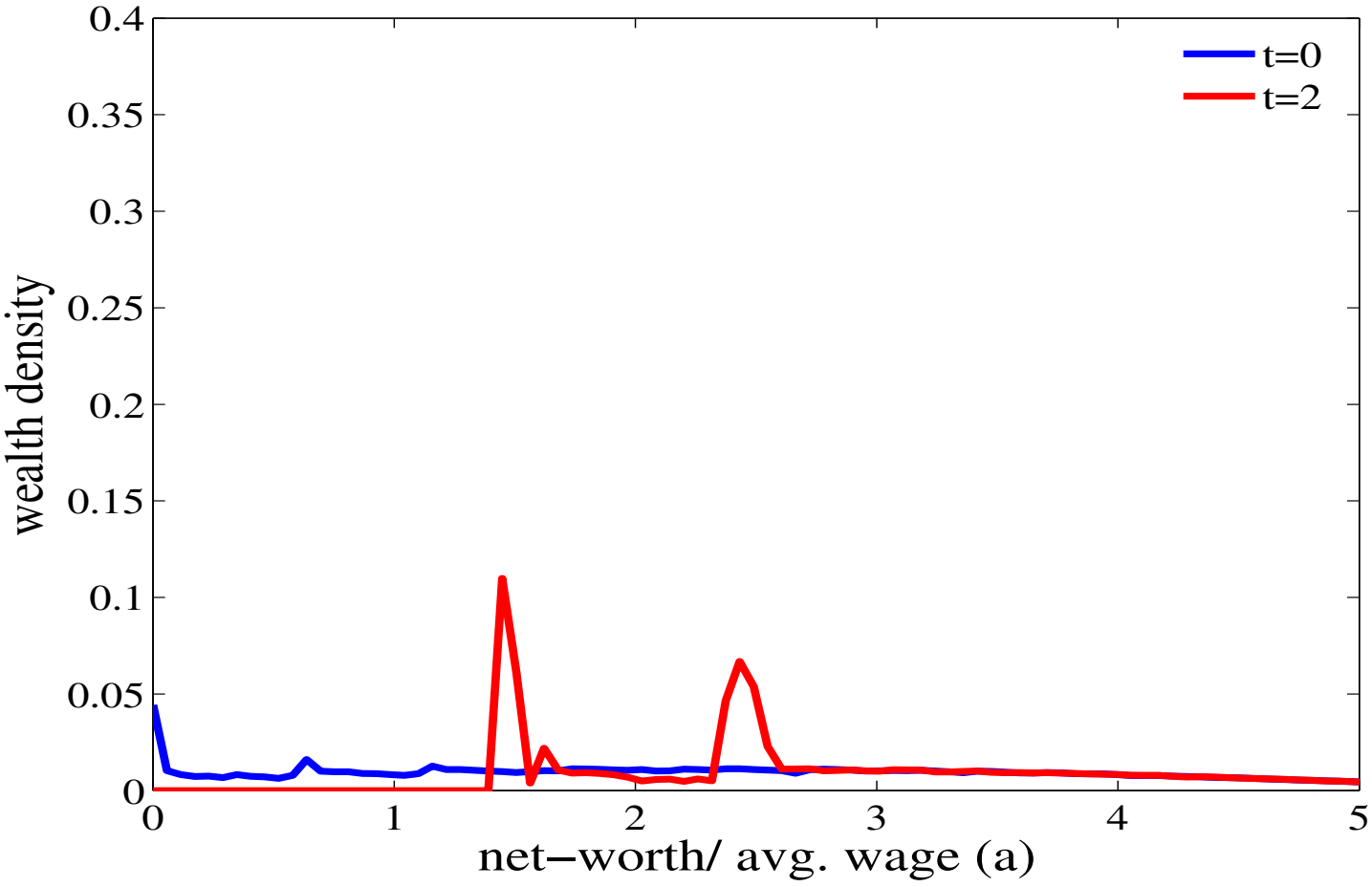
Transitory Distributional Impacts

Initial Impact



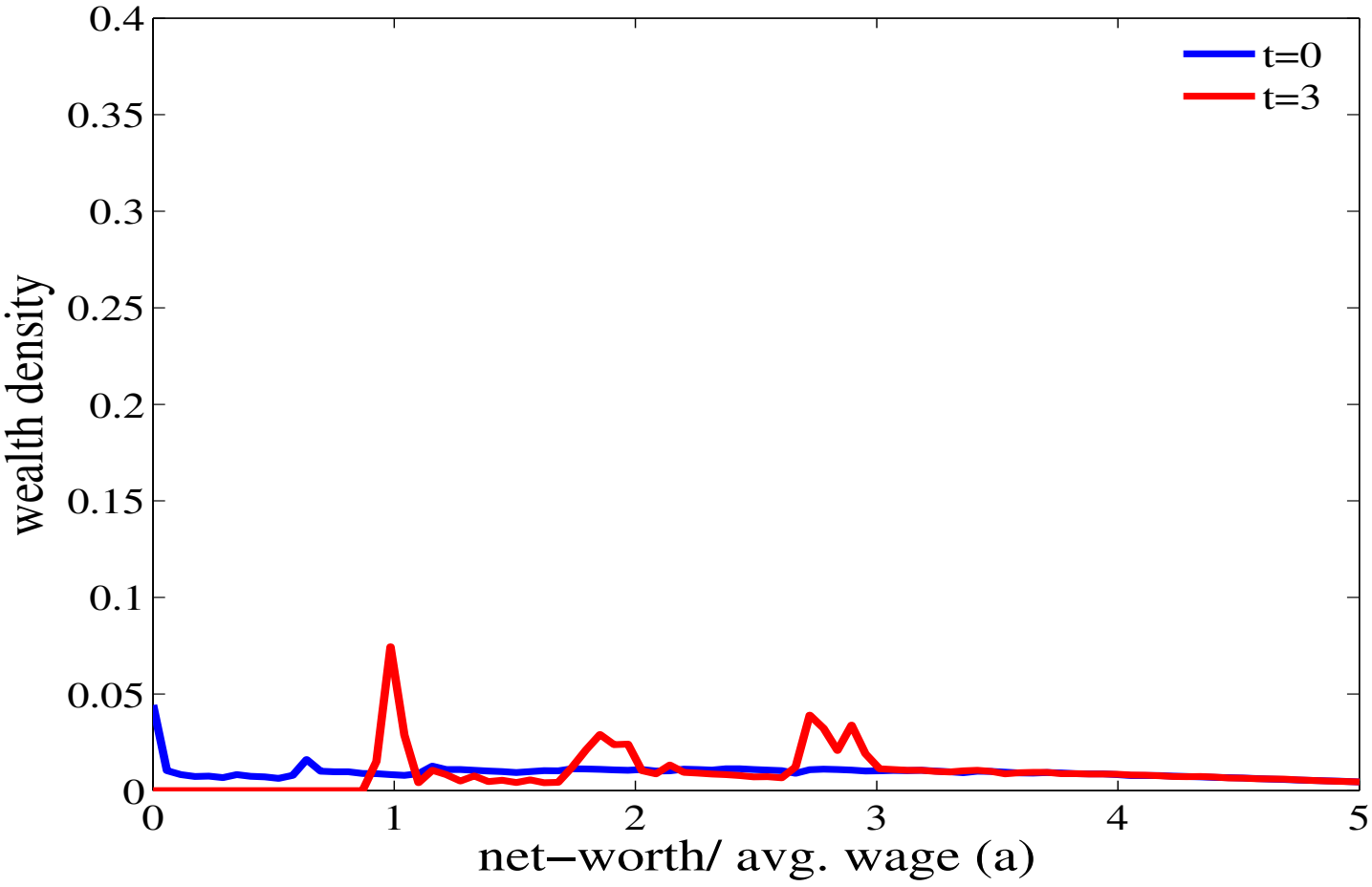
Transitory Distributional Impacts

4 years



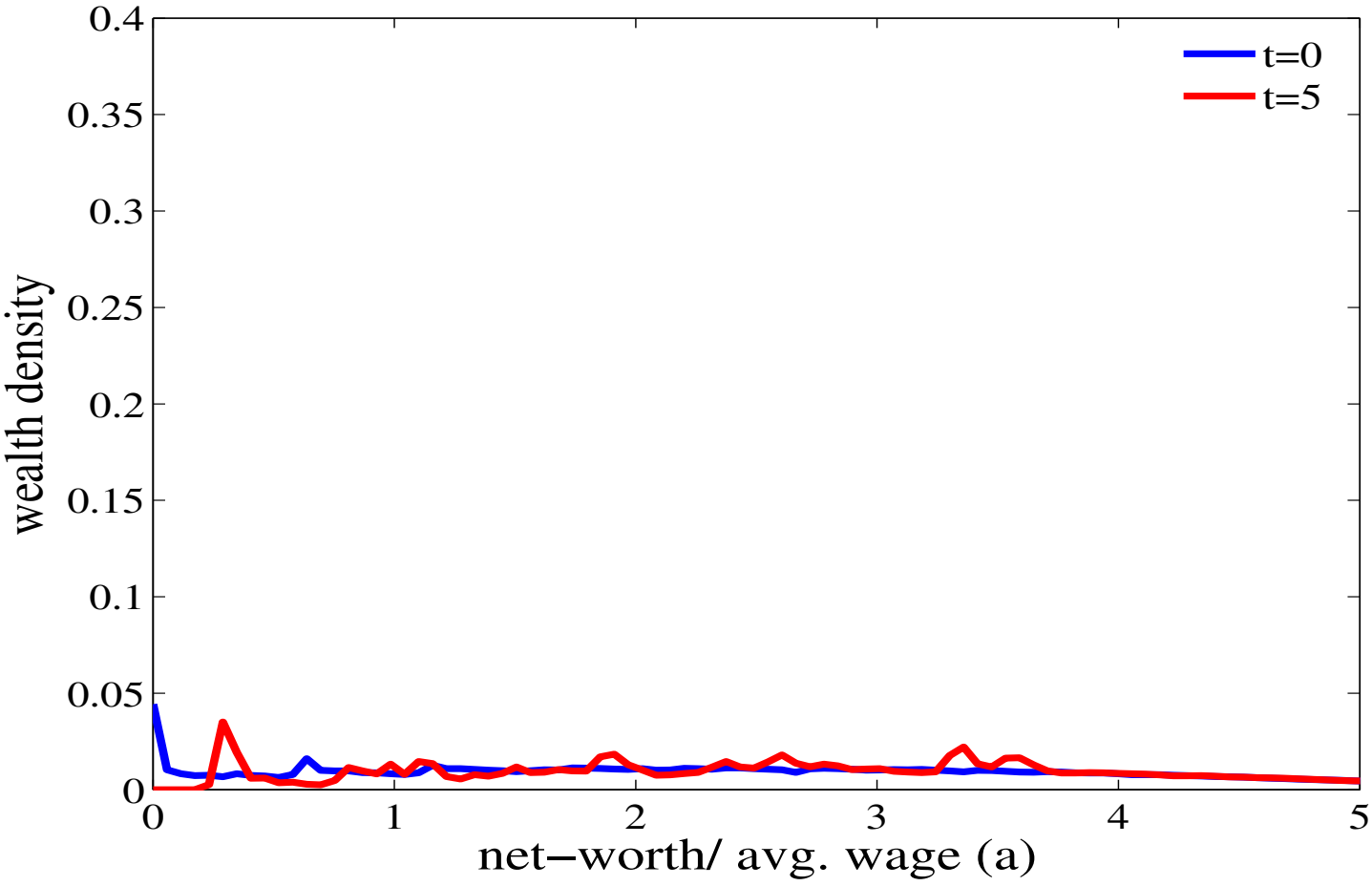
Transitory Distributional Impacts

6 years



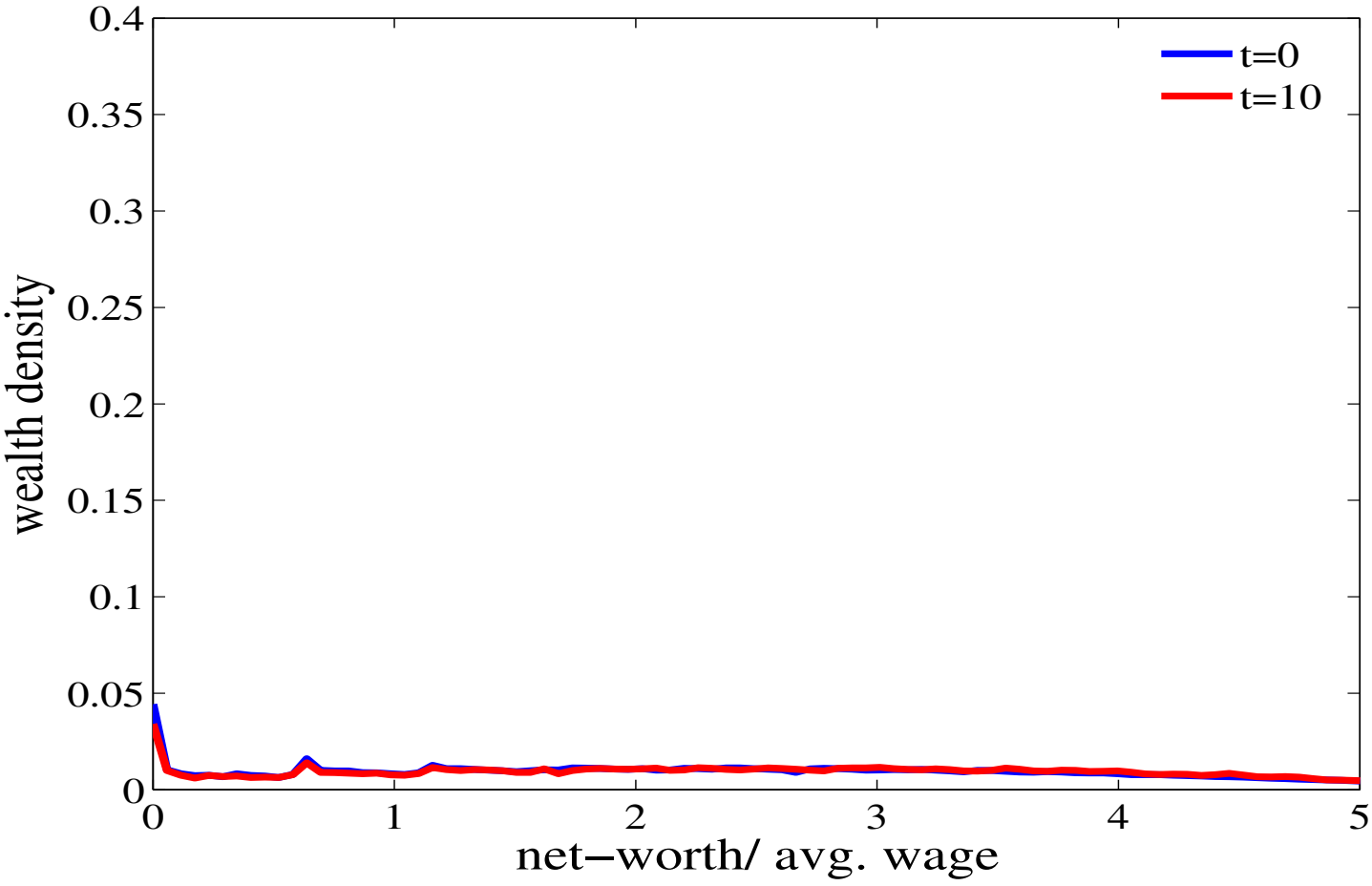
Transitory Distributional Impacts

10 years



Transitory Distributional Impacts

20 years



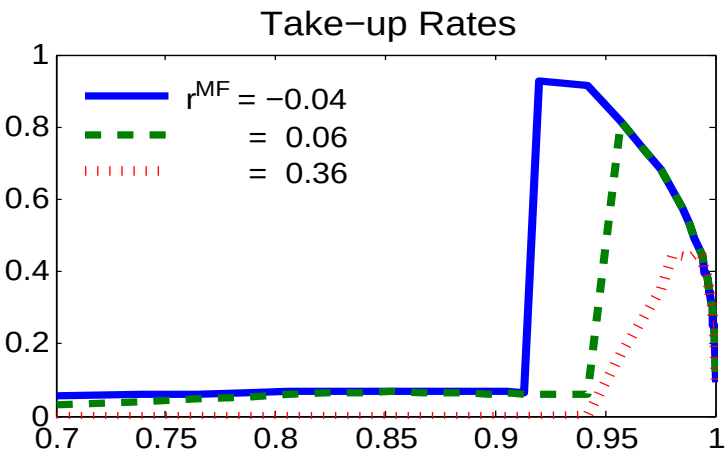
Microcredit (BKS, 2014)

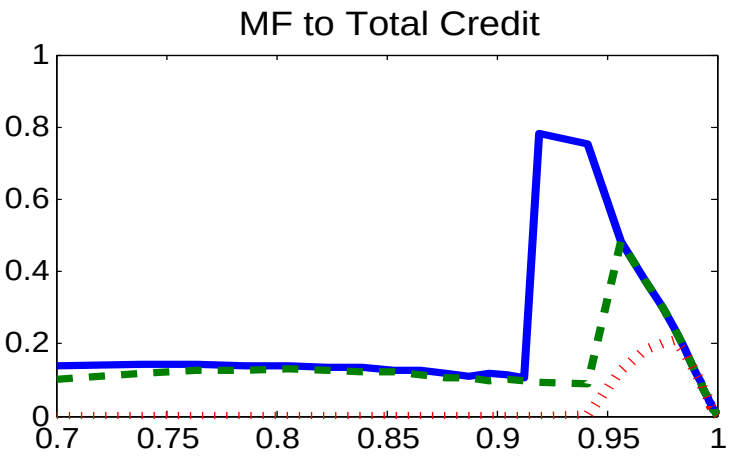
- Models the microcredit revolution as a new lending technology that:
  1. guarantees a minimum uncollateralized loan for production
  2. has no risk of default
  3. different intermediation costs (i.e., interest rates)
- capital constraint becomes:

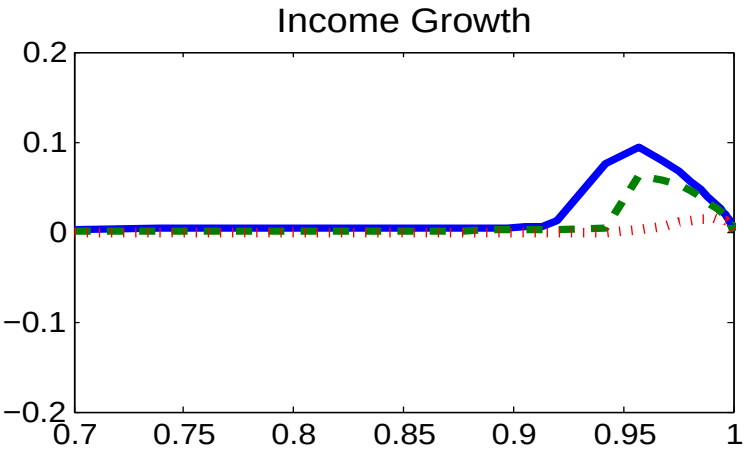
$$k \leq \max\{\bar{k}(a, z; \phi), a + b^{MF}\}$$

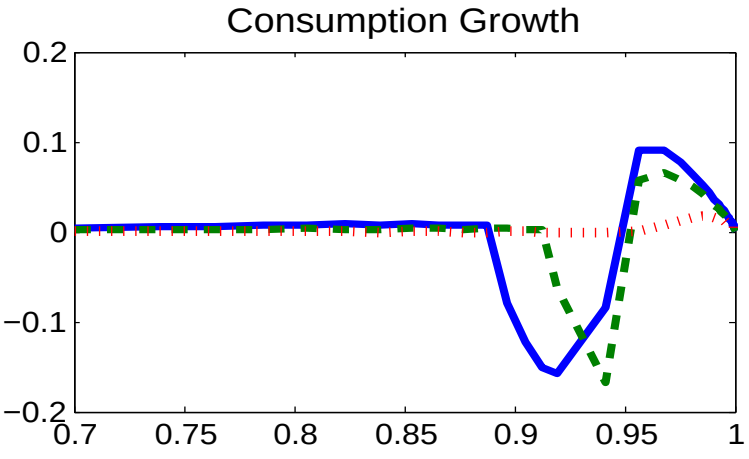
- Results: matches takeup and credit increase quite well

Heterogeneous Take Up, Short Run Impacts









Impacts by Interest Rates

	Short Run PE			Long Run GE		
MF Lending rate	-4%	6%	36%	-4%	6%	36%
Wage		1 by definition		1.05	1.04	1.01
Output	1.07	1.04	1.02	1.02	1.02	1.01
Capital	1.03	1.01	1.01	0.94	0.96	1.00
TFP	1.00	1.03	1.02	1.04	1.03	1.01
Consumption	1.01	1.01	1.01	1.03	1.03	1.00
Avg. z (active entrepre.)	1.01	1.02	1.01	1.03	1.04	1.02
Fraction of entrep.	+0.04 p.p.	+0.01 p.p	+0.00 p.p	+0.03 p.p	+0.02 p.p	+0.00 p.p

Conclusions

- Policy:
  1. No miracle escapes from poverty traps
  2. Asset grants can have impacts on poor/small entrepreneurs
  3. Microfinance less costly but less effective
  4. Subsidized interest may increase impact of microfinance
  5. Microfinance may have broader, sustained impacts at widescale
- Methods:
  - Quantitative theory and experimental empirics largely align
  - Methodological gains to trade