Entrepreneurial Risk, Occupational Choice and Insurance Effect

Alexandre GAILLARD, Sumudu KANKANAMGE

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The Question

How does (specific) entrepreneurial insurance interplay with occupational choice, entrepreneurship and prices?

Empirical paper, Hombert et al. (2016): study the provision of a specific insurance in France:

- Insure only unemployed workers with UI rights starting a business.
- Such individuals keep their rights in case of failure.
- Receive a compensation in case of low business returns.

Results: newly created firms $\uparrow$ by 12%.

Entrepreneurship vs selection problem

Insuring entrepreneurs, some views:

1. Selection of bad entrepreneurs.
2. Allow entrepreneurs at the cutoff point to enter, without deteriorating the quality.
   - A way to reduce unemployment rate.
   - Could lead to innovation and growth.

Effect depends on how many entrepreneurs are near the cutoff point, in terms of wealth and skills.

The paper

Previous paper:

1. Individual's skill heterogeneity, with no attention to wealth.
2. Wealth with relatively no attention to skills and business risk.

$\rightarrow$ between and within transitions across occupations are not matched.

This paper:

1. Wealth, collateral constraint, business risk and individual's skills.
   $\rightarrow$ generated transitions between occupations close to reality.
2. Quantitatively: can evaluate and decompose the insurance effects (on mobility, prices, taxes, aggregates).
3. Moreover: who is impacted? rich vs poor, low-skilled vs high-skilled?
4. Insurance vs entry subsidy

Model framework

GE model in incomplete markets with labor market frictions.

Key features

1. Common states: innate ability θ, wealth a.
2. Agent chooses his occupation: Worker (W) or Entrepreneur (E).
3. Can be Unemployed (U)
   - Exogenously: a worker is fired with probability η.
   - Endogeneously: an entrepreneur stops his activity (not profitable).
4. Entrepreneur: chooses collateral amount, faces persistent business idiosyncratic risk, can default.
5. Individuals are either insured or not: $\epsilon \in \{i, n\}$
   - Benchmark model: fired worker can claim UI rights.
   - Policy experiment: newly entrepreneurs previously unemployed with UI rights.

Workers and Unemployed individuals

Workers

- search a business idea with intensity s_e.
- given the probability to find the idea $\pi(s_e)$ and the probability to be fired η, choose his occupation.
- pay tax τ_w on his labor income $w\theta$ to finance UI benefits.

Unemployed individuals

- reservation wage m (value of not participating, home production).
- if insured ($\epsilon = i$): receive $b(\theta)$. Lose UI rights with probability q.

Entrepreneur

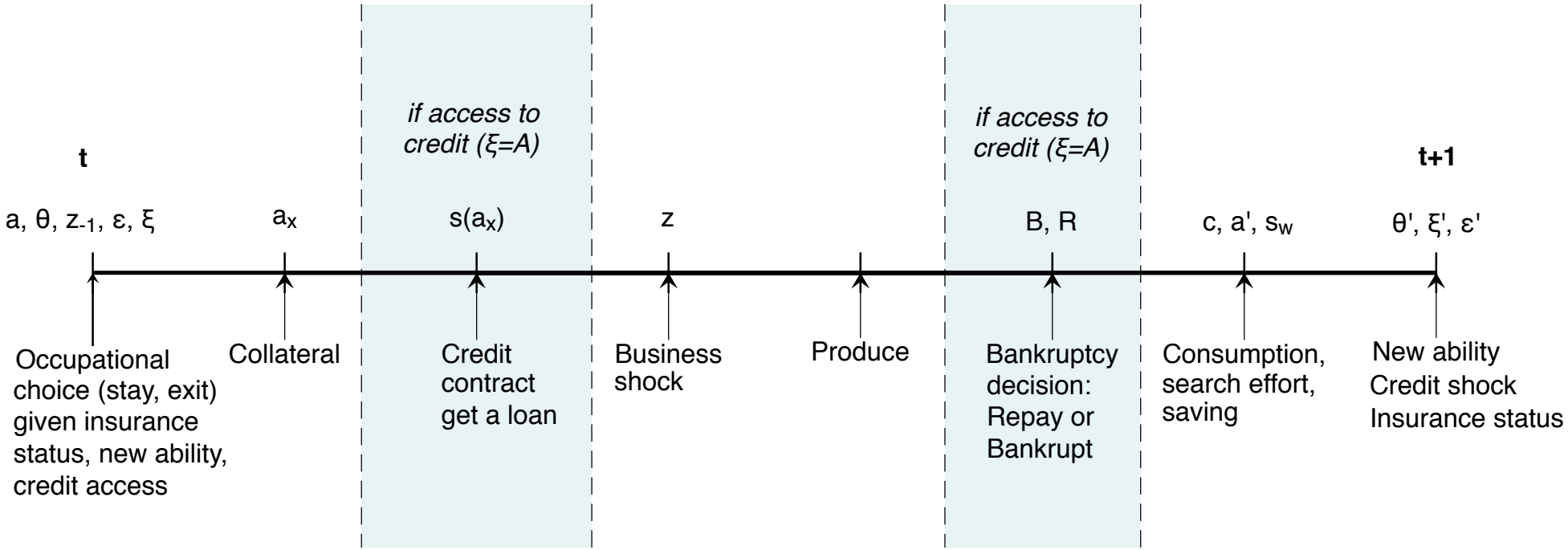
I. Chooses the amount of collateral a_x invested in his firm.

- Feature LLC, partnership or even sole proprietorship structures
  - marriage is a way to separate personal and business liabilities.
- Portfolio choice between investing (risky) or saving (safe).
  - micro data (SCF): $\frac{a_x}{a}$ is decreasing with a, replicated in the model.

II. Decides to bankrupt (B) or repay (R).

- Repayment: repay $(1 + r)loan$, can pursue his activity.
- Bankruptcy: firm is liquidated.
  - bank retains a_x, wealth protected up to an exemption level χw.
  - exclusion from the credit market. Recover access with probability ϕ.

Entrepreneur



$$E(a,\theta,z_{-1}) = \max_{a_x\in[0,a],s} \left\{ \mathbb{E}_z \max\{B(a,a_x,s,\theta,z), R(a,a_x,s,\theta,z)\} \right\}$$

$$\text{Subject to:} \qquad s \leq \lambda a_x$$

The shock z affects both production and business capital stock.

(Partial) insurance reform

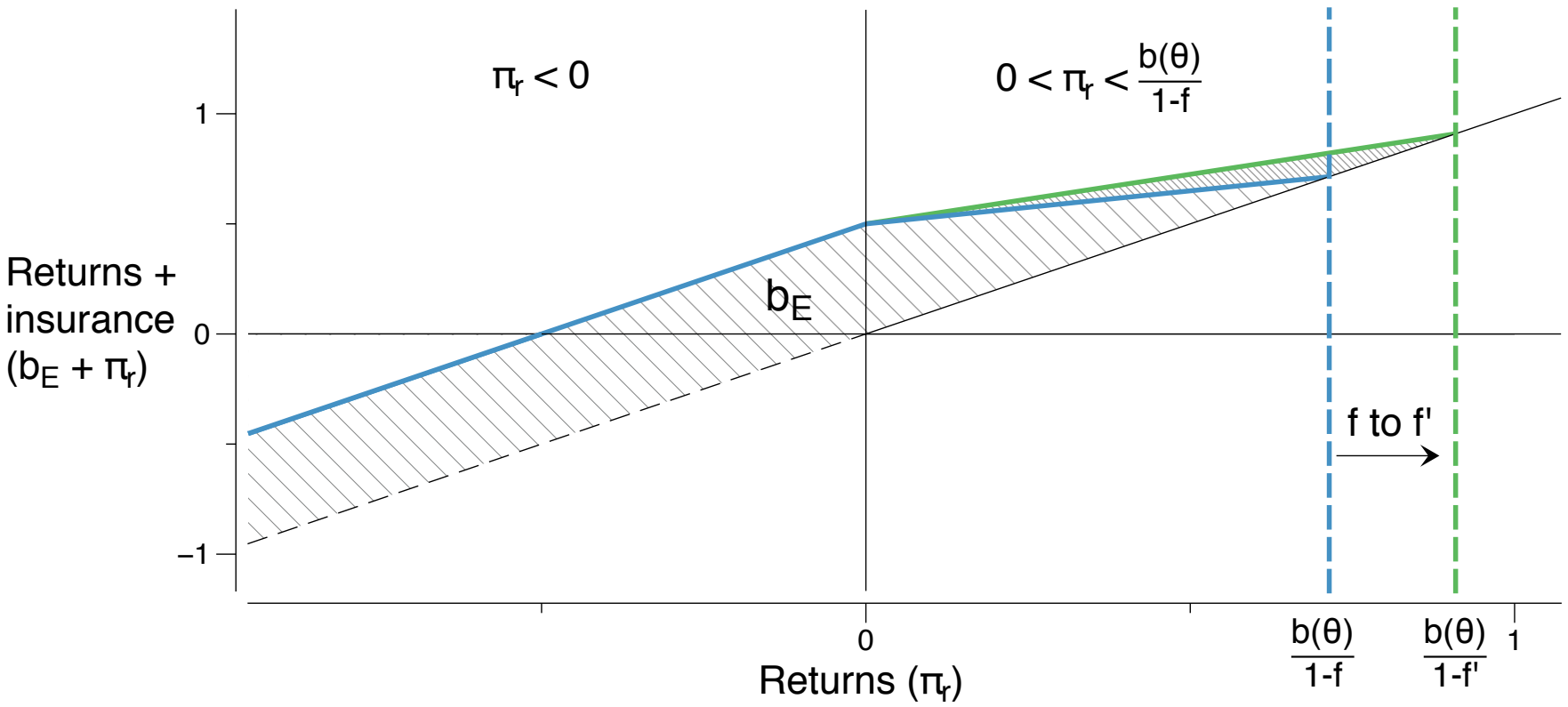
- Concerns only entrepreneurs previously unemployed with UI rights.
  - prevents moral hazard effect: go to E, get UI rights and exit.
- Characterized by: **a duration** $(1-\mu)$ and **a replacement rate** f.
  - the higher is f, the higher is the insurance provided.
  - the higher is f, the larger is the fraction of entrepreneurs covered.
- Entrepreneur with profit π_r and UI rights $b(\theta)$ can claim b_E:

$$b_E = \begin{cases} b(\theta) & \text{if} \quad \pi_r < 0 \\ b(\theta) - (1-f)\,\pi_r & \text{if} \quad \frac{b(\theta)}{1-f} \geq \pi_r \geq 0 \\ 0 & \text{if} \quad \frac{b(\theta)}{1-f} < \pi_r \end{cases}$$

Total entrepreneurial income $= \pi_r + b_E$.

(Partial) insurance reform

Figure: insurance reform fitting the French program



- if $f = 1.0 \rightarrow b_E + \pi_r = b(\theta) + \pi_r$, you always get your UI (subsidy).
- if $f = 0.0 \rightarrow b_E + \pi_r = b(\theta)$, get your UI if $\pi_r < b(\theta)$ (insurance).

Government

1. Finances unemployment benefits using labor income tax τ_w.
   - change in the u mass affects occupational choice through τ_w.

2. Policy experiment: use lump-sum tax τ_{ss} to finance the entrepreneurial insurance.
   - prevent occupational choice distortion.

Calibration

Idea: heterogeneity (wealth/skill/shocks) matter for occupational choice, so target moments on mobility.

1. Unemployment and entrepreneurship rates.
2. Mobility between occupations.
3. The U-shaped curve in the transition W-E $\rightarrow$ provides a mapping btw entrepreneurial and working ability.
4. The wealth distribution and K/Y.
5. Bankruptcy rate

Time is the quarter. End up with 14 params and 14 moments.

Use micro data: CPS for mobility, SCF for distribution / entrepreneurship.

Results of the policy experiment - total effects

Table: Effects on mobility, prices and aggregates, rltv to benchmark (% change)

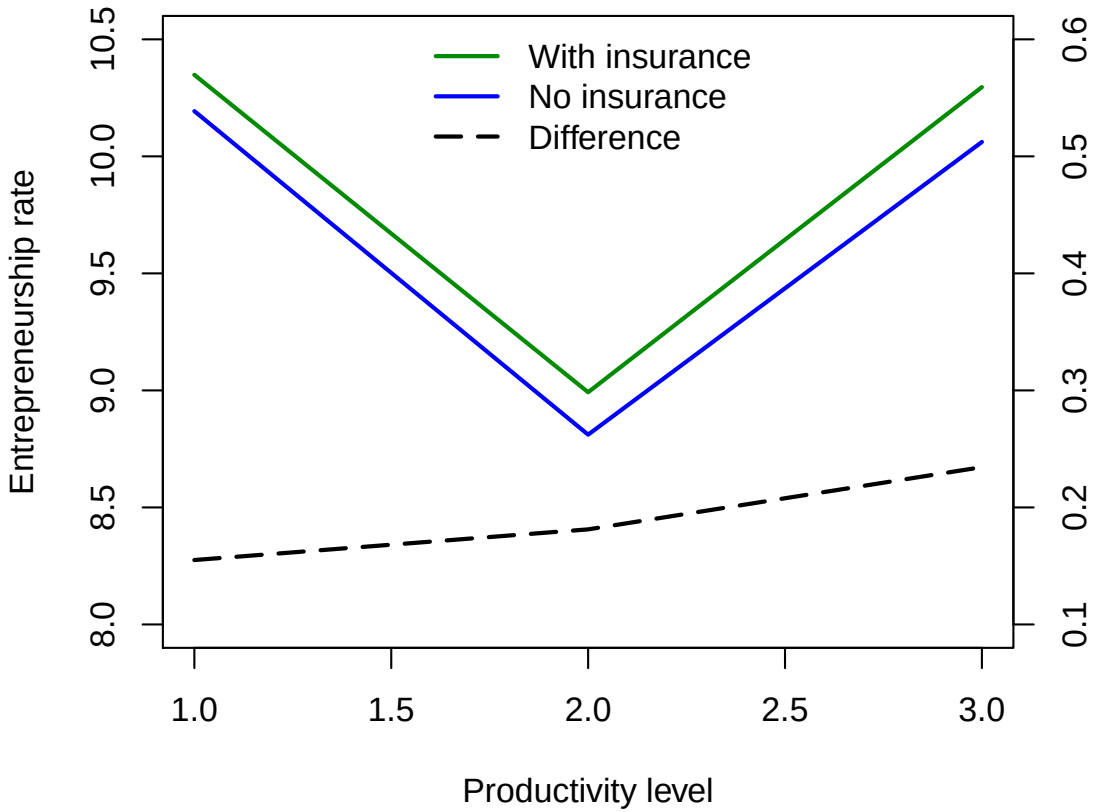
Moment	**Value (US)** ($\mu = 0.28$, $f = 0.3$)	**Value (FR)** ($\mu = 0.0833$, $f = 0.3$)
prob. U $\rightarrow$ E	10	23
unemp. rate	-0.2	-0.35
entrep. rate	2	5
labor force	-0.2	-0.4
new entrep/year	2.8	5
Bankruptcy	7	11
r, w	0.35, 0.08	1.0, 0.24
Y, K	0.1, 0.4	0.18, 0.51

1. Cost is small (Cost/Y): 0.035 (US) and 0.1 (FR)
2. Hombert et al. (2016): +12% of newly created firms per year in FR.
3. More E $\rightarrow \uparrow$ K, but lower total labor force in corporate sector induces small impact on Y, r, w, K.

Results: mobility between occupations

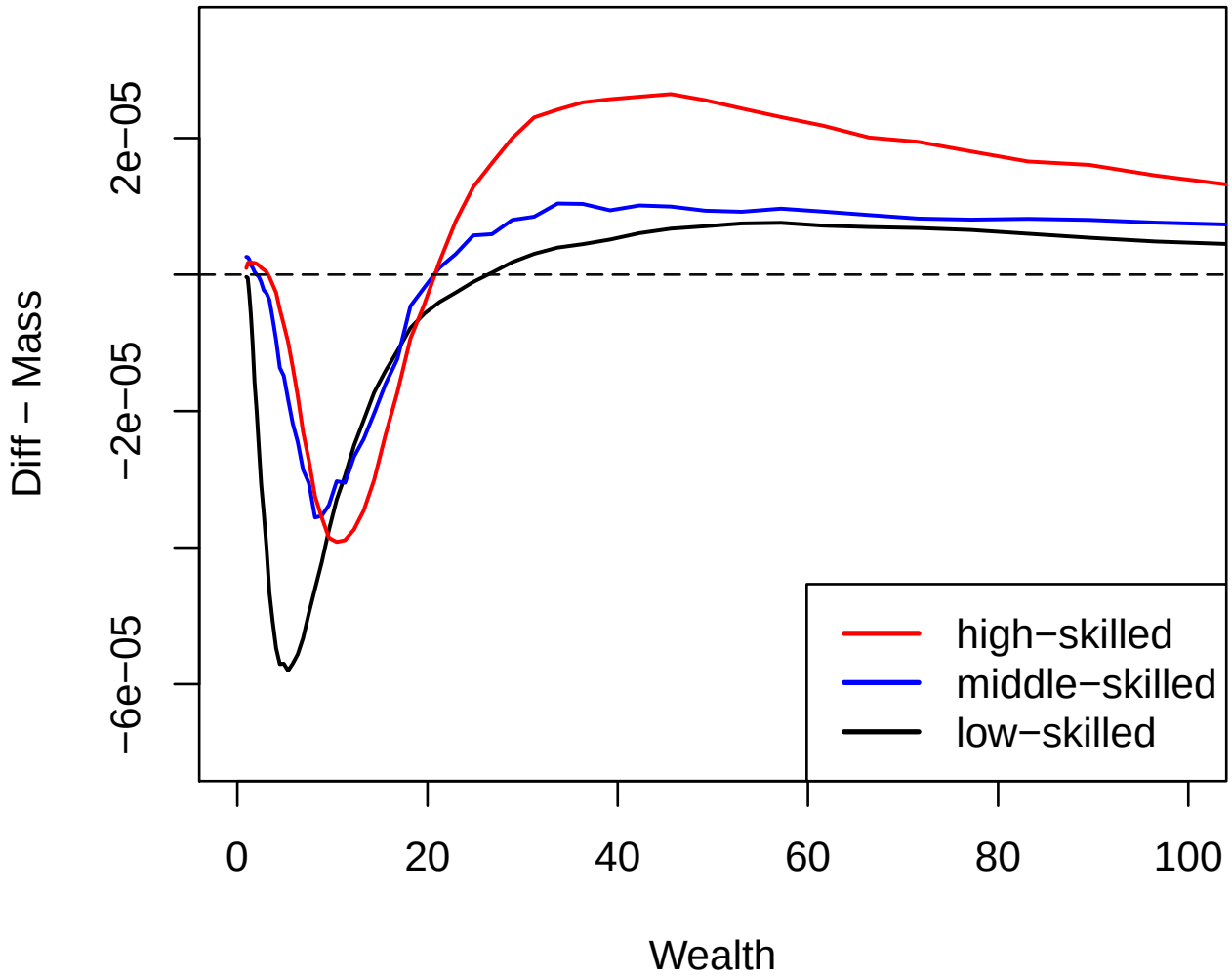
- Insurance: benefits more high-skilled group.
  - They are more numerous at the "cutoff" point.
  - They have a higher opportunity cost (their wage in a job is high). Reducing risk makes them enter more often.

Figure: Entrepreneurship rate by θ



Results: mobility between occupations

Figure: Difference in mass of entrepreneurs per wealth level (a) and skill (θ) between alternative and benchmark model



Results: effort incentive effects

Change unemployed individual's incentive to search:

- s_w **decreases**, increases unemployment rate.
- s_e **increases**, entrepreneurship entry rate increases

Overall effect on unemployement rate is ambiguous.

Figure: Job search effort (s_w)

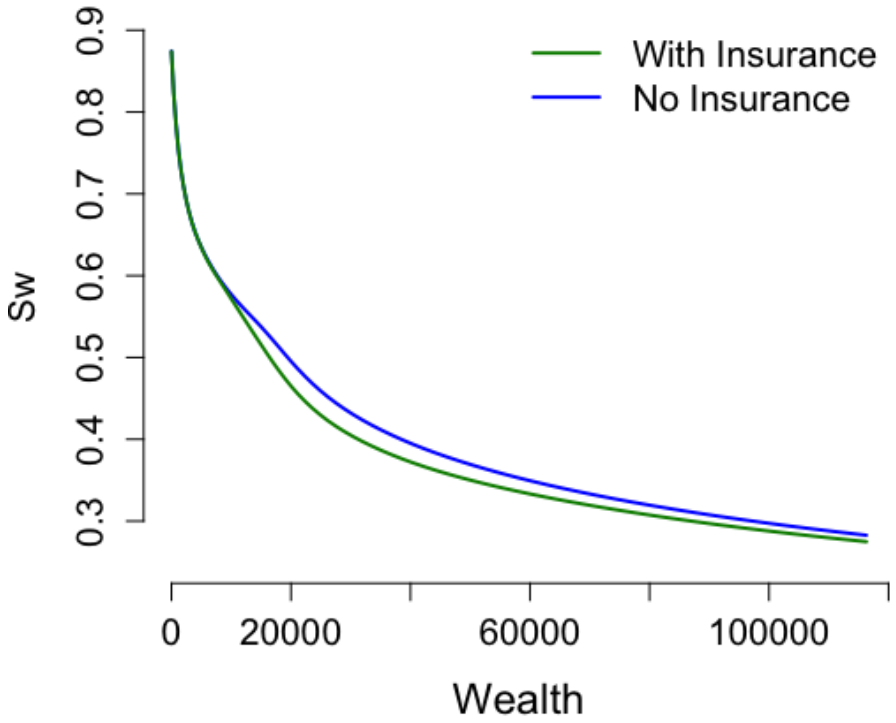
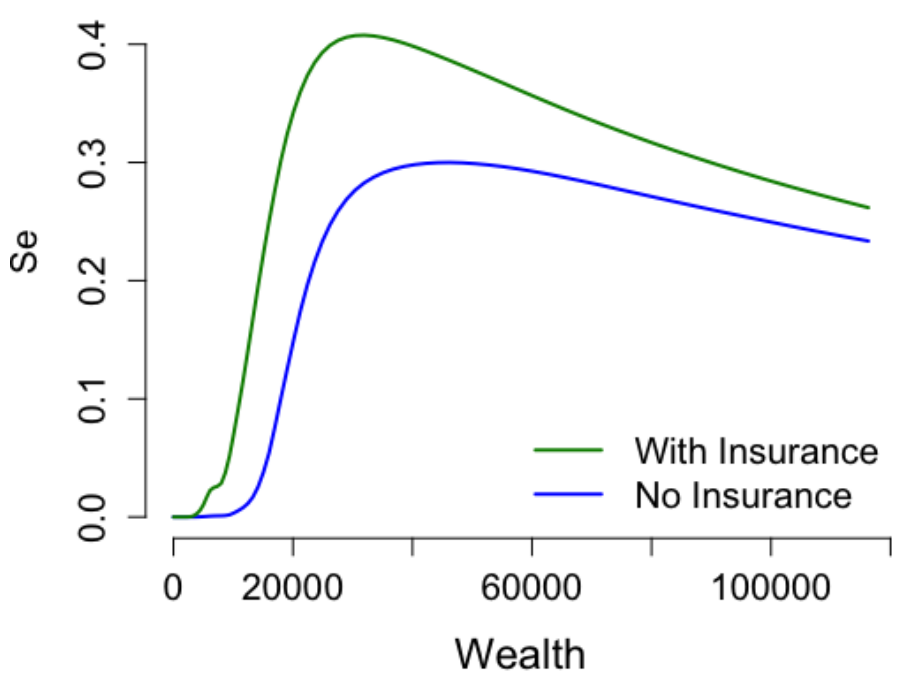


Figure: Business search effort (s_e)



Results: impacts on unemployment exit rate

Decomposition of unemployment exit rate between search and price effects:

$$du_t^{exit} = \frac{\partial u_t^{exit}}{\partial s_e^U} + \frac{\partial u_t^{exit}}{\partial s_w^U} + \frac{\partial u_t^{exit}}{\partial GE_{effect}}$$

$$100\% = 167\% - 23\% - 44\%$$

where u_t^{exit} is the exit rate from insured unemployment.

- **Reduction in** u_i: partially offset by lower search for a job.
- Need further decomposition:
  - Change in τ_w due to change in u.
  - Change in r, w due to change in K, L.
  - Change in occupation cut-off (E becomes $>$ W for some individuals).

Insurance versus Subsidy

By how much do we need to subsidy newly entrepreneurs previously insured unemployed to obtain the same fraction of entrepreneurs?

1. **2** times more costly than insurance
   - Insurance is paid in actually a small number of cases (bad returns).
2. Subsidy benefits mostly poor (very small) entrepreneurs whereas insurance does not.
   - Average firm size diminishes by 0.7%, against 0.07% for insurance.
3. Subsidy $\uparrow$ by 35% the prob. that U $\rightarrow$ E (10% for insurance).
   - But does not survive longer = increases exit rate rltv to insurance.
4. Insurance induces higher investment level.
   - effect of reducing risk is stronger than increasing wealth.

Subsidy benefits poor entrepreneurs, insurance does not

Figure: Flow U_i to E

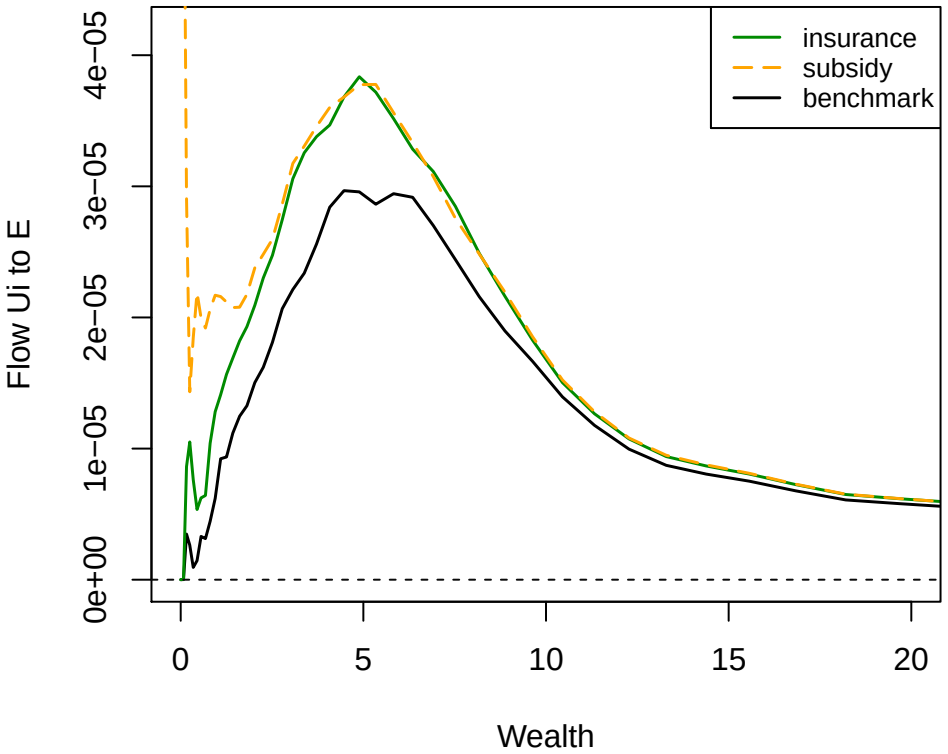
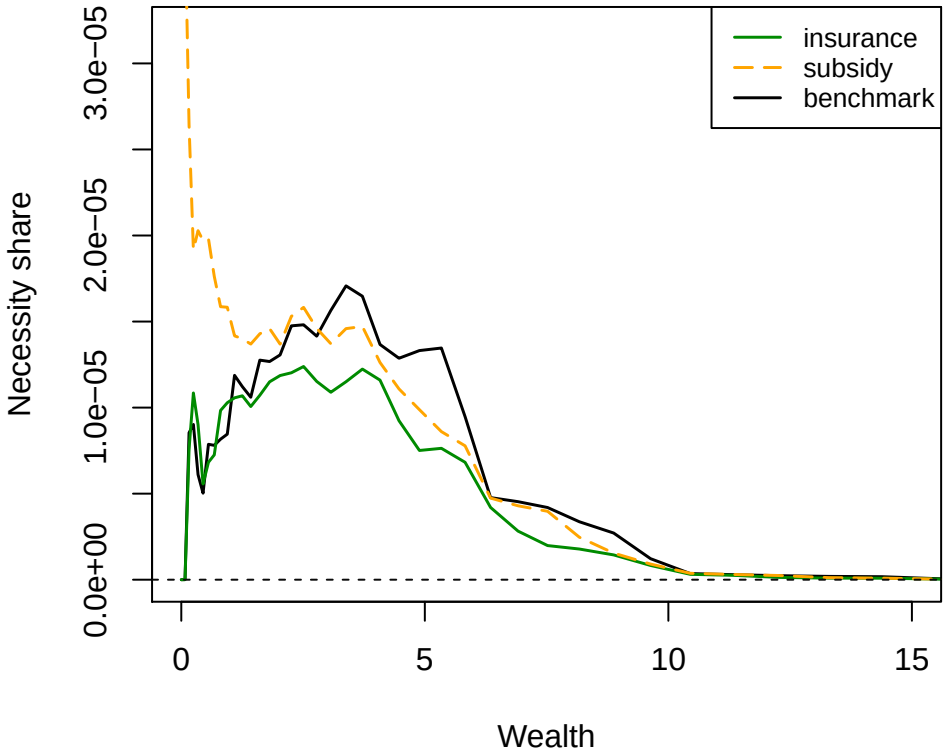


Figure: Necessity share U_i



Necessity share: U_i choosing E but $W(a,\theta) > E(a,\theta) > U_i(a,\theta)$.

Subsidy increases entry rate, Insurance increases survival

Figure: Difference in search efforts relative to benchmark

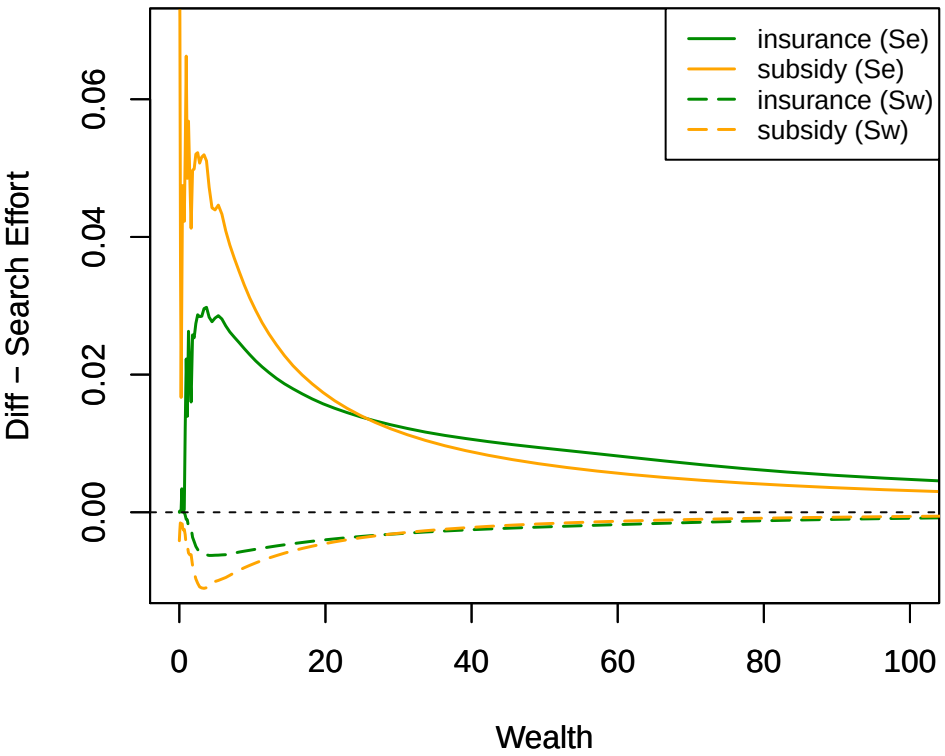
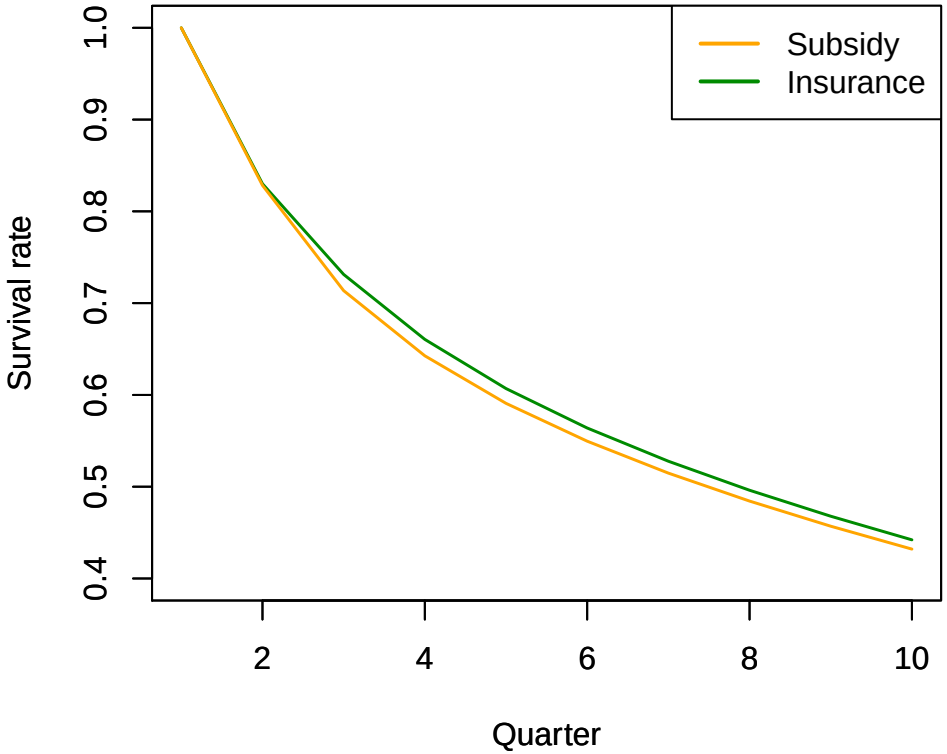
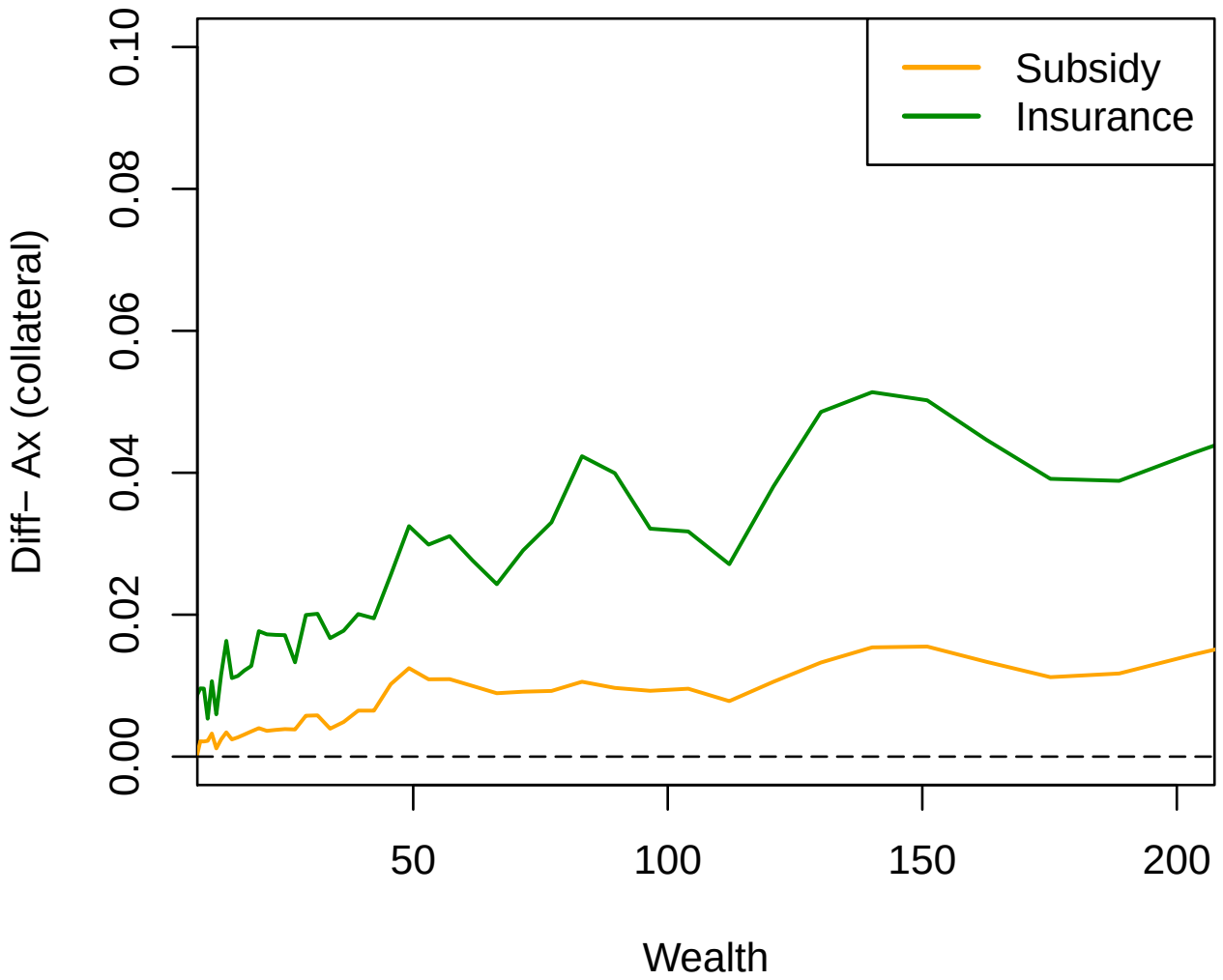


Figure: Survival rate



Insurance induces more investment

Figure: Difference in investment level with insurance and subsidy relative to benchmark model



To sum up: what do we learn from the paper?

1. Entrepreneurial insurance can be quantified and heterogeneity in wealth, skills and shocks matter.
   - Quantification sheds lights on which forces dominate for change in unemployment rate.
   - Insured entrepreneurs: survive longer, are more skilled.

2. Insurance effects:
   - Rises E rate by 2% and lowers u by 0.2%.
   - Because u is unchanged, no effect on τ_w.
   - Even if E accumulate more than W and more than in benchmark, price effects are small (offset by smaller labor force).

3. Insurance is 2 times less costly than a subsidy.
   - Subsidy benefits more poor entrepreneurs. Increases entry rate but survival rate is lower.