

Discussion of *College Education and Income
Contingent Loans in Equilibrium: Theory and
Quantitative Evaluation*

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October 2020

The Paper: Main Theme

- **Fact:** College dropout risk in the U.S. is huge:¹
 - Overall dropout rate for undergraduate college students is ca. 40%.
 - 30% of college freshmen drop out before their sophomore year.
- **Question:** Are student loans with income-contingent repayment (ICL) a good idea because they provide insurance against this risk?
- **Answer** (I think): Not as much as one might think because
 - Progressive income taxes already provide insurance
 - Reduction in college completion might increase college wage premium in general equilibrium (Stiglitz (1982) effect)
- This paper: uses **theory** and **quantification** to answer this important **policy question**.

¹See educationdata.org

Paper in a Nutshell I: Basics

- Continuum of ex ante identical households that all attend college. Effort e with cost $v(e)$ increases prob. $p(e)$ of college completion.
- Borrow tuition φ at interest rate r . **Uninsurable consumption risk**

$$\begin{aligned} c^U &= w^U - (1+r)\varphi & w.p. & 1-p(e) \\ c^S &= w^S - (1+r)\varphi & w.p. & p(e) \end{aligned}$$

- Imperfect substitutability of skills in aggregate labor H

$$H = \left(a^S (H^S)^{1-\frac{1}{\rho}} + (1-a^S) (H^U)^{1-\frac{1}{\rho}} \right)^{\frac{\rho}{\rho-1}}$$

ρ elasticity of substitution between skilled and unskilled labor

- Equilibrium in labor market

$$\frac{w^S}{w^U} = \frac{a^S}{1-a^S} \left(\frac{H^U}{H^S} \right)^{\frac{1}{\rho}} = \frac{a^S}{1-a^S} \left(\frac{1-p(e)}{p(e)} \right)^{\frac{1}{\rho}} \quad S \rightarrow \infty$$

- Increase in effort e reduces skill premium w^S/w^U , thus c^S/c^U .
- **Pecuniary externality!** Quantitative importance depends on ρ

Paper in a Nutshell II: What are the Inefficiencies?

- Three **theoretical** points (that then call for **quantification**):
 - ① Key market failure: missing insurance against drop-out risk.

- Equilibrium e determined by

The diagram shows the equation $\frac{v'(e)}{p'(e)} = u(c^S) - u(c^U)$. The left side is circled in blue, and the right side is underlined in blue. A blue arrow points down from the text 'Equilibrium e determined by' to the equation. Another blue arrow points down from the right side of the equation.

$\rho < \infty$

- More consumption insurance $\Rightarrow u(c^S) - u(c^U) \downarrow$, thus $e \downarrow$
 \Rightarrow Traditional trade-off between insurance and incentives.

$\rho \rightarrow \infty$

- If $\rho \rightarrow \infty$, e is constrained-efficient (in sense of Davila et al. 2012)

- ② Many implementations of optimal consumption insurance: ICL's, progressive taxes, tagging of the educated... Might not need ICL's.

- ③ *GE effects* ($\rho < \infty$) might weaken case for ICL's: too much insurance could be problematic: $e \downarrow$, skill premium $w^S/w^U \uparrow$

- **Quantification** in OLG GE model with progressive taxes.
- Main **policy result**: welfare gains from ICL's are small.

Comments I: Connection between Theory/Quantification

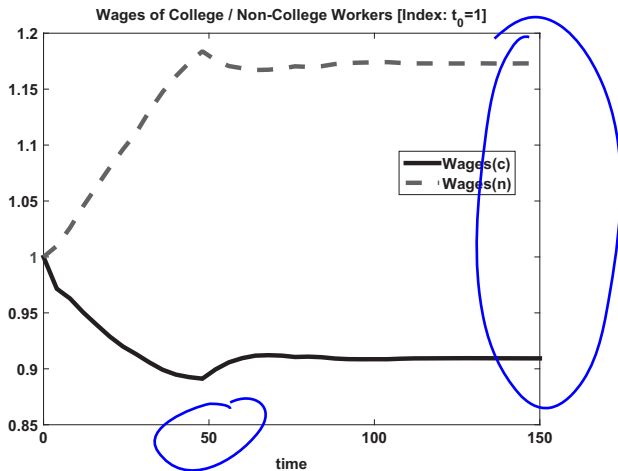
- **Conceptual**: choose between
 - Characterization of constrained efficient allocation (theory) ✓
 - Counterfactual policy evaluation (quantitative model)
- **Quantification 1**: show the incentive effect of ICL's on e
- **Quantification 2**: show importance of GE wage effect (set $\rho = \infty$)
 - Other GE effects (e.g. endogenous r) ✓ seem less important

Education sector	✓	ICL's
Share of college enrollees	74.9%	74.9%
Share of college graduates	32.9%	↓ 33.9%
Skill premium	90.9%	↑ 85.5%

Comments II: Transition and Welfare

- Ex-ante welfare gains of ICL's small. But analysis based on **steady state comparison**.
- Ignoring **transitional dynamics** can be misleading:
 - Steady state analysis tends to favor policies that lead to larger capital stock (since it ignores cost of building it up).
 - Transition in relative wages due to educational reform can take a long time: new flow of students small share of overall labor market.
- Does it **matter here**?
 - ICL reform reduces capital. Can be eaten along transition. This positive effect of ICL reform is ignored. But: reduction in $K < 1\%$.
 - Change in skill premium induced by ICL reform sizeable (5.5pp). Substantial delay along transition. See Krueger and Ludwig (2013).
- **Upshot**: I'd compromise some parts of GE (but not the endogenous w^S/w^U part) in favor of transition analysis.
- **Additional mechanism**: ICL reform might lead to better career choices (see e.g. **Folch and Mazzone, 2020, Luo and Mongey, 2020**).

Comments II: Transition and Welfare



- Wages of skilled, unskilled in response to education subsidy reform (towards free public education), from Krueger and Ludwig (2013)
⇒ education-induced transitions take long.

Comments III: Bigger Picture



- If the main problem with college choice is that **dropout risk** leaves the unlucky with lots of college debt and low post-dropout wages to pay it, then ...
- Might want to tackle the root cause of the problem and ...
- Offer **free tertiary education**.
- Authors have a **great quantitative laboratory** to evaluate this conjecture.

Conclusions

- Very Intriguing Paper!

- Tractable Theory ✓
 - Careful Quantitative Analysis ✓
 - Important Policy Analysis
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THANK YOU