

Discussion of “Investment Opportunities and the Sources of Lifetime Inequality” by Athreya, Ionescu, Neelakantan, and Vidangos

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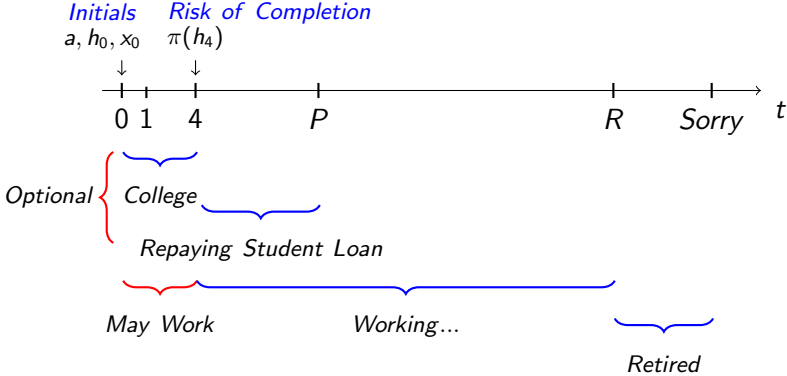
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Brief Summary

- ▶ Given the initial inequality, explore the determination of lifetime inequality in a PE quantitative life-cycle model
- ▶ Conditional on (not) having the access to two investment opportunities
 1. college education
 2. stock market investment
- ▶ Questions
 1. source of lifetime inequality? initial variance vs. over-time earning dynamics
 2. role for each investment opportunity?
- ▶ Answers
 1. initial variance (70 % for lifetime earning inequality and 76 % for wealth inequality)
 2. college education option \uparrow inequality & stock investment option slightly \downarrow inequality

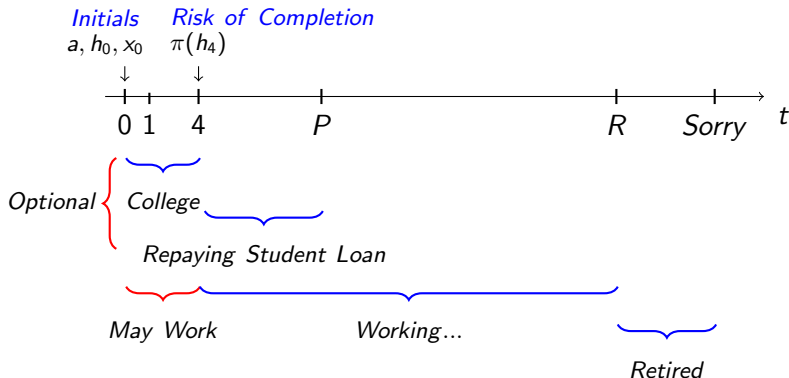
Model Overview

Time Line: Individuals' Life-cycle



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- ▶ shocks to an agent's effective wage: $z_{i,t} h_t w_t (1 - l_t)$
- ▶ shocks to excess return of equity investment: $\tilde{R}_t = \mu + \eta_t$

Inspecting the Key Mechanisms

▶ College Education

- ▶ \Leftrightarrow option to accumulate human capital when **young** and cheaper
 1. delay building h incurs greater opportunity cost when working for $w_t = (1 + g_i)^{t-1}$
 2. “trend gain” for college graduates: $g_{cg} > g_{nc}$
- ▶ risk: low type a and low h_0 may fail to complete college for $\pi'(a|\cdot) > 0$ and $\pi'(h_0|\cdot) > 0$
- ▶ risk + wealth-poor given college fee: less likely to enroll

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- Implications

1. All agents may quickly build human capital to optimal size of h when young $\Rightarrow \downarrow$ inequality of h and earnings
2. Low type agents are deterred from education $\Rightarrow \uparrow$ inequality

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Inspecting the Key Mechanisms (Cont.)

- ▶ Stock Investment
 - ▶ Can happen at *any stage* t of life
 - ▶ portfolio choice: wealth to stock, risk-free asset, and consume
 - ▶ interaction with college education: (high) low a and $h_0 \Rightarrow$ (less) more likely to participate in stock investment

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1. high type a , h_0 , x_0 are wealth-rich and get richer $\Rightarrow \uparrow$ inequality
2. b/c college investment option, low type agents may lift off earlier in life via stock investment $\Rightarrow \downarrow$ inequality

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Comments

- ▶ A very interesting paper with a really nice framework relative to e.g. (Huggett et al., AER 2011):
 - building h in college paying a fixed cost (college fee) under completion risk vs. working-life accumulation
- ▶ *Investor sophistication* link to stock investment performance?
 - e.g. evidence and theory in Kacperczyk, Nosal and Stevens (2014)
 - may attenuate the Effect 2 (stock) and reinforce the Effect 2 (college)
 - or, some fixed cost of entering the stock market may do
- ▶ What if the student loan is *defaultable*? or if the repayment schedule is not linear in time, e.g. a fraction of realized wage level after college?
 - wealth effect may encourage both college and stock market participation?

Some Data on Student Loan Defaults

Default Rates

Two-Year Cohort Default Rate

Calculated based on **BORROWERS** and the **two-year window** after entering repayment. Cohort is based on fiscal year.

Institutional Category	Cohort Yr 2007 Cohort Default Rate (CDR)%	Cohort Yr 2008 Cohort Default Rate (CDR)%	Cohort Yr 2009 Cohort Default Rate (CDR)%	Cohort Yr 2010 Cohort Default Rate (CDR)%	Cohort Yr 2011 Cohort Default Rate (CDR)%
Public					
Less than 2 Yrs	7.5%	6.7%	9.9%	10.0%	9.3%
2-3 Yrs	9.9%	10.1%	11.9%	13.4%	15.0%
4 yrs +	4.3%	4.4%	5.2%	6.0%	6.8%
Private Non-Profit					
Less than 2 Yrs	12.6%	14.1%	14.5%	13.6%	14.0%
2-3 Yrs	8.1%	8.2%	10.0%	8.5%	8.2%
4 yrs +	3.6%	3.8%	4.5%	5.1%	5.1%
Proprietary					
Less than 2 Yrs	12.0%	12.4%	13.7%	11.8%	14.1%
2-3 Yrs	12.5%	12.6%	14.8%	12.0%	13.9%
4 yrs +	9.8%	10.9%	15.4%	13.6%	13.4%
Foreign Schools	2.2%	2.2%	5.5%	2.9%	2.7%
Overall	6.7%	7.0%	8.8%	9.1%	10.0%

Source: U.S. Department of Education, Office of Federal Student Aid

Some Data on Repayment Plan

Snapshot: Direct Loan and FFEL Program Repayment Plans

Extended Repayment Plan	<ul style="list-style-type: none"> Direct Subsidized and Unsubsidized Loans Subsidized and Unsubsidized Federal Stafford Loans all PLUS loans all Consolidation Loans (Direct or FFEL) 	<p>Payments may be fixed or graduated.</p> <p>Up to 25 years.</p>	<ul style="list-style-type: none"> If you're a Direct Loan borrower, you must have more than \$30,000 in outstanding Direct Loans. If you're a FFEL borrower, you must have more than \$30,000 in outstanding FFEL Program loans. Your monthly payments will be lower than under the 10-year Standard Plan or the Graduated Repayment Plan. You'll pay more over time than under the 10-year Standard Plan.
Revised Pay As You Earn Repayment Plan (REPAYE)	<ul style="list-style-type: none"> Direct Subsidized and Unsubsidized Loans Direct PLUS loans made to students Direct Consolidation Loans that do not include PLUS loans (Direct or FFEL) made to parents 	<ul style="list-style-type: none"> Your monthly payments will be 10 percent of discretionary income. Payments are recalculated each year and are based on your updated income and family size. If you're married, both your and your spouse's income or loan debt will be considered, whether taxes are filed jointly or separately (with limited exceptions). Any outstanding balance on your loan will be forgiven if you haven't repaid your loan in full after 20 or 25 years. 	<ul style="list-style-type: none"> Any Direct Loan borrower with an eligible loan type may choose this plan. Your monthly payment can be more than the 10-year Standard Plan amount. You may have to pay income tax on any amount that is forgiven. Good option for those seeking Public Service Loan Forgiveness (PSLF).
Pay As You Earn Repayment Plan (PAYE)	<ul style="list-style-type: none"> Direct Subsidized and Unsubsidized Loans Direct PLUS loans made to students Direct Consolidation Loans that do not include (Direct or FFEL) PLUS loans made to parents 	<ul style="list-style-type: none"> Your maximum monthly payments will be 10 percent of discretionary income. Payments are recalculated each year and are based on your updated income and family size. If you're married, your spouse's income or loan debt will be considered only if you file a joint tax return. Any outstanding balance on your loan will be forgiven if you haven't repaid your loan in full after 20 years. 	<ul style="list-style-type: none"> You must be a new borrower on or after Oct. 1, 2007, and must have received a disbursement of a Direct Loan on or after Oct. 1, 2011. You must have a high debt relative to your income. Your monthly payment will never be more than the 10-year Standard Plan amount. You'll pay more over time than under the 10-year Standard Plan. You may have to pay income tax on any amount that is forgiven. Good option for those seeking Public Service Loan Forgiveness (PSLF).

Source: U.S. Department of Education, Office of Federal Student Aid

Something More

- ▶ Paper assumes away the selection mechanism of the college admission.
 - selecting the high type a and h_0 at $t = 0$ is equivalent to expecting a completion risk at $t = 4$?
- ▶ Some room for improving the calibration: over-predicting the mean earnings for seniors above 55, due to the excessive exposure to stock market investments?
- ▶ some empirical testings? elasticity of stock market participation (fraction among the cohorts & the size of investment quantity) w.r.t. inequality?

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- ▶ some empirical testings? elasticity of stock market participation (fraction among the cohorts & the size of investment quantity) w.r.t. inequality?
- ▶ a great paper!

Thank You Very Much!