Assets and Job Choice: Student Debt, Wages and Amenities

Mi Luo
Emory University

Simon Mongey
University of Chicago and NBER

SED - St Louis

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Introduction

Questions

- How do assets affect job choice? ▸ Fig: Increasing student debt
- Do less assets / more debt induce a trade-off of ↑ wages vs. ↓ amenity?
- If so, is it quantitatively important? (i) lifetime utility, (ii) policy

Three parts

1. General theory — Bewley + McCall (random search) + Amenities
2. Empirical — Confirm theory: ↑ *debt*, ↑ *wages*, ↓ *amenity*, $\overline{\textit{duration}}$
3. Quantitative — Framework that we can estimate on our data
   - Novel — Use observed search decisions + model to value amenities
   - Policy — Decompose welfare under different student debt repayment policies

▸ Literature

Theoretical model

Unemployed

$$
\begin{aligned}
U(a) &= \max_c \; u(c, \overline{x}) + \beta \Big[\lambda \int \max \Big\{ W(a', w', x'), U(a') \Big\} dF(w', x') \\
&\qquad\qquad + (1-\lambda) U(a') \Big] \\
a' &= (1+r)a + \overline{w} - c \\
a' &\geq -\overline{w}/r
\end{aligned}
$$

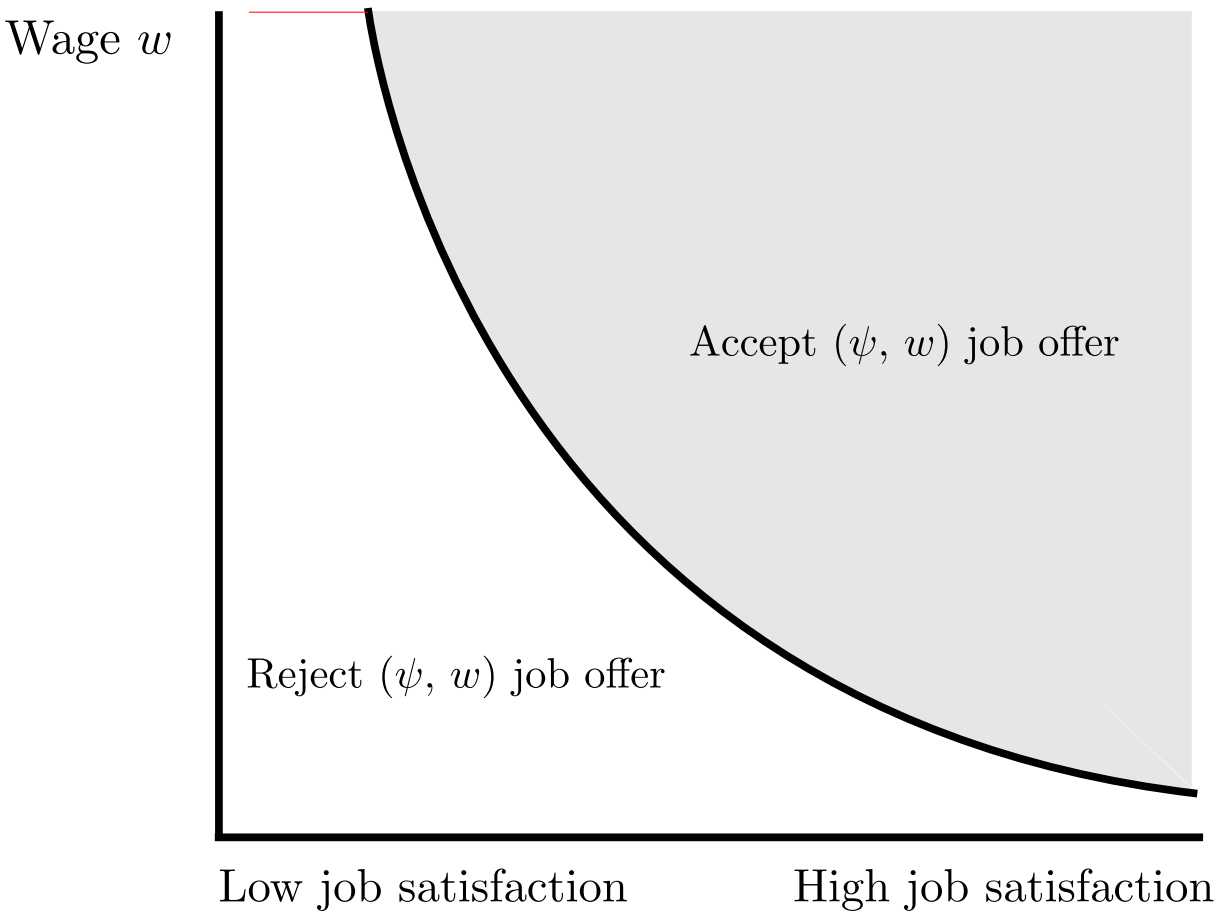
Employed

$$
\begin{aligned}
W(a, w, x) &= \max_c \; u(c, x) + \beta \Big[\delta U(a') + (1-\delta) W(a', w, x) \Big] \\
a' &= (1+r)a + w - c \\
a' &\geq -w/r
\end{aligned}
$$

Assume: u has Inada conditions on both inputs, homogeneous degree one

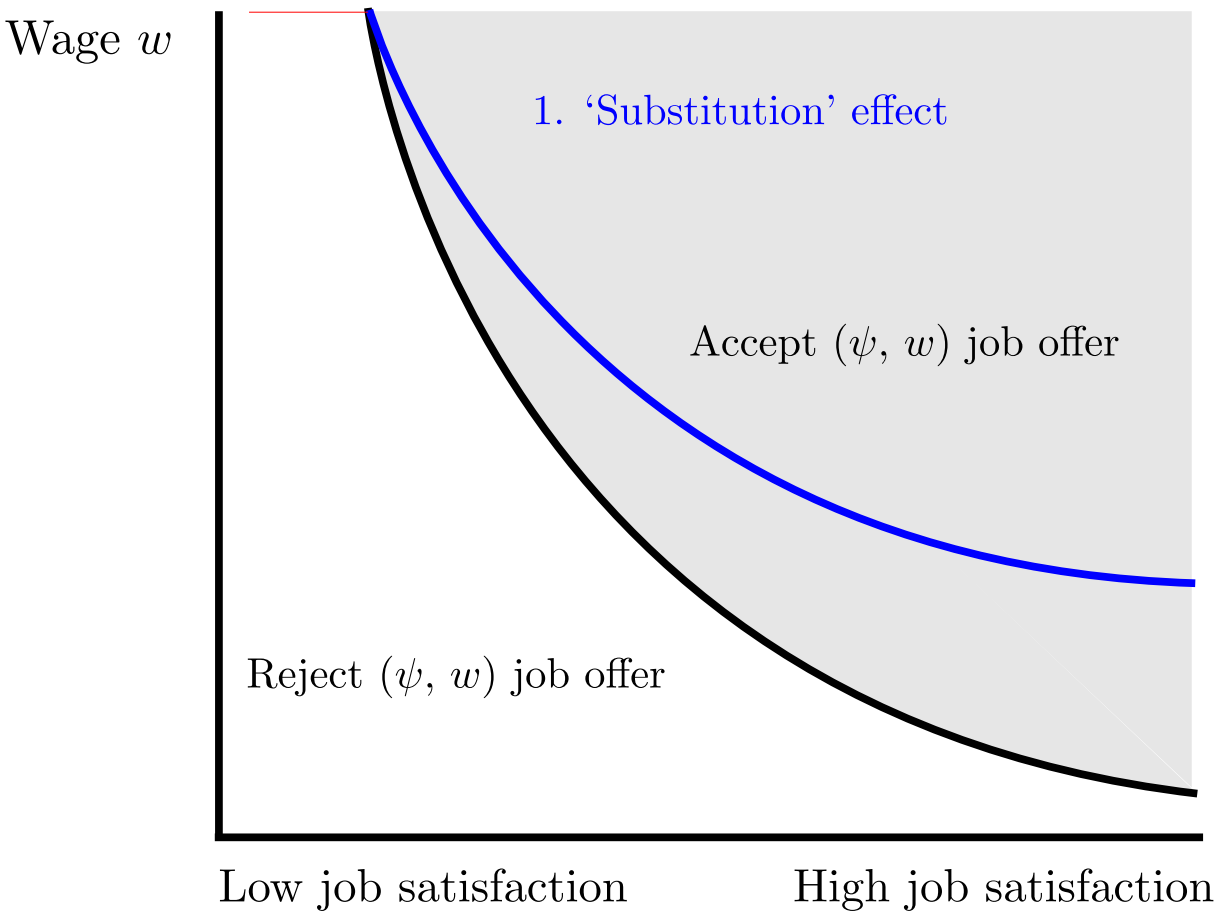
Theoretical model - Decrease in assets

$$W\left(a, h\left(a, x\right), x\right) = U\left(a\right)$$



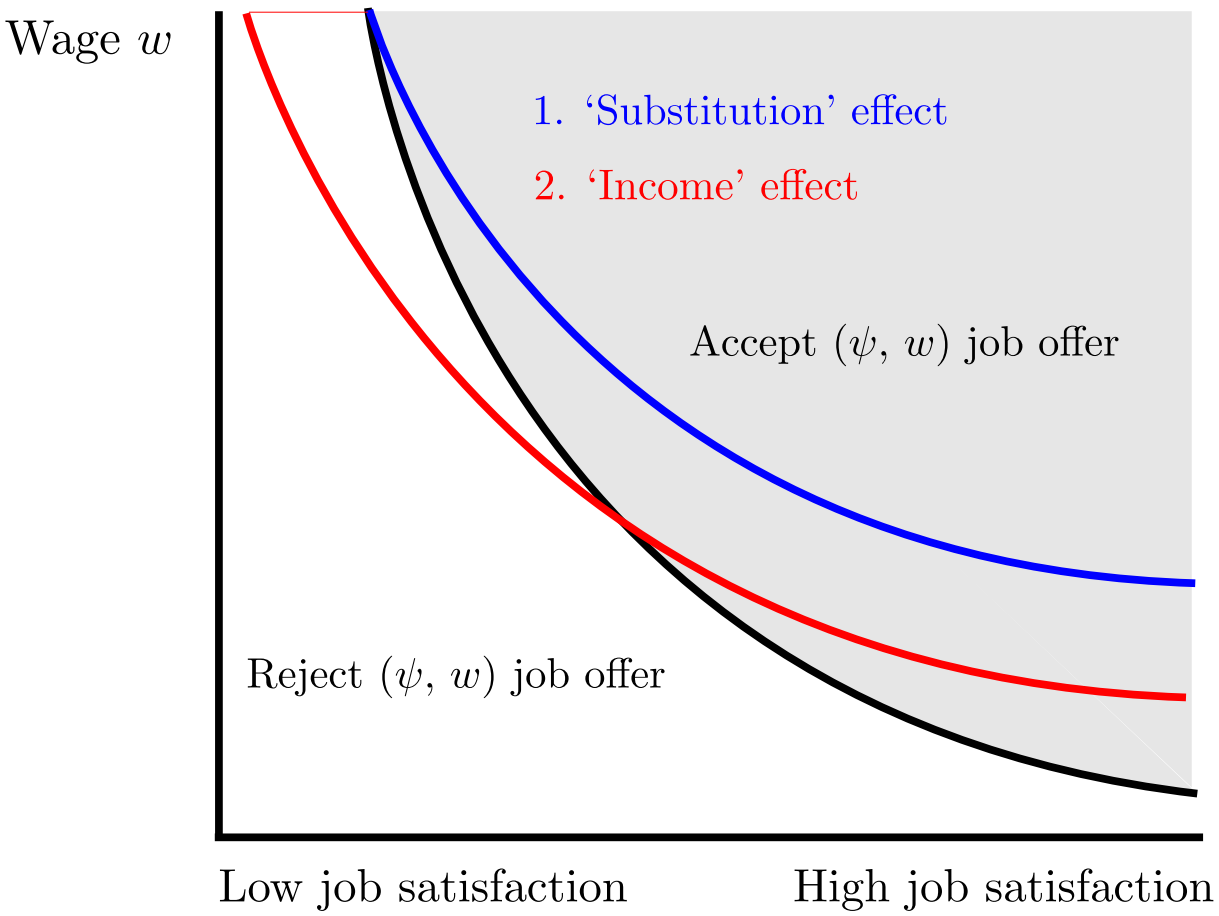
Theoretical model - Decrease in assets

$$\overline{W\left(\downarrow a', \uparrow h\left(a', x\right), x\right)} = \overline{U\left(a\right)}$$



Theoretical model - Decrease in assets

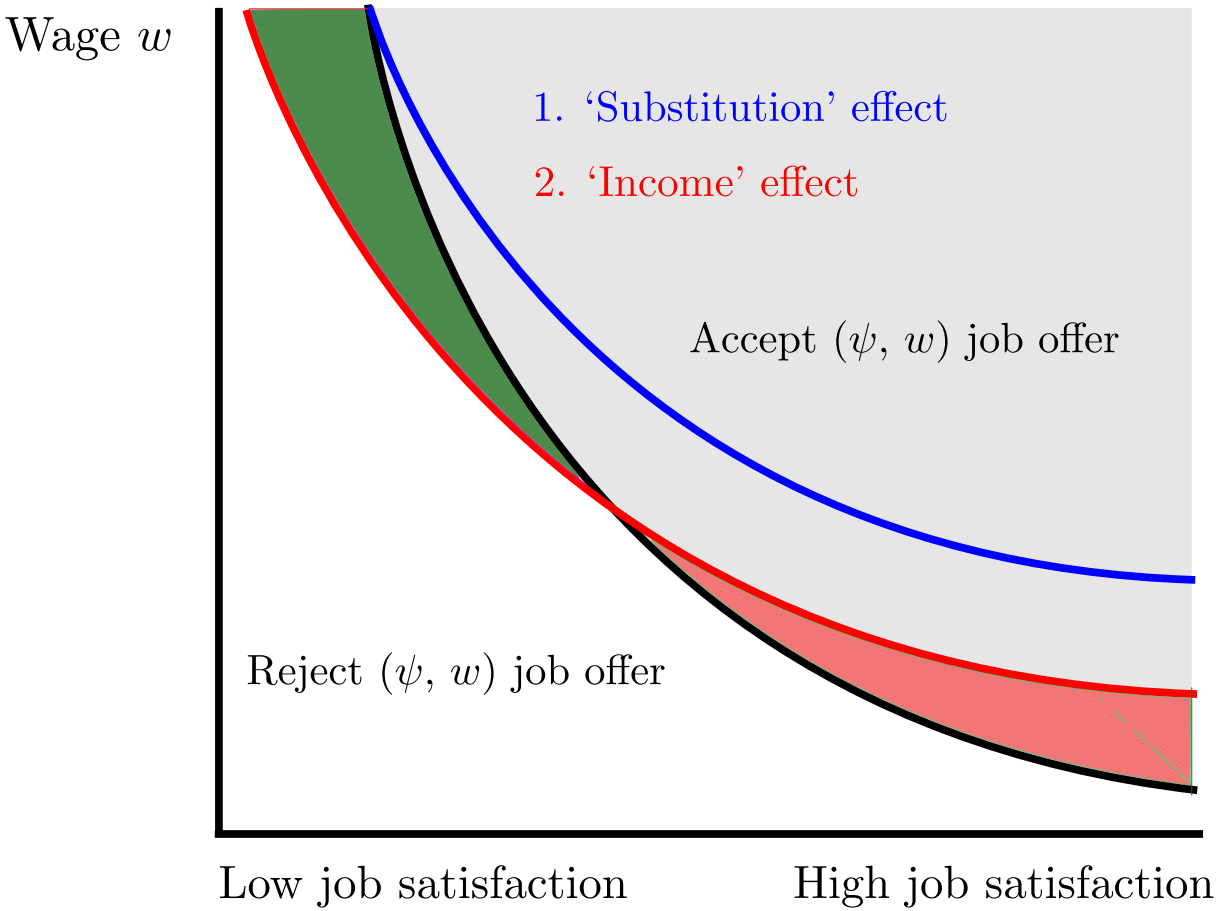
$$\downarrow W\left(a', \downarrow h\left(a', x\right), x\right) = \downarrow U\left(\downarrow a'\right)$$



Theoretical model - Decrease in assets

Proposition *For all a there exists some $x^*(a) \in (0, \infty)$ such that*

- $x_a(x^*(a), a) = 0$
- *If* $x < x^*(a)$, *then* $h_a(x^*(a), a) < 0$
- *If* $x > x^*(a)$, *then* $h_a(x^*(a), a) > 0$



Data

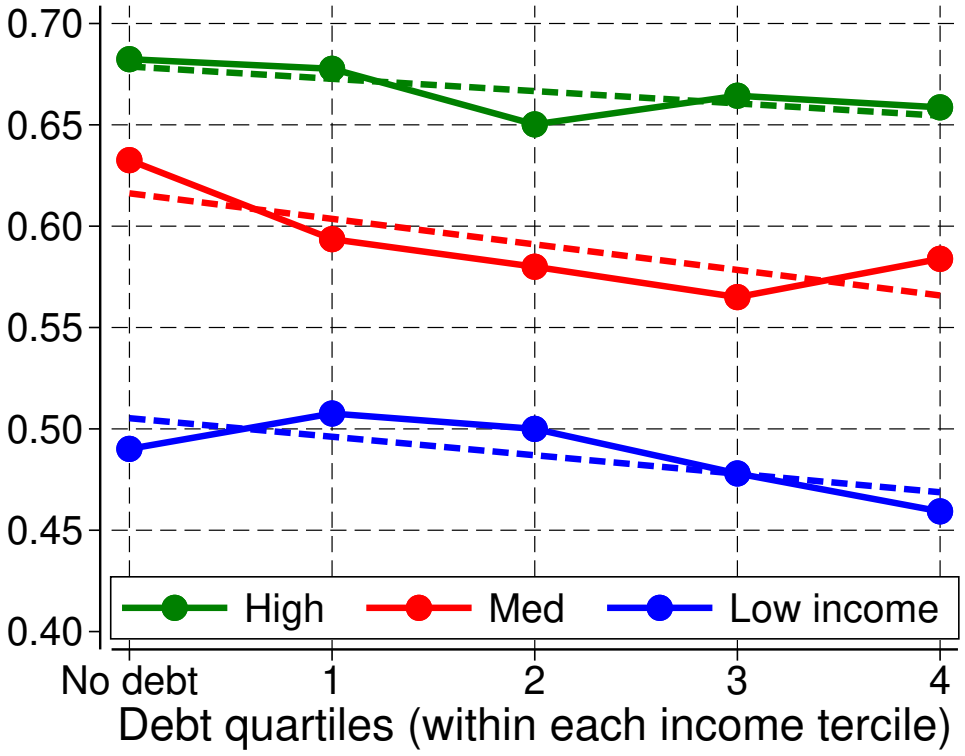
Baccalaureate and Beyond Longitudinal Study (NCES)

- Restricted-use representative sample micro-data
- Cohorts of 2000 and 2008 graduates
- Agency reported
  - Government - Federal student aid form (parental income)
  - College - Major, GPA
- Self reported
  - Interviewed one year after graduation
  - Quantitative - Employment status, income
  - Qualitative - Search, job satisfaction $\rightarrow$ amenity

Link to publicly available college level data

- Integrated Postsecondary Education Data System (grants, loans)
- College Scorecard data (SAT scores)

Correlations - Job satisfaction



- Job satisfaction is decreasing in debt *within* income groups

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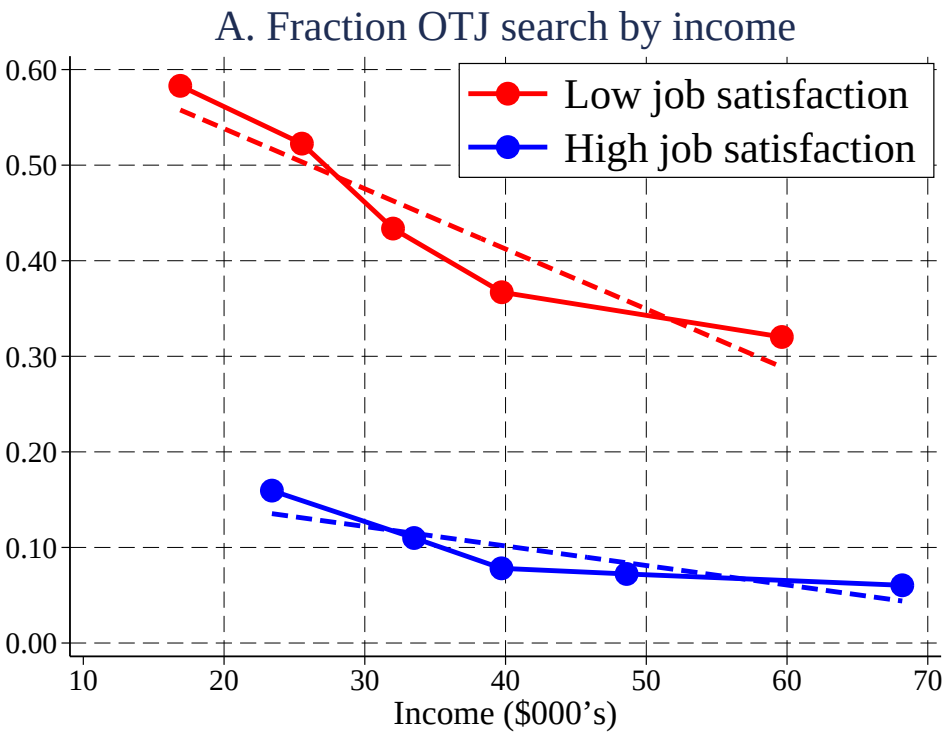
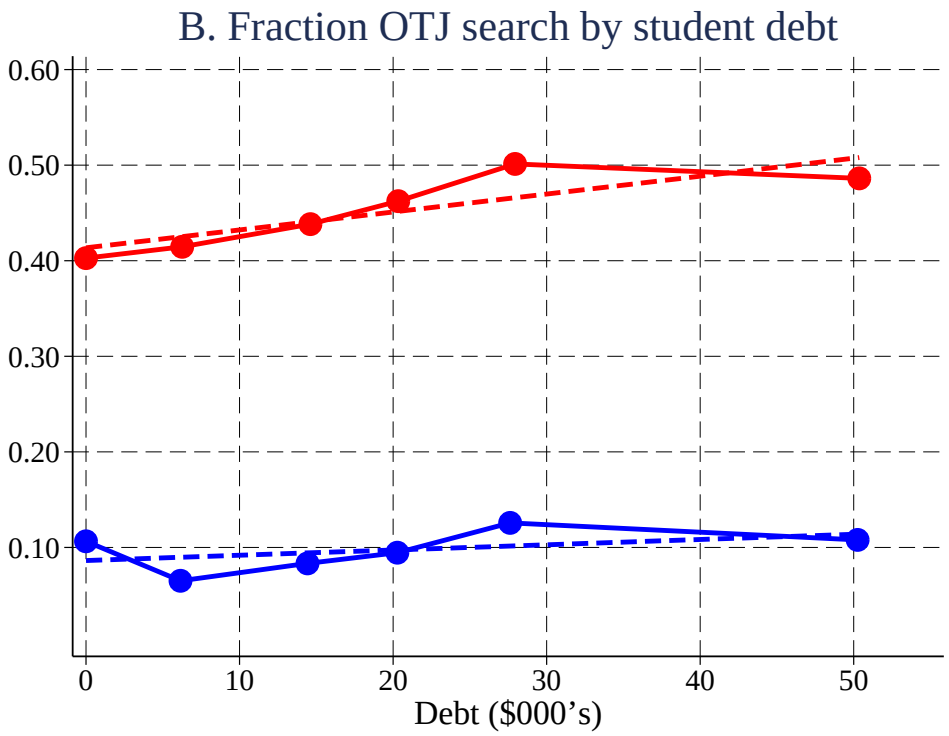
Debt quartiles computed *within* income quartiles. Students with no debt constitute 23% of the sample. Job satisfaction equals 1 if answering yes to all questions regarding job (i) security, (ii) career fit, (iii) major relevance, (iv) overall satisfaction, (v) importance in work-place. Full-time workers only ($>$ 35 hrs).

Correlations - On-the-job search





- Search is decreasing in job satisfaction
- Search is increasing in debt, decreasing in income *within* satisfaction groups

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Question *Are you currently looking for a job?* Zero corresponds to students with *no debt* (23% of sample).

Full-time workers only where full-time defined as more than 35 hours per week.

IV estimation - Framework

Estimating equation

$$y_{ijc} = \alpha + \chi_j + \lambda_c + \beta d_{ijc} + \Gamma X_{ijc} + \varepsilon_{ijc}$$

i, j, c Individual, college, cohort

d_{ijc} Total borrowing from all student loan sources

X_{ijc} $\{$Age, gender, race$\}_i$, $\{$GPA, parental income$\}_i$, $\{$Average college SAT$\}_{jc}$

ε_{ijc} Standard errors clustered to jc-level

Potential endogeneity

- Correlated ε_{ijc} and d_{ijc}
- Instrument for d_{ijc} using IPEDS data

$$Z_{jc} = \frac{total\ grants_{jc}}{total\ loans_{jc} + total\ grantsjc} \in [0, 1]$$

▸ Data: Grants and Loans 2001-2014 (IPEDS) ▸ Data: Extensive vs. intensive margins ▸ Data: Variation in instrument $\Delta_c Z_{j,c}$

IV estimation - Estimates

	Dependent variable		
	Salary	Amenity	Duration
OLS 2001/2009	0.0079	-0.0004	—
	(0.0149)	(0.0003)	
IV 2001/2009	0.2114***	-0.0029*	-0.1351
	(0.0680)	(0.0016)	(0.0967)
IV 2001/2012	0.4548***		
	(0.0906)		

- $1,000 increase in debt causes $211 increase in initial earnings

IV estimation - Other studies

Rothstein and Rouse (2011)

- Event study for a 'highly selective school' moving to no loans policy
- Increase in student debt of $1,000, increase in wages of $200

Chapman (2015)

- Uses BB data. RD around state merit aid eligibility
- Increase in student debt of $1,000, increase in wages of $400-800

Weidner (2017), Ji (2017)

- Neither control for endogeneity
- Models imply necessary relationship $\uparrow$ *debt*, $\downarrow$ *wages*, $\downarrow$ *duration*

Quantitative model

Aim

- Quantitatively assess (i) trade-off, (ii) changes to repayment policies
- Leverage observables in the BB09 data

Student debt

- Principal $d_{i,0}$, fixed interest rate r_d
- A *repayment policy* is a pair of functions $\mathcal{R} = \{\rho, \Delta\}$
- Baseline $\mathcal{R}_F$: *Federal Stafford loans* under *Fixed Repayment*
- Experiment $\mathcal{R}_I$: *Federal Stafford loans* under *Income-Based Repayment*

Additional state variables

- Student debt d
- Loan repayment period t

Additional features

- On-the-job search $\kappa \sim H(\kappa)$, $\lambda_e \leq \lambda_u$
- Borrowing constraints $a' \geq -\gamma w$, $a' \geq \min\{a, 0\}$

Quantitative model - Unemployed problem

$$U(a,d,t) = \max_{c \geq \underline{c}} u(c, x_b) + \beta \Bigg[(1-\lambda_u) U(a', d', t') + \ldots$$

$$\lambda_u \int \max \left\{ W(a', d', t', w', x'), \; U(a', d', t') \right\} dF(w', x') \Bigg]$$

subject to

Repayment $\quad Ra + b + \Gamma_u(a) \geq \underline{c} + \rho(d,t)$

$$\begin{aligned} a' &= Ra + b - c - \rho(d,t) \\ d' &= R_d d - \rho(d,t) \\ t' &= t + 1 \end{aligned}$$

Delinquent $\quad Ra + b + \Gamma_u(a) < \underline{c} + \rho(d,t)$

$$\begin{aligned} a' &= -\Gamma_u(a) \\ d' &= \Delta(a, d, t, b) \\ t' &= \begin{cases} \text{Reset if close to } T \text{ , otherwise} \\ t+1 \end{cases} \end{aligned}$$

Quantitative model - Employed problem

$$
\begin{aligned}
W(a,d,t,w,x) &= \max_{c \geq \underline{c}} u(c,x) + \beta \Bigg[\delta U(a',d',t') \ldots \\
&\quad + (1-\delta) \int \max \Big\{ -\kappa + W^S(a',d',t,w,x),\ W(a',d',t',w,x) \Big\} dH(\kappa) \Bigg] \\
W^S(a',d',t',w,x) &= \lambda_e \int \max \Big\{ W(a',d',t',w,x), W(a',d',t',w',x') \Big\} dF(w',x') \\
&\quad + (1-\lambda_e) W(a',d',t',w,x)
\end{aligned}
$$

subject to

Repayment

$$Ra + w + \Gamma_e(w) \geq \underline{c} + \rho(d,t)$$

$$
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a' &= Ra + w - c - \rho(d,t) \\
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Delinquent

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a' &= -\Gamma_e(w) \\
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t' &= \begin{cases} \text{Reset if close to } T \text{ , otherwise} \\ t+1 \end{cases}
\end{aligned}
$$

Quantitative model - Parameters and functional forms

Fixed $\theta_1 = \{\beta, \delta, r_a^+, r_a^-, \gamma, b, \underline{c}\}$

Estimated $\theta_2 = \left\{H(\kappa), v(x), F(w, x), \lambda_u, \lambda_e\right\}$

- $\kappa \sim U[\underline{\kappa}, \overline{\kappa}]$
- $u(c, x) = \log c + x$, with $x \in \{x_l, x_h\}$ and $x_b = 0$
- $F(w, x)$ described by

$$\begin{aligned} \log w | x_k &\sim \mathcal{N}(\mu_k, \sigma_k^2) \\ x_k &= \begin{cases} x_l & \text{w.p.} \quad p_h \\ x_h & \text{w.p.} \quad 1 - p_h \end{cases} \end{aligned}$$

- 11 parameters $\theta_2 = \left\{\underline{\kappa}, \overline{\kappa}, x_l, x_h, p_h, \mu_l, \mu_h, \sigma_l, \sigma_h, \lambda_u, \lambda_e\right\}$

Data: Observed distributions of $w_i|x_i$ Extension: Adding additional heterogeneity Borrowing constraint γ

Quantitative model - Indirect inference

Data

- Graduated unemployed with zero debt $n = 1,439$
- Data 12 months after graduation $X_n^{data} = \{u_i, dur_i, jobs_i, s_i, w_i, x_i\}_{i=1}^n$

Moments

- Means

$$\mathbf{E}[dur_i], \ \mathbf{E}[jobs_i], \ \mathbf{E}[s_i], \ \mathbf{E}[\mathbf{1}[x_i = x_h]]$$

- Means and variances of wages conditional on amenity

$$\mathbf{E}[\log w_i | x_i = x_k], \ \mathbf{V}[\log w_i | x_i = x_k]$$

- Estimates $\hat{\beta}_w$, $\hat{\beta}_x$, $\hat{\sigma}_e$ of auxiliary linear probability model

$$s_i = \beta_0 + \beta_w \log w_i + \beta_x \mathbf{1}_{[x_i = x_h]} + e_i, \quad e_i \sim \mathcal{N}(0, \sigma_e)$$

▸ Data: Initial asset distribution a_i

Quantitative model - Target moments

Moments		Mean		Std. deviation	
		Data (1)	Model (2)	Data (3)	Model (4)
A. Means					
Duration	$\mathbf{E}[dur_i]$	2.500	2.943	0.108	0.052
Number of jobs	$\mathbf{E}[jobs_i]$	1.524	1.298	0.031	0.018
Search	$\mathbf{E}[s_i]$	0.187	0.180	0.014	0.013
Probability of x_H	$\mathbf{E}[\mathbf{1}[x_i = x_h]]$	0.716	0.732	0.017	0.014
B. Wage distribution					
Mean $\log w$ for x_l	$\mathbf{E}[\log w_i \vert x_l]$	1.097	1.003	0.029	0.039
Mean $\log w$ for x_h	$\mathbf{E}[\log w_i \vert x_h]$	1.148	1.098	0.016	0.012
Variance $\log w$ for x_l	$\mathbf{V}[\log w_i \vert x_l]$	0.175	0.138	0.023	0.019
Variance $\log w$ for x_h	$\mathbf{V}[\log w_i \vert x_h]$	0.143	0.103	0.010	0.006
C. Regression coefficients					
Wage ($000) coefficient	$\hat{\beta}_w$	-0.031	-0.033	0.012	0.010
High satisfaction coefficient	$\hat{\beta}_x$	-0.283	-0.308	0.036	0.042
Std. dev. residuals	$\hat{\sigma}_e$	0.364	0.313	0.011	0.011

▸ Table: Estimated parameters ▸ Table: Non-targetted moments ▸ Fig: Sampling and observed distributions of $w|x$ under θ_2^*

Valuing amenities - In terms of wages

Question

- What wage cut would a worker in a low amenity job be prepared to take for a free transition to a high amenity job?

$$W\left(w, a, x_L\right) = W\left(\overline{w}\left(w, a\right), a, x_H\right)$$

Median assets

- If $w = \$35,000$, then $\overline{w}(w, a) = \$21,000$ (40%)
- If $w = \$45,000$, then $\overline{w}(w, a) = \$27,000$ (40%)

95th percentile assets

- If $w = \$35,000$, then $\overline{w}(w, a) = \$18,000$ (49%)
- If $w = \$45,000$, then $\overline{w}(w, a) = \$23,000$ (49%)

Figure for $\overline{w}(w, a)$

Valuing amenities - In terms of consumption

Question

- What fraction of lifetime consumption would a worker in low amenity job be prepared to give up for a free transition to a high amenity job at same wage?

$$W(a, w, x_L) = W^{\Omega}(a, w, x_H) = \mathbb{E}_0 \sum_{s=0}^{\infty} \beta^s \Big[\log(1 - \Omega(a, w))c_s + x_s \Big]$$

- If $w = \$10,000$, median assets, $\Omega(a, w) = 0.1\%$
- If $w = \$30,000$, median assets, $\Omega(a, w) = 4.5\%$
- If $w = \$50,000$, median assets, $\Omega(a, w) = 6.0\%$
- With higher wages, consumption is higher, prepared to give away larger fraction to increase x level.

Figure for $\Omega(w, a)$

Student debt - Fixed repayment policy

$\mathcal{R}_F$ modelled on *Federal Stafford Loan* fixed-repayment policy

τ Grace period of 6 months

ρ Repay principal + interest in 10 years $(T = 120)$

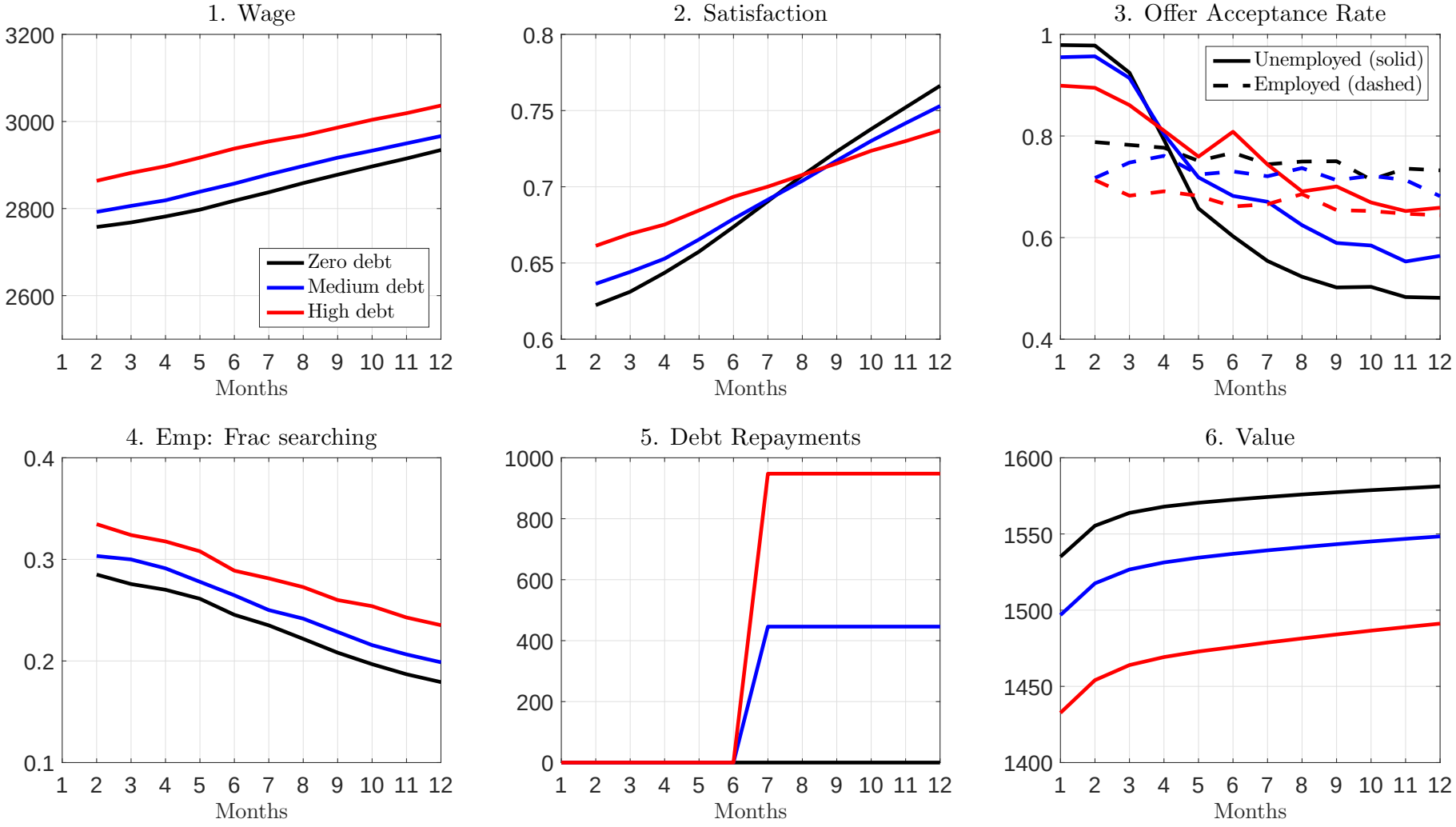
Δ Missed repayments accrue a penalty $\phi = 18.5\%$

$$\begin{aligned}
\rho &= \left[\frac{r_d}{1-(1+r_d)^{-(T+1-t)}}\right] d \\
d' &= (1+r_d)d - \rho_p + \phi\Big[\rho - \rho_p\Big] \\
\rho_p &= \max\Big\{\,(1+r_a)a + y + \Gamma - \underline{c}\,,\ 0\,\Big\}
\end{aligned}$$

$*$ Add distorting labor income tax τ to balance government budget

▸ Fig: Model fit (i) Satisfaction by debt/income, (ii) Search by debt/income

Student debt - Fixed repayment policy



Experiment - Income based repayment policy

- Introduced by Obama administration in 2009. After our sample
- Repay 15% of disposable income (defined as 150% of poverty line)

$$\rho = 0.15 \times (w - 1.5 \times \underline{c})$$

- All other details same as *Fixed repayment policy* $\mathcal{R}_F$

Active area of policy

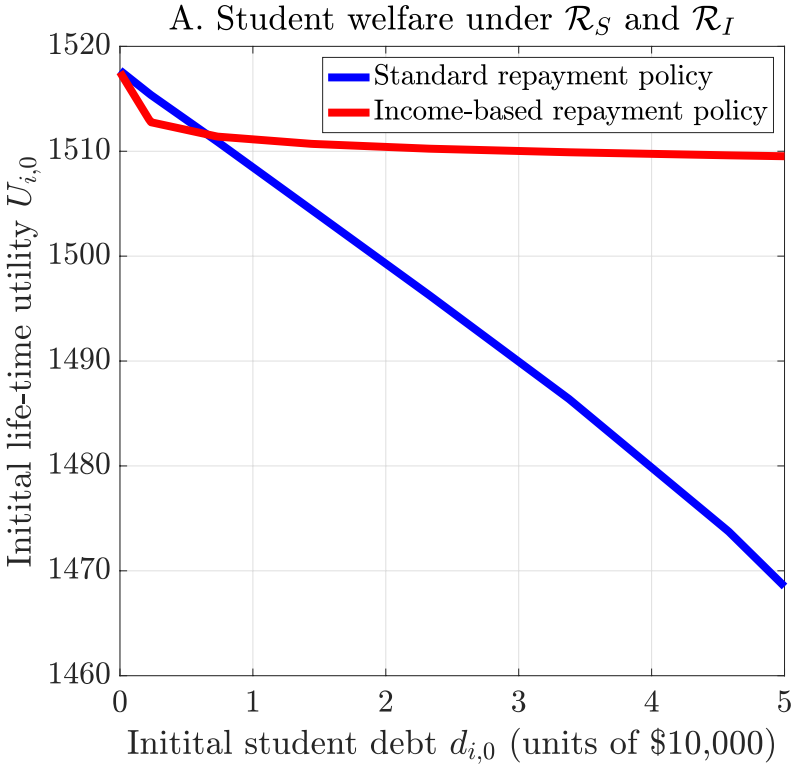
2008 Approved by congress

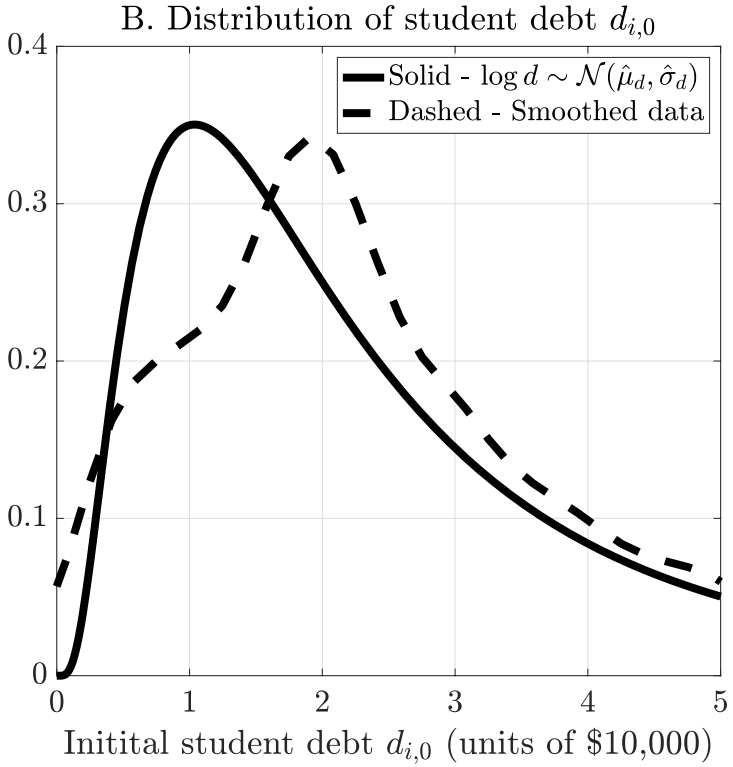
2009 Implemented at 15%

2010 Executive action lowered to 10% for loans originated after AY 2013

System used in Australia, UK

Experiment - Welfare





Result

- Welfare 1.3% higher. 90% of borrowing students prefer $\mathcal{R}_I$
- Measured as total utility value of unemployment with $t = 1$ month

$$\mathcal{W} = \int U(a, d, 1) dH(a, d)$$

Fig: Decomposing welfare gains into consumption, satisfaction, search
Fig: Siumulation under $\mathcal{R}_I$

Experiment - Decomposing welfare gains

		$\mathcal{R}_S$ (1)	$\mathcal{R}_I$ (2)	$\mathcal{R}_I - \mathcal{R}_S$ (3)	Fraction of Δ (4)
Total welfare	$\mathbb{E}_0 \sum_{t=0}^{\infty} \beta^t \left[u(c_{i,t}) + x_{i,t} - \mathbf{1}_{S_{i,t}} \kappa_{i,t} \right]$	1499.4	1519.6	+1.35%	
Consumption	$\mathbb{E}_0 \sum_{t=0}^{\infty} \beta^t u(c_{i,t})$	1714.8	1727.6	+0.75%	0.63
Work disutility	$\mathbb{E}_0 \sum_{t=0}^{\infty} \beta^t x_{i,t}$	210.4	204.3	-2.90%	0.30
Search costs	$\mathbb{E}_0 \sum_{t=0}^{\infty} \beta^t \mathbf{1}_{S_{i,t}} \kappa_{i,t}$	4.9	3.6	-26.53%	0.07
Wages ($000's)	$\mathbb{E}_0 \sum_{t=0}^{\infty} \beta^t w_{i,t}$	552.9	549.9	-0.56%	
Consumption ($000's)	$\mathbb{E}_0 \sum_{t=0}^{\infty} \beta^t c_{i,t}$	477.7	489.3	+2.45%	

Results

- 63% of increase in welfare due to consumption (boring?)
- 30% of increase in welfare due to improved job satisfaction (interesting!)
- If using p.d.v of wages for welfare, then wrongly conclude *Fixed* $\succ$ *Income*!

Conclusion

This paper

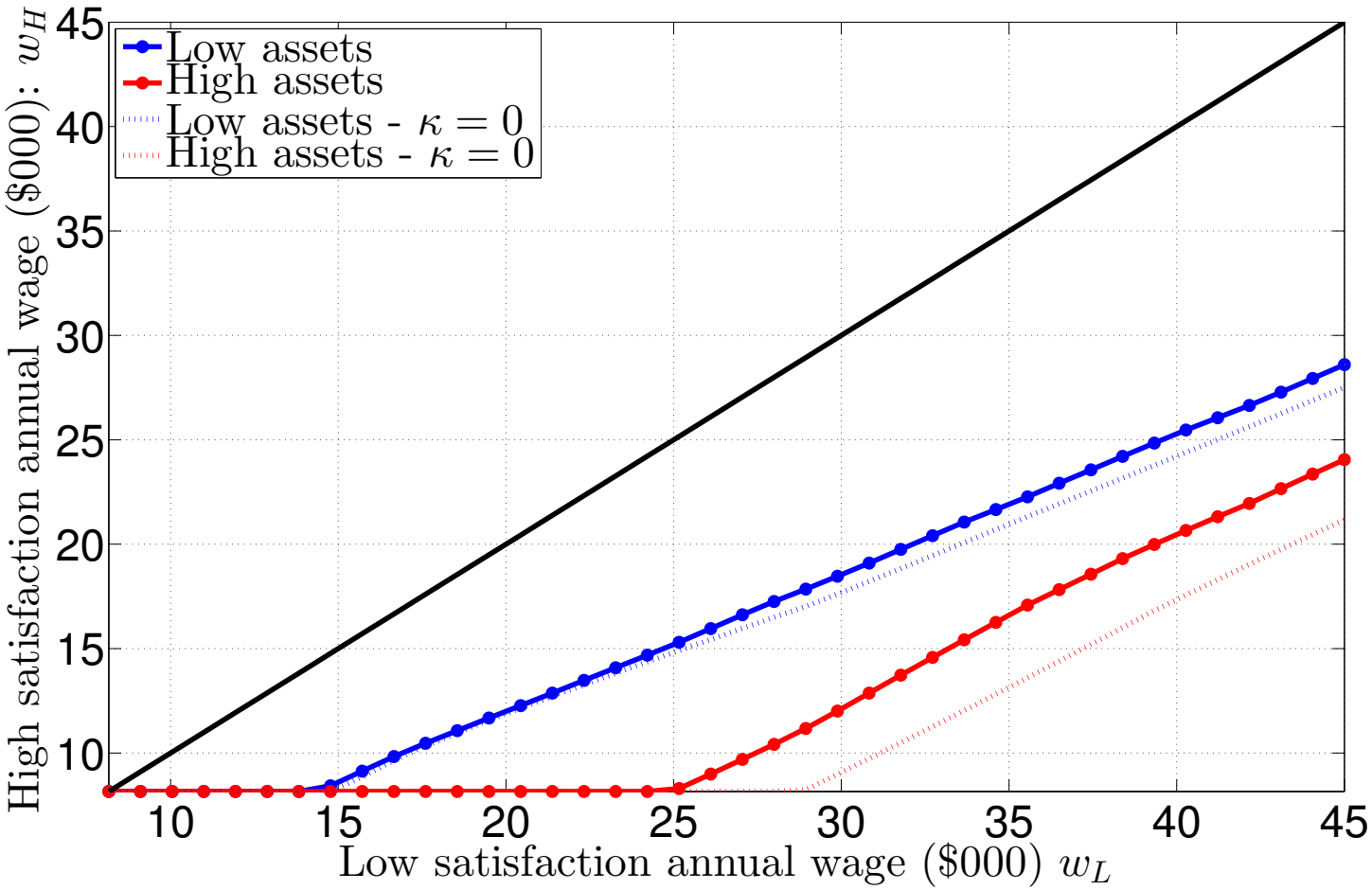
- Theory Assets holdings affect non-wage utility of accepted jobs
- Empirical Verified theory. Higher student debt causes graduates to accept jobs with higher wages but lower non-wage amenity
- Quantitative (i) Non-wage utility of jobs is important component of lifetime utility, and (ii) plays important role in accounting for welfare response to student debt repayment policy

Revisit important questions from perspective of assets-wages-amenity

- Inequality If the rich are better insured, do they choose higher amenity jobs? Does $\uparrow$ income inequality understate $\uparrow$ utility inequality?
- Cycle Do financial crises that lower asset prices, lead to rushed take up of high w, low x jobs? Do we therefore understate utility costs of recessions?

Thank you!

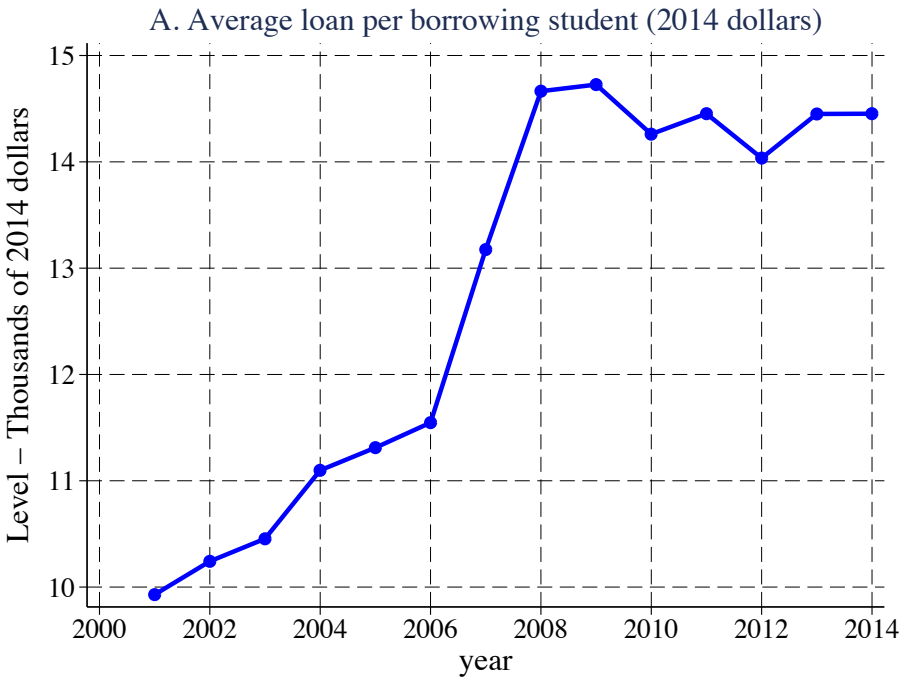
Additional results - Valuing high satisfaction

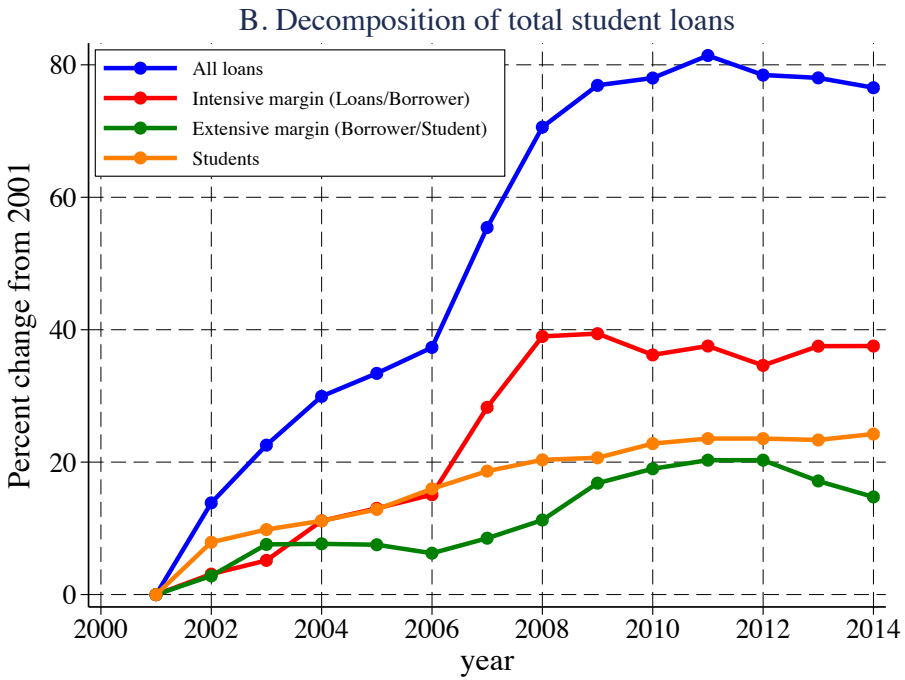


- Wage on y-axis solves: $W\left(\overline{w}\left(w,a\right),a,x_H\right) = W\left(w,a,x_L\right)$
- At a given w as $\uparrow a$, willing to $\downarrow w$ by more
- At a given a as $\uparrow w$, willing to $\downarrow w$ by *increasingly* more
- For any (a,w) when search is free, willing to $\downarrow w$ by more

Back - Assets and labor market behavior

Introduction - Decomposing the increase in student debt





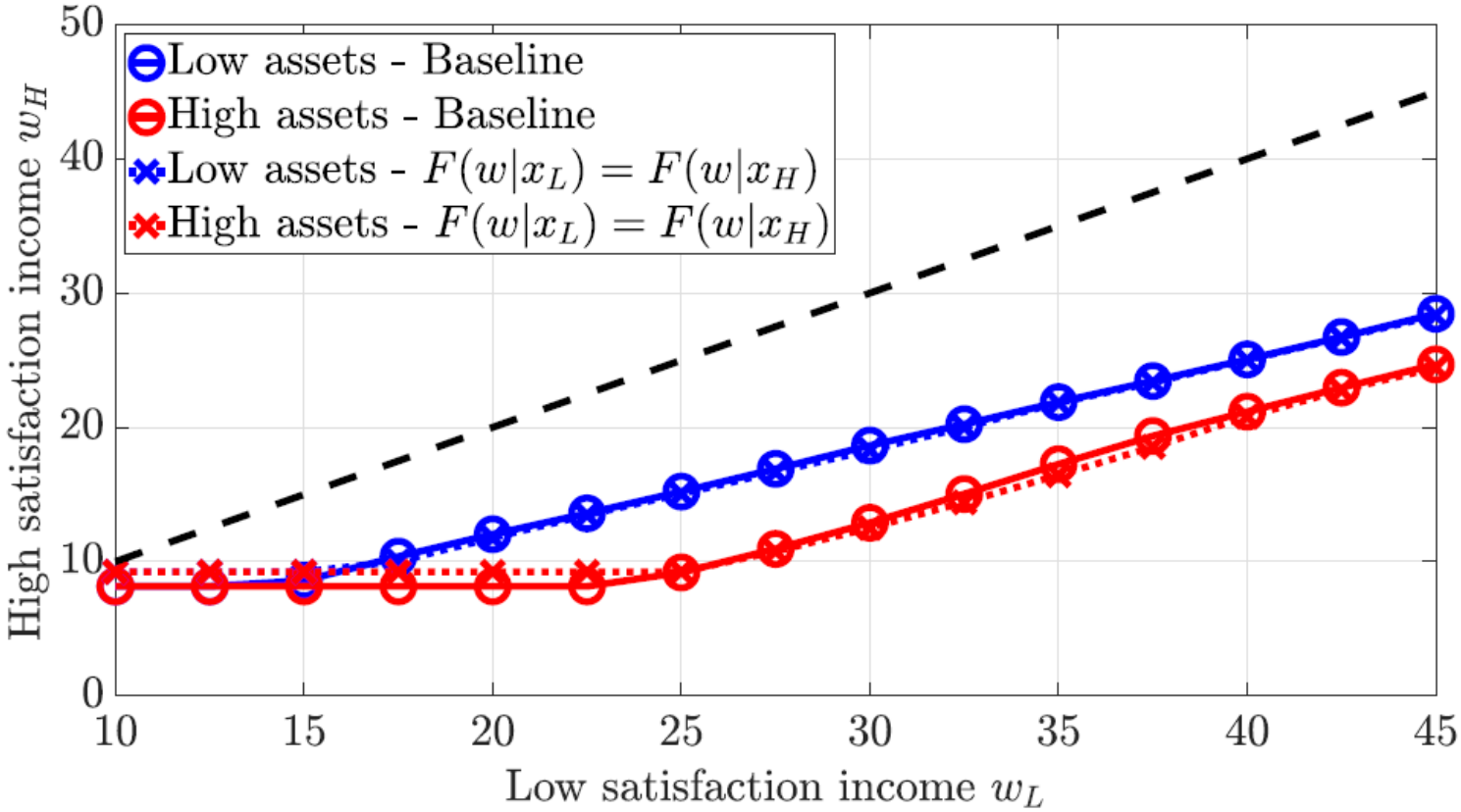
$$Loans = \frac{Loans}{Borrowing\ \ students} \times \frac{Borrowing\ \ students}{Students} \times Students$$

Back - Introduction

Valuing amenities - In terms of wages

- What wage cut would a worker in a low amenity job be prepared to take for a free transition to a high amenity job?

$$W(w, a, x_L) = W(\overline{w}(w, a), a, x_H)$$

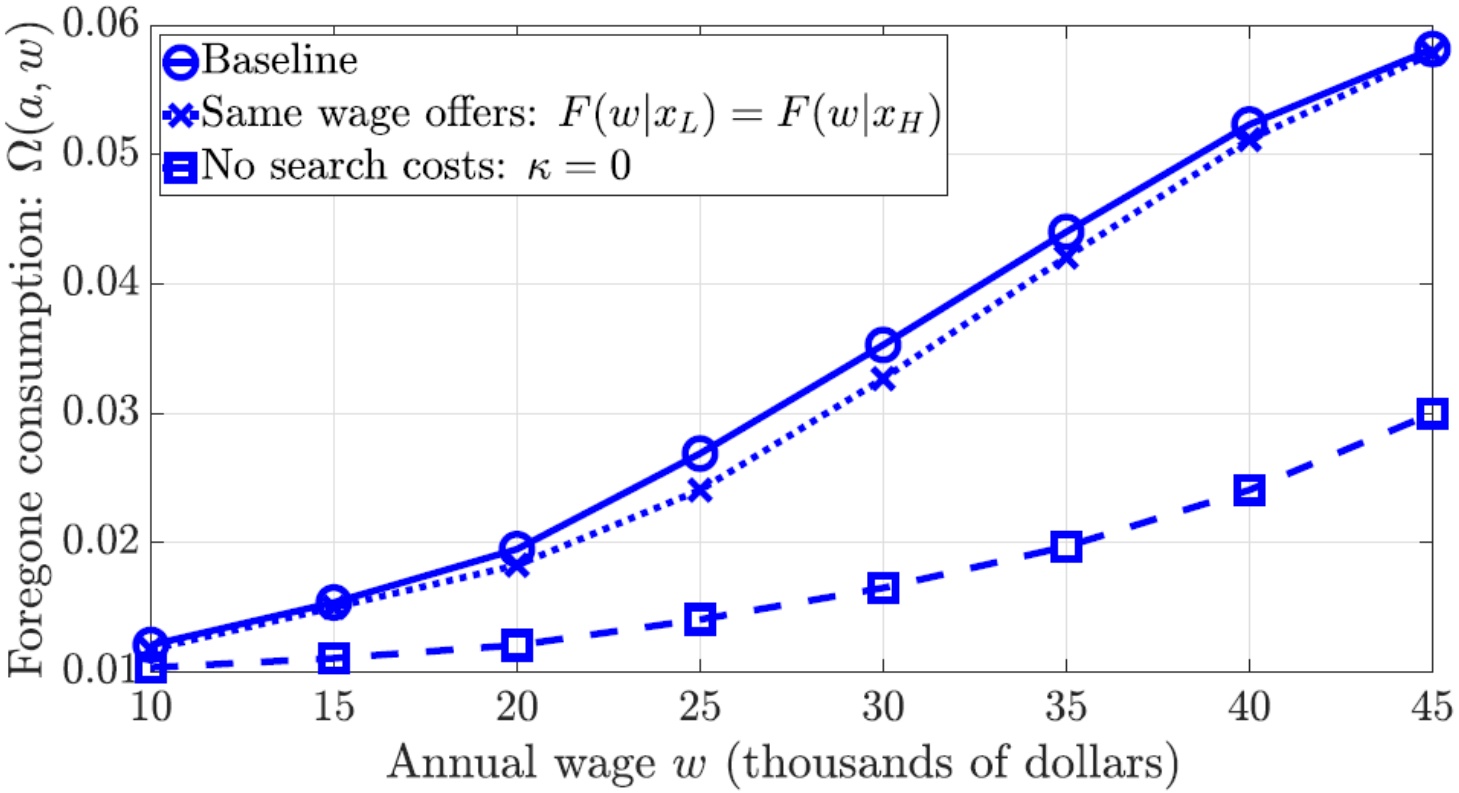


Back - Valuing amenities

Valuing amenities - In terms of consumption

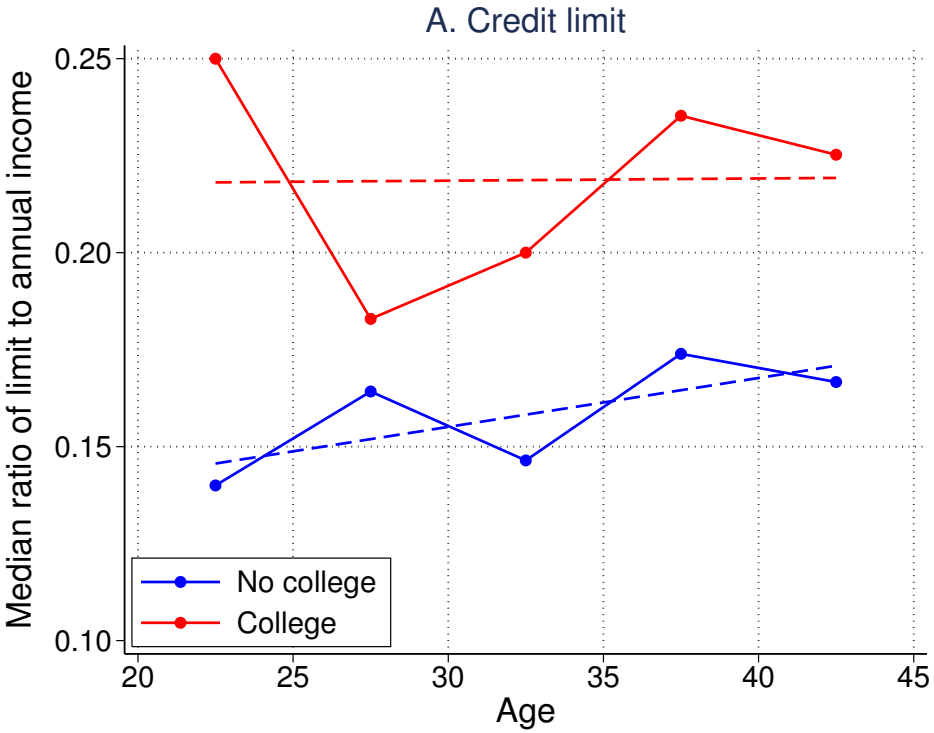
- What fraction of lifetime consumption would a worker in low amenity job be prepared to give up for a free transition to a high amenity job at same wage?

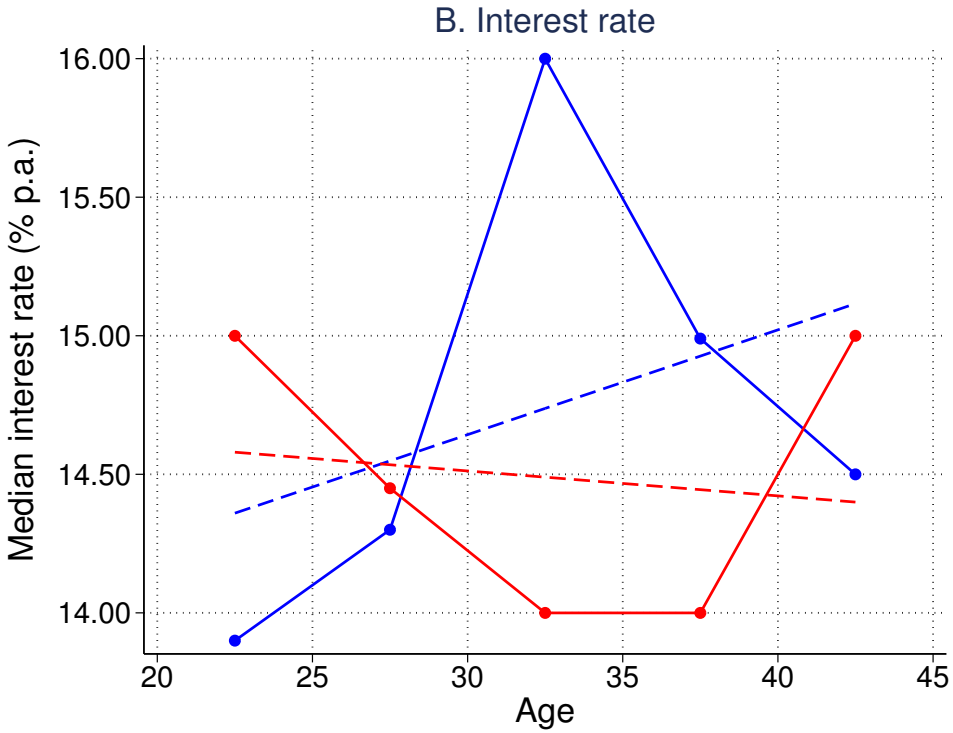
$$W(a, w, x_L) = W^{\Omega}(a, w, x_H) = \mathbb{E}_0 \sum_{s=0}^{\infty} \beta^s \Big[\log(1 - \Omega(a, w))c_s + x_s \Big]$$



Back - Valuing non-wage amenities

Quantitative model - Credit limits: $a \geq -\gamma w$



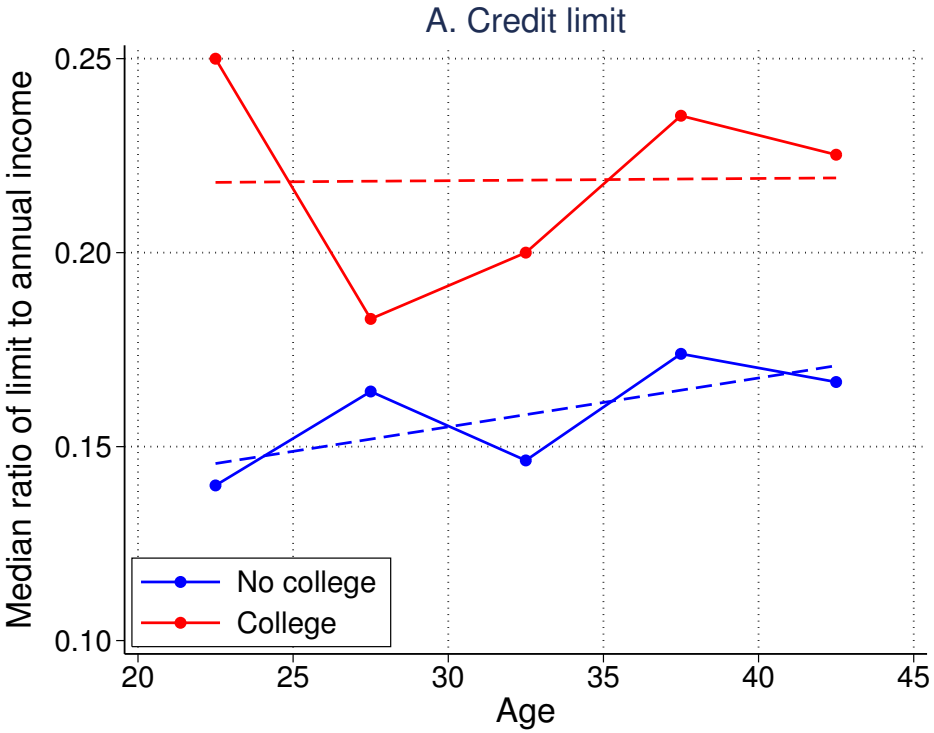


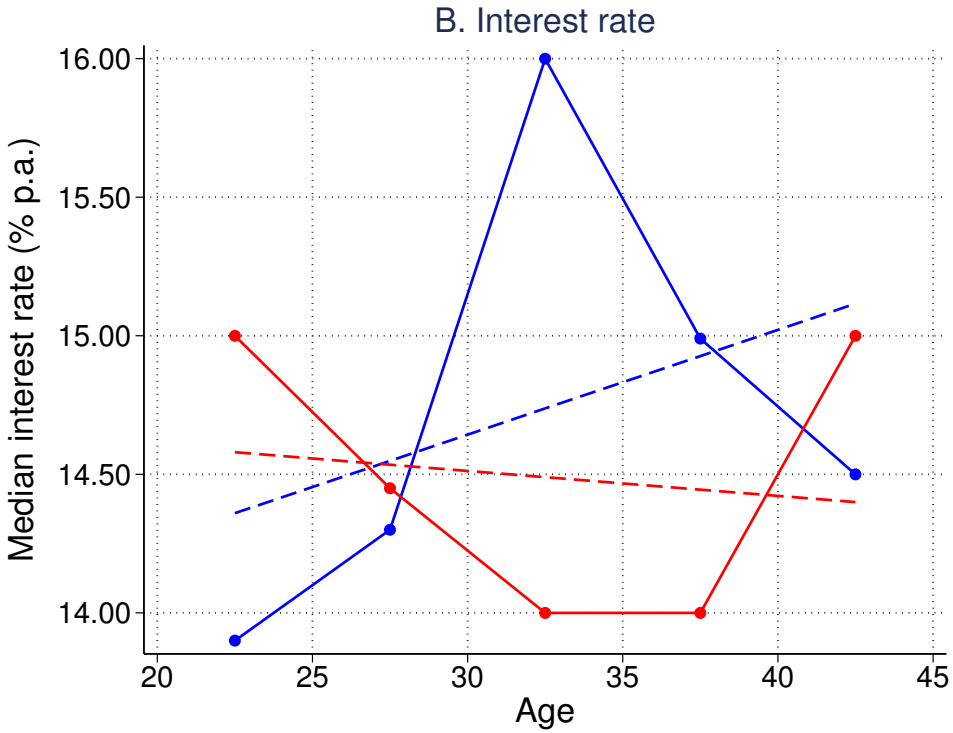
1. Credit limits are almost constant in age
2. Variation due to college education larger than variation due to age

- Source SCF 2001, sample selection as in Kaplan and Violante (2014). Income includes wage income, unemployment benefits, child benefits, TANF and other. Values represent medians within a cell, approx. 1,000 observations per cell

Back - Estimation

Quantitative model - Credit limits: $a \geq -\gamma w$





1. Credit limits are almost constant in age
2. Variation due to college education larger than variation due to age

- Source SCF 2001, sample selection as in Kaplan and Violante (2014). Income includes wage income, unemployment benefits, child benefits, TANF and other. Values represent medians within a cell, approx. 1,000 observations per cell

Back - Estimation

Extension - Additional heterogeneity

Baseline

1. No unobservables: component of wages, or other
   - E.g. Initial assets $a_{0,i}$, constraints r_i^a, γ_i, search costs κ_i
2. Parameters θ are constant across individuals
3. No correlation of debt d_i with other unobservables

Heterogeneity

1. Allow parameters θ_i to be correlated with initial states
2. Initial states include unobserved ability ε_i, potentially correlated with debt d_i

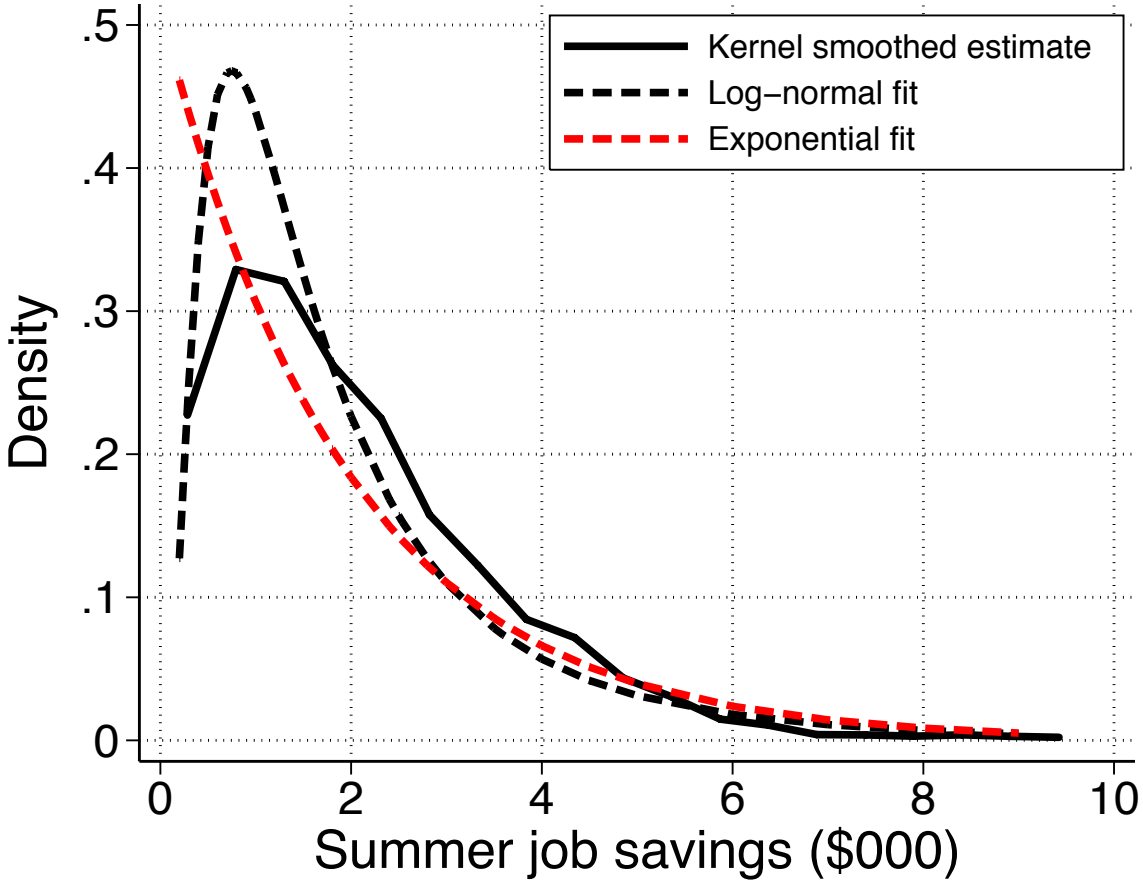
$$\varepsilon_i \sim \; G(\varepsilon | d_i)$$

3. Wage a function of ability ε_i and productivity $z_i \sim F(z_i | x_i)$

$$\log w_i = \gamma_z \log z_i + \gamma_\varepsilon \log \varepsilon_i$$

Back - Estimation

Quantitative model - Initial assets $\log a_{i,0} \sim N(\mu_a, \sigma_a)$



- Source BB09, standard estimation sample.

Back - Indirect Inference

Extension - Pre-college decision

- Aim Use continuation values to estimate discrete choice problem
- State Observed assets a and skills s, unobserved pref η_i
- Decision (i) College or Labor Force, (ii) college choice $c \in \mathcal{C}$
- College A *college* is a tuple $c = (\omega_c, h_c, X_c)$
  1. Cost of tuition ω_c
  2. Stochastic skill technology $s'|s_0 \sim h_c(s'|s0)$
  3. Observed and unobserved give $W_{i,c} = \xi_c + \gamma_1' X_c + \gamma_2' X_{i,c}$
- Costs Takes T periods
- Wages Function of skill and match prod. $w(s, z)$
- Heterogeneity Can allow η_i to be correlated within (a, s)

$$\max \left\{ U_i(s_i, a_i) + \eta_i \, , \, \max_{c \in \mathcal{C}} \left\{ W_{i,c} + \beta^T \int_{\underline{s}}^{\overline{s}} U_i(a_i - \omega_c, s') \, dH_c(s'|s_0) \right\} \right\}$$

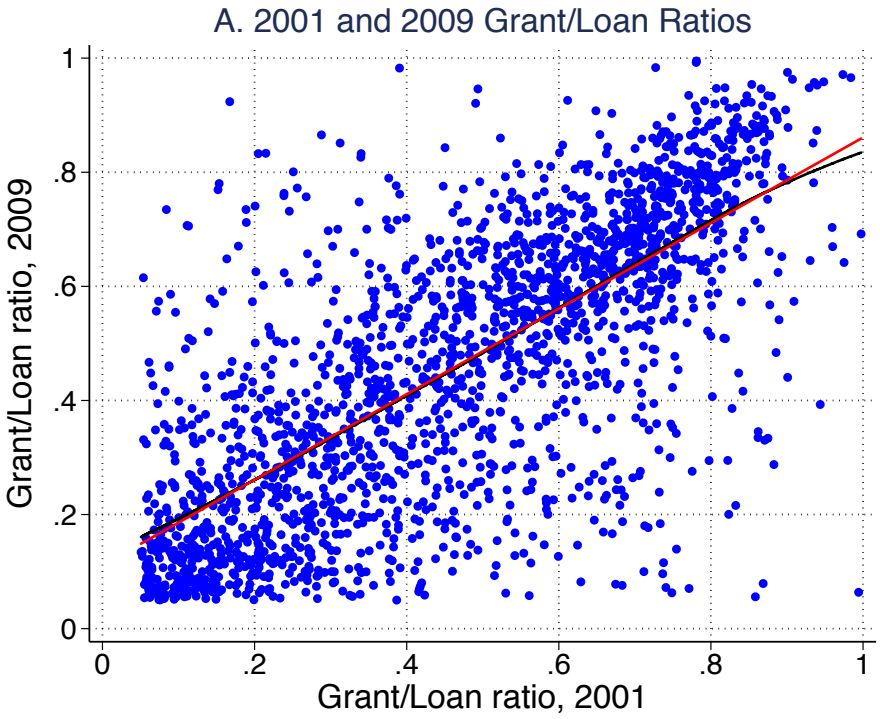
Back - Employed worker problem

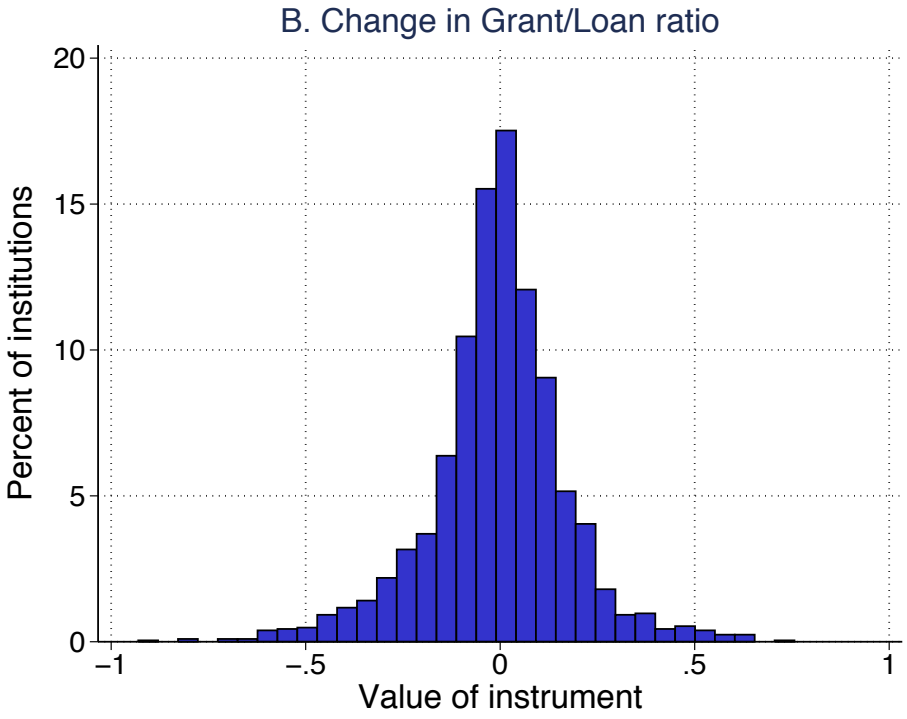
Quantitative model - $\log w_i | x_k \sim N(\mu_k, \sigma_k)$

Solid is a kernel smoothed estimate using an Epanechnikov filter.
Dashed is log–normal fit with parameters estimated by maximum likelihood

Back - Indirect inference

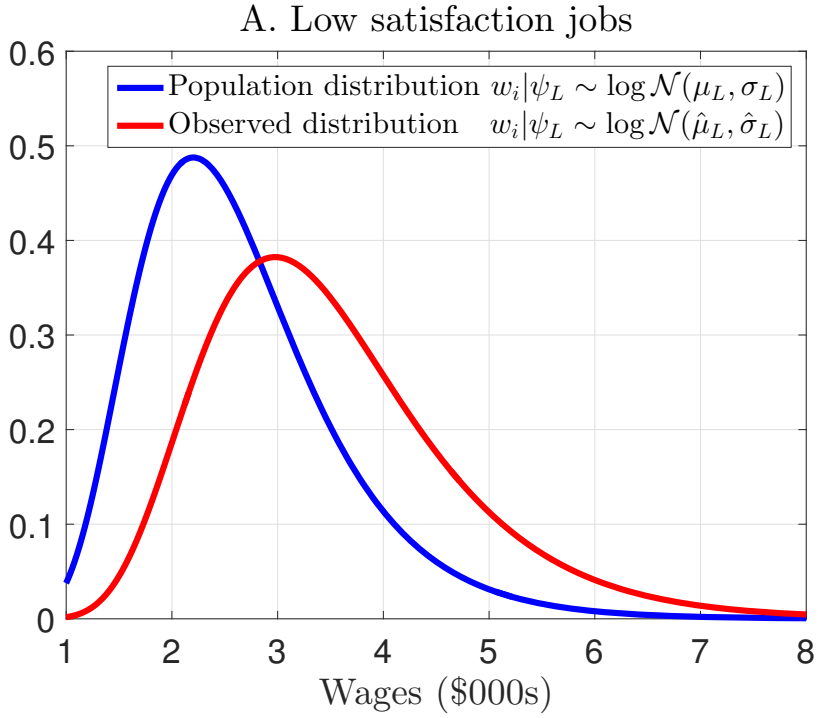
IV estimation - Variation in instrument

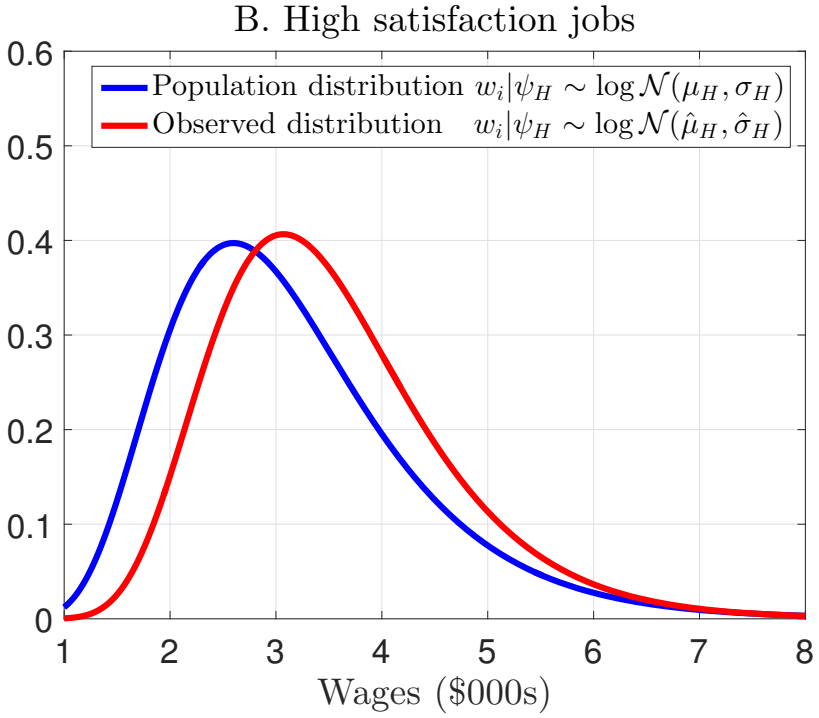




Back - IV framework

Quantitative model - Distributions of (w, x)

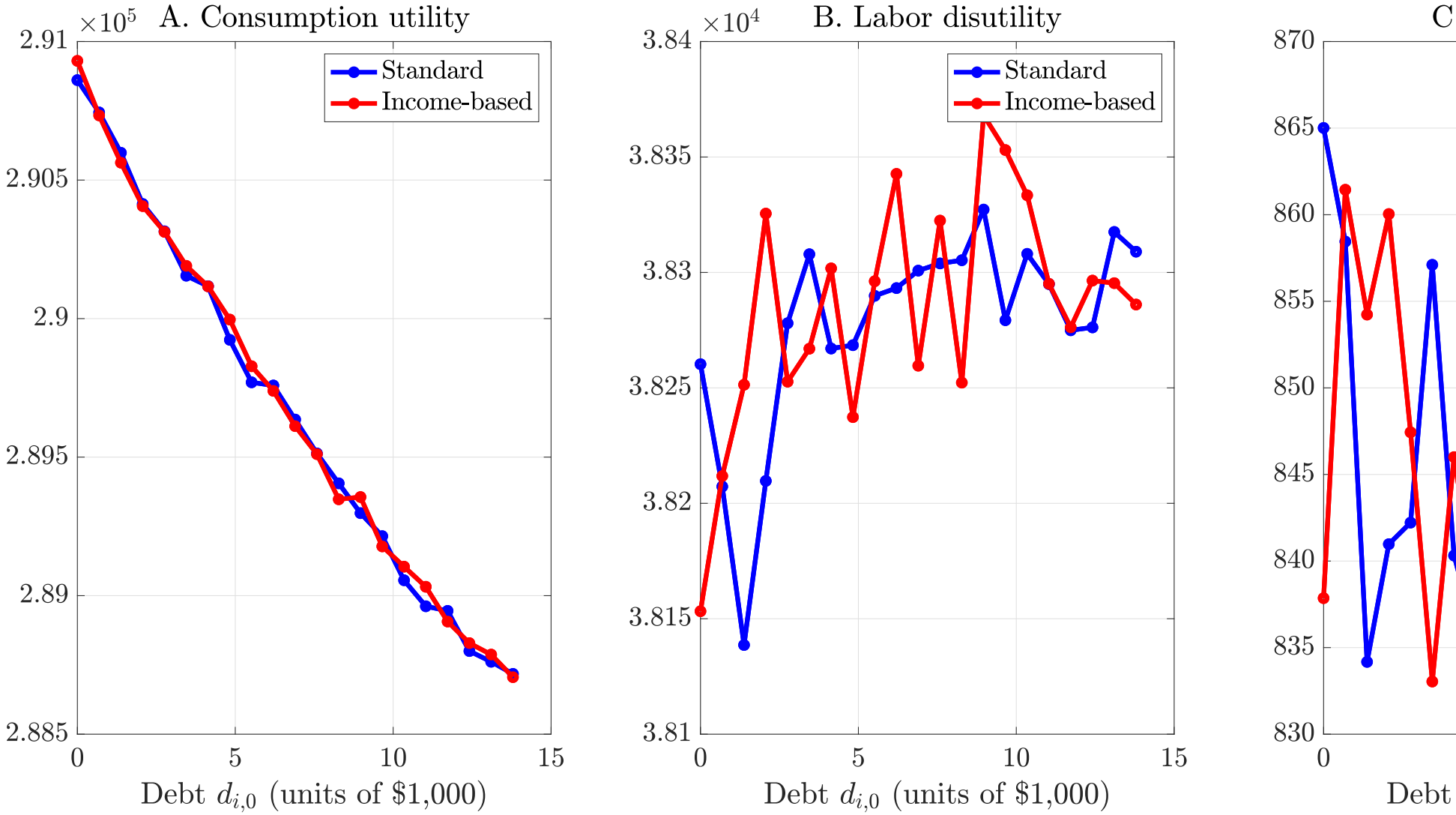




- Sampling probability of x_h $\quad p_h = 0.550$
- Observed probability of x_h $\quad \tilde{p}_h = 0.716$

Back - Targetted moments

Experiment - Welfare



- Decompose welfare into components A. $\sum \beta^t u(c_t)$, B. $\sum \beta^t x^{-1}$, C. $\sum \beta^t \kappa$

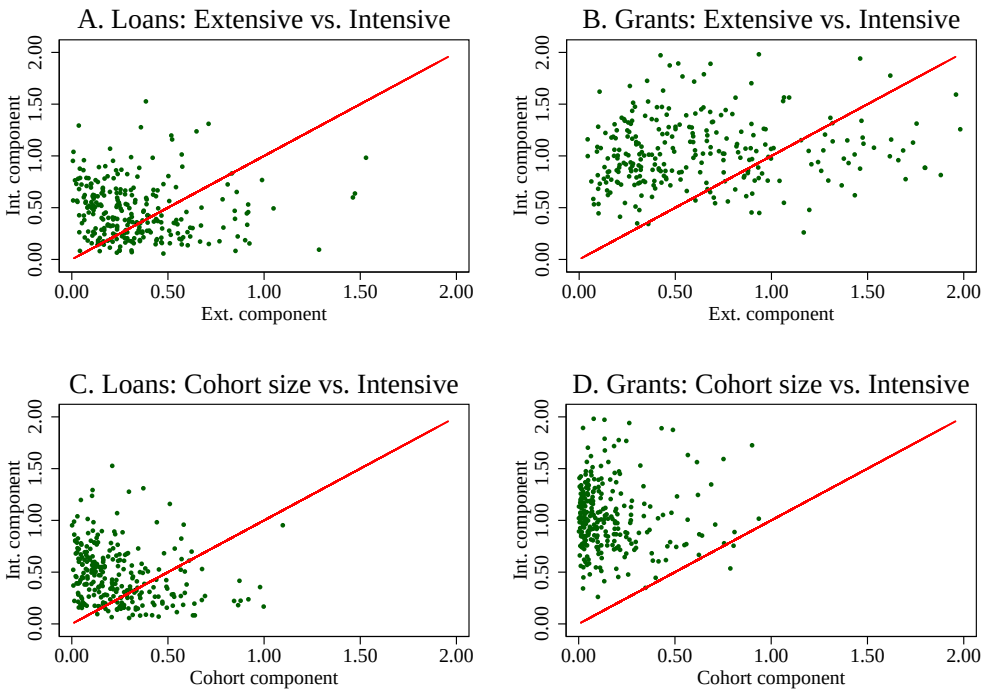
IV estimation - Grants and loans

	Fraction of total funding (1)	Fraction of students receiving funding (2)	Average value for a receiving student ($) (3)
A. Total loans and grants			
Loans	30.5	53.9	7,200
Grants	**69.5**	**72.7**	12,223
B. Disaggregated loans and grants			
Loans - Federal	24.7	53.1	5,932
Loans - Other	5.7	6.3	11,473
Grants - Federal	12.4	32.2	4,924
Grants - State	10.5	34.0	3,933
Grants - College (Institutional)	**46.7**	**56.0**	10,639

Notes (i) Source: IPEDS, (ii) Column (1): Aggregates all loans and grants across US colleges in each year and computes the fraction of total funding (grants + loans) accounted for by each source of funding, average then taken over 2007-2011, (iii) Column (2): Computes the coefficient of variation of row-variable across colleges within each year, and then takes average over 2007-2011, (iv) Column (4) replicates column (1) for fraction of students receiving funding, however since data is not available on the total number of students receiving grants, and grants overlap, the denominator is total number of students, (v) Column (5) replicates column (2) for the number of students receiving funding, (v) all dollar values first inflated to 2014 values using US CPI.

Back - IV framework

IV estimation - Intensive and extensive margins



Decomposition

$$\Delta_t \log G_{j,t} = \underbrace{\Delta_t \log \left(\frac{G_{j,t}}{N^G_{j,t}} \right)}_{\text{Intensive margin}} + \underbrace{\Delta_t \log \left(\frac{N^G_{j,t}}{N_{j,t}} \right)}_{\text{Extensive margin}} + \underbrace{\Delta_t \log N_{j,t}}_{\text{Cohort size margin}}$$

Back - IV framework

Literature

1. Search with asset accumulation

   Lise (2013), Rendon (2006), Herkenhoff et. al. (2016)

   New: Job satisfaction, student debt

2. Search with non-wage utility

   Hall, Mueller (2013); Hornstein, Krusell, Violante (2011); Dey, Flinn (2008); Guvenen, Violante (2012)

   New: Direct survey measurement of non-wage utility

3. Student debt and labor market outcomes

   Rothstein and Rouse (2011), Joensen and Mattana (2014), Oreopoulos, von Wachter, Heisz (2012), Altonji, Kahn, Speer (2016), Liu (2015), Yu (2015), Wang (2015)

   New: Representative sample

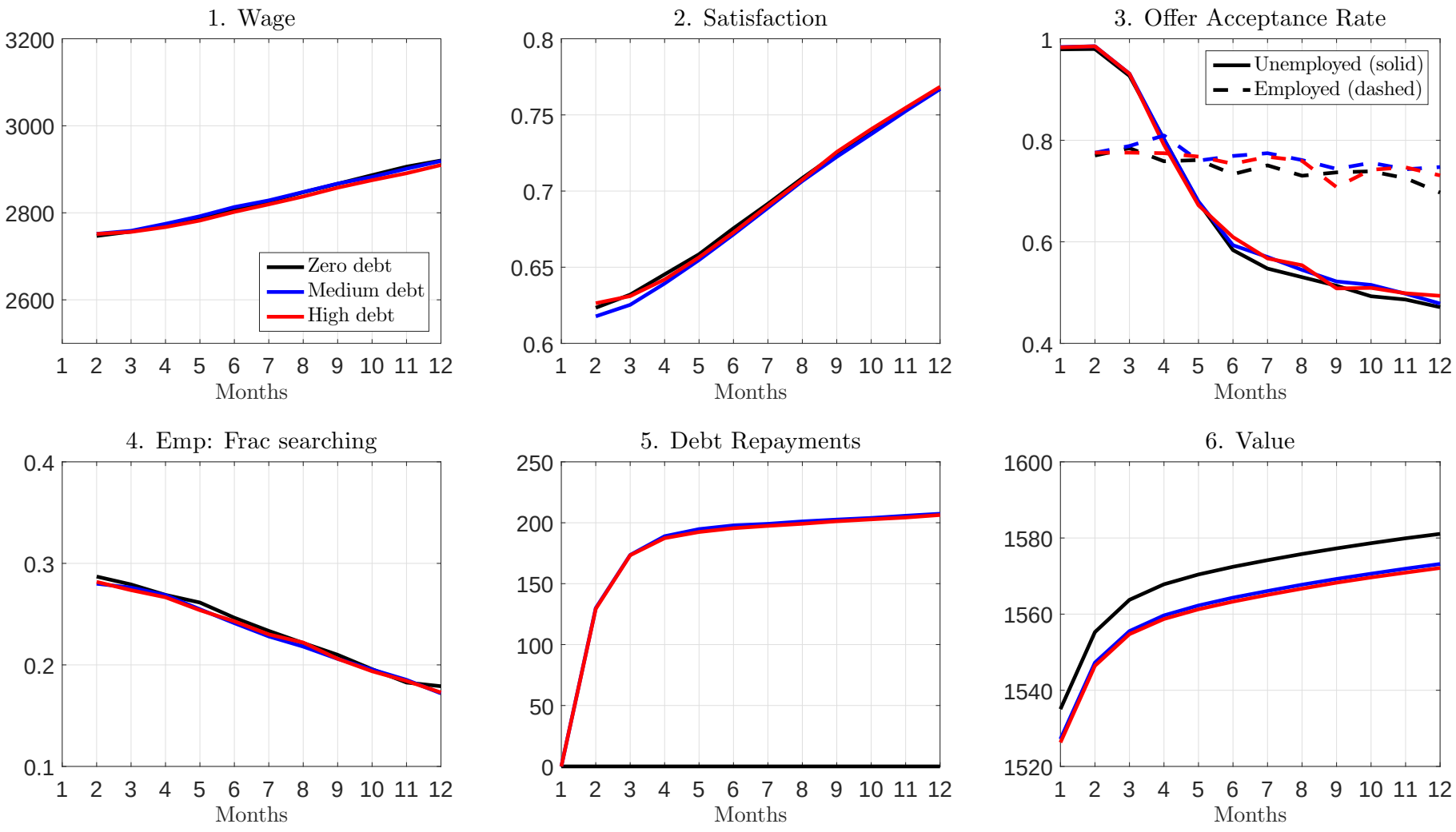
4. Student debt and borrowing constraints

   Yannelis (2015), Yannelis and Sun (2015), Lochner and Monge-Naranjo (2011)

   New: Policy experiments

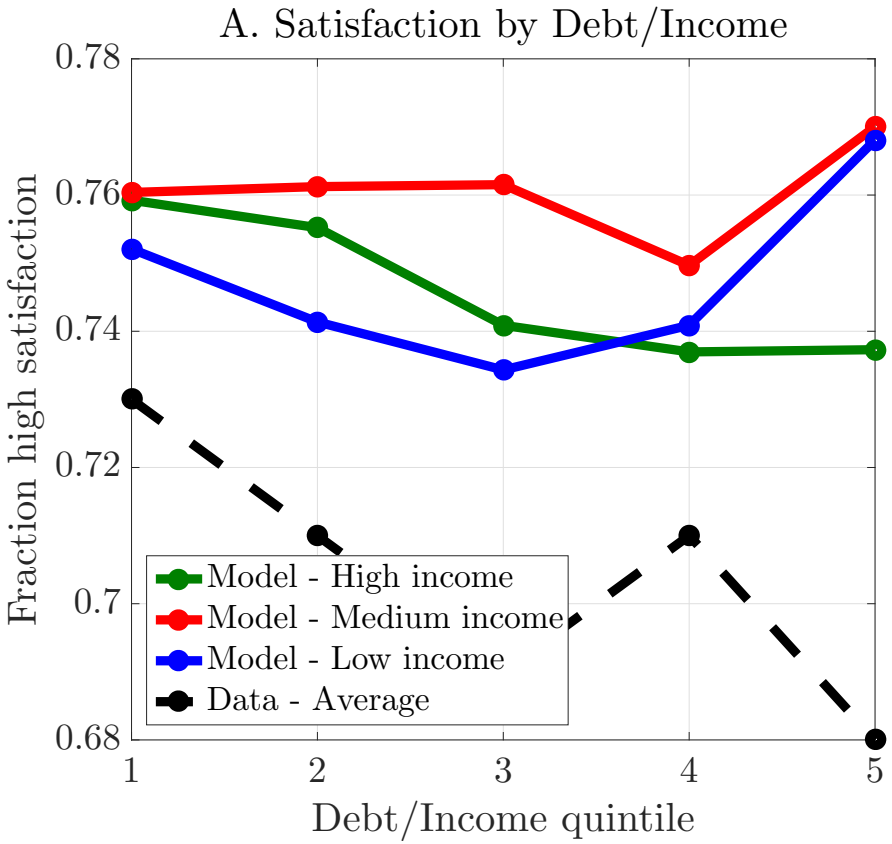
Back - Introduction

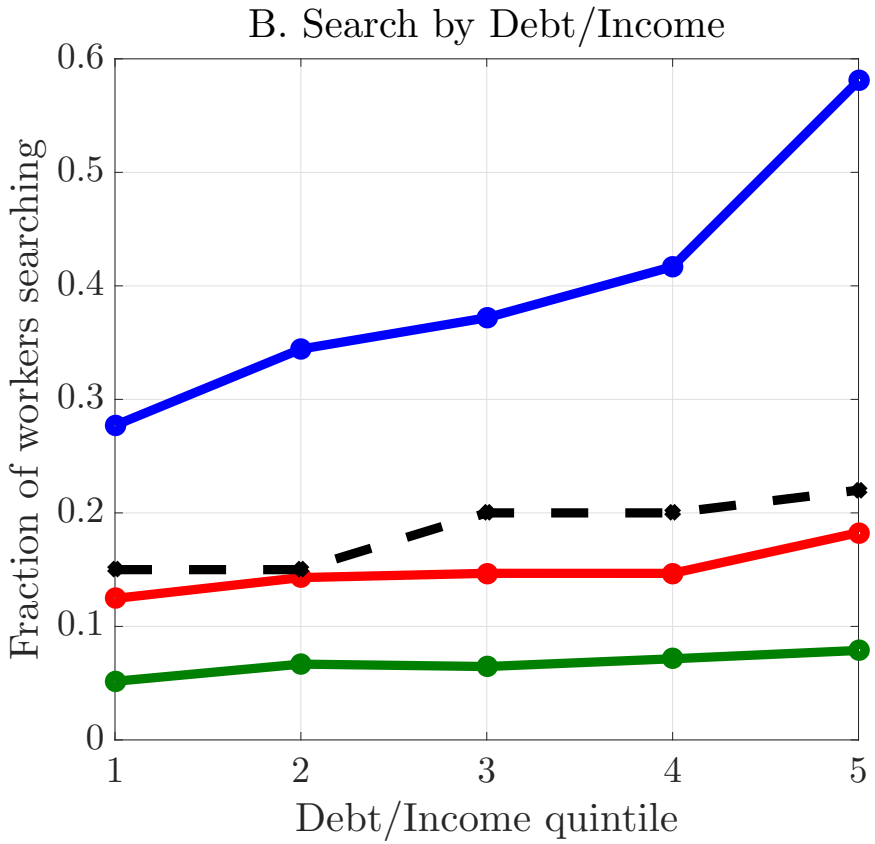
Experiment - Comparing cohorts - $\mathcal{R}_I$



Back - Welfare results

Student debt - Model fit





Back - Baseline repayment policy

Quantitative model - Other moments

Moments		Mean		Std. Deviation	
		Data (1)	Model (2)	Data (3)	Model (4)
A. Unemployment, consumption and assets					
Unemployment	$\mathbf{E}[u_i]$	0.079	0.095	0.010	0.010
Mean log consumption	$\mathbf{E}[\log c_i]$	0.685	0.516	-	0.014
Consumption - Income ratio	$\mathbf{E}[c_i]/\mathbf{E}[w_i]$	0.750	0.602	-	0.006
Mean log assets	$\mathbf{E}[\log a_i]$	2.321	2.316	-	0.021
B. Other regression moments					
Regression R-squared	R^2	0.124	0.346	0.027	0.043

Back - Targetted moments

Quantitative model - Parameter estimates

Parameter		**Value**
A. Search costs		
Mean	κ	0.828
Upper bound	$\bar{\kappa}$	1.617
B. Disutility of labor, relative to $x_{Unemployment} = 0$		
Low satisfaction	x_L	-2.344
High satisfaction	x_H	-1.027
C. Job offer arrival rates		
Unemployed	λ_U	0.649
Employed conditional on paying κ	λ_E	0.081
D. Population distribution parameters		
Probability of high job satisfaction draw x_H	p_H	0.611
Mean of $\log w$ for x_L	μ_L	0.837
Mean of $\log w$ for x_H	μ_H	0.993
Variance of $\log w$ for x_L	σ_L^2	0.140
Variance of $\log w$ for x_H	σ_H^2	0.124

Back - Targetted moments