

The Effects of the Minimum Pension Reform in a Defined Contribution Pension System: The Case of Chile

Jorge Sabat

School of Economics and Business
Diego Portales University, Chile

Olga Kondratjeva

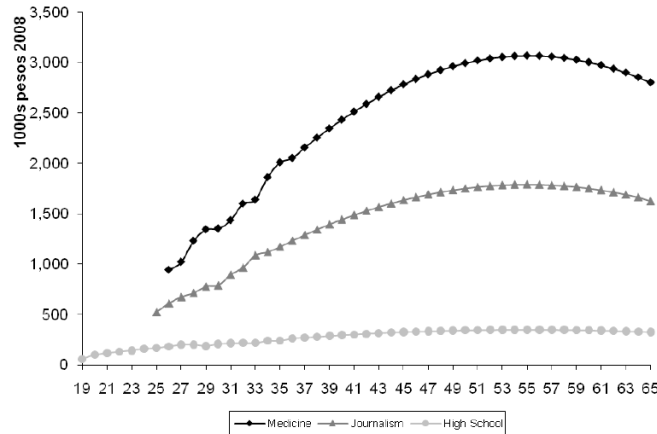
Social Policy Institute
Washington University in St. Louis

Chilean pension system: since 1981

10%
Contribution rate

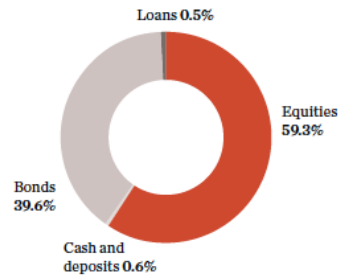


Profile of the expected income for Medicine, Journalism and High School Education



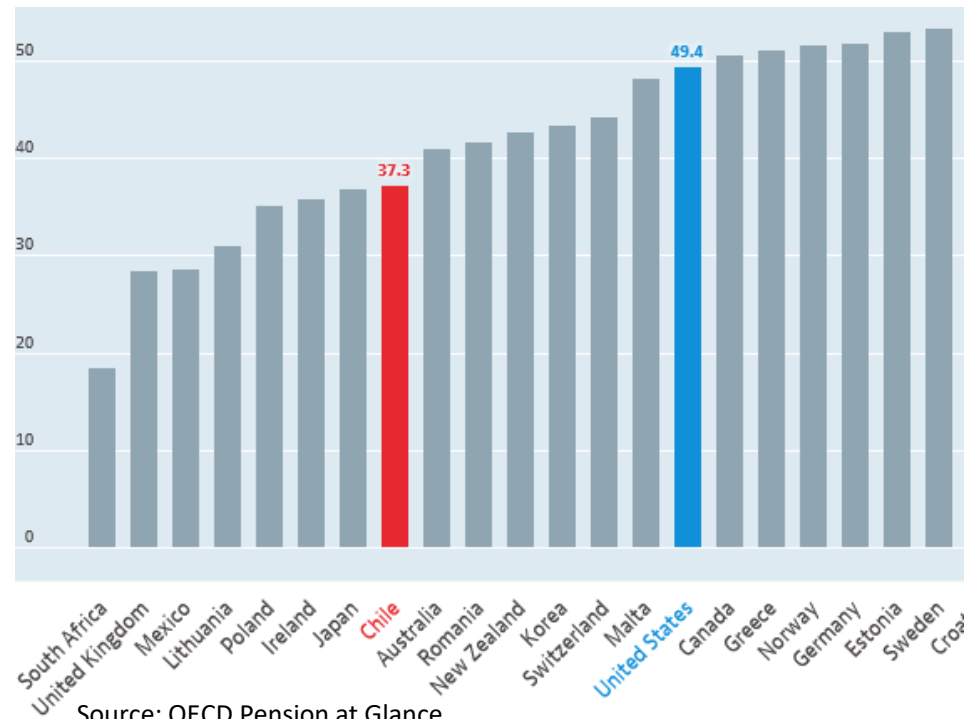
Source: Lara, Meller & Valdés (2017)

Chilean pension funds' asset allocation



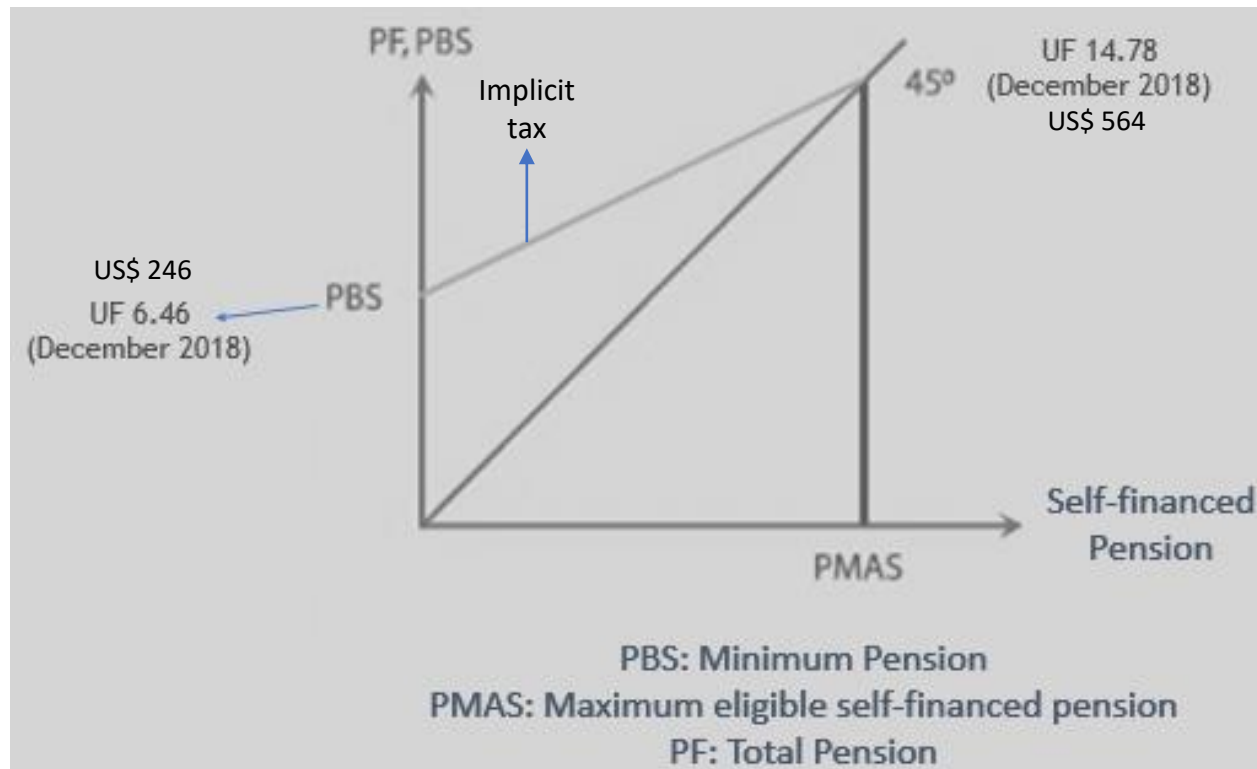
Source: OECD, 2015

Net pension replacement rates



Source: OECD Pension at Glance

We analyze the effect on workers' incentives to save for retirement of a reform that introduces solidarity into the system



Source: Own calculations
UF: Inflation adjusted unit of account

We test three hypothesis informed by a life-cycle model:

- Workers with historically low incomes have little incentives to save for retirement after the reform;
- Disincentives can be concentrated on the mid-age and old workers;
- Low-income female workers have more incentives to evade mandatory pension savings;

Data

- Administrative dataset provided by the Superintendence of Pensions:
 - A panel dataset where we can follow a random sample of workers for their entire working life;

Panel A: All	N	Mean	Std. Dev.	p10	p25	p50	p75	p90
Male	4,694,855	0.6	0.5	0.0	0.0	1.0	1.0	1.0
Age	4,694,415	36.8	10.8	23.0	28.0	36.0	45.0	52.0
Prob. Contribution	4,694,855	0.6	0.5	0.0	0.0	1.0	1.0	1.0
Taxable Salary	4,694,855	196,000	330,000	0	0	40,000	254,000	587,000
Taxable Salary excl. zeros	2,613,708	353,000	375,000	40,000	110,000	225,000	453,000	857,000
Pension Assets	1,865,449	9,040,000	15,300,000	180,000	950,000	3,740,000	10,600,000	22,900,000

Methodology

- Difference-in-Differences:

pre-2007	pre-June 2008	post-June 2008
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Contribution
dummy

Post June 2008

$$Y_{i,t} = \beta_0 + \beta_l Post_{i,t} G_{1,i} + \beta_m Post_{i,t} G_{1,2} + G_{1,i} + G_{2,i} + Post_{i,t} + Age_{i,t} + Age_{i,t}^2 + \theta_i + \xi_{i,t}$$

First and second tercile
of mean income and
fraction of months
contributing
Pre-2007

Time fixed effects
Workers' fixed effects
Age and age-squared

Results

Probability of contributing to personal pension account

<i>Dependent:</i>	<i>Contribution</i>					
	All	Young	Mid-Age	Old	Female	Men
<i>LowInc</i>	-0.430*** (0.009)	-0.375*** (0.019)	-0.494*** (0.019)	-0.454*** (0.013)	-0.394*** (0.013)	-0.457*** (0.013)
<i>MidInc</i>	-0.208*** (0.007)	-0.127*** (0.015)	-0.235*** (0.014)	-0.249*** (0.010)	-0.229*** (0.011)	-0.179*** (0.008)
<i>LowInc</i> × <i>Post</i>	-0.108*** (0.008)	-0.180*** (0.019)	-0.062*** (0.017)	-0.084*** (0.012)	-0.146*** (0.011)	-0.071*** (0.012)
<i>MidInc</i> × <i>Post</i>	-0.015** (0.006)	-0.109*** (0.015)	0.004 (0.012)	0.019** (0.008)	-0.008 (0.010)	-0.028*** (0.008)
<i>Post</i>	0.011*** (0.004)	0.106*** (0.009)	0.013* (0.007)	-0.006 (0.005)	0.032*** (0.006)	0.001 (0.004)
N						
Adj. R-squared	0.072	0.071	0.068	0.068	0.072	0.071
Cluster SE				Worker		
F.E.				Worker		

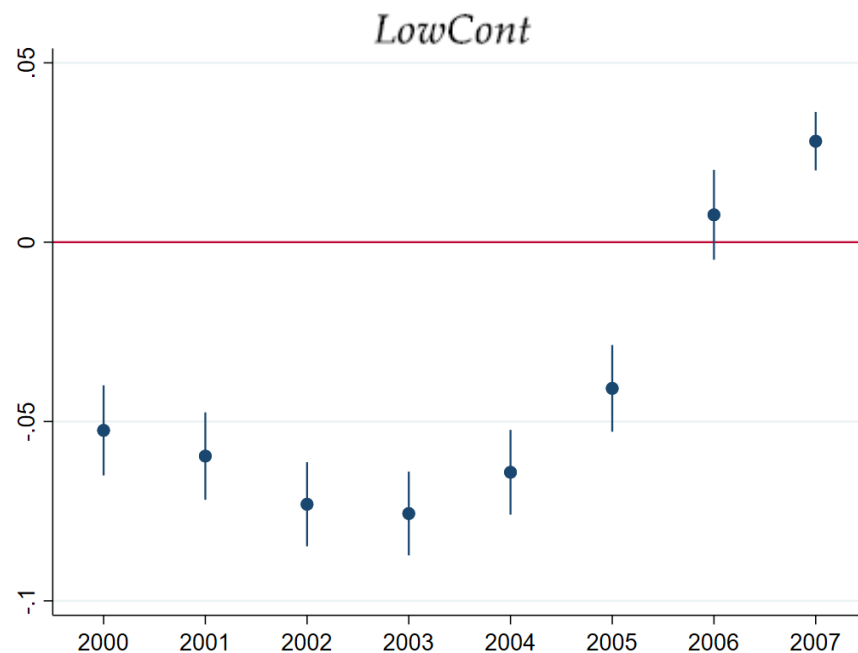
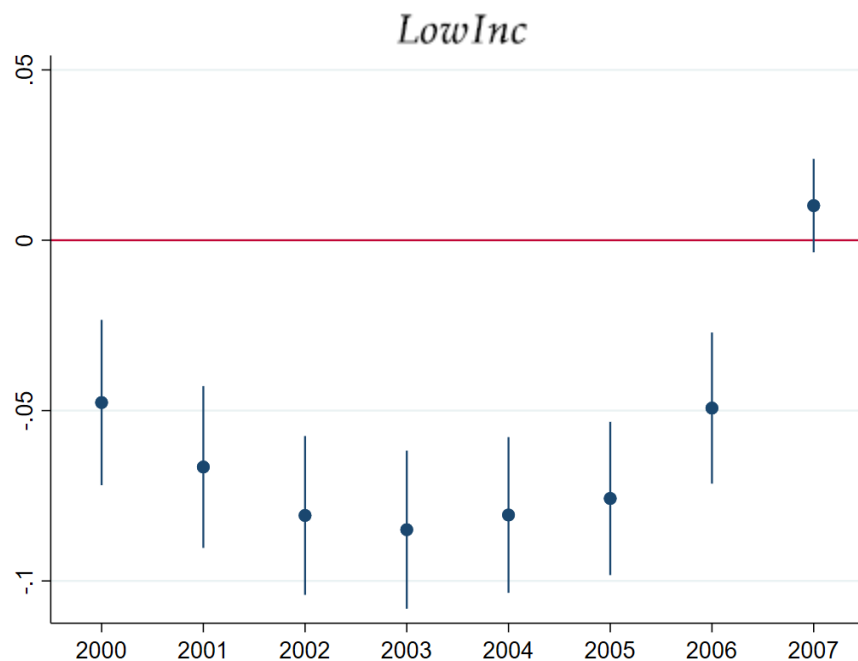
Results

Probability of contributing to personal pension account

<i>Dependent:</i>	<i>Contribution</i>					
	All	Young	Mid-Age	Old	Female	Men
<i>LowCont</i>	-0.758*** (0.004)	-0.610*** (0.013)	-0.767*** (0.009)	-0.818*** (0.005)	-0.766*** (0.006)	-0.739*** (0.007)
<i>MidCont</i>	-0.374*** (0.006)	-0.346*** (0.013)	-0.356*** (0.013)	-0.368*** (0.010)	-0.419*** (0.010)	-0.337*** (0.008)
<i>LowCont</i> × <i>Post</i>	-0.086*** (0.004)	-0.175*** (0.014)	-0.082*** (0.009)	-0.066*** (0.005)	-0.093*** (0.006)	-0.088*** (0.007)
<i>MidCont</i> × <i>Post</i>	0.036*** (0.007)	0.027* (0.014)	0.016 (0.014)	0.021* (0.011)	0.063*** (0.011)	0.012 (0.008)
<i>Post</i>	0.036*** (0.002)	0.082*** (0.008)	0.028*** (0.004)	0.019*** (0.003)	0.053*** (0.004)	0.026*** (0.003)
N						
Adj. R-squared	0.504	0.363	0.518	0.612	0.523	0.468
Cluster SE			Worker			
F.E.			Worker			

Pre-trends analysis

$$Y_{i,t} = \beta_0 + \sum_{s=2000}^{2007} \beta_s \text{PreTreat}_{i,s} G_{1,i} + G_{1,i} + \xi_{i,t}$$



Conclusions

- We find evidence of a disincentive effect of the minimum pension reform in Chile:
 - Crowding-out of mandatory pension contributions are observed across age groups;
 - There is some mixed evidence of a stronger negative effect on female workers;
 - The effect can be understated by a positive pre-trend on the participation in the pension system of the low income / low contribution group,
- Our results are consistent with a life-cycle model with exponential discounting where workers transition between formal and informal labor markets;