Introduction of a Universal Social Pension and Spousal Labor Supply in Rural Thailand

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1 Introduction

- What is social pension: Non-contributory pension (unconditional cash transfer for the elderly)
  - Universal or means-tested or pension-tested
  - Became popular in the past 20 years
  - Usually not very generous
  - Useful for poverty alleviation
  - Uncertain how much it influences labor supply decisions (Theory yes, but empirical results are mixed)
- **Old-age allowance (OAA) in Thailand**, 2009
  - **This paper focuses on OAA's impacts on labor supply of the recipients and their spouses** and also other relevant outcomes (poverty, expenditure, etc.)

1. Introduction: Why it is Important and Interesting to Study the Impacts of OAA

- Introducing non-contributory pension could have unintended impacts on
  - The targeted population (labor supply)
  - The untargeted population (younger spouses, adult children, underage grandchildren, etc.)

- Gender dimension:
  - Poverty alleviation programs are sometimes used to empower women
  - Within households, there are possible implications for gender equity

1. Introduction: Results in a Nut Shell

- Two separate identification strategies show
  - No significant impacts on poverty (poverty rate around 13% in our sample).
  - Significant negative impacts on beneficiaries' own labor supply.
  - Both men and women respond to their around-retirement-age spouses' pension by leaving their jobs and staying inactive. (Unintended segments of population)
  - Pensions received by husbands around retirement age increase wives' probability of doing household chores. (Gender equity and women empowerment)

2. Background: Universalization of OAA

- Launched in 1993
- Used to be means-tested: provided assistance to underprivileged elderly (poor, disabled …)
- Poor performance and public concern about elderly support > Universalization in 2009
  - means-testing was dropped
  - 500 baht per head per month (31.4 $ PPP, until 2012)
- Quick rolling-out:
  - 20,000 people in 1993 → 3.0 % in 2002 → 24.4 %in 2007 → 81.4 % in 2011 (Knodel et al. 2013)

3. Data and Identification Strategy: Data

- Thai Household Socio-Economic Survey (SES) 2006, 2008, 2009, 2010, 2011

- National representative survey with information on basic demographics, income, expenditure, labor, assets and others

- Repeated cross-sectional data

- Large sample size (> 120,000 individuals)

3. Data and Identification Strategy: Variable definitions

- Labor outcomes are defined based on the primary job statuses in the past 12 months:
  - Self-employed: employers, own-account workers and contributing family workers
  - Employee (wage worker): government employee, state enterprise employee, private company employee or member of producers' cooperative
  - Homemakers: ones who do household chores
  - Inactive: ones who do not work or do any household chores
- We also looked at expenditure-related variables
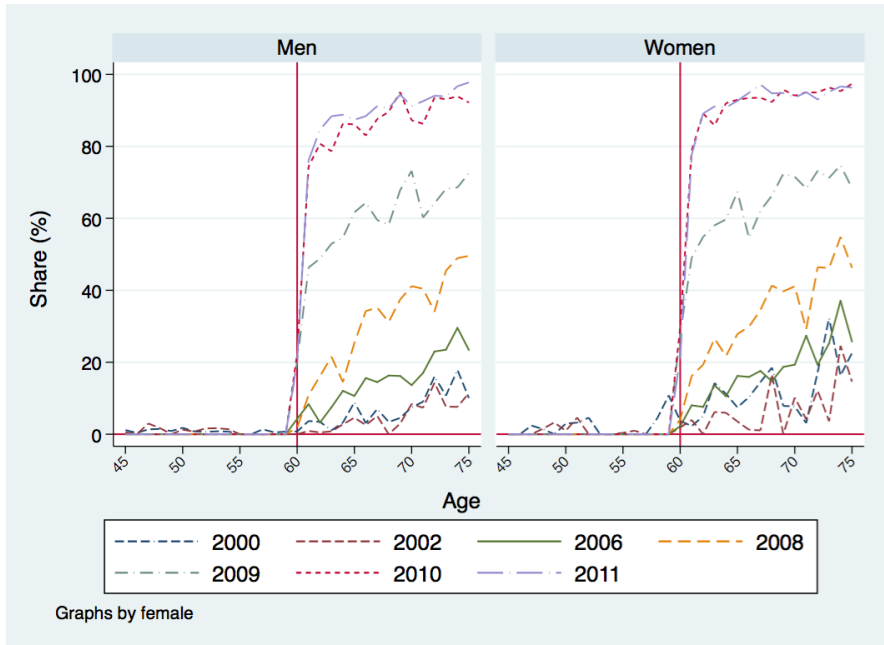
3. Data and identification strategy: DID

Treatment and Control Groups in Different Waves

| Group Num.	Cohort	Waves				
		2006	2008	2009	2010	2011
1	1937	69				
2	1938	68				
3	1939	67	69			
4	1940	66	68	69		
5	1941	65	67	68	69	
6	1942	64	66	67	68	69
7	1943	63	65	66	67	68
8	1944	62	64	65	66	67
9	1945	61	63	64	65	66
10	1946	60	62	63	64	65
11	1947	59	61	62	63	64
12	1948	58	60	61	62	63
13	1949	57	59	60	61	62
14	1950	56	58	59	60	61
15	1951	55	57	58	59	60
16	1952	54	56	57	58	59
17	1953	53	55	56	57	58
18	1954	52	54	55	56	57
19	1955	51	53	54	55	56
20	1956	50	52	53	54	55
21	1957		51	52	53	54
22	1958		50	51	52	53
23	1959			50	51	52
24	1960				50	51
25	1961					50

Note: The cohorts aged between 60 and 69 in each year (cells highlighted in green and red) are defined as the treatment group. Other cohorts aged between 50 and 59 in each year are defined as the control group.

3. Data and identification strategy: DID

Coverage rate of OAA, 2000-2011

Working share (after controlling for cohort effects)
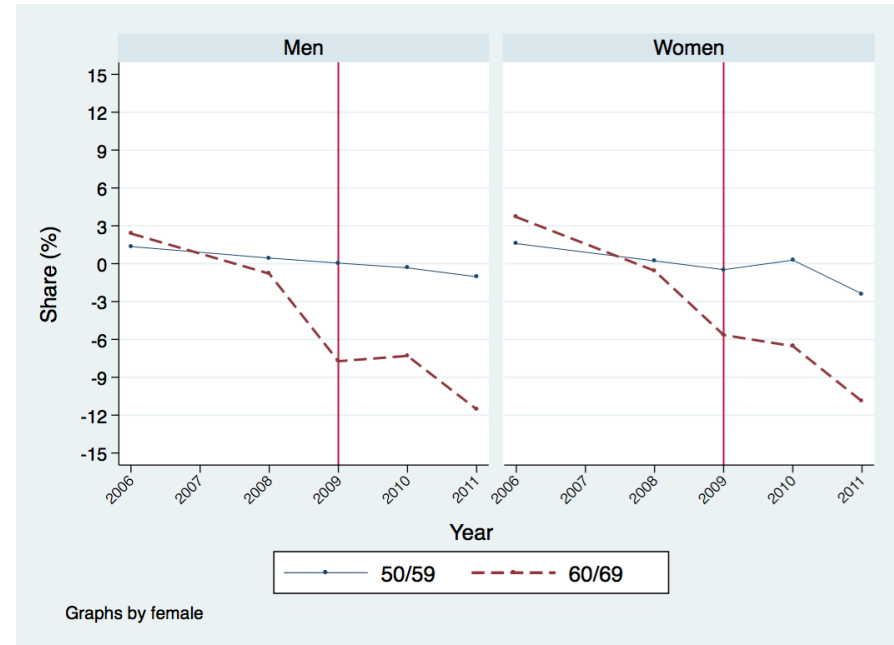
Source: Thailand Household Socio-economic Survey (SES), 2000 - 2011

3. Data and Identification Strategy: DID (2SLS)

Singles: $y_{igt} = \lambda_t + \alpha_g + treat_{tg} + \eta'\widehat{\mathrm{OAA}}_{igt} + \gamma Z_{igt} + \tau_p + \mu_{igt}$

We regress the expenditure and labor outcomes on the survey year dummies (λ_t), the cohort dummies (α_g), the treatment group dummy ($treat_{tg}$), the individual level controls (Z_{igt}), and the regional dummies (τ_p).

We use the interaction term between the treatment group dummy and policy dummy ($treat_{tg} \times post_t$) as the instrument to solve the endogeneity issue of the OAA take-up. The coefficient η' obtained is the treatment effect (Wald estimator) introduced by the 2009 universalization.


Couples: $y_{igt} = \lambda_t + \alpha_g^h + \alpha_g^w + treat_{tg}^h + treat_{tg}^w + \eta_1'\widehat{\mathrm{OAA}}_{igt}^h + \eta_2'\widehat{\mathrm{OAA}}_{igt}^w$
$$+\gamma_1 Z_{igt}^h + \gamma_2 Z_{igt}^w + \tau_p + \mu_{igt}$$

The interaction terms $treat_{tg}^h \times post_t$ and $treat_{tg}^w \times post_t$ are taken as the instruments to solve the endogenoeity issues of OAA_{igt}^h and OAA_{igt}^w respectively. The coefficients η_1' and η_2' obtained in the second stage are the treatment effect (Wald estimator) of OAA on expenditure or labor outcomes introduced by the 2009 universalization.
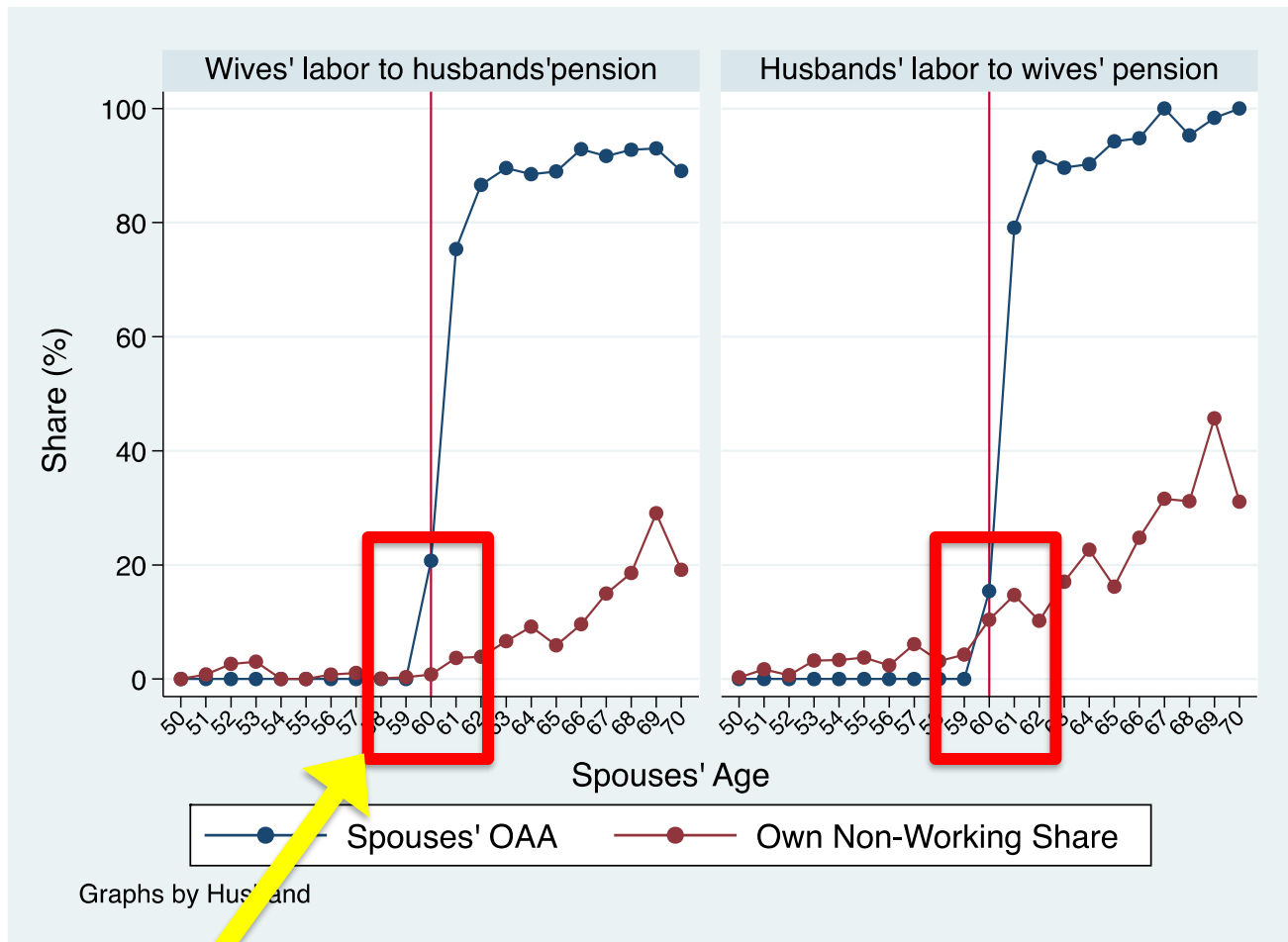
3. Data and Identification Strategy: RD

OAA and Own Labor Supply
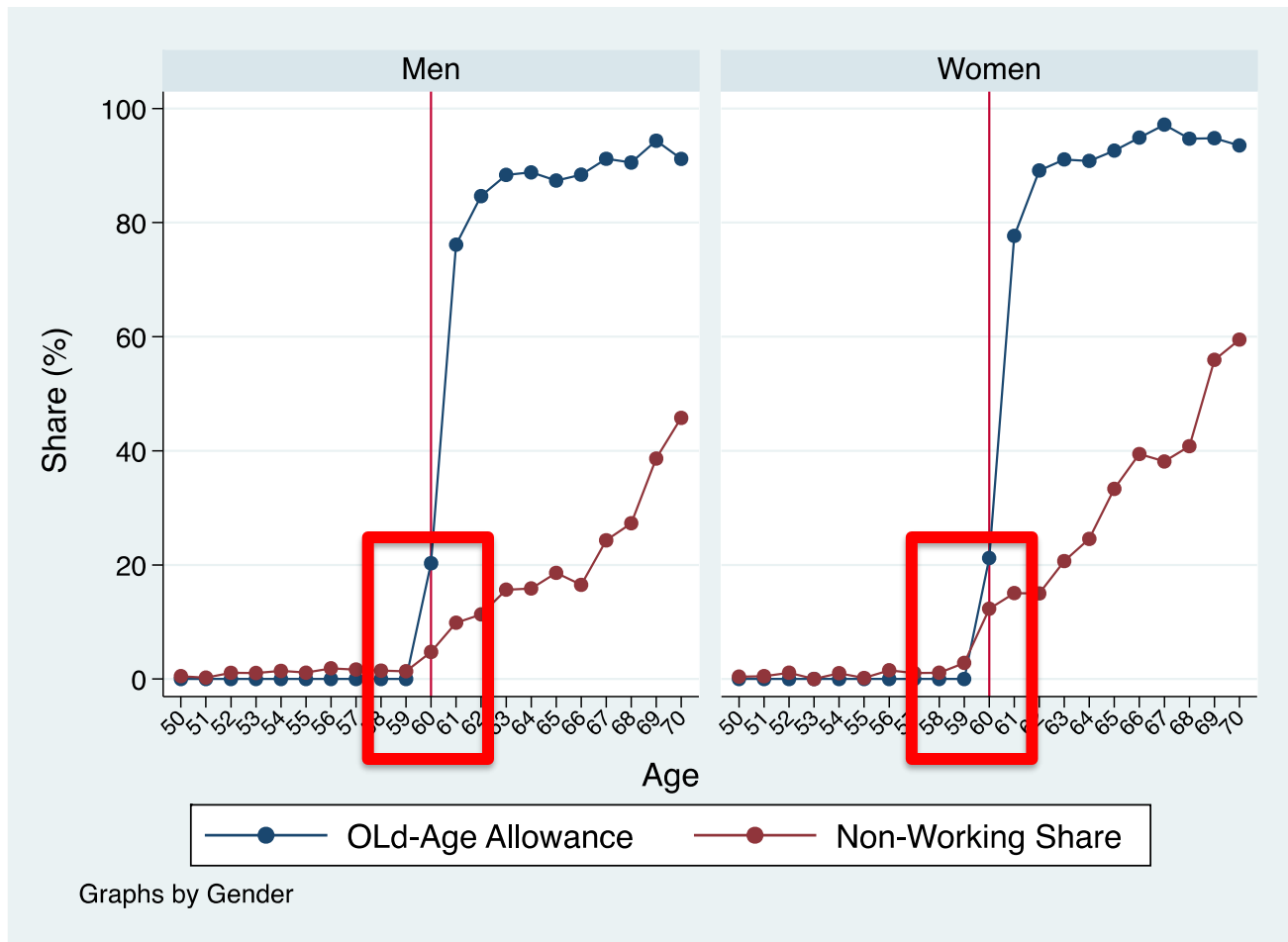
Working is quite broad: it encompasses both productive activities and household chores.
Source: Thailand SES 2011

3. Data and Identification Strategy: RD

OAA and Spousal Labor Supply (conditional on married)

It seems men's pension (OAA) does not lead to "inactivity" of women.
Source: Thailand SES 2011

3. Data and Identification Strategy: RD (2SLS)

Singles: $y_i = \alpha + h(z_i) + \eta \widehat{OAA}_i + \gamma X_i + \tau_p + \mu_i$

where, $z_i = age_i - 60$ measures the individual-level age distance from the threshold. $h(z_i)$ are polynomial forms of z_i. OAA_i is the individual-level OAA enrollment status. X_i individual-level or household-level characteristics (education levels, the number of children aged between 16-60, the number of grandchildren aged between 0-16), and τ_p are regional fixed effects.

IV: T_i is the program status dummy that equals 1 if $z_i \geq 0$ and 0 otherwise.

Couples: $y_i = \alpha + h(z_i^h) + \eta_1 \widehat{OAA}_i^h + h(z_i^w) + \eta_2 \widehat{OAA}_i^w + \gamma X_i^h + \gamma X_i^w + \tau_p + \mu_i$

The instruments for OAA_i^h and OAA_i^w are T_i^h and T_i^w respectively, which are the program status dummies that equal 1 if $z_i^h \geq 0$ and $z_i^w \geq 0$ respectively and 0 otherwise.

Following Imbens and Lemieux (2008), we use parametric 2SLS with
- Different bandwidth (57-63, 56-64, 55-65, 50-70)
- Different form of h(z) (linear, quadratic, cubic, quartic from),
- Different slopes
- Age is discrete in the survey: Inference: cluster-robust SE (Lee and Card 2007)

4. Empirical Results: Women, DID

Panel A Husband's pension

	+/-5	+/-6	+/-7	+/-8	+/-9	+/-10
Working	-0.054	-0.039	-0.039	-0.025	-0.028	-0.032
	(0.054)	(0.048)	(0.042)	(0.038)	(0.036)	(0.034)
Employee	0.006	0.024	0.022	0.019	0.009	0.013
	(0.039)	(0.033)	(0.032)	(0.028)	(0.028)	(0.027)
Self-Employed	-0.060	-0.062	-0.061	-0.045	-0.037	-0.045
	(0.060)	(0.053)	(0.046)	(0.042)	(0.040)	(0.037)
Household Chores	0.023	0.012	0.023	0.007	0.009	0.009
	(0.052)	(0.045)	(0.041)	(0.037)	(0.034)	(0.033)
Inactive	0.042**	0.035**	0.027*	0.030**	0.030**	0.034***
	(0.017)	(0.015)	(0.014)	(0.013)	(0.012)	(0.012)
N	9,554	11,220	12,894	14,569	15,907	17,382

Panel B Wife's own pension

	+/-5	+/-6	+/-7	+/-8	+/-9	+/-10
Working	-0.086**	-0.097***	-0.110***	-0.109***	-0.115***	-0.111***
	(0.036)	(0.036)	(0.038)	(0.035)	(0.035)	(0.034)
Employee	-0.026	-0.029	-0.029	-0.037*	-0.021	-0.023
	(0.023)	(0.021)	(0.020)	(0.020)	(0.021)	(0.020)
Self-Employed	-0.060	-0.068	-0.081*	-0.072*	-0.095**	-0.087**
	(0.044)	(0.043)	(0.042)	(0.038)	(0.039)	(0.037)
Household Chores	0.045	0.031	0.027	0.028	0.033	0.030
	(0.043)	(0.037)	(0.033)	(0.032)	(0.031)	(0.031)
Inactive	0.035	0.056**	0.082***	0.078***	0.078***	0.078***
	(0.024)	(0.023)	(0.026)	(0.024)	(0.023)	(0.023)
N	9,554	11,220	12,894	14,569	15,907	17,382

4. Empirical Results: Men, DID

Panel A Husband's own pension

	+/-5	+/-6	+/-7	+/-8	+/-9	+/-10
Working	-0.091***	-0.059**	-0.089***	-0.107***	-0.113***	-0.113***
	(0.027)	(0.025)	(0.028)	(0.028)	(0.028)	(0.028)
Employee	-0.028	-0.044*	-0.041*	-0.038	-0.032	-0.040*
	(0.026)	(0.026)	(0.025)	(0.023)	(0.023)	(0.023)
Self-Employed	-0.064*	-0.015	-0.047	-0.069**	-0.080**	-0.073**
	(0.037)	(0.035)	(0.035)	(0.034)	(0.035)	(0.035)
Household Chores	-0.005	-0.008	-0.006	-0.005	-0.005	-0.005
	(0.007)	(0.006)	(0.005)	(0.005)	(0.005)	(0.005)
Inactive	0.062***	0.053***	0.066***	0.085***	0.092***	0.092***
	(0.021)	(0.017)	(0.019)	(0.021)	(0.023)	(0.022)
N	11,172	12,828	14,583	15,964	16,911	17,382

Panel B Wife's pension

	+/-5	+/-6	+/-7	+/-8	+/-9	+/-10
Working	-0.004	-0.012	-0.020	-0.029	-0.047*	-0.048*
	(0.031)	(0.028)	(0.026)	(0.025)	(0.025)	(0.025)
Employee	0.062	0.053	0.031	0.023	0.021	0.019
	(0.041)	(0.036)	(0.032)	(0.030)	(0.030)	(0.031)
Self-Employed	-0.066	-0.065	-0.051	-0.052	-0.069*	-0.067
	(0.054)	(0.048)	(0.043)	(0.041)	(0.041)	(0.041)
Household Chores	0.000	0.000	0.003	0.002	0.003	0.003
	(0.006)	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)
Inactive	0.065**	0.067***	0.073***	0.077***	0.099***	0.099***
	(0.027)	(0.022)	(0.020)	(0.019)	(0.020)	(0.020)
N	11,172	12,828	14,583	15,964	16,911	17,382

4. Empirical Results: women, RD

Wives' responses to their own OAA:

	+/-3 Linear	+/-4 Linear	+/-5 Linear	+/-10 Quadratic	+/-10 Cubic	+/-10 Quartic
1. Working	-0.249***	-0.167***	-0.127***	-0.163***	-0.247***	-0.393***
	(0.063)	(0.059)	(0.048)	(0.049)	(0.079)	(0.103)
1.1 Employee	-0.039	-0.008	0.046	0.051	-0.032	-0.370*
	(0.084)	(0.075)	(0.076)	(0.090)	(0.124)	(0.205)
1.2 Self-employed	-0.256***	-0.176**	-0.153**	-0.189***	-0.265***	-0.299**
	(0.080)	(0.074)	(0.060)	(0.066)	(0.091)	(0.149)
2. Housework	0.015	-0.054	-0.056	-0.059	-0.012	0.051
	(0.032)	(0.049)	(0.044)	(0.049)	(0.051)	(0.075)
3. Inactive*	0.207***	0.175**	0.148**	0.183***	0.203***	0.315***
	(0.067)	(0.070)	(0.061)	(0.060)	(0.071)	(0.033)

Wives' responses to their husbands' OAA:

	+/-3 Linear	+/-4 Linear	+/-5 Linear	+/-10 Quadratic	+/-10 Cubic	+/-10 Quartic
1. Working	-0.324***	-0.187**	-0.155**	-0.212***	-0.323***	-0.661***
	(0.106)	(0.080)	(0.064)	(0.071)	(0.094)	(0.141)
.1 Employee	0.113***	0.028	-0.050	-0.056	0.154**	0.197
	(0.041)	(0.024)	(0.041)	(0.049)	(0.069)	(0.181)
1.2 employed	-0.394***	-0.218**	-0.160**	-0.225***	-0.398***	-0.812***
	(0.126)	(0.093)	(0.075)	(0.083)	(0.112)	(0.176)
. Housework	0.361***	0.210**	0.156*	0.232***	0.367***	0.784***
	(0.126)	(0.101)	(0.082)	(0.090)	(0.132)	(0.110)
3. Inactive*	0.033***	0.016**	0.021***	0.019*	0.046***	0.050*
	(0.009)	(0.007)	(0.006)	(0.010)	(0.013)	(0.029)

*Inactive here means not working and, at the same time, not doing any household chores.

4. Empirical Results: men, RD

Husbands' responses to their own OAA:

	+/-3 Linear	+/-4 Linear	+/-5 Linear	+/-10 Quadratic	+/-10 Cubic	+/-10 Quartic
1. Working	-0.157**	-0.112***	-0.129***	-0.198***	-0.147**	-0.040
	(0.066)	(0.043)	(0.039)	(0.044)	(0.065)	(0.100)
1.1 Employee	-0.148***	-0.137***	-0.142***	-0.168***	-0.264***	-0.053
	(0.030)	(0.034)	(0.025)	(0.032)	(0.078)	(0.039)
1.2 Self-employed	-0.171**	-0.116**	-0.134***	-0.210***	-0.148**	-0.012
	(0.079)	(0.048)	(0.045)	(0.056)	(0.074)	(0.135)
2. Housework	-0.037***	-0.029***	-0.021***	-0.019**	-0.040**	-0.085*
	(0.014)	(0.011)	(0.008)	(0.010)	(0.018)	(0.047)
3. Inactive*	0.147***	0.126***	0.111***	0.155***	0.161***	0.230***
	(0.028)	(0.023)	(0.018)	(0.018)	(0.035)	(0.031)

Husbands' responses to their wives' OAA:

	+/-3 Linear	+/-4 Linear	+/-5 Linear	+/-10 Quadratic	+/-10 Cubic	+/-10 Quartic
rking	-0.398***	-0.215**	-0.192**	-0.262***	-0.423***	-0.505***
	(0.062)	(0.094)	(0.080)	(0.083)	(0.084)	(0.141)
mployee	-0.231***	-0.183***	-0.123***	-0.151***	-0.172**	-0.518***
	(0.049)	(0.037)	(0.041)	(0.044)	(0.082)	(0.156)
elf-employed	-0.412***	-0.207**	-0.189**	-0.271***	-0.446***	-0.501***
	(0.071)	(0.102)	(0.085)	(0.091)	(0.106)	(0.174)
usework	0.022	0.011	0.013	0.025*	0.033*	-0.018
	(0.015)	(0.010)	(0.009)	(0.015)	(0.019)	(0.030)
ctive*	0.274***	0.146**	0.138**	0.171**	0.285***	0.307**
	(0.070)	(0.074)	(0.067)	(0.068)	(0.065)	(0.126)

*Inactive here means not working and, at the same time, not doing any household chores.

4. Empirical Results: Main Messages

1. Negative impacts of OAA on own labor (DID and RD).

2. Negative impacts on spousal labor supply (especially in RD).

3. Women are likely to increase time spent on household chores when spouses receive OAA. Men do not. (A possible household bargaining effect of increasing husband's non-labor income!)

5. Discussion

- A general conclusion: a full understanding of the implications of social pensions should be conducted at the household or family level.

- The impacts of OAA:
  - Reduces poverty (not so significant)
  - Increases welfare if leisure is a normal good
  - But costly: 0.4 percent of GDP/2.43% of national budget in 2013, and the number is increasing

- Unintended impacts on labor (especially for younger spouses) → how to maintain labor market incentives
  - Or some activation policies?

Thank you!