Changes and Relationships of Public and Private Transfers

to the elderly in Korea : An Empirical Study

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INDEX.

1 Introduction

environment

- Demographic change: Low fertility rate and increase of aging population.
- Family structure change: Increase of nuclear families and one-person households. The rates of co-residence with their ascendants: 75.3% in 1990 → 28.4% in 2014
- As a result, the role of the family for the old-age income maintenance has changed.
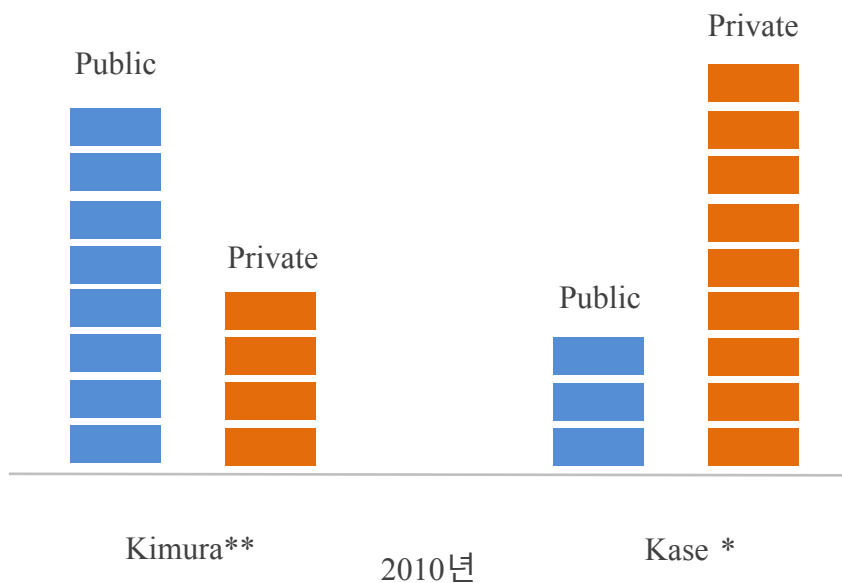
Institution

- The old-age income security is maturing.
- Payment started in 2000 from National Basic Social Security, and the National Pension System from 2008.
- In 2008, Basic Old-Aged Pension has been introduced.
- In July, 2014 Basic Old-Aged Pension has been reformed into Basic Pension.

phenomena

- The role of the state for the old-age income maintenance is increasing.
- It can be inferred that public transfers to the elderly are increasing.
- How about Private transfers to the elderly?

  Private transfers = Inter-household transfer + Intra-household transfers
- Did public transfers crowd out private transfers to the elderly in Korea?

1 Introduction

crowding-out effect?

Public

Private

Public

Private

Kimura**

2010년

Kase *

- Used to estimate effectiveness of the public redistribution programs.

Previous studies about crowding-out effect

- No clear evidence. Findings are inconsistent.
- Ignored intra-household transfers.
- Performed the cross-sectional analysis without employing a panel data.
- Failed to suggest specific political alternatives.

Introduction: Private transfers to the elderly

Inter-household transfers

Intra-household transfers

Elderly household

← Adult-children household

Elderly household member ← Adult-children Household Head
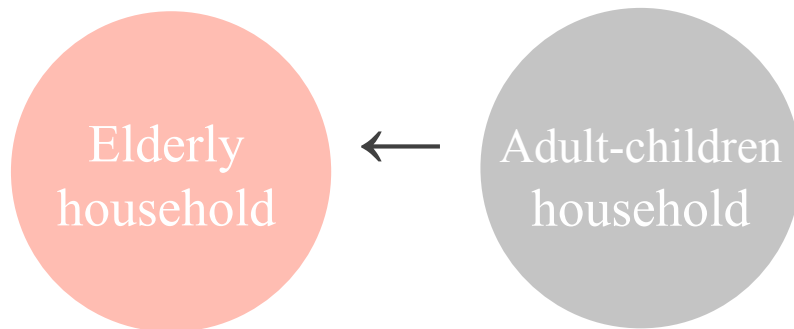
- **Inter-household transfers**

  transfers between individuals living in different households.

- **Intra-household transfers**

  transfers between individuals living in the same household.

1 Introduction: Public transfers to the elderly

Different types of retirement-income provision in Korea
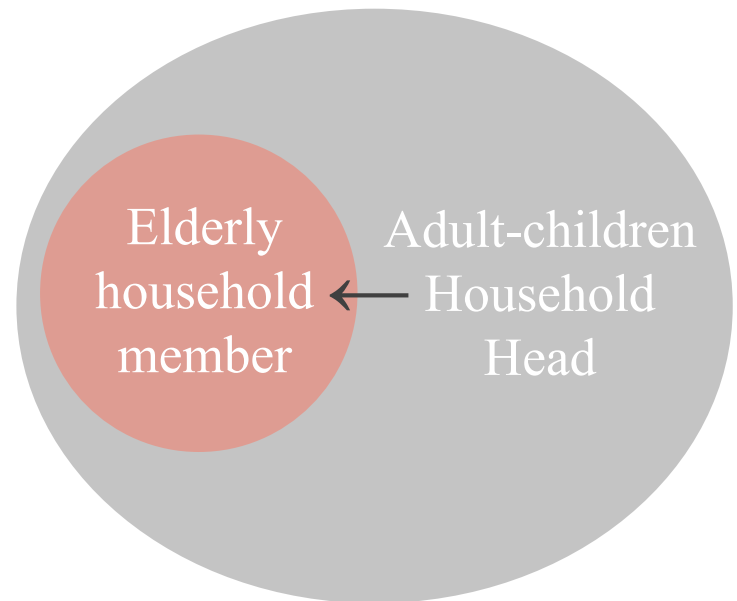
3rd tier	Voluntary private pension, saving, private transfers		
2nd tier	Corporate Pension (mandatory)	IRP	Specific Corporate Pension
	National Pension System		
1st tier	Basic Old-age Pension		
	National Basic Social Security		
target	worker	employee/ Self-employment	etc.

* Taxonomy from OECD Pensions at a glace.
* Etc: soldier/civil servant/teacher

1 Introduction

Question 1
- At the macro level, what happened in public and private transfers to the elderly in Korea?
- How have private transfers changed when intra-household transfers are considered together with inter-household transfers?

Question 2
- At the individual level, did private transfers to the elderly decrease as public transfers of them increased?
- Is there the 'Crowding-out' effect of the private transfers by public transfers?

2 Theoretical Framework

Concept: Public and Private transfers to the elderly

- Components of the retirement income.
- Economic mechanisms used to reallocate resources across generation.

Theories: Motives for private transfers

- In Altruism model: the donor cares about the utility of the recipient.
- In Exchange model: People expect to get something back in return.

Existing works of the 'Crowding out' effect

- 'Crowding out' has implications for the efficacy of public transfer or redistributive programs and program evaluation.

Motives	Crowding-out effect	Effect of public transfers
Altruism	Altruism is strongly linked with the crowding out hypothesis	Government redistributive policies could be neutralized by the change in private transfers
Exchange	Unclear, Depend on each other's marginal utility of consumption	Exchange motivated transfers could reinforce the effects of public transfers

3 -1. Research Questions

Q. 1

- How much private transfers flow from adult children to their parents considering intra-household transfers?
- How have public and private transfers changed over time?

Q. 2

- Did public transfers crowd-out private transfers to the elderly in Korea?

3 -2. Data and Measure

- Data: Korea Welfare Panel Study(KoWePs) 3rd to 10th wave (2008 ~ 2014)

- The unit of analysis: the elderly households of which at least one of the household member is elder than 65.

- Divide the elderly household into 2 groups: To focus analysis on the group which was really affected by public transfers increasing.

Analysis Model	Before	Treatment	After	N(household)
Model 1	2007	Introduced Basic Old-age Pension (In 2008)	2010	2,330
Treatment group1	Not Received		Received	1,833
Comparison group1	Not Received		Not Received	497
Model 1	2013	Reformed Basic Old-age Pension (In 2014)	2014	3,506
Treatment group1	Not Received / Received		Received(Increased)	2,779
Comparison group1	Not Received /Received		Not Received /Received(maintained)	727

3 -2. Data and Measure

3rd tier	Voluntary private pension, saving, private transfers		

2nd tier	Corporate Pension (mandatory)	IRP	Specific Corporate Pension
	National Pension System – Defined Benefit		

1st tier	Basic Old-age Pension From 2008, 70% of the elderly have newly received BP. From July 2014, Benefit level increased up to 200%.
	National Basic Social Security

target	worker	employee/ Self-employment	etc.

* Taxonomy from OECD Pensions at a glace
* Etc: Special Occupation(soldier/civil servant/teacher) Pension System

3 -3. Research Model
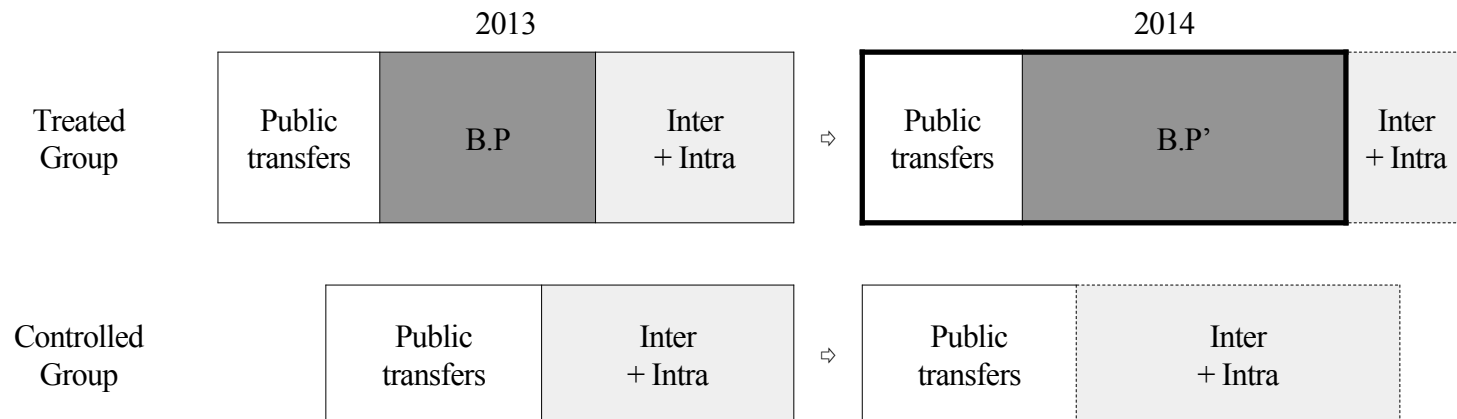
[Model 1] Changes in public and private transfers as Basic Pension introduced in 2008

2007   2010

Treated Group

Public transfers	Inter + Intra Household transfers

⇨

Public transfers	B.P	Inter + Intra Household transfers

Controlled Group

Public transfers	Inter + Intra

⇨

Public transfers	Inter + Intra
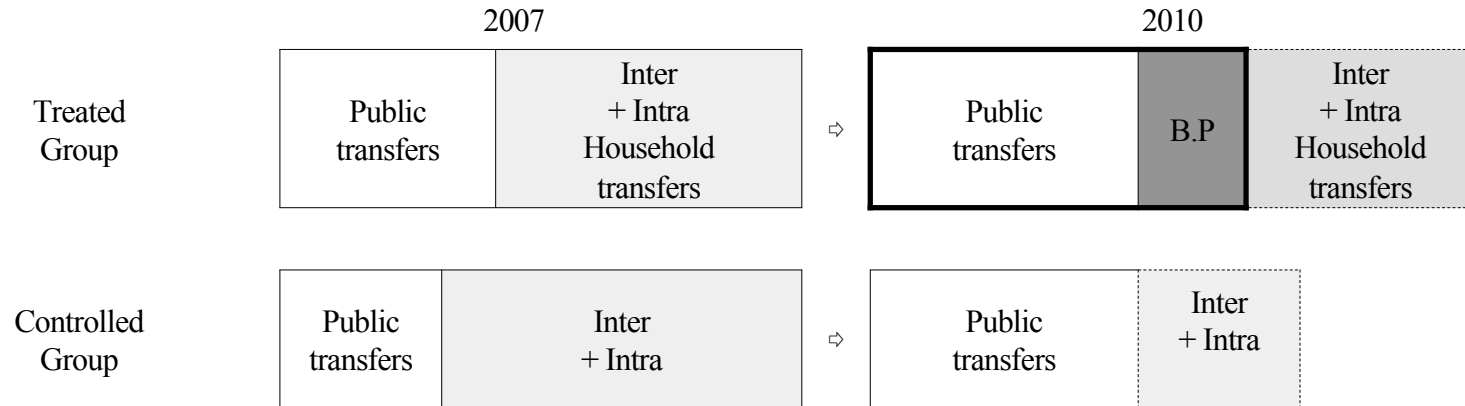
[Model 2] Changes in public and private transfers as Basic Pension reformed in July, 2014

2013   2014

Treated Group

Public transfers	B.P	Inter + Intra

⇨

Public transfers	B.P'	Inter + Intra

Controlled Group

Public transfers	Inter + Intra

⇨

Public transfers	Inter + Intra

3 -4. Analysis Procedures

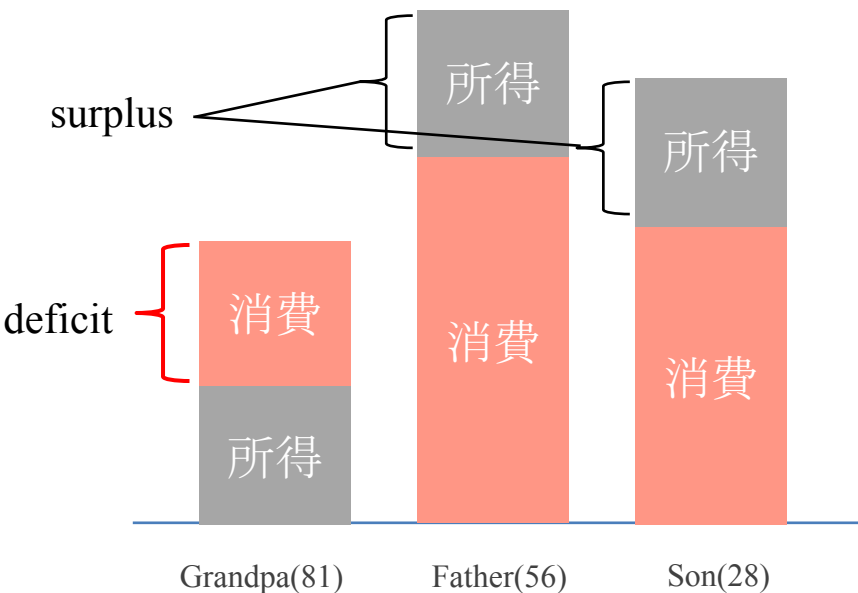| 1st step		2nd step		3rd step
Estimate Intra-household Transfers (National Transfer Accounts)	→	Show a trend of Public and Private transfers over time. (Descriptive Statistics)	→	Empirical test of the 'Crowding out' effect (DID)
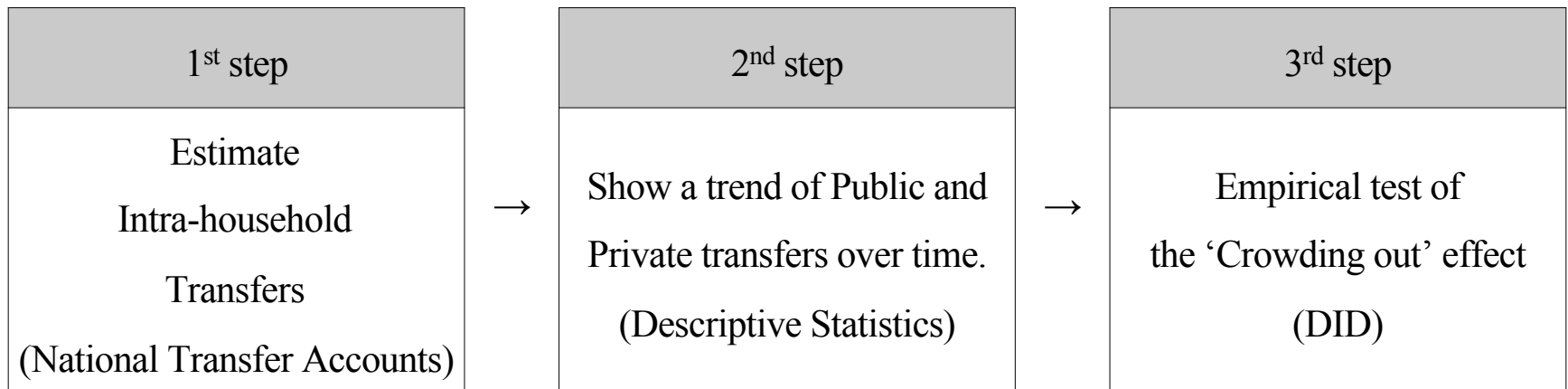
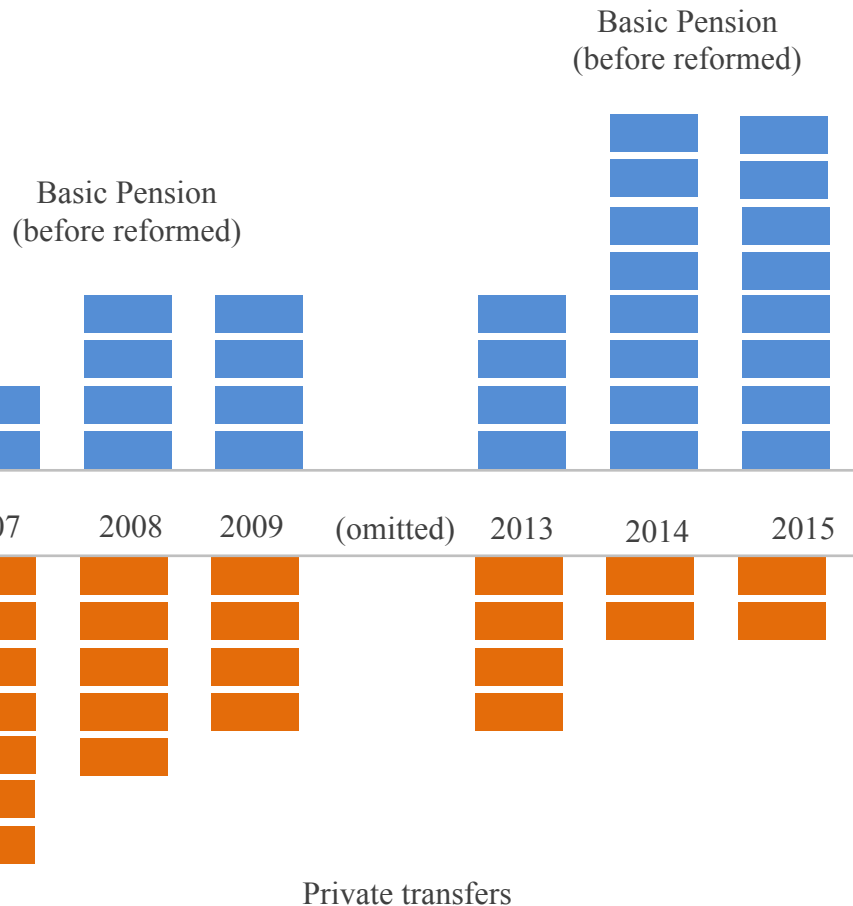# 3 -5. Method: NTA to estimate intra-household transfers

Ex) three generation co-residence

- Deficit

  Disposable income less than current private consumption.

- Surplus

  Disposable income greater than current private consumption.

- Intra-household transfers

  Household members with a deficit receive transfers from household members with a surplus.

- How to estimate Intra-household transfers
  1) Estimate private consumption from household consumption by using regression analysis.
  2) Constitute individual disposable income.
  3) Estimate Intra-household transfers by comparing private consumption and individual disposable income

3 -5. Method: Difference in Differences

Ex) Same Person in a panel data

Basic Pension
(before reformed)

Basic Pension
(before reformed)

| 2007 | 2008 | 2009 | (omitted) | 2013 | 2014 | 2015 |

Private transfers

- Using a panel data.

- Longitudinal section analysis.

- It helps us to distinguish what institutional changes affect.

- By considering the previous two cases of policy reform on public pension system as a natural experiment.

3 -5. Method: Difference in Differences

Model1	t_1	Treatment	t_2
Treated I	O_1(not received)	B.P introduced (in 2008)	O_2(received)
controlled I	O_3(not received)		O_4(not received)
Motel2	t_1	Treatment	t_2
Treated II	O_5(received)	B.P reformed (in July, 2014)	O_6(increased)
controlled II	O_7(not received /received)		O_8(not received /maintained)

- Difference in differences analysis

$$y_i = \alpha + \delta D_i + \gamma T_i + \beta D_i T_i + e_i$$

- Difference in differences regression analysis

$$y_i = \alpha + \delta D_i + \gamma T_i + \beta D_i T_i + \sum_{i=1}^{n} \rho_j X_{j_i} + e_i$$

3 -6. Variables

Dependent variables

- Private transfers
- Inter-household transfers
- Intra-household transfers

Explanatory variables

- Two cases of the policy reform
- In 2008, Introducing Basic Old-Aged Pension
- In July 2014, Reforming Basic Old-Aged Pension

Control variables

- Household income
- Age, the square of the age
- Marital status
- characters of household's head & household
- characters of institutions(recipient of public pensions, recipient of National Basic Social Security)
- Household net asset
- Gender

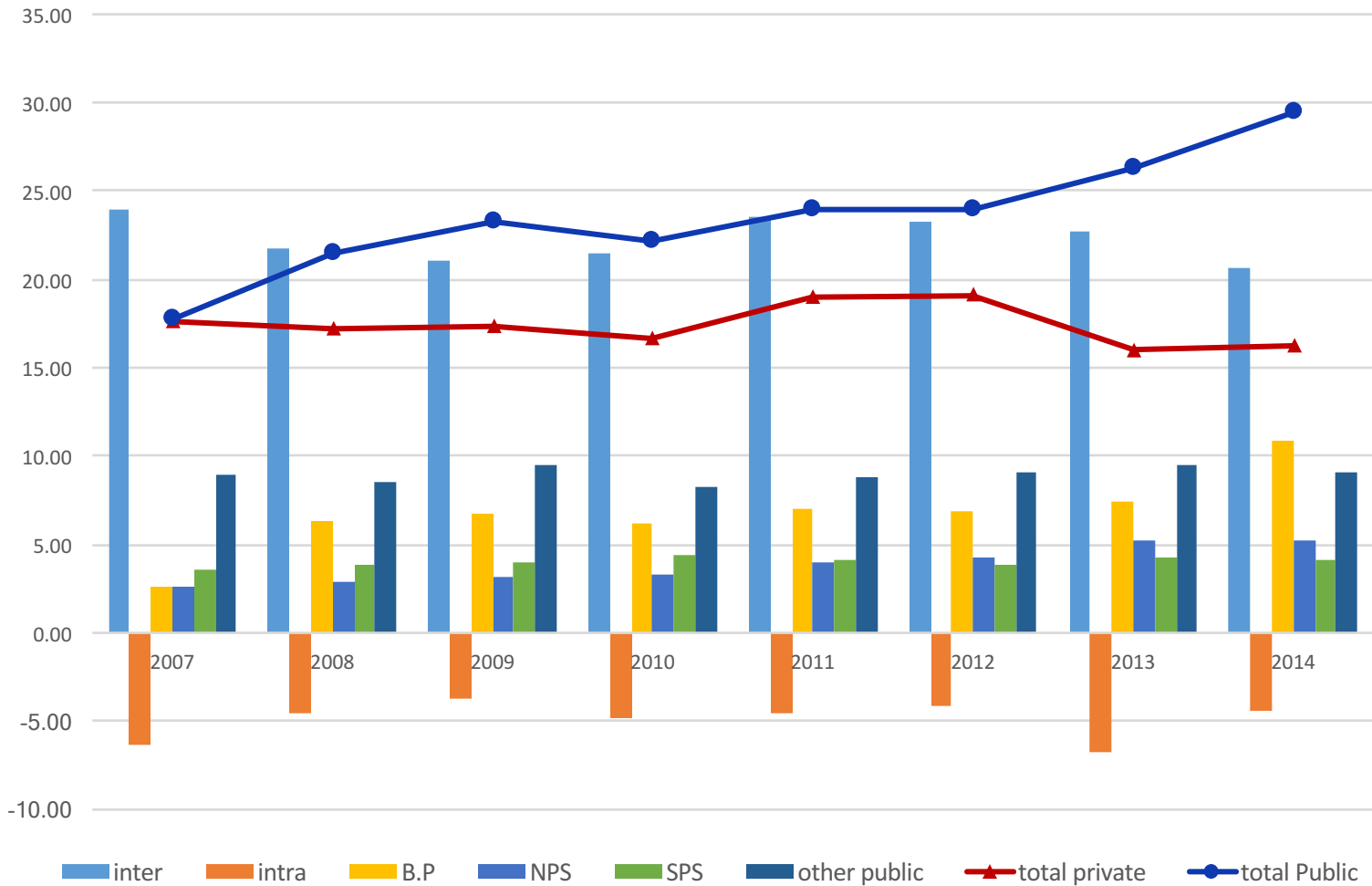# 4 -1. Results:
Trends of private and public transfers to the elderly
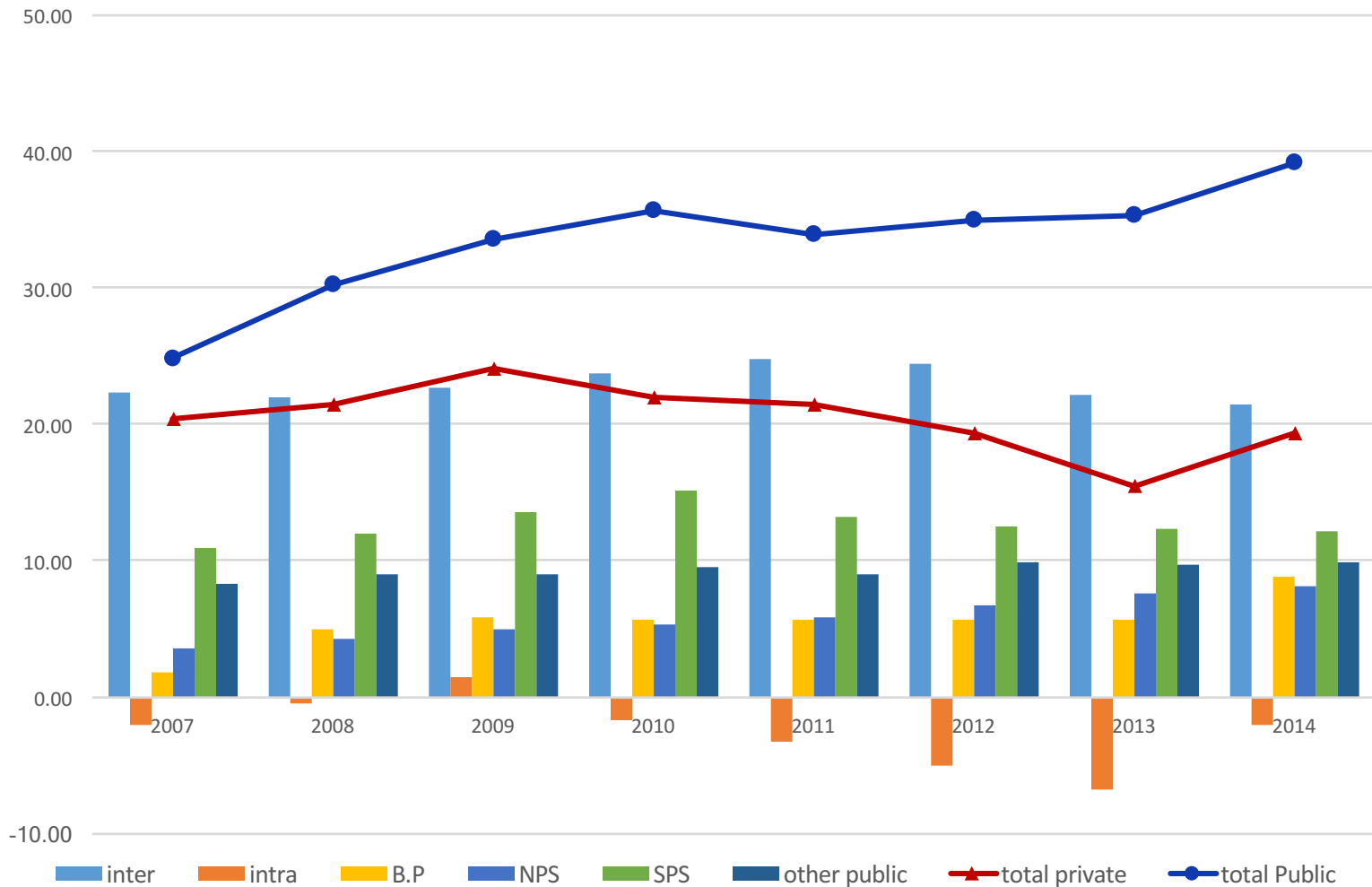
-2. Results:
Trends of private and public transfers to the elderly as a proportion of equivalised disposable household income

inter ■ intra ■ B.P ■ NPS ■ SPS ■ other public ▲ total private ● total Public

4 -3. Results: simple DID

Changes of private transfers before and after B.P is introduced

Dependent	Groups	2007	2010	Difference(t)
Inter-household	treated	22.94	23.97	1.03(0.69)
	controlled	24.56	24.24	-0.32(-0.11)
	DID(t)	-1.62(-0.69)	-0.27(-0.13)	1.35(0.42)

Dependent	Groups	2007	2010	Difference(t)
Intra-household	treated	1.39	6.30	4.91**(2.27)
	controlled	-22.41	-10.19	12.22(1.6)
	DID(t)	23.81***(4.11)	16.49***(3.03)	-7.32(-0.92)

Dependent	Groups	2007	2010	Difference(t)
Total Private transfers	treated	24.33	30.26	5.93*** (2.72)
	controlled	2.14	14.04	11.90(1.52)
	DID(t)	22.19***(3.71)	16.22***(2.94)	-5.97(-0.73)

* p<.05, ** p<.01, *** p<.001

Changes of private transfers before and after B.P is reformed

Dependent	Groups	2013	2014	Difference(t)
Inter-household	treated	22.89	21.23	-1.66*(-1.76)
	controlled	20.93	22.23	1.30(0.57)
	DID(t)	1.96(1.19)	-1.00(-0.54)	-2.96(-1.19)

Dependent	Groups	2013	2014	Difference(t)
Intra-household	treated	0.65	6.45	5.79(1.10)
	controlled	-27.90	-19.36	8.54(1.09)
	DID(t)	28.55***(4.03)	25.80***(4.11)	-2.75(-0.29)

Dependent	Groups	2013	2014	Difference(t)
Total Private transfers	treated	23.55	27.68	4.13(0.77)
	controlled	-6.97	2.88	9.84(1.22)
	DID(t)	30.51***(4.19)	24.80***(3.89)	-5.71(-0.59)

* p<.05, ** p<.01, *** p<.001

4 -4. Results: DID regression

Effects of increased public transfers as B.P is introduced (Model 1)

	Intra-household		Intra-household		Total-private transfers	
	Coef.	S.E.	Coef.	S.E.	Coef.	S.E.
treatment(2009)	-1.36	2.71	7.22	6.51	5.87	6.76
groups	1.62	2.49	14.39**	4.73	16.01**	4.96
interactions	1.17	2.96	-7.81	6.65	-6.64	6.95

Effects of increased public transfers as B.P is reformed (Model 2)

	Intra-household		Intra-household		Total-private transfers	
	Coef.	S.E.	Coef.	S.E.	Coef.	S.E.
treatment(2013)	1.07	2.00	7.98	8.34	9.05	8.57
groups	5.34**	1.83	18.88*	7.70	24.22*	7.94
interactions	-3.36	2.13	-6.79	8.31	-10.15	8.56

5 Conclusion

Implications

- This study verified intra-household transfers which were not found in previous studies due to the limitation of the data and technical problems.
- It confirmed that the concerns about the efficacy of public transfers which could be dampened by the 'crowding out' effect have been exaggerated.
- This study suggests that there is a need of critical investigation of previous studies which argue that extensions of public transfers need to be controlled to improve policy efficiency.
- It can be inferred that public transfers to the elderly are insufficient because public transfers did not replace private transfers smoothly.

Limitations

- Technical problems remained in National Transfer Accounts.
- Sample selection bias and endogeneity problems remainde because this study did not apply Propensity Score Matching in DID analysis.
- It dealt with treatment not as ordinal variables but just dummy variables in DID analysis.

Thank you for listening

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