Charitable Giving, Tax Reform, and Political Trust

Hiroki Kato[1]   Tsuyoshi Goto[2]   Yong-Rok Kim[3]

[1]Osaka University

[2]Chiba University

[3]Kobe University

2021/01/18

Introduction

Background of South Korea Tax Reform

To investigate the price effect, we use the 2014 tax reform in the South Korea.

▶ Before 2014, tax deduction was adopted to subsidize charitable donation behavior.

▶ After 2014, tax credit have been adopted.

The main difference is that tax credits reduce taxes directly, while tax deductions indirectly lower the tax burden by decreasing the taxpayer's marginal tax rate, which increases with gross income

Data

National Survey of Tax and Benefit (NaSTaB)

▶ The Korea Institute of Taxation and Finance implements the financial panel survey to study the tax burden of households and the benefits that households receive from goverment.

▶ The subjects of this survey are general household and household members living in 15 cities and provinces nationwide.

▶ This survey is based on a face-to-face interview. If it is difficult for investigators to meet subjects, another family member answers on behalf of him.

▶ Survey items: Annual taxable income (last year), charitable donations (last year), trust for politicians (5-Likert scale), and other covariates (age, education, gender etc.).

▶ Survey period: 2008 ~ 2019
  ▶ We use survey data after 2013 to focus on tax policy change in 2014.
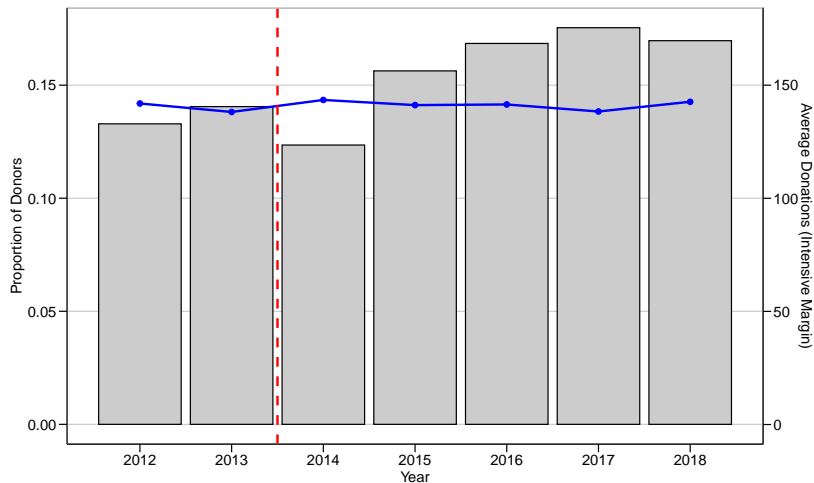
Time Series of Chariable Giving

Figure 1: Proportion of Donors (bar chart) and Average Donations among Donors (blue line)

Summary Statistics of Covariates

Table 1: Summary Statistics of Covariates

	2012	2013	2014	2015
Female	0.51	0.51	0.52	0.52
Age	38.39	39.10	39.67	40.51
Annual Taxable Income	1699.86	1764.04	1838.76	1872.54
Education				
Junior High School Graduate	0.42	0.41	0.40	0.39
High School Graduate	0.30	0.30	0.31	0.31
University Graduate	0.28	0.28	0.29	0.30
#.Respondents	14138	13984	13787	13524
#.Households	4756	4807	4819	4832

Summary Statistics of Covariates (Cont'd)

Table 2: Summary Statistics of Covariates (Continued)

	2016	2017	2018
Female	0.52	0.52	0.52
Age	41.07	41.89	42.55
Annual Taxable Income	1906.91	1951.55	2039.47
Education			
Junior High School Graduate	0.38	0.37	0.35
High School Graduate	0.31	0.31	0.31
University Graduate	0.31	0.33	0.34
#.Respondents	13238	12963	12795
#.Households	4790	4770	4765

Variable of Giving Price

In the South Korea, the tax policy about charitable giving drastically changed in 2014. Before 2014, the **tax deduction** adpoted. After 2014, the **tax credit** adopted. Under two systems, the giving price is

▶ tax deduction: Price $= 1 - \tau$
▶ tax credit: Price $= 1 - r$

τ is the marginal income tax rate calculated by annual taxable income reported in the NaSTaB, and r is the tax credit rate determined exogeneity. In the South Korea, $r = 0.15$.
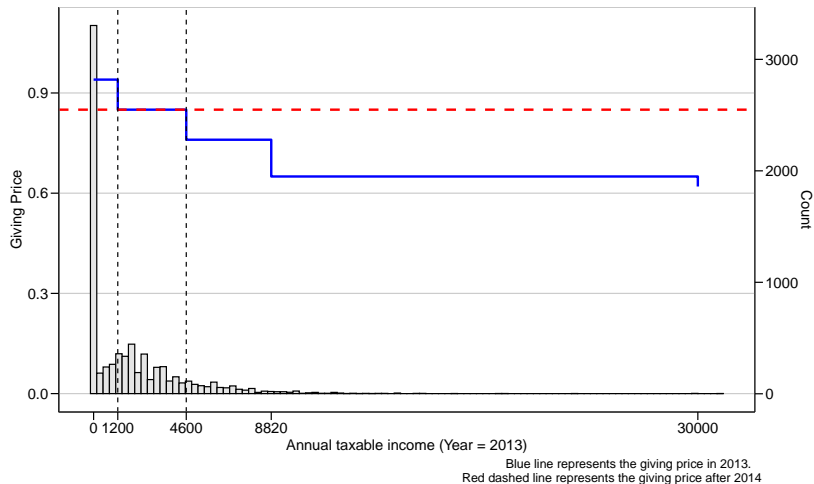
Income Distribution and Giving Price

Figure 2: Income Distribution and Giving Price

Trust Index

Estimation of Trust Index

The trust for politicans is time-varying variable because it depends on governments' policies. We make time-invarying trust index using the fixed effect model.

$$\text{Trust}_{ijt} = \text{Trustid}_{ij} + c_j \cdot \lambda_t + \lambda_t + \epsilon_{ijt}.$$

▶ Trust_{ijt}: trust for politicians (5-Likert scale)
▶ Trustid_i: individual fixed effect (**Trust index**)
▶ $c_j \cdot \lambda_t$ captures local governments' policies effect
▶ λ_t captures the central government policies effect

Histrogram of Trust Index
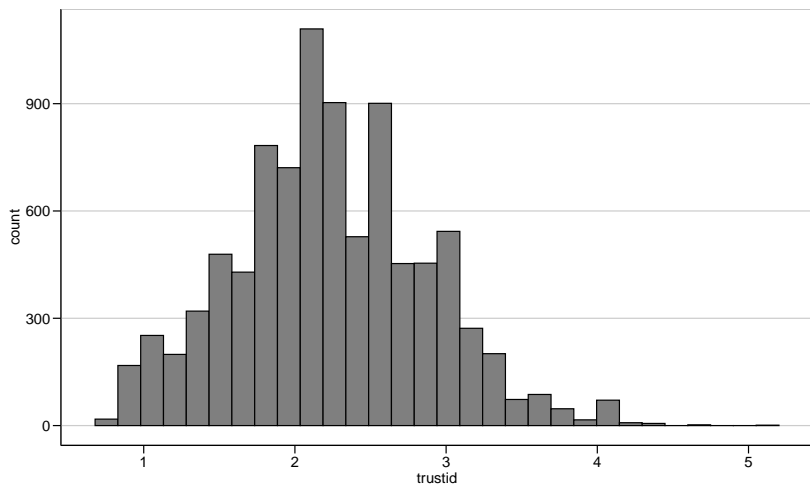

Figure 3: Histogram of Trust Index
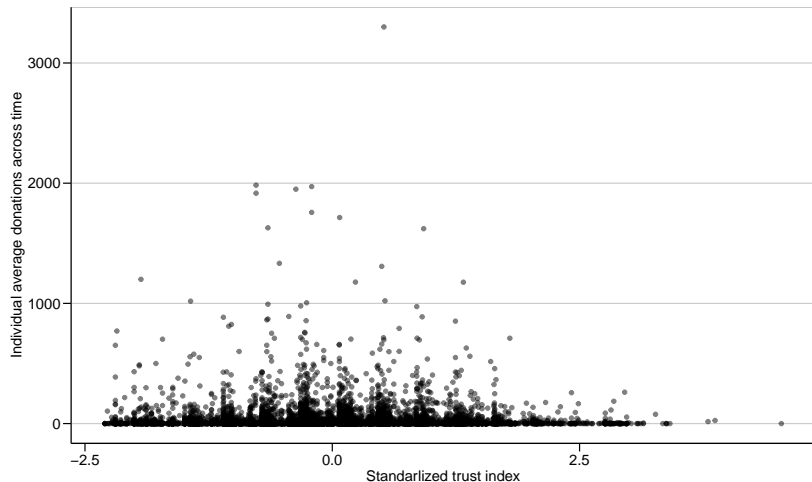
Relationship b/w Donations and Trust Index

Figure 4: Scatter Plot between Donations and Trust Index

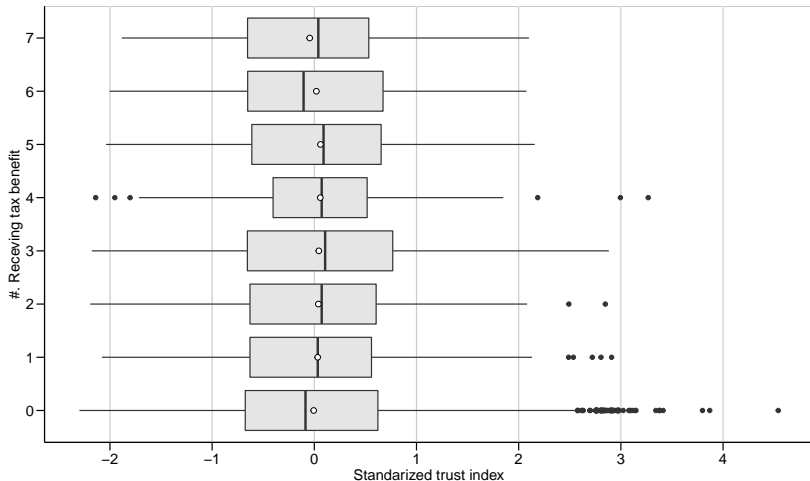# Relationship b/w Receiving Tax Benefit and Trust Index

Figure 5: Box Plot of Trust Index Grouped By Tax Benefit

Regression of Trust Index on Covariates

Table 3: Regression of Standarized Trust Index (Year = 2018)

Variables	Coefficients	S.E.
Female	0.056**	(0.023)
Logarithm of income	0.828*	(0.440)
Age	-0.022***	(0.004)
squared age/100	0.022***	(0.004)
High school graduate	0.029	(0.035)
University graduate	0.010	(0.038)
Extreme right wing	-0.224***	(0.085)
Right wing	-0.036	(0.028)
Left wing	-0.078***	(0.028)
Extreme left wing	-0.663***	(0.046)
Obs	7697	

Presidential Transition and Trust Index

In May 2017, South Korean president changed from Park Geun-hye to Moon Jae-in. This presidential transition was due to the impeachment charge against Park Geun-hye. People became distrustful of Park Geun-hye due to the shinking of MV Sewol (April 2014).

Even though we control time fixed effect to estimate trust index, we are concerned whether time fixed effect can rule out this presidential transition effect.

To check it, we estimate trust index using both either in 2015 and 2016 (Park's Trust index) or data in 2017 and 2018 (Moon's Trust index).

Difference in mean b/w Park's and Moon's Trust

▶ We made a scatter plot between president-specific trust indexs.

  ▶ **Large variation of Moon's trust index among those who have same value of the Park's trust index.**

▶ We carried out t-test of difference in mean between president-specific trust indexs.

  ▶ **The average Park's trust index is lower than the average Moon's trust index, which is statistically siginificant.**

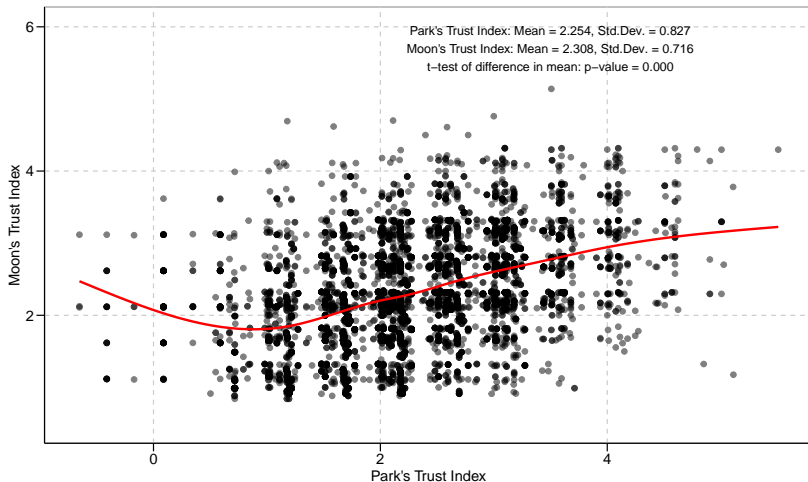# Scatter Plot b/w Park's and Moon's Trust Index

Figure 6: Scatter Plot between Trust Index under Park Geun-hye and Moon Jae-in

Regressions on Difference b/w President-specific Trust

▶ We made a scatter plot between difference of president-specific trust indexs and the original trust index.
  ▶ **there is large variation of difference of president-specific trust indexs, and there is large variation of the original trust index among those who have similar value of two president-specific trust indexs.**
▶ We regress the original trust index on difference of president-specific trust indexs. We restrict units whose aboslute value of president-specific trust index difference is less than 2 (Abs < 2), 1 (Abs < 1), and 0.5 (Abs < 0.5).
  ▶ **the positive correlations between difference of president-specific trust indexs and the original one.** However, **this positive correlation is statistically insignigicant if we use units whose president-specific trust indexs have similar values.**

Scatter Plot b/w Difference of Separated Trust Indexs and Original One
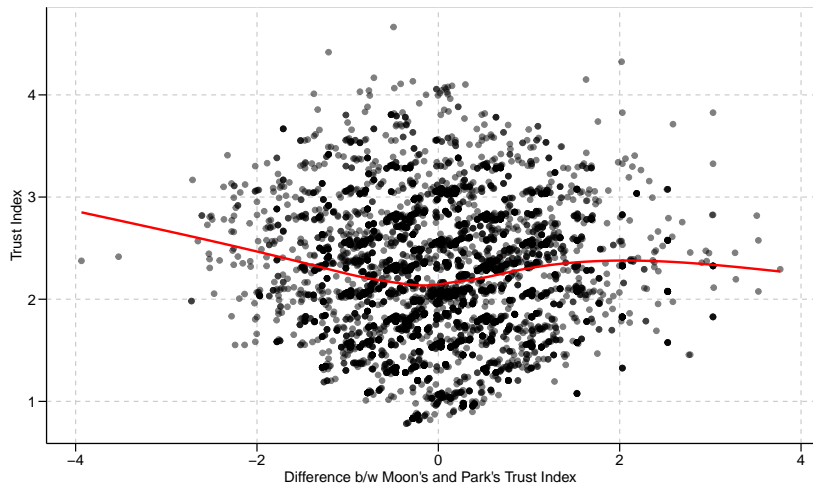
Figure 7: Scatter Plot between Difference of President-specific Trust Indexs and Original One

Result of Regressions on Difference b/w President-specific Trust

Table 4: Regressions of Trust Index on President-specific Trust Index

	Full	Abs < 2	Abs < 1	Abs < 0.5
Moon's trust - Park's trust	0.020**	0.026***	0.031*	0.035
	(0.008)	(0.010)	(0.016)	(0.038)
Obs	7314	7080	5666	3528
Adjusted R-sq	0.001	0.001	0.000	-0.000

Regressions on President-specific Trust Indexs

▶ We regress the original trust index on two president-specific trust indexs.

  ▶ **The variation of trust index can be explained by Moon's trust index largely.**

Result of Regressions on President-specific Trust Indexes

Table 5: Regressions of Trust Index on Park's and Moon's Trust Index

	(1)	(2)	(3)
Trust ID (Moon Jae-in)	0.723***		0.574***
	(0.005)		(0.003)
Trust ID (Park Geun-hye)		0.521***	0.322***
		(0.006)	(0.003)
Obs	7314	7314	7314
Adjusted R-sq	0.745	0.516	0.911

Price Elasticity

Baseline Regressions

Our baseline regression equation is

$$\log(\mathsf{Giving}_{ijt}) = \alpha_i + \beta_1 \log(\mathsf{Price}_{ijt}) + \delta X_{ijt} + \lambda_t + \epsilon_{ijt}.$$

▶ $\log(\mathsf{Giving}_{ijt})$ is logarithm of individual i's charitable giving in year t.
▶ $\log(\mathsf{Price}_{ijt})$ is logarithm of individual i's giving price in year t.
▶ β_1 represents the price elasticity of giving.
▶ α_i and λ_t are individual and time fixed effect, respectively.

Result of Baseline Regressions

We found the **price effect** of giving (1% price increase leads to
about 1.1% giving decrease)

Table 6: Baseline Regressions

	(1)	(2)	(3)
ln(giving price)	-1.071***	-1.059***	-1.062***
	(0.201)	(0.226)	(0.226)
Logarithm of income	Y	Y	Y
Age	N	Y	Y
Year X Educ	N	Y	Y
Year X Gender	N	Y	Y
Living Dummy	N	N	Y
Obs	54213	54211	54211

Subgroup Regressions

We estimate the baseline regression equation, using sample grouped by the trust index.

▶ Lowest: $0 \sim 20\%$ quantile of trust index
▶ Lower: $20 \sim 40\%$ quantile of trust index
▶ Neutral: $40 \sim 60\%$ quantile of trust index
▶ Higher: $60 \sim 80\%$ quantile of trust index
▶ Highest: $80 \sim 100\%$ quantile of trust index

We include the logarithm of income, age, interactions b/w year and education, interactions b/w year and gender, and living are dummy into covariates.

Results of Subgroup Regressions

We cound **NOT** find the price effect for respondents whose trust is very low.

Table 7: Subgroup Regressions

	Lowest	Lower	Neutral	Higher	Highest
ln(giving price)	-0.675	-0.460	-1.582***	-1.284**	-1.202**
	(0.556)	(0.458)	(0.481)	(0.530)	(0.503)
Obs	10239	10358	10367	10368	12879

Heterogenity By Political Trust

To capture heterogeneity precisely, we estimate the following regression equations:

$$\log(\mathsf{Giving}_{ijt}) = \alpha_i + \beta_1 \log(\mathsf{Price}_{ijt}) + \beta_2 \log(\mathsf{Price}_{ijt}) \cdot \mathsf{Trustid}_{ij} + \delta X_{ijt} + \lambda_t + \epsilon_{ijt}.$$

Price elasticity is obtained by $\beta_1 + \beta_2 \cdot \mathsf{Trust}_{ij}$.

Result of Heterogeneity of Political Trust

The price elasticity is **convex** in the trust index. Those whose trust index is low and high do not respond to the price incentive.

Table 8: Heterogeneity of Political Trust

	(1)	(2)
ln(giving price)	-1.108***	-1.314***
	(0.230)	(0.249)
X Trust index	-0.373**	-0.412**
	(0.171)	(0.175)
X Squared trust index		0.229**
		(0.111)
Obs	51306	51306
R-aq	0.0120	0.0121

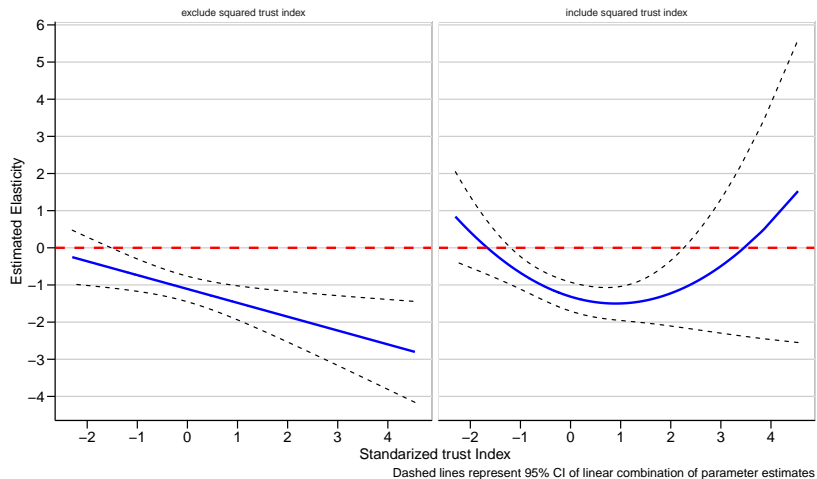# Graphical Representation of Heterogeneity Effect

Figure 8: Relationship between Trust Index and Predicted Elasticity

Conclusions

Conclusions