

Giving Price, Government Expenditure, and Political Trust

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Introduction

Price Effect of Tax Policy

Data

Data Source

To construct dataset, we use two surveys:

1. National Survey of Tax and Benefit (NaSTaB)
2. Data on local government finance from Ministry of the Interior and Safety (MIS 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 government.
- ▶ 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.

MIS data

- ▶ MIS of South Korean collects data on local government finance.
- ▶ From this data, we obtain information about tax revenue and expenditure for social welfare.
- ▶ Using the population data, we calculate the local government expenditure per capita and use this variable as main explanatory variable.
- ▶ Since the NaSTab includes residence area of respondents, it merges with the data on local government finance.

Variable of Price Giving

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

► tax deduction: $\text{Price} = 1 - \tau$

► tax credit: $\text{Price} = 1 - r$

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, $r = 0.15$.

Since we use data after 2013 and the tax policy about income tax rate unchanged from 2012 to 2013, the price variation across time comes from this policy change.

Results

Trust Index

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

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

- ▶ 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

We rescale the trust index to an interval $[0, 1]$.

Histogram of Trust Index

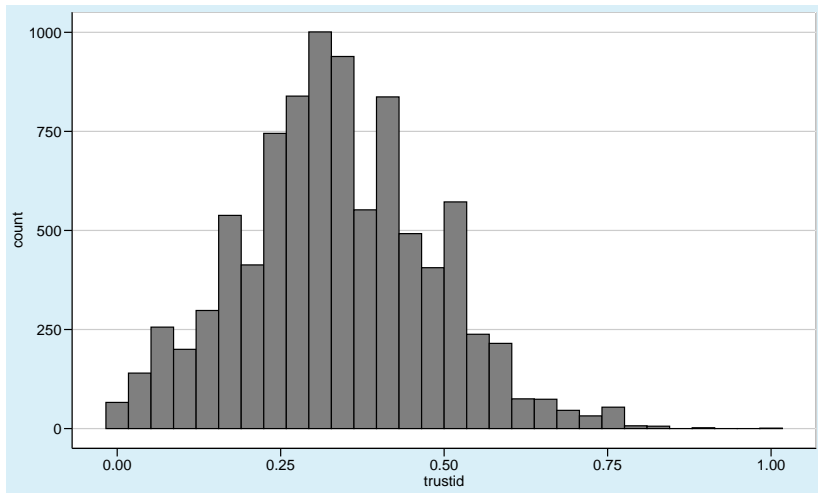


Figure 1: Histogram of Trust Index

Regression of Trust Index

Table 1: Regression of Trust Index (Year = 2018)

Variables	Coefficients	S.E.
gender	0.007**	(0.003)
age	-0.003***	(0.001)
$l((age/100)^2)$	0.311***	(0.055)
factor(educ)2	0.004	(0.005)
factor(educ)3	0.003	(0.006)
factor(political_pref)2	0.027**	(0.013)
factor(political_pref)3	0.033***	(0.012)
factor(political_pref)4	0.021*	(0.013)
factor(political_pref)5	-0.065***	(0.014)
Obs	7697	
Adjusted R-sq	0.0316	

Baseline Regressions

Our baseline regression equation is

$$\log(\text{Giving}_{ijt}) = \alpha_i + \beta_1 \log(\text{Price}_{ijt}) + \beta_2 \log(\text{Expend}_{jt}) \\ + \delta X_{ijt} + \lambda_t + \epsilon_{ijt}.$$

- ▶ $\log(\text{Giving}_{ijt})$ is logarithm of individual i 's charitable giving in year t .
- ▶ $\log(\text{Price}_{ijt})$ is logarithm of individual i 's giving price in year t .
- ▶ $\log(\text{Expend}_{jt})$ is local government j 's expenditure for social welfare in year t .
- ▶ β_1 represents the price elasticity of giving.
- ▶ β_2 represents the local government expenditure elasticity of giving.
- ▶ α_i and λ_t are individual and time fixed effect, respectively.

Result of Baseline Regressions

Table 2: Baseline Regressions

	(1)	(2)	(3)
$\ln(\text{Social Welfare}+1)$	0.124** (0.053)	0.101* (0.055)	0.839*** (0.278)
$\ln(\text{giving price})$	-1.089*** (0.201)	-1.066*** (0.226)	-1.083*** (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

Interpretations of Baseline Regression

- ▶ We found the **price effect** of giving (1% price increase leads to about 1.1% giving decrease)
- ▶ We found the **crowd-in effect** of local government expenditure (1% expenditure increase leads to 0.8% increase giving)
 - ▶ This effect is heterogenous by the level of government expenditure. As local government expenditure increases, the crowd-in effect vanishes, and the crowd-out effect emerges.

Subgroup Regressions

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

- ▶ Lowest: 0 ~ 20% quantile of trust index
- ▶ Lower: 20 ~ 40% quantile of trust index
- ▶ Neutral: 40 ~ 60% quantile of trust index
- ▶ Higher: 60 ~ 80% quantile of trust index
- ▶ Highest: 80 ~ 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

Table 3: Subgroup Regressions

	Lowest	Lower	Neutral	Higher	Highest
ln(Social Welfare+1)	0.371 (0.669)	0.472 (0.636)	1.090* (0.653)	1.471** (0.621)	0.817 (0.554)
ln(giving price)	-0.682 (0.556)	-0.482 (0.460)	-1.629*** (0.480)	-1.277** (0.529)	-1.211** (0.503)
Obs	10239	10358	10367	10368	12879

Interpretations of Subgroup Regressions

- ▶ We could **NOT** find the crowd-in (crowd-out) effect for respondents whose trust is very low and very high.
 - ▶ We found the crowd-in effect for middle group.
 - ▶ If the trust for politicians is low, respondents have a willingness to provide public goods without government help.
 - ▶ If the trust for politicians is very high, respondents take a strategy of free-rides.
- ▶ We could **NOT** find the price effect for respondents whose trust is very low.
 - ▶ If the trust is very low, respondents do not want to use a tax benefit policies.

Heterogeneity By Political Trust

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

$$\begin{aligned}\log(\text{Giving}_{ijt}) = & \alpha_i + \beta_0 \text{Trust}_{ij} \\ & + \beta_1 \log(\text{Price}_{ijt}) + \beta_2 \log(\text{Price}_{ijt}) \cdot \text{Trust}_{ij} \\ & + \beta_3 \log(\text{Expend}_{jt}) + \beta_4 \log(\text{Expend}_{ijt}) \cdot \text{Trust}_{ij} \\ & + \delta X_{ijt} + \lambda_t + \epsilon_{ijt}.\end{aligned}$$

- ▶ Price elasticity is obtained by $\beta_1 + \beta_2 \cdot \text{Trust}_{ij}$.
- ▶ Government expenditure elasticity is obtained by $\beta_3 + \beta_4 \cdot \text{Trust}_{ij}$.

Result of Heterogeneity By Political Trust (1)

Table 4: Heterogeneity of Political Trust

Variables	Coefficients	S.E.
ln(Social Welfare+1)	0.836***	(0.296)
X Trust index	-0.064	(0.252)
ln(giving price)	-0.268	(0.503)
X Trust index	-2.558*	(1.319)
Obs	51306	

Result of Heterogeneity of Political Trust (2)

Table 5: Heterogeneity of Political Trust (include squared term)

Variables	Coefficients	S.E.
ln(Social Welfare+1)	0.522	(0.327)
X Trust index	2.064**	(0.986)
X Squared trust index	-3.032**	(1.324)
ln(giving price)	0.190	(0.886)
X Trust index	-5.783	(4.815)
X Squared trust index	4.625	(6.302)
Obs	51306	

Graphical Representation of Heterogeneity Effect

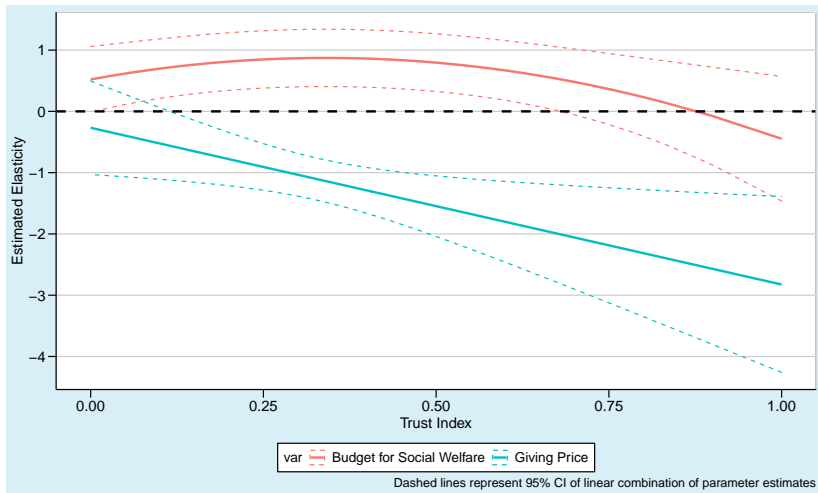


Figure 2: Relationship between Trust Index and Predicted Elasticity

Conclusions

Conclusions