Charitable Giving, Tax Reform, and Government Efficiency

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Tax incetive of charitable giving

▶ In many countries, governments set a tax relief for charitable giving.
  ▶ Tax incentive affects relative price of giving in terms of consumptions. $\rightarrow$ allocation b/w private consumptions and donations.
▶ Many papers investigate the elasticity of charitable donations w.r.t. their tax price.
  ▶ Randolph (1995):
  ▶ Auten et al. (2002): -0.79~1.26 (the U.S.)
  ▶ Fack and Landais (2010): -0.15~-0.57 (France)
  ▶ Bakija and Heim (2011): -0.61~-1.1 (the U.S.)
  ▶ Duquette (2016): -2.15 ~ -5.01 (the U.S.)
  ▶ Almunia et al. (2020): -0.24~-1.5 (the U.K.)

Tax incentive and government efficiency

▶ At the same time, using tax incentive reduces government's revenue, which leads to a reduction of public goods provision by government.

▶ This causes relative ability of public goods provision by government in terms of by donations.
  ▶ If the government can provide public goods more efficiently than the direct donations, relative ability of public goods provision by government is high
  ▶ → this reduces the relative price of public goods provision by governement in terms of by donations (Saez, 2004).

▶ Tax incentive also affects allocation problem b/w public goods provision by governement and by donations.
  ▶ Li et al. (2011) and Sheremeta and Uler (2020) shows that giving behavior may be affected by perception towards the government

Our research questions

Using the South Korean panel data, we will investigate

1. the price elasticity of giving
   - ▶ It is worth estimating the price elasticity of donations in non-Western country because the study in non-Western country, where the culture of donation may be different, is few.
2. whether the different perception towards the government would have different elasticities of giving.
   - ▶ To our knowledge, there is no literature which investigates the relation b/w perception towards governement and price elasticity of giving.

South Korean tax reform

▶ We utilize the effect of the 2014 tax reform in South Korea.
  ▶ ~ 2013: **tax deduction** was adopted to subsidize charitable donation behavior.
  ▶ 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 marginal tax rate, which increases with gross income.

Summary in short

Our result classifies that:

▶ the price elasticity of giving in Korea is -1.07 ~ -1.26, which is within the range of the extant research.
▶ the giving price elasticity of those who regard government as inefficient is more elastic than the others. This means that those who think of government as inefficient have more willingness to donate for 1% reduction of giving price.

Institutional background

Tax relief for charitable giving by tax deduction and tax credit

In the South Korea, the tax policy about charitable giving drastically changed in 2014. Before then, tax relief of charitable giving was provided by tax deduction while, from 2014, tax relief by tax credit was introduced instead of tax deduction.

The tax deduction and tax credit may have different effects on giving behavior. This section summarize the difference of tax deduction and tax credit.

Budget Set

Consider that a household has a choice between private consumptions (x_i) and charitable giving (g_i). Let y_i be pre-tax total income. Then, the budget constraint is

$$x_i + g_i = y_i - T_i(y_i, g_i).$$

T_i is tax amount which depends on the pre-tax income and charitable giving.

Tax Deduction

Tax deduction reduces taxable income by giving, that is,

$$T_i = \tau(y_i - g_i) \cdot (y_i - g_i),$$

where $\tau(\cdot)$ is the marginal income tax rate which is determined by $y_i - g_i$. The budget constraint will be

$$x_i + [1 - \tau(y_i - g_i)]g_i = [1 - \tau(y_i - g_i)]y_i.$$

The relative price of giving is $p_i^d \equiv 1 - \tau(y_i - g_i)$. Since the giving price in tax deduction scheme varies depending on (1) the income level and (2) the amount of charitable giving, it is endogenous to them.

Tax Credit

Tax credit reduces tax amount directly, that is,

$$T_i = \tau(y_i) \cdot y_i - mg_i,$$

where $m \in [0, 1]$ is the tax credit rate. Under the tax credit system, the budget constraint is

$$x_i + (1 - m)g_i = [1 - \tau(y_i)]y_i.$$

The relative price of giving is $p_i^c = 1 - m$, which is only dependent on the tax credit rate m, which is exogenously determined by the government.

Korean tax reform in 2014

▶ The tax incentives for charitable giving in Korea stared in 2000 and the market of charitable giving in Korea totaled 10.9 trillion KRW (approximately 1.09 bilion USD, 0.761% of GDP) in 2012 according to the national tax statistics.

▶ Since the income tax deduction was initially used as a tax incentive and the marginal income tax rate was determined as Table 1, the minimum giving price before 2014 was 0.62.

Marginal income tax rate

Table 1: Marginal Income Tax Rate

Income/Year	2008	2009	2010 ~ 2011	2012 ~ 2013	2014 ~ 2016	2017	2018
(A) ~ 1200	8%	6%	6%	6%	6%	6%	6%
(B) 1200 ~ 4600	17%	16%	15%	15%	15%	15%	15%
(C) 4600 ~ 8800	26%	25%	24%	24%	24%	24%	24%
(D) 8800 ~ 15000	35%	35%	35%	35%	35%	35%	35%
(E) 15000 ~ 30000	35%	35%	35%	35%	38%	35%	38%
(F) 30000 ~ 50000	35%	35%	35%	38%	38%	38%	40%
(G) 50000 ~	35%	35%	35%	38%	38%	40%	42%

Notes: Marginal income tax rates applied from 2008 to 2018 are summarized. The income level is shown in terms of 10,000 KRW, which is approximately 10 United States dollars (USD) at an exchange rate of 1,000 KRW to one USD.

Our Identification Strategy

In 2014, aiming at the relaxation of regressivity of giving price, the Korean government reformed tax system again, where the tax credit was introduced instead of tax deduction. Since then, 15% of the total amount of charitable giving has been allowed as a tax credit, which means that the giving price from 2014 is 0.85 irrelevant to the income level.

Summarizing this, compared to tax credit system, the high income household, whose (average) income tax rate is more than 15%, get benefit from charitable giving under the tax deduction system. However, middle or low income households would enjoy tax relief in tax credit system more than tax deduction system. We exploit this policy change as an identification strategy.

Data

National Survey of Tax and Benefit (NaSTaB)

▶ An annual financial panel survey implemented by The Korea Institute of Taxation and Finance implements 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.

▶ We use data from 2013 to 2019 since we focus on the 2014 tax reform. In addition, we exclude the subject of the sample, whose age is under 23, since they are not likely to have income or asset.

Summary Statistics

Table 2: Summary Statistics

|	N	Mean	Std.Dev.	Min	Max
Income and Giving Price					
Annual taxable income (unit: 10,000KRW)	53269	1876.121	2700.965	0.00	91772.00
Giving Price	62877	0.858	0.036	0.62	0.94
Charitable Donations					
Annual charitable giving (unit: 10,000KRW)	67848	29.523	132.915	0.00	10000.00
dummy of Donation > 0	67848	0.203	0.402	0.00	1.00
Government Efficiency					
Current Tax-Welfare Balance	29272	-0.137	0.889	-2.00	2.00
Ideal Tax-Welfare Balance	29273	0.541	0.721	-2.00	2.00
Individual Characteristics					
Age	67848	51.348	15.806	24.00	104.00
Female dummy	67848	0.525	0.499	0.00	1.00
University graduate	67842	0.411	0.492	0.00	1.00
High school graduate	67842	0.350	0.477	0.00	1.00
Junior high school graduate	67842	0.238	0.426	0.00	1.00

Income and Giving Price
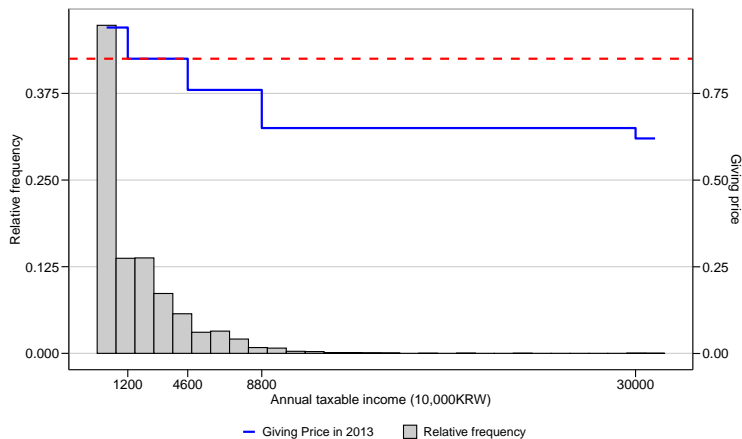
Figure 1: Income Distribution and Giving Price in 2013

Income and Giving Price (Cont'd)

▶ Figure 1 shows the giving price after 2012 and income distribution in 2013.
  ▶ Blue line shows the giving price in 2012 and 2013, which depends on income
  ▶ Red dashed line shows the giving price after 2014, which is not a function of income.
▶ We can make three groups in terms of the benefit from the 2014 tax reform.
  ▶ Benefit group: Final taxable income is less than 1200×10^4KRW.
  ▶ Neutral group: Final taxable income lies between $(1200 \times 10^4, 4600 \times 10^4)$.
  ▶ Loss group: Final taxable income is more than 4600×10^4KRW.

Charitable Giving
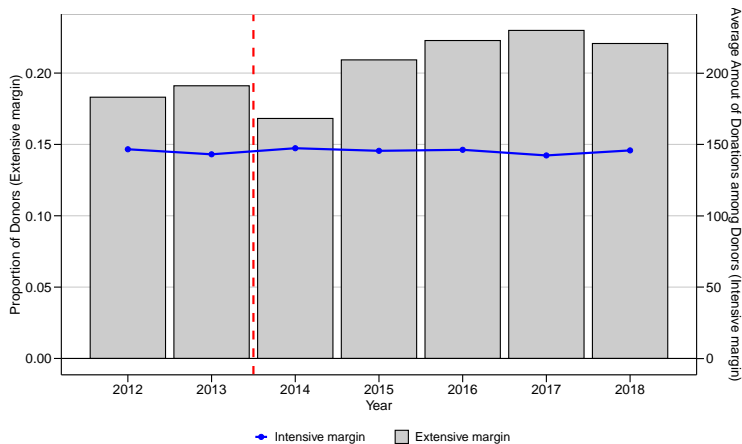
Figure 2: Proportion of Donors and Average Donations among Donors

Estimation

Estimation

Following Almunia et al. (2020), we estimate giving price elasticity for intensive margin and extensive margin.

▶ The elasticity of intensive margin shows how much donors additionally donates reacting to the marginal increase of giving price

▶ The elasticity of extensive margin shows how much the probability to donate changes reacting to marginal increase of giving price.

Elasticitiy of Intensive Margin

$$\ln g_{it} = \varepsilon_{INT} \ln p_{it} + g_{INT} \ln y_{it} + X_{it}\beta + \mu_i + \iota_t + u_{it}.$$

▶ g_{it}, p_{it} and y_{it} respectively indicates the amount of giving, the giving price, and income of i in year t

▶ μ_i, ι_t and u_{it} are individual fixed effect, year fixed effect and error term

▶ X_{it} is a vector of covariates which include variables about education and gender. Moreover, we add some interaction terms between year fixed effect and control variables into X_{it} (following Zeldow and Hatfield (2019)).

Elasticitiy of Extensive Margin

$$D_{it} = \delta \ln p_{it} + \gamma \ln y_{it} + X_{it}\beta + \mu_i + \iota_t + v_i t.$$

▶ D_{it} is a dummy variable taking 1 if individual i donates at year t and 0 otherwise.

▶ Since we use linear probability model, $\delta = \frac{\partial D_{it}}{\partial p_{it}} p_{it}$. The extensive-margin price elasticity is $\varepsilon_{EXT} = \hat{\delta}/D_{it}$. Thus, we evaluate it at sample mean of D_{it}.

Identification Strategy

Our identification assumption is **the within price variation is exogenous**.

▶ This is because we use the fixed effect model to obtain elasticities.

▶ Our identification assumption may hold because the major *within* price variation depends on the 2014 tax reform.

  ▶ After tax reform, the giving price is constant across individuals and there is no room for manipulation by donations and income.

  ▶ Before tax reform (2012 and 2013), the giving price depends on (A) endogeneity of giving price and (B) simultaneous determination of income and donations. For these two reasons, the *within* price is partly endogenous.

Obstacles for Identification

Our identification assumption may violate due to two endogenous problems under the tax deduction system.

1. Endogeneity of giving price:
   ▶ The tax payer can reduce their giving price by increasing their amount of donation and shifting themselves to the lower tax bracket in the tax deduction system.
   ▶ Since this issue does not happen for the first one unit of donation, whose price ("first price") cannot be changed by adjusting the donation, we use this first price as the giving price in the estimation.

Obstacles for Identification (Cont'd)

Our identification assumption may violate due to two endogenous problems under the tax deduction system.

2. Simultaneous determination of income and donations:
   ▶ The change of income caused by the tax reform have effects on both donations through the income effect and the giving price through the marginal tax rate.
   ▶ We employ lagged values of taxable income and construct an instrument variable, $\ln(p_{it}(y_{it-k} - g_{it-k})/p_{it-k}(y_{it-k} - g_{it-k}))$ where $g_{it-k} = 0$.
   ▶ By fixing income at year $t-k$, the instrument isolates changes in price from income responses to the tax reform.

Main Results

Price and Income Elasticity

We found the **price effect** of giving (1% price increase leads to about 1.1% giving decrease), and the **income effect** of giving (1% income increase leads to about 5% giving increase).

Table 3: Main Results

	(1)	(2)	(3)	(4)	(5)
ln(giving price)	-1.072***	-1.264***	-1.291***	-1.114***	-1.241***
	(0.202)	(0.213)	(0.230)	(0.229)	(0.227)
ln(annual taxable income)	5.393***	5.080***	5.047***	5.116***	4.946***
	(0.970)	(0.964)	(0.964)	(0.966)	(0.949)
Individual FE	Y	Y	Y	Y	Y
Time FE	Y	Y	Y	Y	Y
Age	N	Y	Y	Y	Y
Year × Education	N	N	Y	Y	Y
Year × Gender	N	N	N	Y	Y
Year × Resident Area	N	N	N	N	Y
N	53269	53269	53267	53267	53267
R-squared	0.616	0.616	0.616	0.616	0.620

Notes: * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. Standard errors are clustered at individual level. When controlling age, we alson include its squared term.

Intensive and Extensive Margin: Estimation Results

The intensive-margin price elasticity is -0.5 ~ -1%.

Table 4: Main Results: Intensive-Margin Elasticity

	(1)	(2)	(3)	(4)	(5)
ln(giving price)	-0.593***	-0.838***	-1.016***	-0.893***	-0.904***
	(0.203)	(0.212)	(0.232)	(0.243)	(0.248)
ln(annual taxable income)	2.015***	1.562**	1.445**	1.528**	1.571**
	(0.674)	(0.655)	(0.647)	(0.651)	(0.653)
Age	N	Y	Y	Y	Y
Year × Education	N	N	Y	Y	Y
Year × Gender	N	N	N	Y	Y
Year × Resident Area	N	N	N	N	Y
N	11637	11637	11637	11637	11637

Intensive and Extensive Margin: Estimation Results

The extensive-margin price elasticity is -1.2 ~ -1.4%.

Table 5: Main Results: Extensive-Margin Elasticity

	(1)	(2)	(3)	(4)	(5)
Implied price elasticity	-1.176***	-1.320***	-1.250***	-1.086***	-1.221***
	(0.210)	(0.221)	(0.239)	(0.238)	(0.235)
Implied income elasticity	5.379***	5.145***	5.148***	5.212***	5.045***
	(1.023)	(1.021)	(1.023)	(1.024)	(1.005)
Age	N	Y	Y	Y	Y
Year × Education	N	N	Y	Y	Y
Year × Gender	N	N	N	Y	Y
Year × Resident Area	N	N	N	N	Y
N	53269	53269	53267	53267	53267

Robustness Check

First potential concern: last price elasticity

▶ Our baseline results show the **first** price elasticity to avoid the endogeneity of giving price.

▶ We estimated the **last** price elasticity, using the Panel IV method.

 ▶ The instrument is the first giving price.

 ▶ Note that the last giving price is equal to the first giving price under the tax credit system.

Robustness Check 1: Result

Overall last price elasticity increases twofold.

Table 6: Last Price Elasticity: Panel IV

	(1)	(2)	(3)	(4)	(5)
ln(annual taxable income)	5.258***	5.072***	4.981***	5.058***	4.910***
	(0.961)	(0.961)	(0.959)	(0.961)	(0.948)
ln(giving price)	-2.421***	-2.536***	-2.750***	-2.529***	-2.650***
	(0.204)	(0.216)	(0.233)	(0.231)	(0.229)
Age	N	Y	Y	Y	Y
Year × Education	N	N	Y	Y	Y
Year × Gender	N	N	N	Y	Y
Year × Resident Area	N	N	N	N	Y
N	52304	52304	52302	52302	52302

Robustness Check 1: Intensive Margin

The intensive-margin last price elasticity lies within the range of the first price elasticity.

Table 7: Intensive-Margin Last Price Elasticity: Panel IV

	(1)	(2)	(3)	(4)	(5)
ln(annual taxable income)	2.024***	1.638**	1.460**	1.530**	1.572**
	(0.694)	(0.677)	(0.666)	(0.669)	(0.666)
ln(giving price)	-0.898***	-0.961***	-1.197***	-0.998***	-1.074***
	(0.270)	(0.271)	(0.307)	(0.325)	(0.332)
Age	N	Y	Y	Y	Y
Year × Education	N	N	Y	Y	Y
Year × Gender	N	N	N	Y	Y
Year × Resident Area	N	N	N	N	Y
N	10672	10672	10672	10672	10672

Robustness Check 1: Extensive Margin

The extensive-margin last price elasticity at sample mean is roughly -3%.

Table 8: Extensive-Margin Last Price Elasticity: Panel IV

	(1)	(2)	(3)	(4)	(5)
Implied price elasticity	-3.052***	-3.090***	-3.156***	-2.907***	-3.035***
	(0.227)	(0.239)	(0.258)	(0.257)	(0.254)
Implied income elasticity	5.514***	5.453***	5.407***	5.494***	5.343***
	(1.084)	(1.092)	(1.092)	(1.095)	(1.078)
Age	N	Y	Y	Y	Y
Year × Education	N	N	Y	Y	Y
Year × Gender	N	N	N	Y	Y
Year × Resident Area	N	N	N	N	Y
N	52304	52304	52302	52302	52302

Robust Check 2

Second potential concern: Price change due to the change of income

▶ Since the giving price under the tax deduction depends on the change of income, the *within* variation of giving price may be endogenous.

▶ To resolve this concern, we used the data (i) from 2013 to 2018 or (ii) from 2013 to 2014, and estimated the fixed effect model.

  ▶ By this restriction, the *within* price variation of giving price is completely exgenonous.

Robustness Check 2: Result

Overall price elasticity is -1 ~ -1.7%.

Table 9: Elasticity with Short-Period Data

	After 2012		2013 and 2014	
	(1)	(2)	(3)	(4)
ln(giving price)	-1.014***	-1.286***	-1.398***	-1.686***
	(0.255)	(0.290)	(0.289)	(0.338)
ln(annual taxable income)	5.108***	4.743***	4.013**	3.035
	(1.009)	(0.990)	(1.948)	(1.992)
Other Controls	N	Y	N	Y
N	45994	45992	14893	14893

Robustness Check 2: Intensive Margin

The intensive-margin price elasticity is -0.6 ~ -1%. In column (3), the price elasticity is statistically insignificant.

Table 10: Intensive-Margin Elasticity with Short-Period Data

	After 2012		2013 and 2014	
	(1)	(2)	(3)	(4)
ln(giving price)	-0.647***	-1.129***	-0.394	-0.712**
	(0.236)	(0.291)	(0.310)	(0.363)
ln(annual taxable income)	1.943***	1.714***	1.440	1.047
	(0.662)	(0.649)	(2.975)	(3.072)
Other Controls	N	Y	N	Y
N	10158	10158	2922	2922

Robustness Check 2: Extensive Marign

The extensive-margin price elasticity at sample mean is -1 ~ -2%.

Table 11: Extensive-Margin Elasticity with Short-Period Data

	After 2012		2013 and 2014	
	(1)	(2)	(3)	(4)
Implied price elasticity	-1.064***	-1.217***	-1.689***	-1.951***
	(0.262)	(0.294)	(0.333)	(0.387)
Implied income elasticity	4.951***	4.638***	4.082*	2.926
	(1.043)	(1.024)	(2.181)	(2.279)
Other Controls	N	Y	N	Y
N	45994	45992	14893	14893

Robustness Check 3

Second potential concerns: the change of price due to the change of income

▶ To exclude this potential concerns, previous identification strategy uses the 2014 tax reform.

▶ We can also rule out this problem, using the change in the first giving price.

  ▶ The change in the first giving price is $\ln(p_{it}(y_{it-k} - g_{it-k})/p_{it-k}(y_{it-k} - g_{it-k}))$ where $g_{it-k} = 0$.

  ▶ Since we fix the income y_{it-k}, this variation comes from the tax reform.

Robustness Check 3 (Cont'd)

Our estimation equation is

$$\Delta^k \ln g_{it} = \delta \Delta^k \ln p_{it} + \gamma \Delta^k \ln y_{it} + \Delta^k X_{it} \beta + \mu_i + \iota_t + v_{it},$$

where $\Delta^k Y_{it} = Y_{it} - Y_{it-k}$.

▶ Note that we cannot estimation the extensive-margin elasticity since it is hard to interapt this estimation equation when we use $\Delta^k D_{it}$ as an outcome.

▶ We estimate this model for $k = 1, 2, 3$.

Robustness Check 3: Overall Elasticity

Overall price elasticity is rougnly -2%.

Table 12: Overall Elasticity: k-difference model

lag k	$k = 1$	$k = 2$	$k = 3$
	(1)	(2)	(3)
Lagged difference of first price (log)	-1.894***	-2.158***	-1.805***
	(0.389)	(0.355)	(0.345)
Lagged difference of annual income (log)	2.737***	4.661***	5.422***
	(1.041)	(1.139)	(1.181)
N	49014	46587	44142

Robustness Check 3: Intensive-Margin Elasticity

The intensive-margin price elasticity is roughly -2%.

Table 13: Intensive-Margin Elasticity: k-difference model

lag k	$k=1$	$k=2$	$k=3$
	(1)	(2)	(3)
Lagged difference of first price (log)	-1.854**	-2.274***	-2.243***
	(0.762)	(0.621)	(0.550)
Lagged difference of annual income (log)	2.229	4.601**	5.826***
	(1.714)	(1.788)	(2.166)
N	10939	10505	10040

Governement Efficient and Price Elasticity

Construct Efficiency Index

From the 2015 survey, NaSTaB asks the current and ideal balance between tax burden and welfare level. See the following table.

Table 14: The assigned number for each pair of welfare/tax burden answers

Welfare/Tax burden	Low	Middle	High
High	2	1	0
Middle	1	0	-1
Low	0	-1	-2

Notes: The number shows the corresponding efficiency index for each pair of tax burden and welfare level.

Construct Efficient Index (Cont'd)

▶ The pair of answers reflect the individual's perception about the efficiency of government because the government with low tax burden and high welfare level is clearly more efficient than one with high tax and low welfare.

▶ Based on the pair about current perception, we construct an index called efficiency index by the following steps.

1. We assign the number from -2 to 2 for each pair of answers depending on the contents of answers, where -2 is the most inefficient and 2 is the most efficient.

2. To construct the individual's persistent perception toward the government, we regress the assigned number on year fixed effect, the interaction between region and year fixed effect, and individual fixed effect.

3. use the obtained fixed effect as the efficiency index
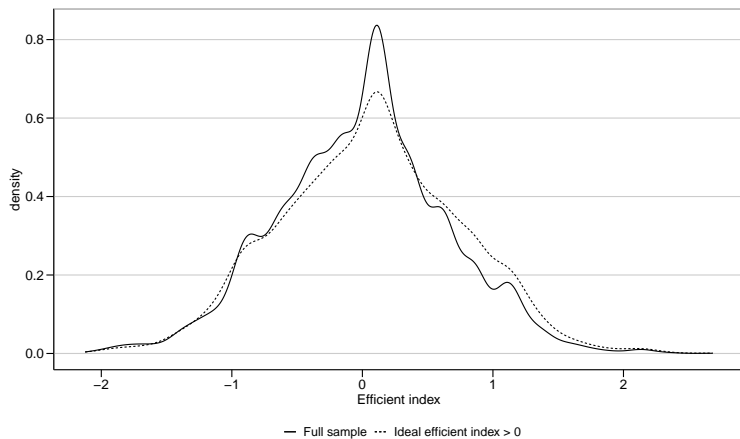
Histrogram of Efficient Index

Figure 3: Density of Efficient Index

Two Potential Concerns

1. There is a room for subjects to interpret the questions of tax/welfare balance as questions about the expenditure policy of the government.
   - ▶ To address this issue, we use the question for ideal balance between tax burden and welfare level to rule out the subjects who consider that the higher welfare level than the tax burden is unfavorable.

2. The perceived governement efficiency is formed by time-specific events such as governement policies. Thus, instead of the individual fixed effect, we should use the raw answer of the quetion as the efficient index.
   - ▶ However, since the tax credit system has been implemented since 2014, there is no variation of giving price from 2015 to 2018.
   - ▶ To overcome this problem, we use the individual fixed effect as the efficient index.

Heterogenous Price Elasticity: Estimations Results

Table 15: Heterogenous Elasticity by Perceived Government Efficiency (1)

	Overall	Extensive	Intensive
	(1)	(2)	(3)
ln(giving price)	-1.361***	-0.280***	-0.995***
	(0.337)	(0.076)	(0.337)
ln(giving price) × 2Q efficient group	-0.005	-0.056	0.349
	(0.416)	(0.097)	(0.480)
ln(giving price) × 3Q efficient group	0.350	0.081	-0.219
	(0.418)	(0.097)	(0.553)
N	50455	50455	11327

Heterogenous Price Elasticity: Implied Elasticity

Table 16: Heterogenous Elasticity by Perceived Government Efficiency (2)

	Overall	Extensive	Intensive
	(1)	(2)	(3)
Implied price elasticity (1Q efficient group)	-1.361***	-1.246***	-0.995***
	(0.337)	(0.340)	(0.337)
Implied price elasticity (2Q efficient group)	-1.366***	-1.496***	-0.646*
	(0.321)	(0.334)	(0.382)
Implied price elasticity (3Q efficient group)	-1.012***	-0.887***	-1.214**
	(0.327)	(0.340)	(0.474)
N	50455	50455	11327

Robustness Check 1

▶ Previous results show that there is no heterogenous price elasticity in the efficient index.
  ▶ This may be caused by existence of respondents interpreting the survey questions as the questions about the expenditure policy of the government.
▶ To rule out this problem, we eliminate those whose the ideal efficient index is less than zero, and estimate the same model.

Robustness Check 1: Estimation Results

Table 17: Heterogenous Elasticity Using Those whose Ideal Efficient Index > 0 (1)

	(1)	(2)	(3)
ln(giving price)	-1.802***	-0.307***	-1.296**
	(0.539)	(0.116)	(0.572)
ln(giving price) × 2Q efficient group	0.306	0.030	0.313
	(0.647)	(0.145)	(0.784)
ln(giving price) × 3Q efficient group	1.252**	0.224*	0.204
	(0.587)	(0.136)	(0.849)
N	23366	23366	5004

Robustness Check 1: Implied Price Elasticity

Table 18: Heterogenous Elasticity Using Those whose Ideal Efficient Index > 0 (1)

	(1)	(2)	(3)
Implied price elasticity (1Q efficient group)	-1.802***	-1.434***	-1.296**
	(0.539)	(0.540)	(0.572)
Implied price elasticity (2Q efficient group)	-1.496***	-1.292**	-0.983*
	(0.491)	(0.519)	(0.594)
Implied price elasticity (3Q efficient group)	-0.551	-0.386	-1.093
	(0.416)	(0.475)	(0.696)
N	23366	23366	5004

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