

# Charitable Giving, Tax Reform, and Self-selection of Tax Report: Evidence from South Korea

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# Introduction

- In many countries, tax incentives on charitable giving are implemented
- Many papers investigate elasticities of the tax incentive based on tax return data (e.g. Almunia et al. (2020); Auten et al. (2002); Bakija and Heim (2011))
- However, the tax return data record only the declared charitable giving
  - Tax payers decide an amount of donation and whether to declare tax relief based on the size of tax incentive and declaration cost.
  - Because of this declaration cost, the estimations (especially for extensive margins) may be biased.
  - Moreover, actual donations is different from declared donations (Fack and Landais (2016); Gillitzer and Skov (2018))
- We investigate the elasticities about both declared and non-declared charitable giving, using the financial panel survey data in South Korea

# Introduction

To take price variation due to declaration into account, we estimate two price elasticities:

- *Applicable* price elasticity: giving price when tax payers declare tax relief regardless of actual declaration
  - The major variation of this giving price comes from the 2014 tax reform
- *Effective* price elasticity: giving price based on information of declaration
  - We estimate this considering the existence of the declaration cost
- By comparing two price elasticities, we can infer price effect through declaration

Result: Both price elasticities are around -1, which implies that the price effect through declaration is not so large.

## 2014 tax reform in South Korea

Our major price variation comes from the 2014 tax reform, which has changed from the tax deduction system to the tax credit system

- Consider allocation problem b/w private consumption ( $x_{it}$ ) and giving ( $g_{it}$ ).
- The budget constraint is  $x_{it} + g_{it} = y_{it} - T(y_{it}, g_{it})$  where  $y_{it}$  is pre-tax total income, and  $T(y_{it}, g_{it})$  is tax amount.
- Let  $R_{it}$  be a dummy of declaration of tax relief, and let  $\tau(\cdot)$  be the income tax rate.

## 2014 tax reform in South Korea (Cont'd)

### Tax deduction system (until 2013)

$$T(y_{it}, g_{it}) = \tau(y_{it} - R_{it}g_{it})(y_{it} - R_{it}g_{it})$$

- In 2012 and 2013, the system of  $\tau(\cdot)$  is same.
- The logged relative giving price is  $R_{it} \ln(1 - \tau(y_{it} - g_{it})) = R_{it} \ln p_{it}^d$ .

### Tax credit system (from 2014)

$$T(y_{it}, g_{it}) = \tau(y_{it}) \cdot y_{it} - R_{it}mg_{it}$$

- $m = 0.15$
- The logged relative giving price is  $R_{it} \ln(1 - 0.15) = R_{it} \ln 0.85$ .

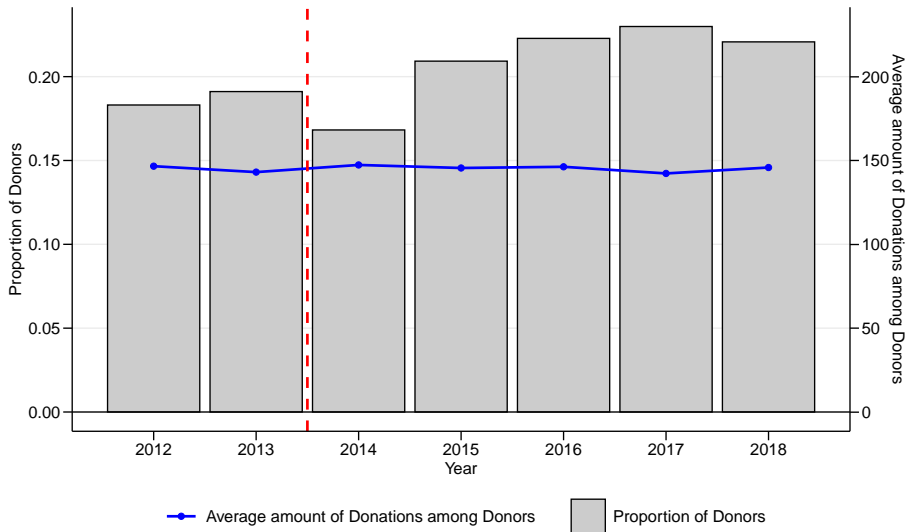
## Data: National Survey of Tax and Benefit

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

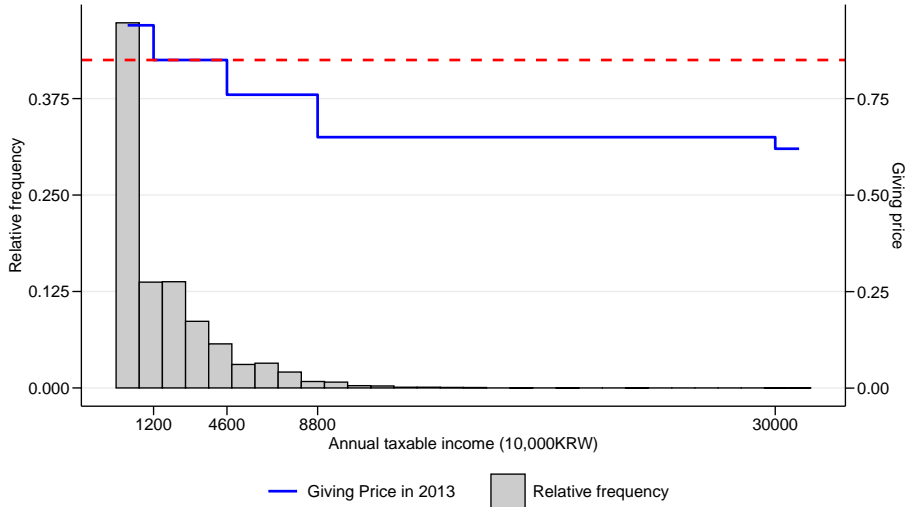
- The subjects of this survey are general household and household members living in 15 cities and provinces nationwide.
- We use data from 2013 to 2019 to focus on the 2014 tax reform.
  - the giving price before 2014 was changed frequently and incorporating the data before 2012 captures the effects of another tax reform than the reform in 2014.
- This survey asks the amount of donation and the annual labor income last year.

# Summary Statistics of Charitable Giving

Proportion of donors is slightly decreased just after tax reform



# Income Distribution and Giving Price in 2013



Red dashed line is the giving price after the 2014 tax reform.



# Estimation of Price Elasticities

We estimate following price elasticities:

1. Applicable price elasticities
  - Intensive-margin one
  - Extensive-margin one
2. Effective price elasticities
  - Intensive-margin one
  - Extensive-margin one

## Intensive-Margin Price Elasticity

How much do donors additionally donate reacting to the marginal increase of giving price?

$$\ln g_{it} = \varepsilon_p^{int} R_{it} \ln p_{it} + \varepsilon_y^{int} \ln y_{it} + X_{it} \beta + \mu_i + \iota_t + u_{it}. \quad (1)$$

- We restrict data to those who donated.

## Extensive-Margin Price Elasticity

How much does the probability to donate change reacting to marginal increase of giving price?

$$D_{it} = \delta R_{it} \ln p_{it} + \gamma \ln y_{it} + X_{it}\beta + \mu_i + \iota_t + v_{it}. \quad (2)$$

- Since we use the linear probability model, the estimated coefficient  $\delta$  does not represent elasticity directly ( $\hat{\delta} = \frac{\partial D_{it}}{\partial p_{it}} p_{it}$ ).
- the implied extensive-margin price elasticity are calculated by  $\hat{\delta}/\bar{D}$  where  $\bar{D}$  is sample average of outcome variable  $D_{it}$ .

## Applicable Price Elasticity (ITT Approach)

- We use giving price when tax payers declare tax relief regardless of actual declaration
- Non-declared tax payers are treated as if they have declared tax relief
  - In the treatment effect literature, this approach is sometimes called “intention-to-treat (ITT)”
- $R_{it} = 1$  for any  $i$  and  $t$  in equation (1) and (2)

## Effective Price Elasticity (IV approach)

- Declaration affects both giving price and charitable giving
- We took the panel IV model, using the employed dummy as instrument.
  - There is a difference of declaration cost of tax relief since self-employed workers have to retain the certificate until they submit tax return although wage earners can submit the certificate at any time.
- First, we estimate the following model:

$$R_{it} = \alpha_{1i} + \lambda \text{Employed}_{it} + X_{it}\beta_1 + \mu_{i1} + \iota_{t1} + \eta_{it} \quad (3)$$

- Second, we obtain the fitted value of  $R_{it}$  (denoted by  $\hat{R}_{it}$ ) and replace  $R_{it}$  with  $\hat{R}_{it}$ .

## Result of Applicable Peice Elasticitiy

Extensive-margin price elascitiy is more elastic than intensive-margin price elasticity

	Overall	Intensive	Extensive
$\hat{\varepsilon}_p^{int}$	-1.241*** (0.227)	-0.904*** (0.249)	
$\hat{\delta}$			-0.267*** (0.051)
$\hat{\delta}/\bar{D}$			-1.221*** (0.235)
Individual FE	Y	Y	Y
Time FE	Y	Y	Y
Age	Y	Y	Y
Year x Education	Y	Y	Y
Year x Gender	Y	Y	Y
Year x Resident Area	Y	Y	Y
N	53267	11637	53267
Adjusted R-squared	0.530	0.678	0.462

## Result of Effective Price Elasticity

Overall effective price elasticity is slightly more elastic than applicable one. Effective extensive-margin price elasticity is slightly less elastic than applicable one.

	Overall	Intensive	Extensive
$\hat{\varepsilon}_p^{int}$	-1.603*** (0.466)	-0.987*** (0.342)	
$\hat{\delta}$			-0.319*** (0.110)
$\hat{\delta}/\bar{D}$			-0.926*** (0.320)
Individual and time FE	Y	Y	Y
log(income)	Y	Y	Y
Age	Y	Y	Y
Year x Education	Y	Y	Y
Year x Gender	Y	Y	Y
Year x Resident Area	Y	Y	Y
Year x Dummy of industry	Y	Y	Y
N	16946	5840	16946
Adjusted R-squared	0.514	0.697	0.428

# Conclusions

## Main message

- Both ITT approach and IV approach show that the giving price elasticity in Korea is around -1.
- It implies that the effect from the declaration cost, which has been ignored, is not so large in South Korea.

## Some robustness

- Although we focus on price variation coming from tax reform and declaration of tax relief, price variation is also caused by a manipulation of giving and income.
- We take other empirical methodologies to control these problems, and obtain similar results.



## References

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