Deduction data

Last updated on 2023/12/04

Study Sample

```
use <- StartAnalysis$new(here("data/shaped2.csv"))
```

- Current sample size: 24458
  - Taxpayers
  - Positive taxable income
  - No experience of bracket (F) and (G)
  - Age ≥ 24
  - Observed between 2010 and 2018
  - Exclude observations with no donation and declaration
  - donation less than 10% of taxable total income

Summary Stats

Table 1: Summary of Current Study Sample

	N	Mean	Std.Dev.
Income and giving price			
Annual taxable income (unit: 10,000KRW)	24458	2897.09	2712.00
Appricale price	24458	0.85	0.05
Charitable giving			
Annual chariatable giving (unit: 10,000KRW)	24458	21.73	73.26
Dummary of donation > 0	24458	0.25	0.43
Dummy of declaration of giving	24458	0.16	0.36
Demographics			
Age	24458	44.06	10.86
Wage earner dummy	24456	0.72	0.45
Number of household members	24458	3.40	1.13
Number of children	24458	0.78	0.94
Number of dependents in household	24458	0.05	0.23
Number of taxpayers in household	24458	3.36	1.13
Female dummy	24458	0.33	0.47
Academic history: University	24458	0.60	0.49
Academic history: High school	24458	0.34	0.47

Additional Condition

```
use2 <- use$clone(deep = TRUE)
use2$data <- subset(
  use2$data,
  family_position == 1 & work %in% c(1, 3)
)
```

- Sample size: 15469
  - Household heads who are self-employed or full-time wage earners

Summary Stats, Again

Table 2: Summary of New Study Sample

	N	Mean	Std.Dev.
Income and giving price			
Annual taxable income (unit: 10,000KRW)	15469	3539.76	2880.97
Appricale price	15469	0.85	0.05
Charitable giving			
Annual chariatable giving (unit: 10,000KRW)	15469	26.84	84.53
Dummary of donation > 0	15469	0.27	0.45
Dummy of declaration of giving	15469	0.19	0.39
Demographics			
Age	15469	46.11	9.94
Wage earner dummy	15469	0.73	0.45
Number of household members	15469	3.32	1.18
Number of children	15469	0.90	0.97
Number of dependents in household	15469	0.07	0.27
Number of taxpayers in household	15469	3.26	1.18
Female dummy	15469	0.09	0.29
Academic history: University	15469	0.60	0.49
Academic history: High school	15469	0.33	0.47

Current Study Sample

Applicable and Effective Price Elasticities

Table 3: Current Study Sample

	Log donation			Dummy of donor		
	FE		FE-2SLS	FE		FE-2SLS
	(1)	(2)	(3)	(4)	(5)	(6)
Applicable price (β_a)	−1.156***			−0.102		
	(0.423)			(0.064)		
Effective price (β_e^{FE})		−0.905***			−3.329***	
		(0.319)			(0.096)	
Effective price (β_e^{IV})			−1.711***			−0.438*
			(0.636)			(0.262)
Log taxable income	0.537	0.543	0.421	0.330***	0.125***	0.316***
	(0.339)	(0.334)	(0.347)	(0.038)	(0.032)	(0.039)
Implied price elasticity						
Estimate				−0.416	−13.564***	−1.786*
				(0.262)	(0.389)	(1.066)
1st stage information (Excluded instrument: Applicable price)						
F-statistics of instrument			1018.269			990.833
Wu-Hausman test, p-value			0.065			< 0.001
Num.Obs.	6002	6002	6002	24 456	24 456	24 456

Elasticities on Declared Donations

Table 4: Current Study Sample

	Log donation
	FE
	(1)
Applicable price (β_a)	-0.856
	(0.601)
Log taxable income	0.113
	(0.550)
Num.Obs.	3804

Elasticities of Declaration

Table 5: Current Study Sample

	1 = Declaration
	FE
	(1)
Applicable price	−0.139**
	(0.057)
Log taxable income	0.264***
	(0.030)
Implied price elasticity	
Estimate	−0.895**
	(0.367)
Num.Obs.	24 456

Policy Effect

Table 6: Current Study Sample

		Declaration (%)		Effective price			Intensive-margin		Extensive-margin	
2013 Income bracket	N	2013	2014	2013	2014	Change (%)	2013 average	Change (%)	2013 average	Change (%)
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
(A) [0, 1200)	856	4.907	2.453	0.997	0.996	-0.064	2.452	0.105	0.107	0.124
(B) [1200, 4600)	1415	22.332	15.406	0.967	0.977	1.318	18.485	-2.162	0.283	-2.563
(C) [4600, 8800)	419	43.198	33.174	0.896	0.950	7.218	57.271	-11.845	0.504	-14.040
(D) & (E) [8800, 30000)	92	32.609	29.348	0.886	0.956	11.225	111.293	-18.420	0.467	-21.832
Weighted average						2.109		-3.461		-4.102

New Study Sample

Applicable and Effective Price Elasticities

Table 7: Main Estimaton of New Study Sample

	Log donation			Dummy of donor		
	FE		FE-2SLS	FE		FE-2SLS
	(1)	(2)	(3)	(4)	(5)	(6)
Applicable price (β_a)	−1.090**			−0.076		
	(0.508)			(0.073)		
Effective price (β_e^{FE})		−0.892**			−3.117***	
		(0.359)			(0.105)	
Effective price (β_e^{IV})			−1.558**			−0.289
			(0.734)			(0.270)
Log taxable income	0.454	0.456	0.350	0.327***	0.120***	0.319***
	(0.365)	(0.357)	(0.373)	(0.042)	(0.036)	(0.043)
Implied price elasticity						
Estimate				−0.277	−11.445***	−1.063
				(0.269)	(0.386)	(0.990)
1st stage information (Excluded instrument: Applicable price)						
F-statistics of instrument			739.508			712.079
Wu-Hausman test, p-value						
Num.Obs.	4213	4213	4213	15 469	15 469	15 469

Elasticities of Declared Donations

Table 8: New Study Sample

	Log donation
	FE
	(1)
Applicable price (β_a)	-0.797
	(0.689)
Log taxable income	0.020
	(0.532)
Num.Obs.	2889

Elasticities of Declaration

Table 9: New Study Sample

	1 = Declaration
	FE
	(1)
Applicable price	−0.119*
	(0.069)
Log taxable income	0.262***
	(0.034)
Implied price elasticity	
Estimate	−0.636*
	(0.371)
Num.Obs.	15 469

Policy Effect

Table 10: New Study Sample

		Declaration (%)		Effective price			Intensive-margin		Extensive-margin	
2013 Income bracket	N	2013	2014	2013	2014	Change (%)	2013 average	Change (%)	2013 average	Change (%)
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
(A) [0, 1200)	345	5.507	3.188	0.997	0.995	-0.141	2.781	0.203	0.107	0.174
(B) [1200, 4600)	1003	22.034	14.756	0.967	0.978	1.358	18.738	-1.959	0.270	-1.682
(C) [4600, 8800)	368	41.848	32.337	0.900	0.951	6.962	53.407	-10.039	0.489	-8.618
(D) & (E) [8800, 30000)	84	34.524	30.952	0.879	0.954	11.832	121.000	-17.061	0.488	-14.647
Weighted average						2.705		-3.901		-3.349

Current Study Sample (Excluding religious donation)

Summary Statistics of Donation

```
use3 <- use$clone(deep = TRUE)
use3$data$donate <- with(use3$data, donate - religious_donate)
use3$data$donate_ln <- with(use3$data, log(donate))
use3$data$d_donate <- with(use3$data, ifelse(donate > 0, 1, 0))
summary(use3$data$donate)
```

```
##     Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##    0.000   0.000   0.000   7.034   0.000 900.000
```

Applicable and Effective Price Elasticities

Table 11: Current study sample excluding religious donation

	Log donation			Dummy of donor		
	FE		FE-2SLS	FE		FE-2SLS
	(1)	(2)	(3)	(4)	(5)	(6)
Applicable price (β_a)	−1.543**			0.033		
	(0.680)			(0.057)		
Effective price (β_e^{FE})		−1.046**			−2.127***	
		(0.460)			(0.097)	
Effective price (β_e^{IV})			−2.164**			0.142
			(0.956)			(0.248)
Log taxable income	0.081	0.107	−0.106	0.223***	0.076***	0.227***
	(0.559)	(0.550)	(0.578)	(0.030)	(0.026)	(0.034)
Implied price elasticity						
Estimate				0.230	−14.854***	0.989
				(0.398)	(0.675)	(1.728)
1st stage information (Excluded instrument: Applicable price)						
F-statistics of instrument			592.080			990.833
Wu-Hausman test, p-value			0.081			< 0.001
Num.Obs.	3503	3503	3503	24 456	24 456	24 456

Elasticities of Declared Donations

Table 12: Current study sample excluding religious donation

	Log donation
	FE
	(1)
Applicable price (β_a)	-1.232
	(0.895)
Log taxable income	-0.007
	(0.826)
Num.Obs.	2551

Elasticities of Declaration

Table 13: Current study sample excluding religious donation

	1 = Declaration
	FE
	(1)
Applicable price	−0.139**
	(0.057)
Log taxable income	0.264***
	(0.030)
Implied price elasticity	
Estimate	−0.895**
	(0.367)
Num.Obs.	24 456

Policy Effect

Table 14: Current study sample excluding religious donation

		Declaration (%)		Effective price			Intensive-margin		Extensive-margin	
2013 Income bracket	N	2013	2014	2013	2014	Change (%)	2013 average	Change (%)	2013 average	Change (%)
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
(A) [0, 1200)	856	4.907	2.453	0.997	0.996	-0.064	1.100	0.111	0.062	-0.095
(B) [1200, 4600)	1415	22.332	15.406	0.967	0.977	1.318	8.044	-2.303	0.190	1.969
(C) [4600, 8800)	419	43.198	33.174	0.896	0.950	7.218	23.205	-12.618	0.337	10.784
(D) & (E) [8800, 30000)	92	32.609	29.348	0.886	0.956	11.225	33.674	-19.621	0.272	16.770
Weighted average						2.109		-3.686		3.151

New Study Sample (Excluding religious donation)

Summary Statistics of Donation

```
use4 <- use2$clone(deep = TRUE)
use4$data$donate <- with(use4$data, donate - religious_donate)
use4$data$donate_ln <- with(use4$data, log(donate))
use4$data$d_donate <- with(use4$data, ifelse(donate > 0, 1, 0))
summary(use4$data$donate)
```

```
##     Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##    0.000   0.000   0.000   8.642   0.000 800.000
```

Applicable and Effective Price Elasticities

Table 15: New study sample excluding religious donation

	Log donation			Dummy of donor		
	FE		FE-2SLS	FE		FE-2SLS
	(1)	(2)	(3)	(4)	(5)	(6)
Applicable price (β_a)	−1.729**			0.047		
	(0.796)			(0.067)		
Effective price (β_e^{FE})		−0.942*			−1.963***	
		(0.497)			(0.105)	
Effective price (β_e^{IV})			−2.358**			0.181
			(1.094)			(0.262)
Log taxable income	0.015	0.095	−0.162	0.223***	0.077**	0.228***
	(0.585)	(0.569)	(0.603)	(0.035)	(0.032)	(0.039)
Implied price elasticity						
Estimate				0.283	−11.780***	1.085
				(0.405)	(0.633)	(1.574)
1st stage information (Excluded instrument: Applicable price)						
F-statistics of instrument			452.140			712.079
Wu-Hausman test, p-value						
Num.Obs.	2577	2577	2577	15 469	15 469	15 469

Elasticities of Declared Donations

Table 16: New study sample excluding religious donation

	Log donation
	FE
	(1)
Applicable price (β_a)	-1.624
	(1.046)
Log taxable income	-0.299
	(0.927)
Num.Obs.	1943

Elasticities of Declaration

Table 17: New study sample excluding religious donation

	1 = Declaration
	FE
	(1)
Applicable price	−0.119*
	(0.069)
Log taxable income	0.262***
	(0.034)
Implied price elasticity	
Estimate	−0.636*
	(0.371)
Num.Obs.	15 469

Policy Effect

Table 18: New study sample excluding religious donation

		Declaration (%)		Effective price			Intensive-margin		Extensive-margin	
2013 Income bracket	N	2013	2014	2013	2014	Change (%)	2013 average	Change (%)	2013 average	Change (%)
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
(A) [0, 1200)	345	5.507	3.188	0.997	0.995	-0.141	1.237	0.254	0.067	-0.193
(B) [1200, 4600)	1003	22.034	14.756	0.967	0.978	1.358	8.423	-2.457	0.189	1.861
(C) [4600, 8800)	368	41.848	32.337	0.900	0.951	6.962	20.546	-12.593	0.332	9.537
(D) & (E) [8800, 30000)	84	34.524	30.952	0.879	0.954	11.832	36.583	-21.403	0.286	16.209
Weighted average						2.705		-4.894		3.706