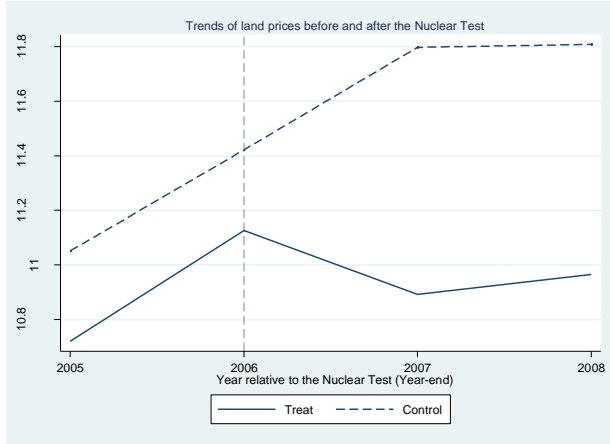
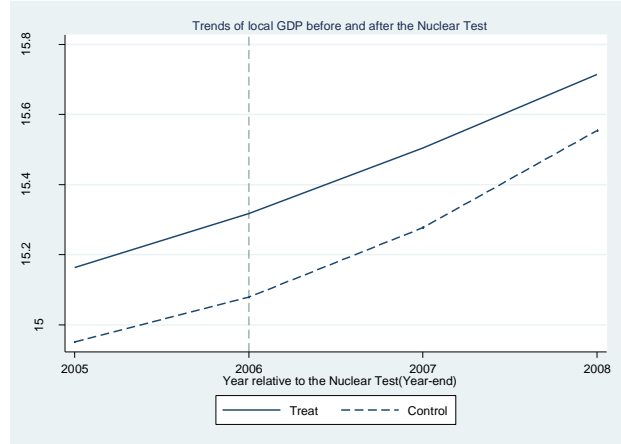


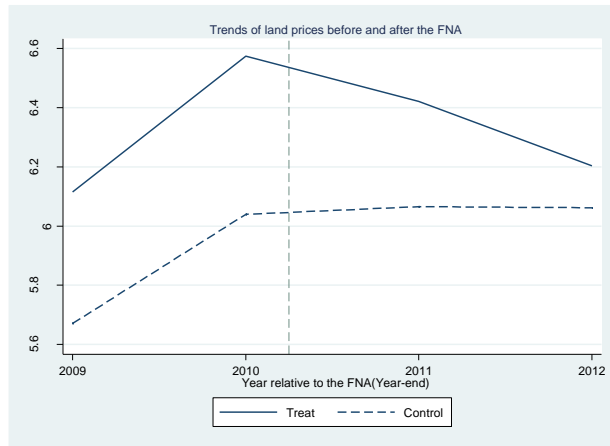
# **Online Appendix**



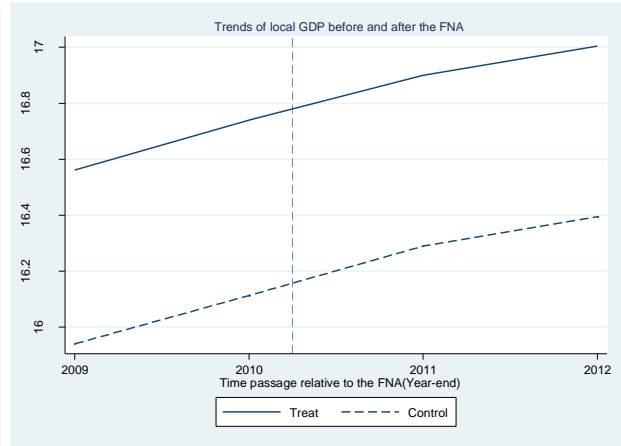
(a) Trends in land prices around nuclear test



(b) Trends in local GDP around nuclear test



(c) Trends in land around FNA



(d) Trends in local GDP around FNA

**Figure A1.** Trends in Land Prices and Local Economy Surrounding “Exogenous Shocks”

These figures show the trends in land prices and local GDP before and after the North Korean nuclear test (a and b) and the Fukushima nuclear accident (c and d). The horizontal axis stands for the time passage relative to the shocks, and the vertical axis stands for the logarithm of local land prices and GDP.

## Appendix R1. North Korean Nuclear Test Considering Distance

Panel A: Effects of North Korean Nuclear Test on Tax Avoidance Considering Distance (Subsamples)				
	<i>RPRO</i>			
	<i>Treat_Near</i> =1 (1)	<i>Treat_Near</i> =0 (2)	<i>Treat_Near</i> =1 (3)	<i>Treat_Near</i> =0 (4)
<i>PRO</i>	-0.0165 (-0.37)	-0.0057 (-0.13)	-0.0208 (-0.47)	-0.0009 (-0.02)
<i>PRO</i> × <i>Post_N</i>	0.0589*** (4.78)	0.0234* (1.93)	0.0544*** (4.39)	0.0223* (1.82)
<i>Post_N</i>			-0.0597 (-0.94)	-0.0065 (-0.16)
Other Control Variables	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	No	No
Industry FE	Yes	Yes	No	No
Ind×Year FE	No	No	Yes	Yes
City FE	Yes	Yes	Yes	Yes
Observations	7,890	8,490	7,890	8,490
Adj. R-squared	0.3228	0.2793	0.3310	0.2902

Panel B: Effects of North Korean Nuclear Test on Tax Avoidance Considering Distance (Interactions)				
	<i>RPRO</i>			
	Dummy variable <i>Treat_Near</i>		Continuous variable <i>Treat_Distance</i>	
	(1)	(2)	(3)	(4)
<i>PRO</i>	0.0008 (0.02)	-0.0008 (-0.02)	-0.0189 (-0.55)	-0.0210 (-0.62)
<i>PRO</i> × <i>Treat_N</i> × <i>Post_N</i>	0.0437** (2.54)	0.0394** (2.31)	3.3292*** (2.87)	3.0207*** (2.64)
<i>Post_N</i>		-0.0507 (-1.31)		-0.0473 (-1.24)
Other Control Variables	Yes	Yes	Yes	Yes
Year FE	Yes	No	Yes	No
Industry FE	Yes	No	Yes	No
Ind×Year FE	No	Yes	No	Yes
City FE	Yes	Yes	Yes	Yes
Observations	16,380	16,380	16,380	16,380
Adj. R-squared	0.3068	0.3147	0.3082	0.3159

*Notes.* This table presents results regarding the North Korean nuclear test using an alternative identification of the treatment group. In Panel A, we investigate the effect of the North Korean nuclear test considering the distance between the nuclear test site and the influenced city. We calculate the distance based on latitude and longitude information. We separate the treated sample into two groups according to the sample median distance. *Treat\_Near* equals 1 if the distance is below the sample median, and 0 otherwise. In Panel B, *Treat\_Distance* is a continuous variable, which equals the inverse of the distance between the influenced city and the test site. *T-statistics* based on robust standard errors clustered at the firm level are reported in parentheses.

\*\*\*, \*\*, and \* represent significance at the 0.01, 0.05, and 0.10 levels, respectively.

## Appendix R2. Impact of Budget Deficit on Land Supply and Land Revenue

	Land supply	Land revenue	
	$\Delta LAND_{supply}$ (1)	$\Delta LAND_{loss}$ (2)	$D\_Loss$ (3)
$L\_DEFICIT_{budget}$	0.0344*** (2.74)	-0.3318 (-1.60)	0.2072 (0.99)
$Ln(Pop\_Increase)$	-0.0063* (-1.68)	0.0357 (0.51)	-0.1074 (-1.52)
$Ln(GDP\_per\_Increase)$	-0.0050 (-0.90)	0.2262** (2.51)	-0.1527 (-1.49)
$TENURE$	-0.0006 (-0.53)	0.0296 (1.30)	0.0345* (1.82)
$TENURE\_Square$	0.0003 (0.17)	0.0098 (0.39)	0.0173 (0.71)
$IND_2$	0.0026 (0.49)	0.0085 (0.12)	0.0608 (0.73)
$IND_3$	-0.0004 (-0.63)	0.0001 (0.02)	-0.0103 (-1.02)
$Constant$	0.1497 (1.47)	-5.5483*** (-2.96)	2.4673 (1.23)
Year FE	Yes	Yes	Yes
City FE	Yes	Yes	Yes
Observations	2,743	2,743	2,743
Adj. R-squared	0.0625	0.1223	
Pseudo R <sup>2</sup>			0.1647

*Notes.* This table presents the regression results of examining the determinants of land finance.  $\Delta LAND_{supply}$  equals  $LAND_{supply}$  in year  $t$  minus the value in year  $t-1$ , indicating the increase in land supply, where  $LAND_{supply}$  equals the logarithm of local land supply.  $\Delta LAND_{loss}$  equals  $LAND$  in year  $t-1$  minus  $LAND$  in year  $t$  then divided by  $LAND$  in year  $t-1$ , where  $LAND$  is the state-owned land transfer revenue divided by local GDP.  $D\_Loss$  equals 1 if  $\Delta LAND_{loss}$  is above zero, and 0 otherwise. Following the work of Hsu et al. (2017), we control for the following variables:  $L\_DEFICIT_{budget}$  is the lagged value of the budget deficit.  $DEFICIT_{budget}$  is government budgetary expenditure minus budgetary income, then divided by local fiscal income.  $Ln(Pop\_Increase)$  is the logarithm of the population increase.  $Ln(GDP\_per\_Increase)$  is the logarithm of the increase in GDP per capita.  $TENURE$  is the length of the prefectural party secretary's term.  $TENURE\_Square$  is the square of  $TENURE$ .  $IND_2$  ( $IND_3$ ) is the secondary (tertiary) industry ratio. In column (3), we use a logit model. *T-statistics* based on robust standard errors clustered at the city level are reported in parentheses.

\*\*\*, \*\*, and \* represent significance at the 0.01, 0.05, and 0.10 levels, respectively.

### Appendix R3. Alleviating Effect of Governments' Budgetary Pressure

Panel A: Using Residual of Land Sales Revenue Loss		
	<i>RPRO</i>	
	(1)	(2)
<i>PRO</i>	-0.0123*	-0.0138**
	(-1.91)	(-2.13)
<i>PRO</i> × <i>Residual</i> $\Delta$ <i>LAND</i> <sub>loss</sub>	0.0028***	0.0028***
	(4.40)	(4.47)
<i>Residual</i> $\Delta$ <i>LAND</i> <sub>loss</sub>	-0.0003***	-0.0003***
	(-2.95)	(-3.34)
Other Control Variables	Yes	Yes
Year FE	Yes	No
Industry FE	Yes	No
Ind×Year FE	No	Yes
City FE	Yes	Yes
Observations	540,374	540,374
Adj. R-squared	0.3813	0.3870
Panel B: Using a Propensity-Score-Matched Sample		
	<i>RPRO</i>	
	(1)	(2)
<i>PRO</i>	-0.0486**	-0.0481**
	(-2.25)	(-2.25)
<i>PRO</i> × <i>D</i> <sub>Loss</sub>	0.0334***	0.0318***
	(3.34)	(3.24)
<i>D</i> <sub>Loss</sub>	-0.0112***	-0.0103***
	(-3.48)	(-3.44)
Other Control Variables	Yes	Yes
Year FE	Yes	No
Industry FE	Yes	No
Ind×Year FE	No	Yes
City FE	Yes	Yes
Observations	455,230	455,230
Adj. R-squared	0.3931	0.3982

*Notes.* This table presents the regression results considering the potential effect of the governments' budgetary pressure and local economic conditions. In Panel A, we use the residual from the regression of the determinants of land finance. We regress  $\Delta$ *LAND*<sub>loss</sub> and the influencing factors at the city level and get the regression residual which is orthogonal to the local economic factors. Those factors include: *L.DEFICIT*<sub>budget</sub>, the government budget deficit in the previous year, measured as the difference between budgetary expenditure and budgetary income in year *t*-1, scaled by budgetary income in year *t*-1; *Ln*(*Pop\_Increase*), the logarithm of the population increase; *Ln*(*GDP\_per\_Increase*), the logarithm of the increase in GDP per capita; *TENURE*, the length of the prefectural party secretary's term; *TENURE\_Square*, the square of *TENURE*; *IND*<sub>2</sub>, the secondary industry ratio; *IND*<sub>3</sub>, the tertiary industry ratio; *Ln*(*AREA*), the logarithm of the land area; *L.INVEST*, the lagged value of the local investment ratio; *L.INCOME\_T* (*L.EXPENSE\_T*), the lagged value of the proportion of transfer payments in local government income (expense). We regress the main model using the residual of the land revenue loss (*Residual*  $\Delta$ *LAND*<sub>loss</sub>). In Panel B, we re-estimate the model using the propensity-score-matched sample. *D*<sub>Loss</sub> equals 1 if  $\Delta$ *LAND*<sub>loss</sub> is above zero, which defines the treatment group. We identify the control group based on city- and firm-level characteristics. *T*-statistics based on robust standard errors clustered at the firm level are reported in parentheses.

\*\*\*, \*\*, and \* represent significance at the 0.01, 0.05, and 0.10 levels, respectively.

**Appendix R4. Excluding Observations in Municipalities**

	<i>RPRO</i>			
	Excluding Municipalities		Excluding Municipalities and Sub-provincial Cities	
	(1)	(2)	(3)	(4)
<i>PRO</i>	-0.0069 (-0.40)	-0.0092 (-0.54)	-0.0124 (-0.82)	-0.0151 (-1.01)
<i>PRO</i> × $\Delta LAND_{loss}$	0.0072*** (4.78)	0.0063*** (4.32)	0.0068*** (4.53)	0.0059*** (4.02)
$\Delta LAND_{loss}$	-0.0009** (-1.98)	-0.0008* (-1.90)	-0.0009* (-1.96)	-0.0008* (-1.79)
Other Control Variables	Yes	Yes	Yes	Yes
Year FE	Yes	No	Yes	No
Industry FE	Yes	No	Yes	No
Ind × Year FE	No	Yes	No	Yes
City FE	Yes	Yes	Yes	Yes
Observations	614,322	614,322	501,520	501,520
Adj. R-squared	0.3813	0.3876	0.3964	0.4021

*Notes.* This table presents the regression results after deleting the observations in four municipalities (Beijing, Tianjin, Shanghai, and Chongqing) and fifteen sub-provincial cities (Guangzhou, Nanjing, Shenzhen, Wuhan, Shenyang, Xi'an, Chengdu, Jinan, Hangzhou, Harbin, Changchun, Dalian, Qingdao, Xiamen, and Ningbo). *T-statistics* based on robust standard errors clustered at the city level are reported in parentheses.

\*\*\*, \*\*, and \* represent significance at the 0.01, 0.05, and 0.10 levels, respectively.

**Appendix R5. Alternative Measures of  $\Delta LAND_{loss}$**

	<i>RPRO</i>			
	$\Delta LAND_{1loss}$	$\Delta LAND_{1loss}$	$\Delta LAND_{2loss}$	$\Delta LAND_{2loss}$
	(1)	(2)	(3)	(4)
<i>PRO</i>	-0.0005 (-0.03)	-0.0024 (-0.14)	0.0005 (0.03)	-0.0015 (-0.09)
<i>PRO</i> × $\Delta LAND_{loss}$	0.0043*** (3.00)	0.0038*** (2.66)	0.0084*** (3.52)	0.0076*** (3.21)
$\Delta LAND_{loss}$	-0.0006* (-1.67)	-0.0006* (-1.68)	-0.0014** (-2.19)	-0.0013** (-2.10)
Other Control Variables	Yes	Yes	Yes	Yes
Year FE	Yes	No	Yes	No
Industry FE	Yes	No	Yes	No
Ind × Year FE	No	Yes	No	Yes
City FE	Yes	Yes	Yes	Yes
Observations	687,908	687,908	687,908	687,908
Adj. R-squared	0.3744	0.3808	0.3746	0.3810

*Notes.* This table presents the results of robustness tests using alternative measures of  $\Delta LAND_{loss}$ . In columns (1) and (2), we replace  $\Delta LAND_{loss}$  with  $\Delta LAND_{1loss}$ , where  $LAND_1$  is defined as state-owned land transfer revenues divided by local fiscal revenues.  $\Delta LAND_{1loss}$  equals  $LAND_1$  in year  $t-1$  minus  $LAND_1$  in year  $t$ , divided by  $LAND_1$  in year  $t-1$ . In columns (3) and (4), we replace  $\Delta LAND_{loss}$  with  $\Delta LAND_{2loss}$ , where  $LAND_2$  is defined as state-owned land transfer revenues divided by the fiscal expenditure of the whole city.  $\Delta LAND_{2loss}$  equals  $LAND_2$  in year  $t-1$  minus  $LAND_2$  in year  $t$ , divided by  $LAND_2$  in year  $t-1$ . *T-statistics* based on robust standard errors clustered at the city level are reported in parentheses.

\*\*\*, \*\*, and \* represent significance at the 0.01, 0.05, and 0.10 levels, respectively.

**Appendix R6. Endogeneity Test Conducted by Adding Potential Omitted Variables**

	<i>RPRO</i>						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
<i>PRO</i>	0.0486*** (2.74)	0.0802*** (2.98)	-0.4350*** (-3.20)	0.0426*** (3.45)	-0.0003 (-0.01)	0.0370** (2.07)	-0.2062** (-2.46)
<i>PRO</i> × $\Delta$ <i>LAND</i> <sub>loss</sub>	0.0072*** (5.92)	0.0071*** (5.11)	0.0042*** (3.24)	0.0041*** (5.11)	0.0069*** (5.52)	0.0062*** (5.22)	0.0024*** (3.00)
$\Delta$ <i>LAND</i> <sub>loss</sub>	-0.0006* (-1.93)	-0.0006* (-1.96)	-0.0006* (-1.92)	-0.0003** (-2.08)	-0.0008*** (-2.64)	-0.0005 (-1.61)	-0.0004** (-2.08)
<i>PRO</i> × <i>INVENTORY</i>	-0.2239*** (-13.32)	-0.2216*** (-13.40)	-0.2128*** (-12.87)	-0.1266*** (-12.20)	-0.2181*** (-12.91)	-0.2209*** (-13.16)	-0.1215*** (-11.42)
<i>INVENTORY</i>	0.0475*** (9.10)	0.0472*** (8.80)	0.0473*** (9.02)	0.0302*** (10.28)	0.0461*** (8.10)	0.0469*** (8.96)	0.0298*** (8.80)
<i>PRO</i> × <i>DEPRECIATION</i>	-0.1907*** (-7.98)	-0.1908*** (-7.78)	-0.1972*** (-8.25)	-0.1102*** (-4.72)	-0.1927*** (-8.03)	-0.1927*** (-7.85)	-0.1177*** (-4.89)
<i>DEPRECIATION</i>	0.4013*** (19.97)	0.4024*** (19.74)	0.4054*** (19.63)	0.2520*** (21.10)	0.4102*** (20.89)	0.4028*** (19.37)	0.2656*** (21.83)
<i>PRO</i> × <i>LIA</i>	-0.0743*** (-7.46)	-0.0729*** (-7.22)	-0.0709*** (-7.22)	-0.0383*** (-6.53)	-0.0684*** (-7.12)	-0.0728*** (-7.13)	-0.0346*** (-5.82)
<i>LIA</i>	-0.0862*** (-25.00)	-0.0868*** (-23.81)	-0.0857*** (-23.93)	-0.0365*** (-25.29)	-0.0864*** (-22.94)	-0.0863*** (-24.70)	-0.0374*** (-21.47)
<i>PRO</i> × <i>ADMIN</i>	0.0136 (0.52)	0.0093 (0.36)	-0.0062 (-0.24)	0.0192 (0.98)	0.0048 (0.18)	0.0094 (0.35)	0.0037 (0.17)
<i>ADMIN</i>	0.0046 (0.17)	0.0073 (0.26)	0.0090 (0.33)	-0.0361** (-2.11)	0.0232 (0.85)	0.0066 (0.24)	-0.0188 (-1.06)
<i>PRO</i> × <i>GDP_G</i>		-0.0025* (-1.86)					0.0007 (0.86)
<i>GDP_G</i>		0.0021*** (3.56)					0.0008*** (3.09)
<i>PRO</i> × <i>Ln(GDP)</i>			0.0259*** (3.69)				0.0126*** (2.68)
<i>Ln(GDP)</i>			0.1298*** (4.15)				0.0477*** (3.47)
<i>PRO</i> × <i>lag.RRPO</i>				0.0485*** (3.11)			0.0383** (2.44)
<i>lag.RRPO</i>				0.5325*** (35.96)			0.5291*** (33.17)
<i>PRO</i> × <i>POLLUTION</i>					0.0104 (0.90)		-0.0012 (-0.15)
<i>POLLUTION</i>					0.0162 (1.30)		0.0046 (0.82)
<i>PRO</i> × <i>UNEMPLOYMENT</i>						0.2307* (1.83)	0.1472 (1.29)
<i>UNEMPLOYMENT</i>						0.1417* (1.72)	-0.0129 (-0.25)
Other Control Variables	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
City FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	683,218	659,644	683,218	494,800	607,736	677,871	417,394
Adj. R-squared	0.4541	0.4543	0.4577	0.6389	0.4621	0.4560	0.6438

*Notes.* This table presents the results of robustness tests. We control inventory (*INVENTORY*), current depreciation

(*DEPRECIATION*), current liabilities (*LIA*), and administrative expenses (*ADMIN*), respectively, which are all scaled by total assets. We also control for local GDP growth (*GDP\_G*), the logarithm of local GDP (*Ln(GDP)*), the real profits from the last year (*lag.RPRO*), the logarithm of local PM<sub>2.5</sub> (*POLLUTION*), and the unemployment ratio (*UNEMPLOYMENT*) in the model. *T-statistics* based on robust standard errors clustered at the city level are reported in parentheses.

\*\*\*, \*\*, and \* represent significance at the 0.01, 0.05, and 0.10 levels, respectively.

## Appendix R7. Subsample Analysis Conditioned on Ownership

	<i>RPRO</i>	
	<i>Non_SOE</i> (1)	<i>SOE</i> (2)
<i>PRO</i>	-0.0389** (-2.21)	0.0416*** (2.74)
<i>PRO</i> × $\Delta$ <i>LAND</i> <sub>loss</sub>	0.0084*** (3.99)	0.0038*** (6.07)
( <i>p</i> -value for equality test) $\Delta$ <i>LAND</i> <sub>loss</sub>	-0.0014** (-1.98)	0.0001 (0.63)
Other Control Variables	Yes	Yes
Year FE	Yes	Yes
Industry FE	Yes	Yes
City FE	Yes	Yes
Observations	387,422	115,530
Adj. R-squared	0.3996	0.2417

*Notes.* This table presents the regression results for firms with different ultimate controllers. The sample is divided into three groups. *Non\_SOE* is a binary variable that equals 1 if the firm is a collective or a private firm, and 0 otherwise. *SOE* is a binary variable that equals 1 if the firm is a state-owned enterprise, and 0 otherwise. The Wald test provides the one-sided *p*-value (in square brackets) for a test of whether the coefficient on *PRO* ×  $\Delta$ *LAND*<sub>loss</sub> differs significantly between the two subsamples. *T*-statistics based on robust standard errors clustered at the city level are reported in parentheses.

\*\*\*, \*\*, and \* represent significance at the 0.01, 0.05, and 0.10 levels, respectively.

## Appendix R8. Cross-sectional Analyses on the Mechanism of Tax Enforcement

Panel A: Effects of Land Finance on Tax Avoidance Conditioned on Tax Officer Growth				
	<i>RPRO</i>			
	<i>D_OFFICER_G</i>	<i>D_OFFICER_G</i>	<i>D_OFFICER_G</i>	<i>D_OFFICER_G</i>
	=1 (1)	=0 (2)	=1 (3)	=0 (4)
<i>PRO</i>	0.0060 (0.28)	0.0214 (0.85)	0.0078 (0.36)	0.0188 (0.75)
<i>PRO</i> × $\Delta$ <i>LAND</i> <sub>loss</sub>	0.0164* (1.83)	0.0068** (2.30)	0.0160* (1.81)	0.0054* (1.91)
( <i>p</i> -value for equality test)	[0.0061***]		[0.0064***]	
$\Delta$ <i>LAND</i> <sub>loss</sub>	-0.0078*** (-2.87)	-0.0005 (-0.70)	-0.0076*** (-2.82)	-0.0004 (-0.62)
Other Control Variables	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	No	No
Industry FE	Yes	Yes	No	No
Ind × Year FE	No	No	Yes	Yes
City FE	Yes	Yes	Yes	Yes
Observations	256,809	250,815	256,809	250,815
Adj. R-squared	0.3927	0.4044	0.3997	0.4114

Panel B: Effects of Land Finance on Tax Avoidance Conditioned on Tax Enforcement Effort				
	<i>RPRO</i>			
	<i>D_TEE</i> =1	<i>D_TEE</i> =0	<i>D_TEE</i> =1	<i>D_TEE</i> =0
	(1)	(2)	(3)	(4)
<i>PRO</i>	0.0039 (0.15)	-0.0022 (-0.11)	0.0016 (0.07)	-0.0033 (-0.18)
<i>PRO</i> × $\Delta$ <i>LAND</i> <sub>loss</sub>	0.0084*** (4.04)	0.0047** (2.24)	0.0076*** (3.74)	0.0038* (1.89)
( <i>p</i> -value for equality test)	[0.0343**]		[0.0323**]	
$\Delta$ <i>LAND</i> <sub>loss</sub>	0.0002 (0.36)	-0.0012** (-2.17)	0.0002 (0.57)	-0.0010** (-2.04)
Other Control Variables	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	No	No
Industry FE	Yes	Yes	No	No
Ind × Year FE	No	No	Yes	Yes
City FE	Yes	Yes	Yes	Yes
Observations	343,366	344,542	343,366	344,542
Adj. R-squared	0.3770	0.4055	0.3833	0.4107

Panel C: Effects of Land Finance on Tax Avoidance Conditioned on Tax Enforcement Intensity				
	<i>RPRO</i>			
	<i>Q_TEI</i> =1	(2) <i>Q_TEI</i> =0	(3) <i>Q_TEI</i> =1	(4) <i>Q_TEI</i> =0
	(1)	(2)	(3)	(4)
<i>PRO</i>	-0.0028 (-0.14)	0.0115 (0.35)	-0.0029 (-0.15)	0.0077 (0.24)
<i>PRO</i> × $\Delta$ <i>LAND</i> <sub>loss</sub>	0.0073*** (3.24)	0.0068*** (3.30)	0.0063*** (2.79)	0.0061*** (3.05)
( <i>p</i> -value for equality test)	[0.0935*]		[0.0978*]	
$\Delta$ <i>LAND</i> <sub>loss</sub>	0.0003 (0.43)	-0.0008* (-1.66)	0.0003 (0.48)	-0.0006 (-1.54)
Other Control Variables	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	No	No
Industry FE	Yes	Yes	No	No

Ind×Year FE	No	No	Yes	Yes
City FE	Yes	Yes	Yes	Yes
Observations	366,407	321,470	366,407	321,470
Adj. R-squared	0.3869	0.3571	0.3940	0.3633

*Notes.* This table presents the results for the cross-sectional variation tests based on tax enforcement measures. In Panel A,  $D\_OFFICER\_G$  equals 1 if the ratio of  $OFFICER\_G$  in the current year to the average value of that variable in the previous two years is above the sample median, and 0 otherwise. In Panel B,  $D\_TEE$  equals 1 if  $TEE$  is above the sample median, and 0 otherwise. In Panel C,  $Q\_TEI$  equals 1 for firms headquartered in regions with stronger enforcement intensity, and 0 for firms in regions with lower intensity. The regional intensity is defined following Lin et al. (2018). The Wald test provides the one-sided  $p$ -value (in square brackets) for testing whether the coefficient on  $PRO \times \Delta LAND_{loss}$  differs significantly between the two subsamples.  $T$ -statistics based on robust standard errors clustered at the city level are reported in parentheses.

\*\*\*, \*\*, and \* represent significance at the 0.01, 0.05, and 0.10 levels, respectively.

**Appendix R9. Ruling Out Firms' Tax Avoidance Motives as Confounding Factors**

Panel A: Effects of Land Finance on Tax Avoidance Conditioned on Product Market Competition				
	<i>RPRO</i>			
	<i>D_HHI=1</i>	<i>D_HHI=0</i>	<i>D_HHI=1</i>	<i>D_HHI=0</i>
	(1)	(2)	(3)	(4)
<i>PRO</i>	-0.0034 (-0.19)	0.0010 (0.05)	-0.0047 (-0.27)	0.0002 (0.01)
<i>PRO</i> × $\Delta$ <i>LAND</i> <sub>loss</sub>	0.0082*** (4.53)	0.0064*** (4.62)	0.0066*** (3.68)	0.0062*** (4.55)
<i>(p-value for equality test)</i>	[0.3252]		[0.3387]	
$\Delta$ <i>LAND</i> <sub>loss</sub>	-0.0006 (-1.56)	-0.0005 (-0.98)	-0.0005 (-1.19)	-0.0006 (-1.23)
Other Control Variables	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	No	No
Industry FE	Yes	Yes	No	No
Ind × Year FE	No	No	Yes	Yes
City FE	Yes	Yes	Yes	Yes
Observations	329,067	358,841	329,067	358,841
Adj. R-squared	0.3956	0.3581	0.4016	0.3640

Panel B: Effects of Land Finance on Tax Avoidance Conditioned on Firm Size				
	<i>RPRO</i>			
	<i>D_LargeFirm=1</i>	<i>D_LargeFirm=0</i>	<i>D_LargeFirm=1</i>	<i>D_LargeFirm=0</i>
	(1)	(2)	(3)	(4)
<i>PRO</i>	0.0469** (2.13)	-0.0416** (-2.35)	0.0441** (2.01)	-0.0422** (-2.38)
<i>PRO</i> × $\Delta$ <i>LAND</i> <sub>loss</sub>	0.0051*** (4.05)	0.0067*** (3.89)	0.0041*** (3.36)	0.0062*** (3.67)
<i>(p-value for equality test)</i>	[0.2275]		[0.1927]	
$\Delta$ <i>LAND</i> <sub>loss</sub>	-0.0004 (-1.33)	-0.0007 (-1.17)	-0.0004 (-1.22)	-0.0007 (-1.19)
Other Control Variables	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	No	No
Industry FE	Yes	Yes	No	No
Ind × Year FE	No	No	Yes	Yes
City FE	Yes	Yes	Yes	Yes
Observations	343,948	343,960	343,948	343,960
Adj. R-squared	0.2967	0.4274	0.3041	0.4321

Panel C: Effects of Land Finance on Tax Avoidance Conditioned on Financial Constraints				
	<i>RPRO</i>			
	<i>H_Constraint=1</i>	<i>H_Constraint=0</i>	<i>H_Constraint=1</i>	<i>H_Constraint=0</i>
	(1)	(2)	(3)	(4)
<i>PRO</i>	-0.0301 (-1.54)	0.0340* (1.91)	-0.0296 (-1.52)	0.0306* (1.72)
<i>PRO</i> × $\Delta$ <i>LAND</i> <sub>loss</sub>	0.0069*** (3.96)	0.0072*** (4.88)	0.0062*** (3.62)	0.0062*** (4.35)
<i>(p-value for equality test)</i>	[0.3280]		[0.2457]	
$\Delta$ <i>LAND</i> <sub>loss</sub>	-0.0007 (-1.36)	-0.0006 (-1.42)	-0.0007 (-1.45)	-0.0005 (-1.29)
Other Control Variables	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	No	No

Industry FE	Yes	Yes	No	No
Ind×Year FE	No	No	Yes	Yes
City FE	Yes	Yes	Yes	Yes
Observations	315,160	372,438	315,160	372,438
Adj. R-squared	0.3738	0.3791	0.3798	0.3857

*Notes.* This table presents the effects of land finance on tax avoidance considering firm motivations. In Panel A, we separate the sample into two groups based on product market competition. The Herfindahl index (*HHI*) is used to measure market competition, calculated as the sum of the squares of the market shares (by sales) of all firms in the industry. *HHI* is negatively correlated with competition. *D\_HHI* equals 1 if *HHI* is above the yearly sample median. In Panel B, we separate the sample into two groups according to the sample median of firm size, measured as the logarithm of total assets. *D\_LargeFirm* equals 1 if firm size is above the yearly sample median. In Panel C, we separate our sample into two groups according to the firms' financial constraints. We use firm age to measure the financial constraints. *H\_Constraint* equals 1 if the firm age is below the yearly sample median. The Wald test provides the one-sided *p*-value (in square brackets) for a test of whether the coefficient on  $PRO \times \Delta LAND_{loss}$  differs significantly between the two subsamples. *T-statistics* based on robust standard errors clustered at the city level are reported in parentheses.

\*\*\*, \*\*, and \* represent significance at the 0.01, 0.05, and 0.10 levels, respectively.