ONLINE APPENDIX

Harnessing Deductions to Increase
Tax Compliance and Formalization

Albrecht Bohne and Jan Sebastian Nimczik

A Additional Tables and Figures

Table A.1: List of Deduction Categories and Deductible Items

Category	Subcategory	Examples
Housing		
	Rent	Rent of a single property used for housing
	Mortgage loan interest	The interests of mortgage loans granted by authorized institutions, intended for the expansion, remodeling, restoration, acquisition or construction, of a single dwelling used for housing.
	Basic services	Payments for basic services that include water, gas, electricity, landline telephone, and condominium fee for a single property used for housing.
	Property tax	Property taxes for a single real estate property used for housing.
	Alimony	Alimony, duly supported by a mediation agreement or court ruling.
	Other expenses	Allocated for the acquisition, construction, remodeling, expansion, improvement, and maintenance of a single real estate property.
Education		
	Enrollment and Tuition	Enrollment and tuition at all levels of the educational system, including early education, basic general education, high school, and higher education.
		School transportation.
		Graduation rights.
		Payment of interest on educational credits granted by duly authorized institutions.
	School supply and textbooks	School supplies, textbooks, computer equipment, and educational materials used in education.
	Education for people with disabilities	Special education services for people with disabilities.
	Child care and/or development	Services provided by child care and/or development centers.
	Uniforms	
Health		
	Professional health fees	Fees for doctors and health professionals with professional degrees.
	Health services	Health services provided by authorized clinics, hospitals, laboratories, and pharmacies.
	Medication and others	Medications, medical supplies, glasses, orthotics, prosthetics and other health accessories.
	Prepaid medicine and health insurance premia	Prepaid medicine and health insurance premium in individual and corporate contracts.
	Insurance deductible	The non-reimbursed deductible from the private insurance settlement.
	Alimony	Alimony, duly supported by a mediation agreement or court resolution.
	Other expenses	Related to physical and mental well-being, as well as those aimed at prevention, recovery, and rehabilitation of health.
Nutrition		
	Food	Purchases of food for human consumption and other natural or artificial products.
	Alimony	Alimony, duly substantiated in a mediation agreement or court ruling.
	Restaurants	Purchase of food at prepared food distribution centers.
Clothing		
	Clothing	Any expenditure on any type of clothing will be considered as clothing expenses.
	Alimony	Alimony, duly supported by a mediation agreement or court ruling.

This table shows the five deduction categories and lists examples for each category, translating the official document provided by the *Servicio de Rentas Internas* of Ecuador.

Table A.2: Estimation - Sensitivity Checks and Instrumental Variables Estimation

	(1)	(2)	(3)	(4)
Panel A. DiD - Excluding Regions with a High Share of High-income Earners				
	Deductions	Self-employment Profits	Profits Large Businesses	# Tax Declarations
TWFE: Intensity × Post	69.30	131.1	-2.636	104.4
	(11.19)	(12.53)	(0.711)	(19.15)
Observations	2,130	2,130	2,130	2,130
Non-parametric ATT: 2008	24.48	115.86	-0.852	93.19
	(6.930)	(25.615)	(2.799)	(14.607)
Non-parametric ATT: 2015	77.51	113.47	-0.963	123.97
	(26.416)	(35.458)	(4.477)	(30.727)
Observations	213	213	213	213
Panel B. DiD - Alternative Treatment (High-income Earners in Upper Half of Tax Schedule)				
	Deductions	Self-employment Profits	Profits Large Businesses	# Tax Declarations
TWFE: Intensity × Post	71.27	85.53	0.880	52.56
	(6.07)	(3.58)	(0.336)	(3.55)
Observations	2,190	2,190	2,190	2,190
Non-parametric ATT: 2008	51.68	167.63	1.335	112.16
	(22.91)	(50.09)	(0.564)	(28.45)
Non-parametric ATT: 2015	154.77	176.81	-5.258	136.61
	(70.81)	(56.79)	(1.861)	(36.52)
Observations	219	219	219	219
Panel C. Instrumental Variables Approach				
IV: Deductions × Post		1.37	0.009	0.91
		(0.104)	(0.004)	(0.098)
Observations		2190	2190	2190
First-stage F-stat		255.44	255.44	255.44
Panel D: Triple-differences with Region × Year Fixed Effects				
	Total Effect: Profits	Extensive Margin: # Declarations	Intensive Margin: Incumbents' Profits	
Doctors versus veterinarians				
Intensity × Doc × Post	2426.0	0.0539	6521.2	
	(518.5)	(0.0111)	(1788.2)	
Observations	247,367	247,367	4,056	
Teachers vs. social service professions				
Intensity × Teacher × Post	873.1	0.0246	526.1	
	(529.4)	(0.0177)	(2056.2)	
Observations	86266	86266	882	
Predicted vs. non-predicted				
Intensity × Predicted × Post	574.0	0.0169	1155.2	
	(195.8)	(0.00499)	(737.1)	
Observations	5,056,340	5,056,340	99,395	

The table presents sensitivity checks of our main results from the difference-in-differences regression at the region (*cantón*) level in Equation (1) and the triple difference regression with affected and unaffected professions at the self-employed level in Equation (2). All definitions correspond to those for the main results in Table 3. In Panel A, we estimate Equation (1) excluding all regions in the highest quintile in the (population-weighted) distribution of high-income earners, i.e., all regions where the share of high-income earners exceeds 0.02. In Panel B, we estimate the effect of the (potentially endogenous) amount of deductions in a region on self-employment profits and tax declarations using the pre-treatment share of high-income earners in 2007 as an instrumental variable. In Panel C, we estimate Equation (2) using interacted region-by-year fixed effects.

Table A.3: Household Characteristics and Demand for Deductibles: Descriptives from the Household Survey Data

	(1)	(2)	(3)	(4)	(5)	(6)
Panel A: Pre Reform (2004)						
	Affected Households (N=1,420)			Control Households (N=1,278)		
	Mean	sd	p50	Mean	sd	p50
Demographics						
Age hh head	45.44	11.53	44.00	44.73	12.31	43.00
Female hh head	0.12	0.32	0.00	0.14	0.34	0.00
High school degree	0.27	0.44	0.00	0.38	0.49	0.00
Tertiary education	0.63	0.48	1.00	0.39	0.49	0.00
Number hh members	4.17	1.65	4.00	4.29	1.77	4.00
... below 5	0.43	0.68	0.00	0.51	0.72	0.00
... between 6 & 12	0.59	0.79	0.00	0.65	0.83	0.00
... between 13 &18	0.55	0.77	0.00	0.52	0.76	0.00
Mountain region	0.60	0.49	1.00	0.56	0.50	1.00
Expenditures						
Expenditure per capita	278.04	237.01	213.21	162.29	153.88	124.31
Share deductible	0.54	0.17	0.56	0.61	0.16	0.63
Share clothing	0.09	0.06	0.09	0.10	0.06	0.09
Share education	0.11	0.10	0.09	0.09	0.09	0.06
Share food	0.22	0.13	0.21	0.29	0.14	0.28
Share health	0.06	0.05	0.05	0.06	0.06	0.04
Share housing	0.06	0.05	0.04	0.07	0.07	0.05
Panel B: Post Reform (2011/12)						
	Affected Households (N=4,594)			Control Households (N=3,222)		
	Mean	sd	p50	Mean	sd	p50
Demographics						
Age hh head	47.44	12.27	47.00	45.16	13.09	44.00
Female hh head	0.16	0.36	0.00	0.16	0.37	0.00
High school degree	0.28	0.45	0.00	0.43	0.50	0.00
Tertiary education	0.59	0.49	1.00	0.31	0.46	0.00
Number hh members	3.98	1.59	4.00	4.15	1.76	4.00
... below 5	0.41	0.64	0.00	0.48	0.71	0.00
... between 6 & 12	0.53	0.73	0.00	0.62	0.78	0.00
... between 13 &18	0.48	0.71	0.00	0.51	0.74	0.00
Mountain region	0.61	0.49	1.00	0.55	0.50	1.00
Expenditures						
Expenditure per capita	465.07	455.66	345.68	249.30	187.53	199.81
Share deductible	0.56	0.16	0.58	0.63	0.14	0.66
Share clothing	0.08	0.05	0.07	0.08	0.06	0.07
Share education	0.07	0.08	0.05	0.06	0.08	0.03
Share food	0.26	0.13	0.25	0.33	0.14	0.32
Share health	0.07	0.07	0.05	0.07	0.08	0.05
Share housing	0.08	0.09	0.04	0.09	0.09	0.05

This table presents descriptive statistics of the household survey data used in the analysis of demand effects in Section 5. Panel A reports summary statistics for the pre-reform wave in 2004, panel B for the post-reform wave in 2011/12. The table reports both demographics and expenditure information at the household level. Households are divided into "Affected" and "Control" households depending on whether the income of the highest earner is above or below the tax exemption threshold. Educational attainment refers to the highest level of education of the household head. Tertiary education is defined as any additional education after a high school degree. The left out category is primary school education or less. Expenditure per capita is given in nominal USD. Share deductible is the share of total household spending in any of the five deductible categories. N refers to the number of households in each sample.

Table A.4: Aggregate Demand Effects - Sensitivity to Sample Definition

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Panel A: Alternative Definition of Treatment Group										
	All Deductibles									
Post× Affected	-0.004	-0.008								
	(0.011)	(0.011)								
R^2	0.591	0.614								
Observations	136	136								
Control pre mean	0.615	0.615								
	Clothing		Education		Food		Health		Housing	
Post × Affected	0.009	0.009	-0.009	-0.010	0.001	-0.003	-0.003	-0.003	-0.002	-0.002
	(0.003)	(0.003)	(0.007)	(0.006)	(0.010)	(0.011)	(0.005)	(0.005)	(0.006)	(0.005)
R^2	0.701	0.729	0.588	0.698	0.792	0.816	0.430	0.516	0.520	0.592
Observations	136	136	136	136	136	136	136	136	136	136
Control pre mean	0.104	0.104	0.099	0.099	0.282	0.282	0.055	0.055	0.076	0.076
Panel B: No Winsorization										
	All Deductibles									
Post × Affected	-0.012	-0.012								
	(0.008)	(0.009)								
R^2	0.731	0.739								
Observations	184	184								
Control pre mean	0.627	0.627								
	Clothing		Education		Food		Health		Housing	
Post × Affected	0.008	0.006	-0.021	-0.017	-0.008	-0.007	-0.002	-0.004	0.011	0.010
	(0.003)	(0.003)	(0.006)	(0.005)	(0.006)	(0.006)	(0.004)	(0.004)	(0.006)	(0.006)
R^2	0.676	0.710	0.688	0.797	0.875	0.879	0.537	0.628	0.504	0.516
Observations	184	184	184	184	184	184	184	184	184	184
Control pre mean	0.101	0.101	0.102	0.102	0.287	0.287	0.058	0.058	0.079	0.079

This table presents sensitivity analyses to Table 5 analyzing the pseudo panel based on the household survey described in Section 5. **Panel A** depicts results for an alternative definition of the treatment group based on a narrower window of income above the tax exemption threshold (0.5 standard deviation above to symmetrically reflect the control group of 0.5 standard deviation below). The sample size of the pseudo panel is smaller due to fewer cohort-education-gender cells meeting the data requirements set out in section 5. Apart from the sample definition, the approach and estimation equation is unchanged (Equation (4) in the main text). The estimates for the control variables region, household size, and household demographic composition have been excluded for brevity. Standard errors are clustered at the demographic cell-level and reported in parentheses. "Control pre mean" reports the mean values of the control group cells in the pre period, weighted according to the number of underlying survey observations. **Panel B** presents results for the same regression of the pseudo panel based on an alternative dataset without the application of winsorization of the top and bottom 1% observations. The treatment group in Panel B is defined like in the main paper as all households where at least one member earns income above the tax exemption threshold. Unreported control variables and standard errors are exactly like those explained in Panel A.

Figure A.1: Tax Declaration Form F102A for Regular Self-Employed

SRI	**FORMULARIO 102A** RESOLUCIÓN N° NAC-DGERCGC13-00881	**DECLARACIÓN DEL IMPUESTO A LA RENTA PERSONAS NATURALES Y SUCESIONES INDIVISAS** **NO OBLIGADAS A LLEVAR CONTABILIDAD**	No.

100 IDENTIFICACIÓN DE LA DECLARACIÓN

102	AÑO	104	Nº. DE FORMULARIO QUE SUSTITUYE
		105	Nº. DE EMPLEADOS EN RELACIÓN DE DEPENDENCIA

IMPORTANTE: POSICIONE EL CURSOR SOBRE EL CASILLERO PARA OBTENER AYUDA SOBRE SU LLENADO

200 IDENTIFICACIÓN DEL SUJETO PASIVO

201	RUC 0 0 1	202	APELLIDOS Y NOMBRES COMPLETOS / RAZÓN O DENOMINACIÓN SOCIAL DE LA SUCESIÓN INDIVISA

RENTAS GRAVADAS DE TRABAJO Y CAPITAL	AVALÚO		INGRESOS		GASTOS DEDUCIBLES		RENTA IMPONIBLE (INGRESOS - GASTOS DED.)	
ACTIVIDADES EMPRESARIALES CON REGISTRO DE INGRESOS Y EGRESOS			481	+	491	(-)		
INGRESOS SUJETOS A IMPUESTO A LA RENTA ÚNICO			510					
LIBRE EJERCICIO PROFESIONAL			511	+	521	(-)		
OCUPACIÓN LIBERAL (INCLUYE COMISIONISTAS, ARTESANOS, AGENTES, REPRESENTANTES Y DEMÁS TRABAJADORES AUTÓNOMOS)			512	+	522	(-)		
ARRIENDO DE BIENES INMUEBLES	503		513	+	523	(-)		
ARRIENDO DE OTROS ACTIVOS	504		514	+	524	(-)		
RENTAS AGRÍCOLAS	505		515	+	525	(-)		
INGRESO POR REGALÍAS			516	+				
INGRESOS PROVENIENTES DEL EXTERIOR			517	+				
RENDIMIENTOS FINANCIEROS			518	+				
DIVIDENDOS			519	+				
OTRAS RENTAS GRAVADAS			520	+	530	(-)		
SUBTOTAL			529	=	539	=		
RENTA IMPONIBLE ANTES DE INGRESOS POR TRABAJO EN RELACIÓN DE DEPENDENCIA						529-539	549	=
SUELDOS, SALARIOS, INDEMNIZACIONES Y OTROS INGRESOS LÍQUIDOS DEL TRABAJO EN RELACIÓN DE DEPENDENCIA			541	+	551	(-)	559	+
SUBTOTAL BASE GRAVADA						549+559	**569**	=

OTRAS DEDUCCIONES Y EXONERACIONES			APLICABLE AL PERÍODO			
GASTOS PERSONALES - EDUCACIÓN			571	(-)		
GASTOS PERSONALES - SALUD			572	(-)		
GASTOS PERSONALES - ALIMENTACIÓN			573	(-)	**TOTAL GASTOS PERSONALES**	
GASTOS PERSONALES - VIVIENDA			574	(-)	SUMAR DEL 571 AL 575	
GASTOS PERSONALES - VESTIMENTA			575	(-)	580	(=)
EXONERACIÓN POR TERCERA EDAD			576	(-)		
EXONERACIÓN POR DISCAPACIDAD	560	**PORCENTAJE DE DISCAPACIDAD**	577	(-)		
50% UTILIDAD ATRIBUIBLE A LA SOCIEDAD CONYUGAL POR LAS RENTAS QUE LE CORRESPONDA	570	**IDENTIFICACIÓN DEL CÓNYUGE (C.I. O PASAPORTE)**	578	(-)		
SUBTOTAL OTRAS DEDUCCIONES Y EXONERACIONES		**SUMAR DEL 571 AL 578**	**579**	=		

OTRAS RENTAS EXENTAS	VALOR IMPUESTO PAGADO	INGRESOS	
INGRESOS POR LOTERÍAS, RIFAS Y APUESTAS	581	583	+
HERENCIAS, LEGADOS Y DONACIONES	582	584	+
PENSIONES JUBILARES		586	+
OTROS INGRESOS EXENTOS		587	+
SUBTOTAL OTRAS RENTAS EXENTAS		**589**	=

RESUMEN IMPOSITIVO			
BASE IMPONIBLE GRAVADA	**569-579**	**832**	=
TOTAL IMPUESTO CAUSADO		**839**	=
(-) ANTICIPO PAGADO		840	(-)
(=) IMPUESTO A LA RENTA CAUSADO MAYOR AL ANTICIPO DETERMINADO	839-840>0	842	=
(=) CRÉDITO TRIBUTARIO GENERADO POR ANTICIPO	839-840<0	843	=
(-) RETENCIONES EN LA FUENTE QUE LE REALIZARON EN EL EJERCICIO FISCAL		845	(-)
(-) RETENCIONES EN LA FUENTE QUE LE REALIZARON EN EL EJERCICIO FISCAL EN RELACIÓN DE DEPENDENCIA		846	(-)
(-) CRÉDITO TRIBUTARIO POR DIVIDENDOS		847	(-)
(-) RETENCIONES POR INGRESOS PROVENIENTES DEL EXTERIOR CON DERECHO A CRÉDITO TRIBUTARIO		848	(-)
(-) ANTICIPO DE IMPUESTO A LA RENTA PAGADO POR ESPECTÁCULOS PÚBLICOS		849	(-)
(-) CRÉDITO TRIBUTARIO DE AÑOS ANTERIORES		850	(-)
(-) CRÉDITO TRIBUTARIO GENERADO POR IMPUESTO A LA SALIDA DE DIVISAS		851	(-)
(-) EXONERACIÓN Y CRÉDITO TRIBUTARIO POR LEYES ESPECIALES		852	(-)
SUBTOTAL IMPUESTO A PAGAR	**842-843-845-846-847-848-849-850-851-852>0**	**855**	=
SUBTOTAL SALDO A FAVOR	**842-843-845-846-847-848-849-850-851-852<0**	**856**	=
(+) IMPUESTO A LA RENTA ÚNICO		857	(+)
(-) CRÉDITO TRIBUTARIO PARA LA LIQUIDACIÓN DEL IMPUESTO A LA RENTA ÚNICO		858	(-)
IMPUESTO A LA RENTA A PAGAR		**859**	
SALDO A FAVOR CONTRIBUYENTE		**869**	
ANTICIPO DETERMINADO PRÓXIMO AÑO	**50% Impuesto a la Renta Causado Menos Retenciones 871+872**	**879**	=
ANTICIPO A PAGAR — PRIMERA CUOTA		871	(+)
ANTICIPO A PAGAR — SEGUNDA CUOTA		872	(+)
PAGO PREVIO (Informativo)		890	

DETALLE DE IMPUTACIÓN AL PAGO (Para declaraciones sustitutivas)

INTERÉS	897	USD	IMPUESTO	898	USD	MULTA	899	USD

VALORES A PAGAR Y FORMA DE PAGO (luego de imputación al pago en declaraciones sustitutivas)			
TOTAL IMPUESTO A PAGAR	859-898	902	+
INTERÉS POR MORA		903	+
MULTA		904	+
TOTAL PAGADO		999	=
MEDIANTE CHEQUE, DÉBITO BANCARIO, EFECTIVO U OTRAS FORMAS DE PAGO		905	USD
MEDIANTE COMPENSACIONES		906	USD
MEDIANTE NOTAS DE CRÉDITO		907	USD

DETALLE DE NOTAS DE CRÉDITO CARTULARES						DETALLE DE NOTAS DE CRÉDITO DESMATERIALIZADAS		DETALLE DE COMPENSACIONES			
908	N/C No	910	N/C No	912	N/C No			916	Resol No.	918	Resol No.
909	USD	911	USD	913	USD	915	USD	917	USD	919	USD

DECLARO QUE LOS DATOS PROPORCIONADOS EN ESTE DOCUMENTO SON EXACTOS Y VERDADEROS, POR LO QUE ASUMO LA RESPONSABILIDAD LEGAL QUE DE ELLA SE DERIVEN (Art. 101 de la L.R.T.I.)

FIRMA SUJETO PASIVO

NOMBRE :		198	Cédula de Identidad o No. de Pasaporte

This figure depicts the tax declaration form F102A used for filing PIT declaration for regular self-employed individuals.

Figure A.2: Value-Added Tax Declaration Form F104

FORMULARIO 104 — **DECLARACIÓN DEL IMPUESTO AL VALOR AGREGADO** — **No.**

RESOLUCIÓN N° NAC-DGERCGC16-00000210

100 IDENTIFICACIÓN DE LA DECLARACIÓN

IMPORTANTE: SÍRVASE LEER INSTRUCCIONES AL REVERSO

101	MES	01	02	03	04	05	06	07	08	09	10	11	12

102	AÑO	

104	Nº. DE FORMULARIO QUE SUSTITUYE

200 IDENTIFICACIÓN DEL SUJETO PASIVO

201	RUC	0 0 1	202	RAZÓN SOCIAL O APELLIDOS Y NOMBRES COMPLETOS

RESUMEN DE VENTAS Y OTRAS OPERACIONES DEL PERÍODO QUE DECLARA	VALOR BRUTO			VALOR NETO (VALOR BRUTO - N/C)			IMPUESTO GENERADO		
VENTAS LOCALES (EXCLUYE ACTIVOS FIJOS) GRAVADAS TARIFA DIFERENTE DE CERO	401	+	450	411	+	460	421	+	470
VENTAS DE ACTIVOS FIJOS GRAVADAS TARIFA DIFERENTE DE CERO	402	+	510	412	+	520	422	+	530
IVA GENERADO EN LA DIFERENCIA ENTRE VENTAS Y NOTAS DE CREDITO CON DISTINTA TARIFA							423	+	2950
VENTAS LOCALES (EXCLUYE ACTIVOS FIJOS) GRAVADAS TARIFA 0% QUE NO DAN DERECHO A CREDITO TRIBUTARIO	403	+	570	413	+	580			
VENTAS DE ACTIVOS FIJOS GRAVADAS TARIFA 0% QUE NO DAN DERECHO A CREDITO TRIBUTARIO	404	+	610	414	+	620			
VENTAS LOCALES (EXCLUYE ACTIVOS FIJOS) GRAVADAS TARIFA 0% QUE DAN DERECHO A CREDITO TRIBUTARIO	405	+	670	415	+	680			
VENTAS DE ACTIVOS FIJOS GRAVADAS TARIFA 0% QUE DAN DERECHO A CREDITO TRIBUTARIO	406	+	700	416	+	710			
EXPORTACIONES DE BIENES	407	+	790	417	+	800			
EXPORTACIONES DE SERVICIOS	408	+	810	418	+	820			
TOTAL VENTAS Y OTRAS OPERACIONES	**409**	=	860	**419**	=	870	**429**	=	880
TRANSFERENCIAS NO OBJETO O EXENTAS DE IVA	431	+	1038	441		1040			
NOTAS DE CRÉDITO TARIFA 0% POR COMPENSAR PRÓXIMO MES				442		1050			
NOTAS DE CRÉDITO TARIFA DIFERENTE DE CERO POR COMPENSAR PRÓXIMO MES				443		1070	453		1080
INGRESOS POR REEMBOLSO COMO INTERMEDIARIO	434	+	1098	444		1100	454		1110

LIQUIDACIÓN DEL IVA EN EL MES

TOTAL TRANSFERENCIAS GRAVADAS TARIFA DIFERENTE DE CERO A CONTADO ESTE MES	**TOTAL TRANSFERENCIAS GRAVADAS TARIFA DIFERENTE DE CERO A CRÉDITO ESTE MES**	**TOTAL IMPUESTO GENERADO** Trasládese campo 429	**IMPUESTO A LIQUIDAR DEL MES ANTERIOR** (Trasládese el campo 485 de la declaración del período anterior)	**IMPUESTO A LIQUIDAR EN ESTE MES** (Mínimo Campo 480 x Tarifa IVA diferente de cero)	**IMPUESTO A LIQUIDAR EN EL PRÓXIMO MES** (482 - 484)	**TOTAL IMPUESTO A LIQUIDAR EN ESTE MES** SUMAR 483 + 484
480	481	482	483	484	485	499

RESUMEN DE ADQUISICIONES Y PAGOS DEL PERÍODO QUE DECLARA	VALOR BRUTO			VALOR NETO (VALOR BRUTO - N/C)			IMPUESTO GENERADO		
ADQUISICIONES Y PAGOS (EXCLUYE ACTIVOS FIJOS) GRAVADOS TARIFA DIFERENTE DE CERO (CON DERECHO A CRÉDITO TRIBUTARIO)	500	+	1270	510	+	1280	520	+	1290
ADQUISICIONES LOCALES DE ACTIVOS FIJOS GRAVADOS TARIFA DIFERENTE DE CERO(CON DERECHO A CRÉDITO TRIBUTARIO)	501	+	1390	511	+	1400	521	+	1410
OTRAS ADQUISICIONES Y PAGOS GRAVADOS TARIFA DIFERENTE DE CERO (SIN DERECHO A CRÉDITO TRIBUTARIO)	502	+	1470	512	+	1550	522	+	1480
IMPORTACIONES DE SERVICIOS GRAVADOS TARIFA DIFERENTE DE CERO	503	+	1552	513	+	1554	523	+	1556
IMPORTACIONES DE BIENES (EXCLUYE ACTIVOS FIJOS) GRAVADOS TARIFA DIFERENTE DE CERO	504	+	1600	514	+	1610	524	+	1620
IMPORTACIONES DE ACTIVOS FIJOS GRAVADOS TARIFA DIFERENTE DE CERO	505	+	1640	515	+	1650	525	+	1660
IVA GENERADO EN LA DIFERENCIA ENTRE ADQUISICIONES Y NOTAS DE CREDITO CON DISTINTA TARIFA							526	+	2860
IMPORTACIONES DE BIENES (INCLUYE ACTIVOS FIJOS) GRAVADOS TARIFA 0%	506	+	1700	516	+	1710			
ADQUISICIONES Y PAGOS (INCLUYE ACTIVOS FIJOS) GRAVADOS TARIFA 0%	507	+	1720	517	+	1730			
ADQUISICIONES REALIZADAS A CONTRIBUYENTES **RISE**	508	+	1735	518	+	1740			
TOTAL ADQUISICIONES Y PAGOS	**509**	=	**1780**	**519**	=	1790	**529**	=	1800
ADQUISICIONES NO OBJETO DE IVA	531	+	1818	541		1820			
ADQUISICIONES EXENTAS DEL PAGO DE IVA	532	+	1823	542		1825			
NOTAS DE CRÉDITO TARIFA 0% POR COMPENSAR PRÓXIMO MES				543		1830			
NOTAS DE CRÉDITO TARIFA DIFERENTE DE CERO POR COMPENSAR PRÓXIMO MES				544		1900	554		1910
PAGOS NETOS POR REEMBOLSO COMO INTERMEDIARIO	535	+		545		1980	555		1990

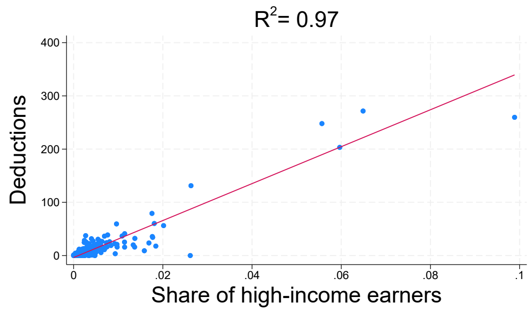
FACTOR DE PROPORCIONALIDAD PARA CRÉDITO TRIBUTARIO	(411+412+415+416+417+418) / 419	563		
CRÉDITO TRIBUTARIO APLICABLE EN ESTE PERÍODO (De acuerdo al Factor de Proporcionalidad o a su Contabilidad)	**(520+521+523+524+525+526) x 563**	**564**	=	**2130**

RESUMEN IMPOSITIVO: AGENTE DE PERCEPCION DEL IMPUESTO AL VALOR AGREGADO				
IMPUESTO CAUSADO (Si diferencia campo 499-564 es mayor que cero)		601	=	2140
CRÉDITO TRIBUTARIO APLICABLE EN ESTE PERÍODO (Si diferencia campo 499-564 es menor que cero)		602	=	**2150**
(-) COMPENSACIÓN DE IVA POR VENTAS EFECTUADAS EN SU TOTALIDAD CON MEDIO ELECTRÓNICO		603	(-)	2870
(-) COMPENSACIÓN DE IVA POR VENTAS EFECTUADAS EN ZONAS AFECTADAS LEY DE SOLIDARIDAD		604	(-)	2880
(-) SALDO CRÉDITO TRIBUTARIO DEL MES ANTERIOR	POR ADQUISICIONES E IMPORTACIONES (Traslada el campo 615 de la declaración del período anterior)	605	(-)	**2160**
	POR RETENCIONES EN LA FUENTE DE IVA QUE LE HAN SIDO EFECTUADAS (Traslada el campo 617 de la declaración del período anterior)	606	(-)	**2170**
	POR COMPENSACIÓN DE IVA POR VENTAS EFECTUADAS CON MEDIO ELECTRÓNICO (Traslada el campo 618 de la declaración del período anterior)	607	(-)	**2890**
	POR COMPENSACIÓN DE IVA POR VENTAS EFECTUADAS EN ZONAS AFECTADAS LEY DE SOLIDARIDAD (Traslada el campo 619 de la declaración del período anterior)	608	(-)	**2900**
(-)RETENCIONES EN LA FUENTE DE IVA QUE LE HAN SIDO EFECTUADAS EN ESTE PERÍODO		609	(-)	2200
(+) AJUSTE POR IVA DEVUELTO O DESCONTADO POR ADQUISICIONES EFECTUADAS CON MEDIO ELECTRÓNICO		610	(+)	2910
(+) AJUSTE POR IVA DEVUELTO O DESCONTADO EN ADQUISICIONES EFECTUADAS EN ZONAS AFECTADAS - LEY DE SOLIDARIDAD		611	(+)	2920
(+) AJUSTE POR IVA DEVUELTO E IVA RECHAZADO IMPUTABLE AL CRÉDITO TRIBUTARIO EN EL MES (Por concepto de devoluciones de IVA)		612	+	2210

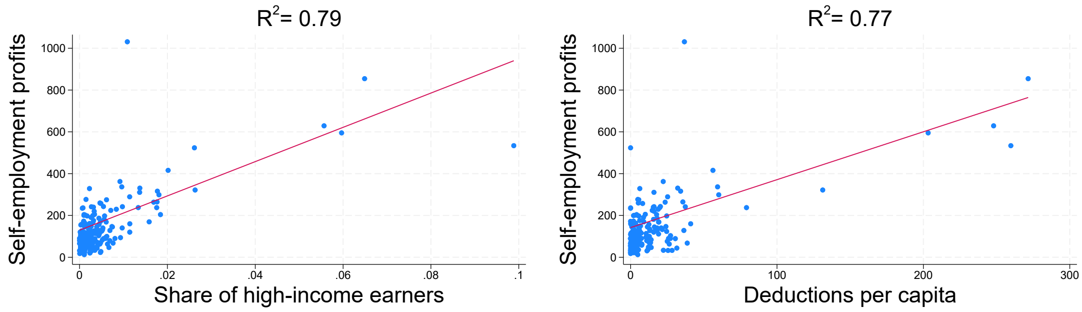
This figure depicts the tax declaration form F104 used for filing Value-Added Taxes in Ecuador.

Figure A.3: The Relation between High-income Earners and Deductions, Profits, and Tax Declarations across Regions (2008)

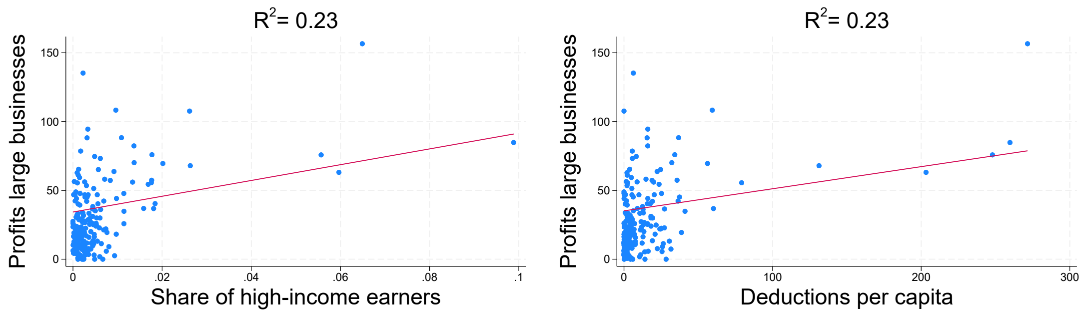
(a) Deductions per capita



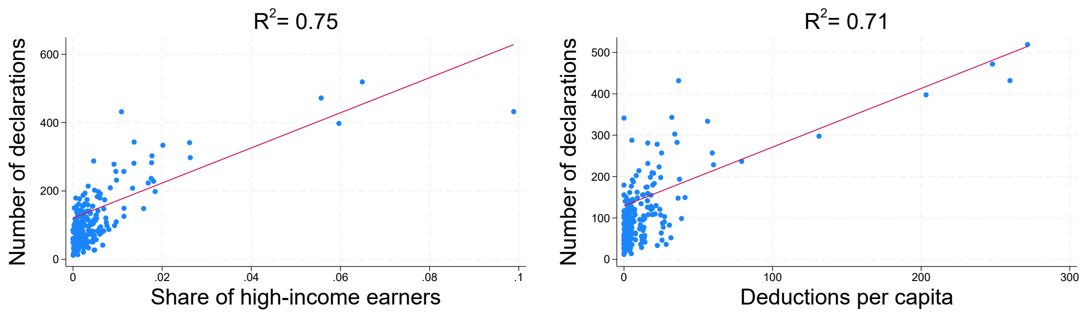
(b) Self-employment profits per capita



(c) Profits large businesses



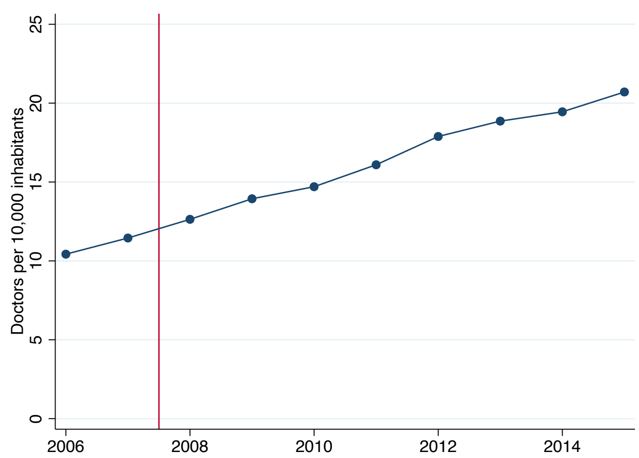
(d) Number of self-employed tax declarations



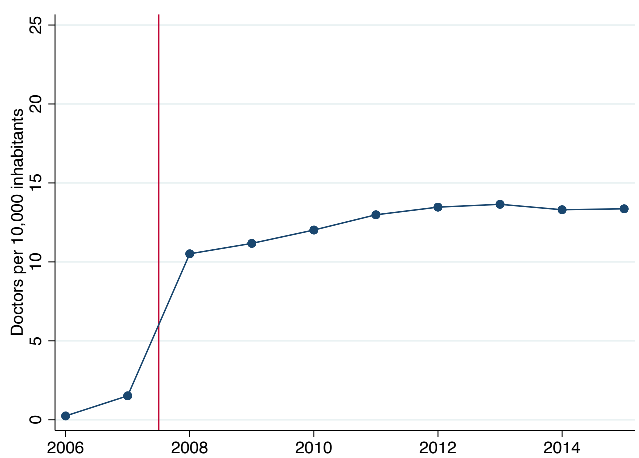
Notes: This figure provides cross-sectional descriptive evidence at the regional level for the year 2008. Each graphic is a scatterplot where a dot represents a region. The red lines depict linear fits between the two variables, weighted by population size. The R^2 of the linear fit is written above each plot. Panel (a) presents the relationship between the pre-reform share of high-income earners in 2007 and claimed deductions in 2008. The left graphs of Panels (b)-(d) depict the relationship between the outcome and the pre-reform share of high-income earners, while the right graphs depict the deductions per capita in 2008 on the horizontal axis. The vertical axis is always given by the respective outcome in 2008.

Figure A.4: Number of Doctors and Doctors' Tax Declarations

(a) Doctors according to non-tax administrative records per 10,000 inhabitants (INEC)



(b) Tax declarations of doctors with positive profits per 10,000 inhabitants



This figure contrasts two sources of information on the number of doctors and dentists in Ecuador. Panel (a) reports the number of doctors and dentists per 10,000 inhabitants according to the *Registro Estadístico de Recursos y Actividades de Salud*, a combination of non-tax administrative records coupled with a recurring survey administered by the National Institute for Statistics *INEC*. Panel (b) depicts the number of self-employed tax declarations of doctors and dentists reporting positive profits, per 10,000 inhabitants from our tax data.

B Machine-learning Approach to Predict Affected Occupations and Industries

Occupations To predict whether an occupation is offering deductible services or goods, we employ a machine learning approach. We start with the list of all occupations contained in the civil registry data. We then use the ChatGPT API to translate these occupations into English. Next, we match the translated Ecuadorian occupations with the occupations contained in the O*net data (https://www.onetcenter.org/dictionary/20.1/excel/task_statements.html). The matching is achieved by collecting word embeddings for both the translated Ecuadorian occupation and the O*net occupation, using OpenAI's word-embedding-ada-002 model, computing pairwise cosine similarities, and selecting the match with the largest similarity score. The match with the O*net occupational data allows us to leverage the detailed tasks descriptions included in the O*net data. We obtain word embeddings for these detailed task descriptions and the descriptions of the deduction categories (see Appendix Table A.1), again using the word-embedding-ada-002 model. We focus on tasks listed as core tasks in the O*net occupational database. We then compute the cosine similarity between each occupation and each deduction category. Finally, we classify an occupation to offer deductible goods or services if the cosine similarity between its word embedding and at least one deduction category exceeds a pre-determined threshold. In our baseline, we choose the threshold to equal 0.86. This threshold is chosen such that 10% of all occupations are classified as offering deductible goods or services. As a result, 3.8% of all self-employed individuals are predicted to be affected by the deduction possibilities (because their occupation is predicted to produce deductible goods or services). We then implement our triple differences regressions using the AI-generated classification as an alternative to our hand-picked categorization into affected and unaffected professions. Table B.1, Panel A provides sensitivity checks, varying the threshold that we use to delineate affected and unaffected occupations. Results are very similar to our baseline if the threshold remains in a reasonable range.

Industries We pursue a similar approach to predict whether industries are affected by the deduction policy. We start with the list of all industries included in our data and translate them into English using ChatGPT. Next, we match the translated Ecuadorian industries to ISIC industry names based on the closest match in cosine similarity of word embeddings. The ISIC industry code data includes detailed descriptions for each industry. We use these descriptions to compute word embeddings and calculate cosine similarity with the deduction category descriptions in Appendix Table A.1. In addition, we also compute cosine similarities of industry descriptions with a list of Ecuadorian goods that are 0% VAT-rated. For each industry, this procedure results in two scores: A similarity score to the closest deduction category and a similarity score to the closest 0%VAT-rated good or service. We then classify industries to be deductible if the similarity to the deduction data exceeds the threshold of 0.81 (30 percent of all firms are classified to produce deductibles); we classify industries to be not subject to VAT if the similarity to the list of 0%-ratings exceeds 0.795 (40 percent of all firms are classified as 0%-VAT rated). We provide sensitivity checks, varying the choice of the two thresholds in Panel B of Table B.1.

Table B.1: Sensitivity to Changes in Classification Threshold

	(1)	(2)	(3)
Panel A. Affected vs. non-affected occupations			
	Overall Effect	Extensive # Declarations	Intensive Margin
Baseline (3.8% deductible)			
Intensity × Predicted × Post	813.4	0.0250	1334.2
	(73.72)	(0.00218)	(207.0)
Observations	5,056,340	5,056,340	99,395
Decreasing threshold to 0.85 (5.5% deductible)			
Intensity × Predicted × Post	771.2	0.0264	2252.5
	(86.34)	(0.00279)	(342.3)
Observations	5,056,340	5,056,340	99,395
Increasing threshold to 0.87 (3.5% deductible)			
Intensity × Predicted × Post	886.4	0.0255	1670.0
	(72.75)	(0.00216)	(202.3)
Observations	5,056,340	5,056,340	99,395
Panel B. Affected vs. non-affected industries			
	Subject to VAT	0%-VAT rated	
Baseline (30.5% deductible, 40% 0%-VAT rated)			
Intensity × Affected × Post	27.90	14.94	
	(2.728)	(7.836)	
Observations	4,428,514	2,956,761	
Decreasing deduction threshold to 0.8 (46.4% deductible)			
Intensity × Affected × Post	34.82	26.70	
	(1.358)	(6.030)	
Observations	4,428,514	2,956,761	
Increasing deduction threshold to 0.82 (24.4% deductible)			
Intensity × Affected × Post	43.66	14.84	
	(1.840)	(7.092)	
Observations	4,428,514	2,956,761	
Decreasing exemption threshold to 0.79 (42.7% 0%-VAT rated)			
Intensity × Affected × Post	30.67	9.697	
	(2.401)	(7.154)	
Observations	4,230,550	3,154,725	
Increasing exemption threshold to 0.81 (21.6% 0%-VAT rated)			
Intensity × Affected × Post	21.64	30.27	
	(0.361)	(9.319)	
Observations	5,790,682	1,594,593	

Panel A presents sensitivity checks for our triple-differences results based on the machine-learning predictions whether the goods or services provided by an occupation are deductible or not. Column 1 shows the regression coefficient for the triple interaction using self-employed profits as outcome variable. Column 2 shows the coefficient for an indicator of whether the self-employed files a tax declaration with reported profits exceeding the tax exemption threshold. Column 3 shows the coefficient for reported business profits in the sample of businesses already filing profits above the tax exempt threshold in 2006 or 2007. In the baseline, an occupation is classified as offering deductibles if the cosine similarity between the word embeddings of the occupational task description and the deduction categories exceeds 0.86. We vary this threshold to 0.85 and 0.87, substantially in- and decreasing the share of self-employed who are classified as offering deductibles. Panel B provides sensitivity checks for our triple-difference regressions based on the machine-learning predictions of whether the goods or services provided by an industry are deductible or 0%-VAT rated. Column 1 shows the regression coefficient for the triple interaction among industries predicted to be subject to VAT while column 2 shows the coefficient among industries predicted to be 0%-VAT rated. In the baseline, an industry is predicted to offer deductible goods if the cosine similarity between the industry description and the deduction categories exceeds 0.81. We vary this threshold to 0.8 and 0.82, substantially in- and decreasing the share of firms that are classified as offering deductibles. In the baseline, an industry is predicted to offer 0%-VAT rated goods if the cosine similarity between the industry description and the list of 0%-VAT rated goods exceeds 0.795. We vary this threshold to 0.79 and 0.81, substantially in- and decreasing the share of firms that are classified as offering 0%-VAT rated goods. Standard errors in parentheses are two-way clustered at the region (cantón) and year level.