Semi-Autonomous Revenue Authorities in Sub-Saharan Africa

Silver Bullet or White Elephant?

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Overview

Question   Did SARAs lead to an increase in the tax ratio in SSA?

Motivation Existing literature failed to control for revenue dynamics, resulting in an overestimation of the effect of SARAs.

Strategy   Dynamic panel methods (Within, sys-GMM, CCEMG) IV estimation exploiting French and UK aid shares.

Model

$$log(Tax_{i,t}) = \beta SARA_{i,t} + \gamma log(Tax_{i,t-1}) + c_i + i_t + t \times c_i + \epsilon_{i,t}$$

Conclusion No evidence that SARAs have increased fiscal capacity. Evidence for compositional shift in line with global tax reform agenda.

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Semi-Autonomous Revenue Authorities

SARA Governance regime for a revenue administration that provides for more autonomy than that afforded a normal department in a ministry, and which integrates tax and customs operations.

Arguments in favour:

- NIE, NPM
- Credible commitment
- Managerial space
- e.g. Taliercio (2004)

Arguments against:

- Political economy
- One-size-fits-all
- Sustainability?
- e.g. Andrews (2013)

Legend:
- (2010,2014]
- (2003,2010]
- (1998,2003]
- [1992,1998]
- No SARA

Empirical Literature
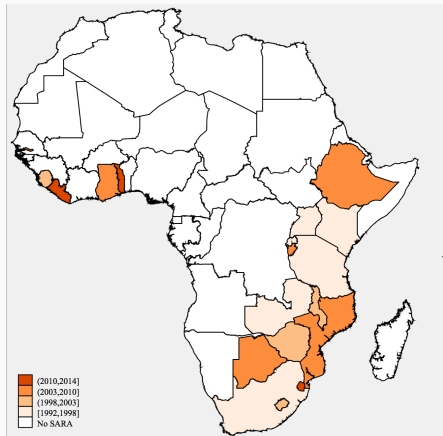
Initially SARAs were considered a success (Chand & Moene, 1999; Jenkins et al, 2000) .

However, initial increases were not always maintained nor could they be attributed to the SARAs (Devas et al., 2001; Fjeldstad & Moore, 2009) .

Case study literature stresses importance of political economy context for the SARA reform (Therkildsen, 2004; Von Soest, 2007; Di John, 2010).

Econometric evidence is mixed:

- Strong positive impact (Von Haldenwang et al., 2014; Ebeke et al., 2016)
- Initial but unsustained increase (Ahlerup et al., 2015)
- Significant cross-country heterogeneity (Sarr, 2016)

Challenges: SARA measures, endogeneity concerns, revenue dynamics

Data & Methodology
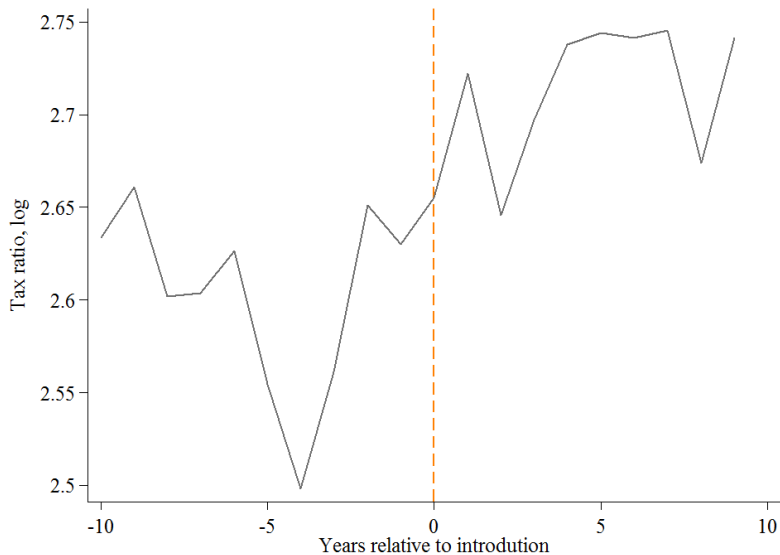
Panel	46 countries from 1980 until 2012
Revenue	ICTD Government Revenue Dataset
SARA	National legislation, newspaper articles

Within estimator & system GMM:

$$log(Tax_{i,t}) = \beta_0 + \beta_1 SARA_{i,t} + \beta_2 log(Tax_{i,t-1}) + c_i + i_t + t \times c_i + \epsilon_{i,t} \quad (1)$$

Common Correlated Effects Mean Group estimator:

$$log(Tax_{i,t}) = \beta_{0,i} + \beta_{1,i} SARA_{i,t} + \beta_{2,i} log(Tax_{i,t-1}) + \sum_{l=0}^{p} \delta_{i,l} \bar{z}_{t-l} + t_i + \epsilon_{i,t}$$

$$(2)$$

Results - Total Tax

	Within Estimates		Sys-GMM		CCEMG	
	I	II	III	IV	V	VI
SARA	0.003		0.083*		0.013	
	(0.025)		(0.047)		(0.015)	
SARA, years 1-2		0.010		0.048		0.007
		(0.019)		(0.040)		(0.025)
SARA, years 3-5		-0.008		0.034		-0.004
		(0.042)		(0.049)		(0.032)
SARA, years 6-10		-0.024		0.041		-0.005
		(0.051)		(0.048)		(0.040)
SARA, years >10		-0.033		0.025		-0.058
		(0.083)		(0.038)		(0.038)
L.Total	0.680***	0.680***	0.744***	0.849***	0.338***	0.337***
	(0.099)	(0.098)	(0.166)	(0.158)	(0.062)	(0.067)
N	1273	1273	1273	1273	1110	1110
Groups	46	46	46	46	46	46
# instr.	-	-	37	46	-	-
M2	-	-	0.136	0.137	-	-
Hans. p-val.	-	-	0.395	0.687	-	-
Diff. Hans. J.	-	-	0.876	0.605	-	-

Results - Other Taxes

	Within Estimates		Sys-GMM		CCEMG	
		Panel A: Direct tax revenue				
SARA	0.005		0.011		-0.054	
SARA, years 1-2		0.038		0.048		0.170
SARA, years 3-5		-0.016		0.009		0.123
SARA, years 6-10		-0.013		0.053		-0.009
SARA, years >10		0.031		0.043		0.046
		Panel B: Goods & services revenue				
SARA	0.082**		0.082**		0.077	
SARA, years 1-2		0.107**		0.076		0.024
SARA, years 3-5		0.100**		0.084		0.027
SARA, years 6-10		0.183***		0.093*		0.054
SARA, years >10		0.282***		0.081		0.046
		Panel C: Trade tax revenue				
SARA	-0.069		-0.038		-0.013	
SARA, years 1-2		-0.039		-0.054		-0.072
SARA, years 3-5		-0.093		-0.092		0.191
SARA, years 6-10		-0.189*		-0.147**		0.390
SARA, years >10		-0.157		-0.326***		0.479

Robustness - IV Model

SARA	More/less likely if UK/France is important donor
IV	Agenda setting power of UK and France
Proxy	Aid share of donor j in total aid received by recipient i
Assumption	Other than through the SARA reform, these aid shares are (conditionally) independent of tax revenue

Three step procedure:

$$Pr(SARA_{i,t}) = \Phi(\theta_0 + \theta_1 UKAidShare_{i,t} + \theta_2 FRAidShare_{i,t} + \phi X_{i,t} + \pi \bar{Z}_i + \sigma \bar{X}_i) \tag{1}$$

$$SARA_{i,t} = \pi_0 + \pi_1 \widehat{SARA}_{i,t} + \pi_2 log(Tax_{i,t-1}) + c_i + i_t + t \times c_i + \upsilon_{i,t} \tag{2}$$

$$log(Tax_{i,t}) = \beta_0 + \beta_1 SARA_{i,t} + \beta_2 log(Tax_{i,t-1}) + c_i + i_t + t \times c_i + \epsilon_{i,t} \tag{3}$$

IV - Probit Results

	I	II	III
UK aid share	0.039***	0.023***	0.016**
	(0.009)	(0.006)	(0.007)
FR aid share	-0.047***	-0.015***	-0.000
	(0.006)	(0.005)	(0.007)
Total aid		0.025***	-0.023**
		(0.005)	(0.010)
Ex-UK Colony		0.114***	0.105***
		(0.017)	(0.019)
IMF mid-term		0.058***	0.046***
		(0.013)	(0.016)
IMF short-term		-0.077**	-0.093***
		(0.033)	(0.029)
Time Trend		0.011***	0.015***
		(0.001)	(0.001)
N	1239	1230	1230
Pseudo R-sq	0.251	0.539	0.583
Correctly specified (%)	88.1	91.4	93.1
CM device	-	-	✓

IV - 2SLS, 2nd stage

Panel A: Total tax revenue

	I	II
SARA	-0.039	-0.125
	(0.035)	(0.149)
L.Total	0.771***	0.653***
	(0.054)	(0.103)
N	1094	1094
Groups	46	46
Country/Year	No	Yes
LM stat., p-val.	0.00	0.01
Kleibergen-Paap F-stat	55.39	11.10

Panel C: Goods & services revenue

	I	II
SARA	-0.161	-0.003
	(0.112)	(0.184)
L.Goods & Services	0.784***	0.650***
	(0.039)	(0.061)
N	827	827
Groups	46	46
Country/Year	No	Yes
LM stat., p-val.	0.00	0.05
Kleibergen-Paap F-stat	18.92	5.18

Panel B: Direct tax revenue

	I	II
SARA	0.033	0.062
	(0.075)	(0.166)
L.Direct	0.808***	0.625***
	(0.040)	(0.033)
N	850	850
Groups	44	44
Country/Year	No	Yes
LM stat., p-val.	0.00	0.03
Kleibergen-Paap F-stat	25.19	6.38

Panel D: Trade tax revenue

	I	II
SARA	-0.168	-0.534***
	(0.115)	(0.178)
L.Trade	0.769***	0.596***
	(0.046)	(0.055)
N	872	872
Groups	46	46
Country/Year	No	Yes
LM stat., p-val.	0.00	0.04
Kleibergen-Paap F-stat	21.53	5.54

Robustness - Alternative Outcomes

	Tax Effort I	Tax Volatility II	Political Corruption III	Public Sector Corruption IV	Executive Corruption V
SARA	-0.010 (0.032)	-0.209 (0.309)	-0.006 (0.006)	-0.007 (0.009)	-0.002 (0.007)
L.Tax effort	0.696*** (0.086)				
L.Volatility, total tax revenue		0.087*** (0.032)			
L.Political corruption			0.823*** (0.029)		
L.Public sector corruption				0.812*** (0.028)	
L.Executive corruption					0.815*** (0.020)
N	1132	1110	1379	1379	1379
Groups	44	46	45	45	45
adj. R-sq	0.638	0.066	0.840	0.824	0.824

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Questions?