Socioeconomic status and Democratization <South Africa, Botswana, and Kenya compared

Abstract

Introduction

The dictionary meaning of "Democracy" defined by Encyclopedia Britannica is "literally ruled by the peop
Measuring democracy also has been contested that there still have ongoing debates on this subject. The r
Following the introduction, this research paper will proceed by presenting background researches about c

Background about Democratization and its brief history in Africa

Democratization, according to An Agenda for Democratization by Boutros Boutros-Ghali, the formal Secreta
From his On Democracy, Robert Dahl suggests three conditions that are essential to attain democratic ins
Africa has also been the wave of political transitions from various types of dictatorships to more open

Research Question and Hypotheses

The current research aims to help our understanding of the democracy with regard to its concept structu
Sub-Saharan African countries, where continuously have been experiencing democratic progress and setbac

1. There is a significant and positive correlation between socioeconomic variables and democracy.
2. Among four socioeconomic variables - GDP, primary education enrollment, gender equality, and child mortality - the educational effect on democracy is stronger than any other variables.
3. The degree of impact of variables on democracy is consistent across selected African countries.

Literature Review

With regard to measuring democracy, Robert J. Barro, for his paper Determinants of Democracy, used the i
Further, Barro quotes Lipset's argument based on the Lipset hypothesis, which claims that increased educ
In the second literature of Democracy and Gender Equality by Caroline Beer, she contrasts the impact of
John M. Shandra et al. approaches child morality from different theoretical perspectives. By taking poli

Data, Variables, and Methods

Descriptive Analyses

Multivariate Analyses

Conclusion

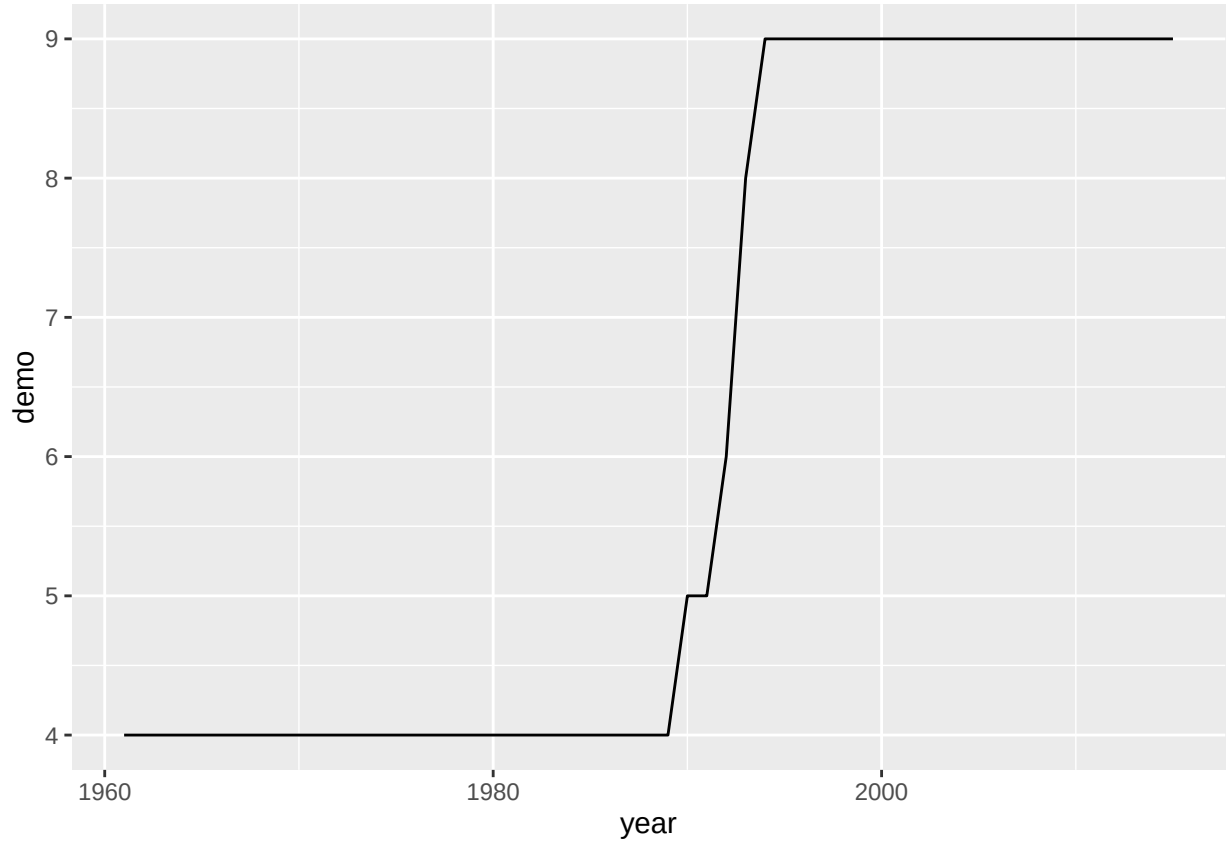
Acknowledgment

We the authors, Takuma Andoh and Bomi Kim, would like to appreciate Professor Christopher Gandrud, discussants Pol De Santalo and Yumi Komai, and peers in Introduction to Collaborative Social Science Data Analysis for Fall 2016 at the Hertie School of Governance for their time, supports, advices, and guidance.

Data Availability

1) Measurement of Democratization 1-1) Polity 4 ?? ??http://www.systemicpeace.org/inscr/p4manualv2015.pdf 1-2)
2) Gross National Income Level
3) primary enrollment
4) Income Inequality
5) Gender Inequality in labor force
6) mortality rate under 5

Democratization

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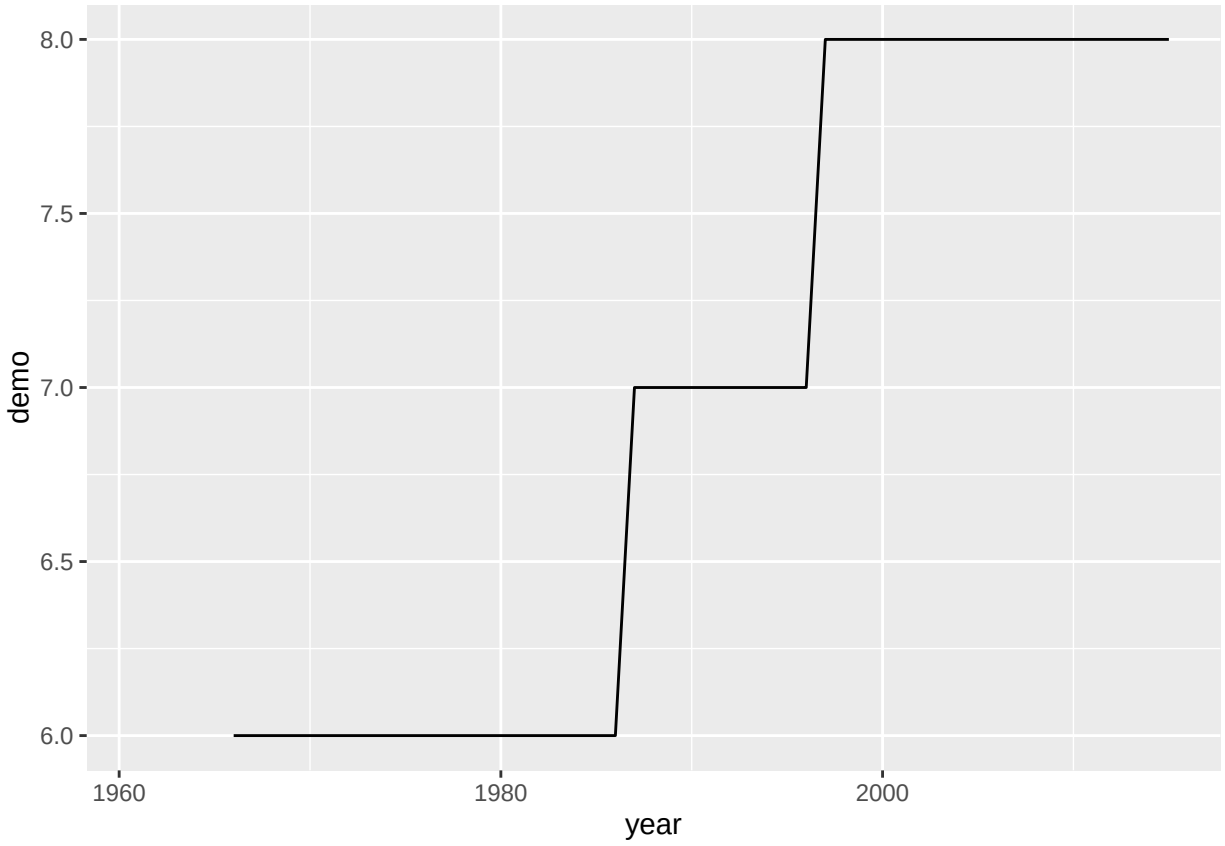


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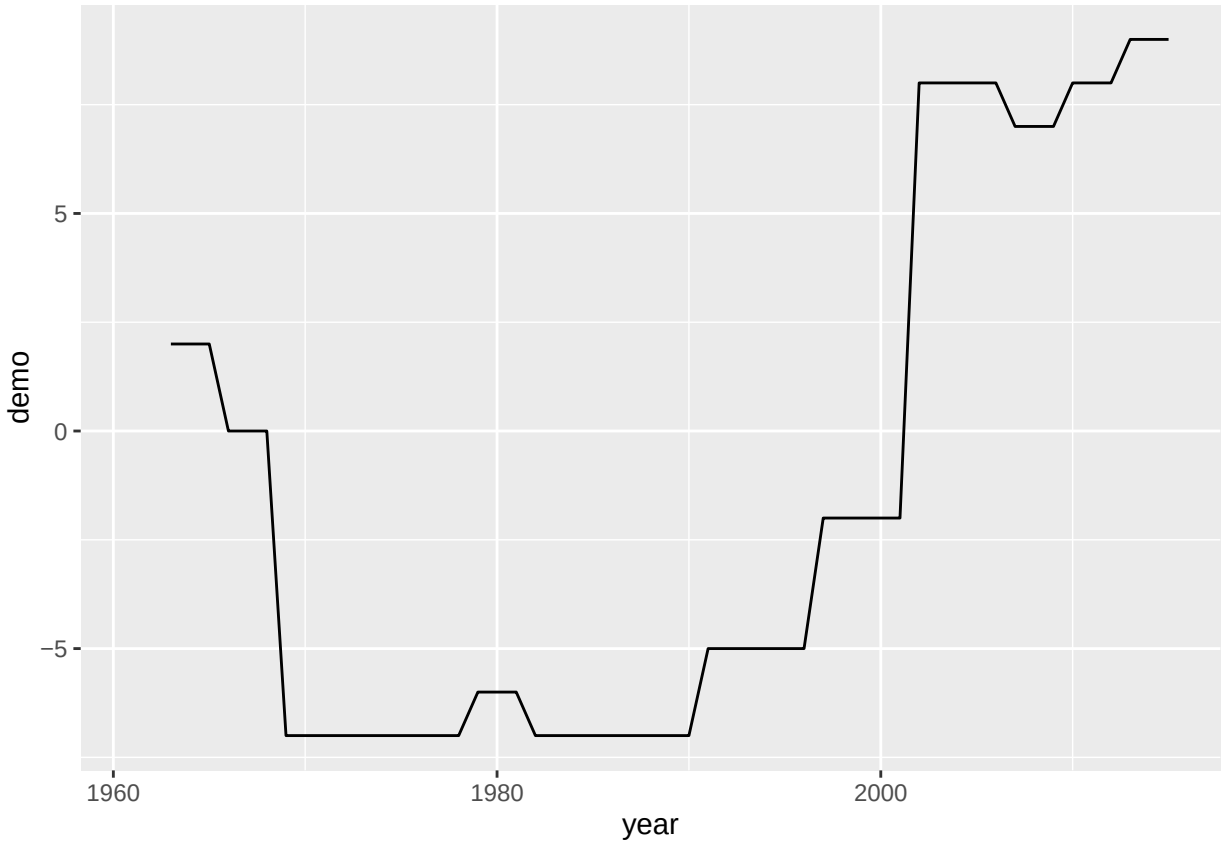

Explanetory variables

variable name	detail	source
gdppc	Gross National Production Per Capita	World Bank
pe	Primary enrollment in education	United Nations
mr	Infant Mortaliry Rate	United Nations
gi	gender inequality in labor market	United Nations

OLS results

% Table created by stargazer v.5.2 by Marek Hlavac, Harvard University. E-mail: hlavac at fas.harvard.edu
% Date and time: Tue, Dec 06, 2016 - 12:02:29 AM

Pooled OLS

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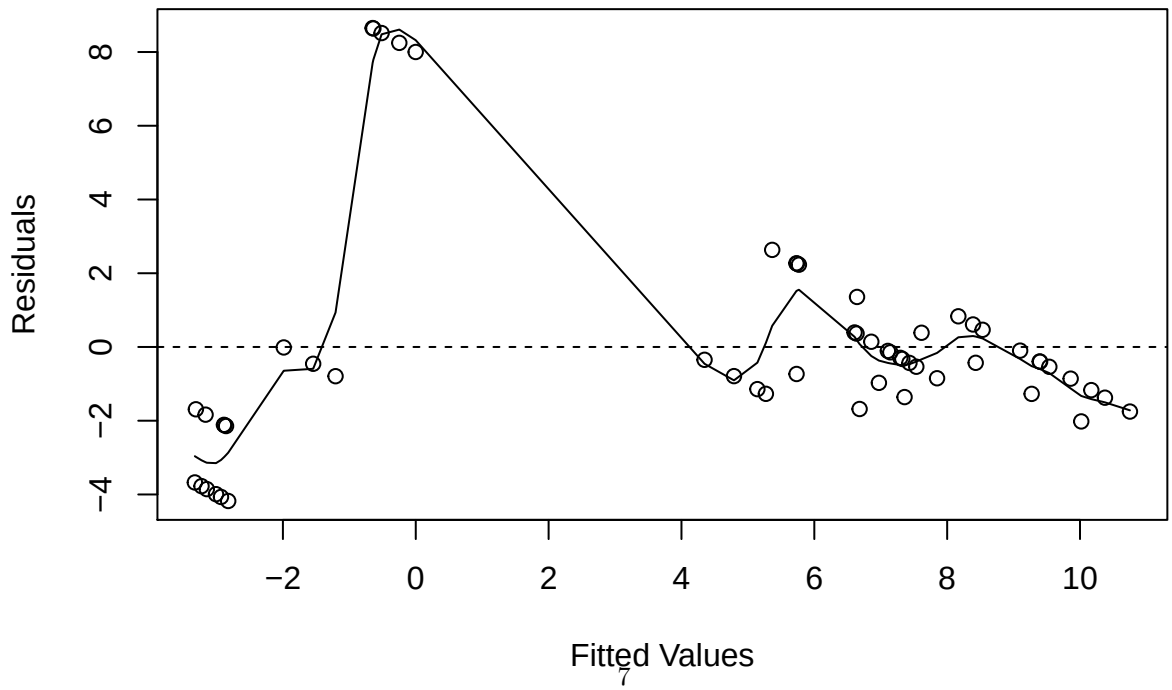
Table 2: Regression results for each country

	Dependent variable:		
		demo	
	SouthAfrica	Botswana	Kenya
	(1)	(2)	(3)
log(gdppc)	-2.78^{*}	1.86^{***}	-6.37
	(1.43)	(0.56)	(3.79)
log(pe)	0.81	-3.29	9.05
	(2.83)	(2.31)	(8.68)
log(mr)	-11.16	2.84^{***}	-34.05^{***}
	(7.05)	(0.84)	(9.39)
log(gi)	-43.66^{***}	4.61	-147.18^{***}
	(13.70)	(2.85)	(38.41)
Constant	44.40	23.80	21.71
	(73.50)	(22.73)	(157.22)
Observations	17	21	19
R^2	0.93	0.85	0.92
Adjusted R^2	0.90	0.82	0.90
Residual Std. Error	0.72 (df = 12)	0.28 (df = 16)	1.94 (df = 14)
F Statistic	38.99^{***} (df = 4; 12)	23.04^{***} (df = 4; 16)	42.66^{***} (df = 4; 14)
Note:			*p<0.1; **p<0.05; ***p<0.01

Table 3: Pooled OLS

	Dependent variable:
	demo
log(gdppc)	−0.64
	(1.39)
log(pe)	−1.10**
	(0.46)
log(mr)	−6.89**
	(3.06)
log(gi)	−39.08***
	(10.91)
Constant	41.87*
	(21.14)
Observations	57
R^2	0.72
Adjusted R^2	0.70
Residual Std. Error	3.16 (df = 52)
F Statistic	33.01*** (df = 4; 52)
Note:	*p<0.1; **p<0.05; ***p<0.01

residual vs fitted value



Breusch-Pagan test

```
##
##  studentized Breusch-Pagan test
##
## data:  L4
## BP = 12.672, df = 4, p-value = 0.01299
```

Fixed-Effect model

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Table 4: pooled OLS and fixed effects OLS

	Dependent variable:	
	demo	
	PooledOLS	FixedOLS
	(1)	(2)
log(gdppc)	−0.644	−1.496
	(1.393)	(1.424)
log(pe)	−1.103**	15.793***
	(0.456)	(4.012)
log(mr)	−6.886**	−12.087***
	(3.062)	(3.176)
log(gi)	−39.075***	−28.940**
	(10.914)	(11.221)
Constant	41.873*	
	(21.138)	
Observations	57	57
R^2	0.717	0.610
Adjusted R^2	0.696	0.563
F Statistic	33.013*** (df = 4; 52)	19.532*** (df = 4; 50)
Note:		*p<0.1; **p<0.05; ***p<0.01

constants:

```
fixef(fixed)
```

```
##     Botswana        Kenya South Africa
##    -139.0599    -186.3148    -191.4030
```

Do panel specific effects exist?

```
pFtest(fixed,pooled)
```

```
##
##  F test for individual effects
##
## data:  demo ~ log(gdppc) + log(pe) + log(mr) + log(gi)
## F = 17.075, df1 = 2, df2 = 50, p-value = 2.228e-06
## alternative hypothesis: significant effects
```

Breush-Pagan test

```
##
##  Lagrange Multiplier Test - (Breusch-Pagan) for unbalanced panels
##
## data:  demo ~ log(gdppc) + log(pe) + log(mr) + log(gi)
## chisq = 0.67568, df = 1, p-value = 0.4111
## alternative hypothesis: significant effects
```

we cannot reject the null hypothesis. (residuals doesn't correlated with independent variables)

Random-Effects OLS

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Hausman test

```
Hausman Test
```

data: demo ~ log(gdppc) + log(pe) + log(mr) + log(gi) chisq = 4.6666e-19, df = 4, p-value = 1 alternative hypothesis: one model is inconsistent

results

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Oneway (individual) effect Within Model

Call: plm(formula = demo ~ log(gdppc) + log(pe) + log(mr) + log(gi), data = dfpanel, model = "within", index = c("country", "year"))

Unbalanced Panel: n=3, T=17-21, N=57

Residuals : Min. -3.160 1st Qu. -1.560 Median -0.584 3rd Qu. 0.730 Max. 8.200

Table 5: random effects OLS

	Dependent variable:		
	demo		
	(1)	(2)	(3)
log(gdppc)	−0.644	−1.496	−1.496
	(1.393)	(1.424)	(1.396)
log(pe)	−1.103**	15.793***	15.793***
	(0.456)	(4.012)	(3.934)
log(mr)	−6.886**	−12.087***	−12.087***
	(3.062)	(3.176)	(3.114)
log(gi)	−39.075***	−28.940**	−28.940**
	(10.914)	(11.221)	(11.003)
Constant	41.873*		−172.259
	(21.138)		(997,305.100)
Observations	57	57	57
R^2	0.717	0.610	0.610
Adjusted R^2	0.696	0.563	0.580
F Statistic	33.013*** (df = 4; 52)	19.532*** (df = 4; 50)	20.314*** (df = 4; 52)
Note:			*p<0.1; **p<0.05; ***p<0.01

Table 6: Regression results

	Dependent variable:		
	demo		
	(1)	(2)	(3)
log(gdppc)	−0.644	−1.496	−1.496
	(1.393)	(1.424)	(1.396)
log(pe)	−1.103**	15.793***	15.793***
	(0.456)	(4.012)	(3.934)
log(mr)	−6.886**	−12.087***	−12.087***
	(3.062)	(3.176)	(3.114)
log(gi)	−39.075***	−28.940**	−28.940**
	(10.914)	(11.221)	(11.003)
Constant	41.873*		−172.259
	(21.138)		(997,305.100)
Observations	57	57	57
R^2	0.717	0.610	0.610
Adjusted R^2	0.696	0.563	0.580
F Statistic	33.013*** (df = 4; 52)	19.532*** (df = 4; 50)	20.314*** (df = 4; 52)
Note:			*p<0.1; **p<0.05; ***p<0.01

Coefficients : Estimate log(gdppc) -1.4964 log(pe) 15.7935 log(mr) -12.0870 log(gi) -28.9397 Std. Error log(gdppc) 1.4239 log(pe) 4.0120 log(mr) 3.1755 log(gi) 11.2214 t-value log(gdppc) -1.0509 log(pe) 3.9366 log(mr) -3.8063 log(gi) -2.5790 Pr(>|t|) log(gdppc) 0.2983644 log(pe) 0.0002560 log(mr) 0.0003859 log(gi) 0.0128989

log(gdppc)
log(pe) ***log(mr)*** log(gi) *
— Signif. codes:
0 ‘***’ ***0.001*** ‘**’ *0.01* ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1

Total Sum of Squares: 788.23 Residual Sum of Squares: 307.59 R-Squared: 0.60977 Adj. R-Squared: 0.56294 F-statistic: 19.5324 on 4 and 50 DF, p-value: 9.8562e-10

$$democratization = -1.496log(gdppc) + 15.793log(pe) - 12.087log(mr) - 28.940log(gi) + \alpha_i$$

where a_i represents panel specific effects

Conclusion