What brings Democracy?
< South Africa, Botswana, and Kenya compared >

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Democracy? Democratization?

- Democracy: "Ruled by People". A system of government where the citizens exercise power directly or through electing representatives in order to form a parliament. *Main Charateristics: Political freedom, Rule of law, Equality before the law, Majority rule, Free and Fair elections.
- Democratization: A process which leads to a more open, more participatory, less authoritarian soceity within a sovereign state.

Background Research 1 - Measuring Democracy

- US-based Freedom House Organization: aggregates scores of 25 indicators from politial rights and civil liberties in order to evaluate the state of freedom *2016 Report: Out of 195 states, 125 countries are classified as electoral democracies.
- The Polity Project: examines qualities of democratic and autocratic authority in governing insitutions to observe a spectrum of governing authority.

–> We used “Polity Score” data from the Polity Project for our dependent variable

Background Research 2 - Democratization in Africa

- Third Wave (1974-1990): Durig the Third Wave of democratization, over 60 countries throughout the world changed their authoritarian regimes to democracies.
- Repetition of the onset of democratization and frequent slips back to authoritarianism in Africa.
- Making progress towards democracy by improving socioeconomic features and revolting against authoritarian leaders

Research Question and Hypotheses

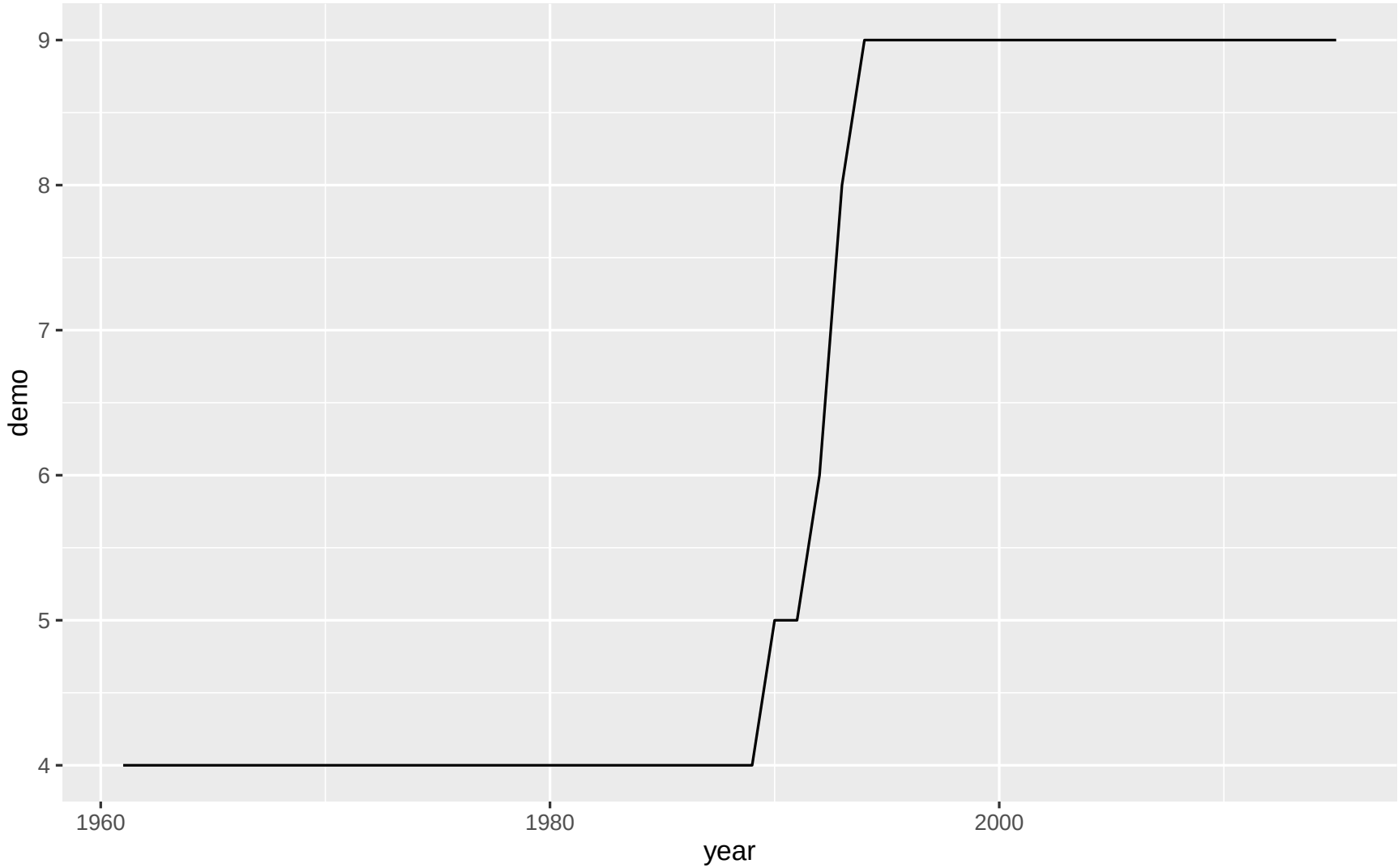
< What brings democracy? >

- Investigating the effects of various socioeconomic variables on democratization in African countries.
- Analyzing the correlation between socioeconomic components and democracy.

*Three Hypotheses

1. There is a significant and positive correlation between socioeconomic variables and democracy
2. Among four socioeconomic components, the educational effect on democracy is the most significant than others.
3. The degree of impact of variables on democracy is consistent across selected African countries.

Democratization in South Africa



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

Regression results

Table 2: Regression results for each country

	Dependent variable:		
	demo		
	(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

Figure 1: drawing

Pooled OLS

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

Figure 2: drawing

Heteroscedasticity in residuals

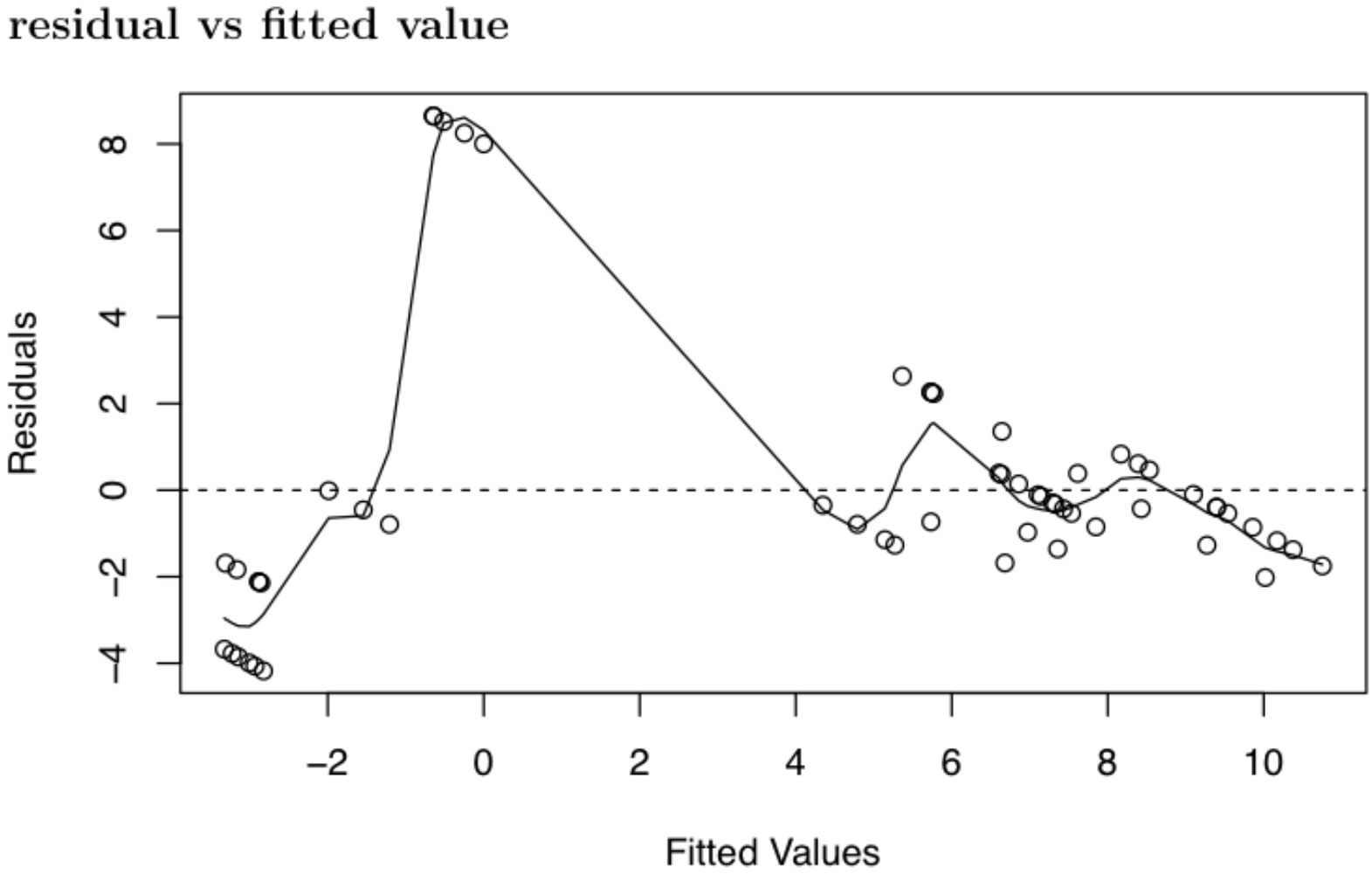


Figure 3: drawing

Fixed-Effect model

1. and (2) are the results of pooled OLS and fixed OLS.

Table 4: pooled OLS and fixed effects OLS

	Dependent variable:	
	demo	
	(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

Do panel specific effect 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
```

Figure 5: drawing

We have to reject the null-hypothesis.(there is no panel specific effects)

Now, no more heteroscedasticity

```
##
##  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)

Figure 6: drawing

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

results

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

where a_i represents panel specific effects

Figure 7: drawing

Conclusion

References