# Government Fragmentation and Public Goods Provision

## Supplementary Information

August 26, 2016

# Contents

# A Data Sources and Coding

Our main independent variable is the number of top tier regional governments for each country in the sample. The sample covers all independent nations that are categorized by the World Bank as at or below middle income status. The time-frame of our dataset are the years 1960 to 2012. The dataset provides a count of the number of top tier territorial government divisions (e.g. provinces, regions, states, districts) for each country-year in the sample. The count is derived from information provided by the *Statoids* project (`www.statoids.com`). The *Statoids* project maintains a database of current administrative and government divisions for all countries in the world (complete with ISO codes). It furthermore lists for each country a change history of top tier units, based on various sources. We employed a group of coders to reconstruct the count of number of top tier regional government units for each year. Coders started with the current number of regional governments and used the change history to work backward to 1960. The change history often provides exact dates for the creation of a new unit or the merger of existing ones. We count the number of existing top tier divisions in the December of that year. Our count is inclusive, in the sense that capital cities or special administrative regions are included in the measure.

Most cases include an official list of regional government units at earlier time periods, allowing us to cross-check the consistency of each yearly count by working forward and backward through time. If a consistent count could not be determined, coders assigned a missing value code. When conflicting counts emerged after cross-checking, coders flagged the entry and provided a commentary. We ensured an overlap of 20% of country-cases between coders for quality purposes. The primary investigators of the project furthermore completed one complete coding for all cases themselves. Finally, the counts across the different coders were reconciled to minimize measurement error. The complete dataset will be publicly available on the authors' websites.

Information for all other variables used in the analysis comes from publicly available sources. References are provided in the main manuscript.

### Countries Included in the Sample

| | | | Administrative Units | | |
|---|---|---|---|---|---|
| Region | Country | Top-tier Gov. | Mean | Min | Max |
| Sub-Saharan Africa | Angola | Province | 17.7 | 16 | 18 |
| Sub-Saharan Africa | Benin | Department | 7.6 | 6 | 12 |
| Sub-Saharan Africa | Botswana | District | 10.6 | 9 | 12 |
| Sub-Saharan Africa | Burkina Faso | Region | 16.5 | 4 | 45 |
| Sub-Saharan Africa | Burundi | Province | 13.2 | 8 | 17 |
| Sub-Saharan Africa | Cameroon | Region | 13.8 | 7 | 36 |
| Sub-Saharan Africa | Cape Verde | County | 16.6 | 14 | 22 |
| Sub-Saharan Africa | Central African Republic | Prefecture | 16.4 | 14 | 17 |
| Sub-Saharan Africa | Chad | Region | 15.9 | 11 | 28 |
| Sub-Saharan Africa | Comoros | Autonomous Island | 3 | 3 | 3 |
| Sub-Saharan Africa | Congo | Department | 10.9 | 10 | 13 |
| Sub-Saharan Africa | Congo, Democratic Republic | Province | 9.9 | 9 | 22 |
| Sub-Saharan Africa | Cote d'Ivoire | Region | 16.8 | 4 | 24 |
| Sub-Saharan Africa | Eritrea | Region | 6.6 | 6 | 10 |
| Sub-Saharan Africa | Ethiopia (1993-) | State | 14.2 | 10 | 30 |
| Sub-Saharan Africa | Gabon | Province | 9 | 9 | 9 |
| Sub-Saharan Africa | Gambia | Region | 6.7 | 6 | 7 |
| Sub-Saharan Africa | Ghana | Region | 9.0 | 7 | 10 |
| Sub-Saharan Africa | Guinea | Prefecture | 31.6 | 29 | 34 |
| Sub-Saharan Africa | Guinea-Bissau | Region | 8.9 | 8 | 12 |
| Sub-Saharan Africa | Kenya | Province | 8 | 8 | 8 |
| Sub-Saharan Africa | Lesotho | District | 9.6 | 9 | 10 |
| Sub-Saharan Africa | Liberia | County | 11.8 | 8 | 15 |
| Sub-Saharan Africa | Madagascar | Autonomous Province | 6 | 6 | 6 |
| Sub-Saharan Africa | Malawi | District | 25.0 | 22 | 28 |
| Sub-Saharan Africa | Mali | District | 7.6 | 6 | 9 |
| Sub-Saharan Africa | Mauritania | Region | 13 | 12 | 14 |
| Sub-Saharan Africa | Mauritius | District | 10.9 | 6 | 12 |
| Sub-Saharan Africa | Mozambique | Province | 10.7 | 9 | 11 |
| Sub-Saharan Africa | Namibia | Region | 14.1 | 13 | 26 |
| Sub-Saharan Africa | Niger | Region | 8.1 | 7 | 16 |
| Sub-Saharan Africa | Nigeria | State | 23.2 | 3 | 37 |
| Sub-Saharan Africa | Rwanda | Province | 9.0 | 5 | 12 |
| Sub-Saharan Africa | Sao Tome and Principe | Municipal District | 2 | 2 | 2 |
| Sub-Saharan Africa | Senegal | Region | 9.3 | 7 | 14 |
| Sub-Saharan Africa | Seychelles | District | 23 | 8 | 26 |
| Sub-Saharan Africa | Sierra Leone | Province | 4 | 4 | 4 |
| Sub-Saharan Africa | Somalia | Region | 14.4 | 8 | 18 |
| Sub-Saharan Africa | South Africa | Province | 5.8 | 4 | 9 |
| Sub-Saharan Africa | South Sudan | State | 10 | 10 | 10 |
| Sub-Saharan Africa | Sudan (-2011) | State | 17.3 | 9 | 26 |
| Sub-Saharan Africa | Swaziland | Region | 4.1 | 4 | 6 |
| Sub-Saharan Africa | Tanzania | Region | 23.0 | 8 | 30 |
| Sub-Saharan Africa | Togo | Region | 4.6 | 4 | 5 |
| Sub-Saharan Africa | Uganda | District | 39.5 | 10 | 112 |
| Sub-Saharan Africa | Zambia | Province | 8.8 | 8 | 10 |
| Sub-Saharan Africa | Zimbabwe | Province | 7.5 | 5 | 10 |

Table A1: Administrative Units, 1960-2012

# B Government Fragmentation – Cross-National Figures

Figure B1 shows a smoothed average, including 95% confidence intervals, of the absolute number of regional governments over time for the entire sample. Specifically, it illustrates the increase in the number of top-tier regional governments in Sub-Saharan Africa over time. Whereas in 1960 each country had on average about nine regional government units, by 2010 the average had increased to about 15. The number of regional governments varies in our sample from a minimum of two (São Tomé) to a maximum of 112 (Uganda), with a mean of 12.6. The number of regional governments per 1 million citizens in sub-Saharan Africa varies from 0.06 (Nigeria) to 361.7 (Seychelles), with a mean of 9.5. The distribution has a clear right skew, with 90% of all country years scoring below 10.

The common positive trend in the number of regional governments nonetheless masks important cross-country variation. Figure B2 depicts the number of regional government units over time for the countries in our dataset. It shows interesting variation in how African countries adjust their territorial government structures over time. While some, like Nigeria, continuously increased the number of regional (state) governments, others showed no changes (Gabon) or even reductions (Cameroon).

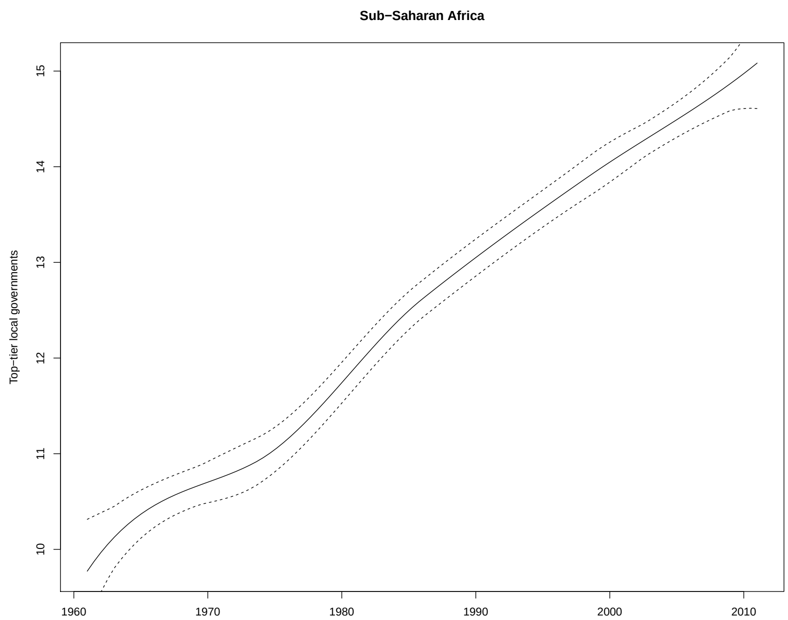


Figure B1: Average Number of Regional Governments.

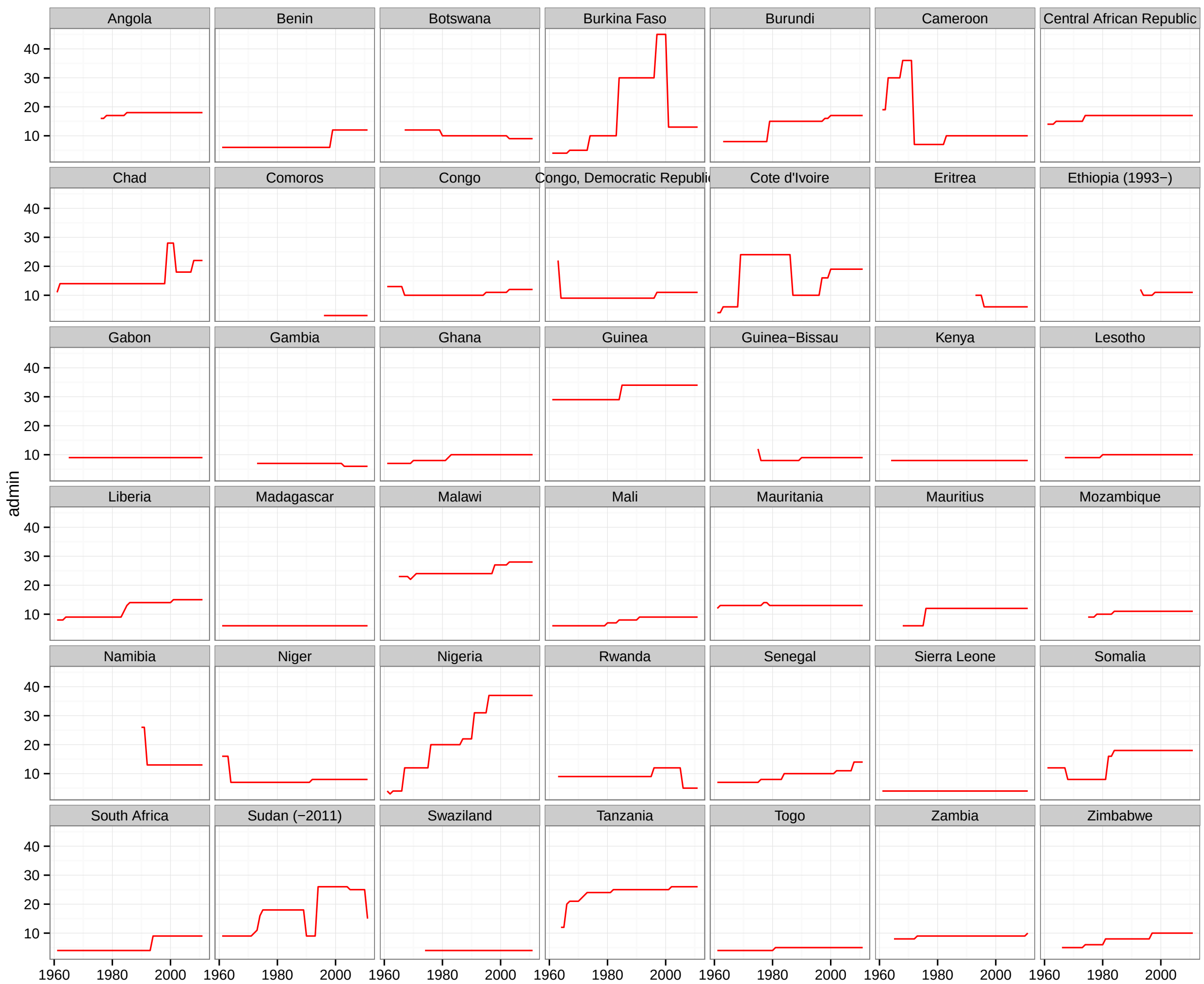


Figure B2: N. of Regional Govs. by Country.

## C Summary Statistics

### Cross-National Data

| | Mean | SD | Min | Max |
|---|---|---|---|---|
| Services, Main | -0.52 | 0.89 | -2.64 | 1.36 |
| Services, Extended | -0.44 | 0.74 | -2.21 | 1.21 |
| log(Population) | 15.36 | 1.45 | 11.01 | 18.91 |
| Urbanization | 28.81 | 14.96 | 2.14 | 86.15 |
| log(GDP pc) | 7.07 | 0.85 | 5.08 | 10.38 |
| Intrastate Conflict | 0.19 | 0.39 | 0.00 | 1.00 |
| State Elections | 1.63 | 0.68 | 1.00 | 3.00 |
| Polity 2 | -2.10 | 6.00 | -10.00 | 10.00 |
| log(Oil Value pc) | 0.90 | 2.08 | 0.00 | 9.26 |
| Foreign Aid pc | 90.22 | 109.29 | -15.26 | 1024.16 |
| Regional Gov pc | 9.46 | 40.66 | 0.06 | 361.67 |

Table C1: Summary Statistics

### Sub-National Data

The DHS are conducted on behalf of local ministries of health with financial support from the United States Agency for International Development (The DHS Program 2015)

| | Mean | SD | Min | Max |
|---|---|---|---|---|
| Infant Mortality | 0.114 | 0.318 | 0 | 1 |
| Child Mortality | 0.168 | 0.374 | 0 | 1 |
| Multiple Birth | 0.058 | 0.307 | 0 | 4 |
| Gender [Male] | 0.503 | 0.500 | 0 | 1 |
| Mother's Age | 24.510 | 6.301 | 10 | 49.417 |
| Mother's Age Squared | 640.430 | 341.080 | 100 | 2442.007 |
| Prev Sibling 24 months | 0.193 | 0.395 | 0 | 1 |
| Birth Order | 3.273 | 2.207 | 1 | 17 |
| Birth Order Squared | 15.577 | 20.860 | 1 | 289 |

Table C2: Summary Statistics - Malawi

| | Mean | SD | Min | Max |
|---|---|---|---|---|
| Infant Mortality | 0.107 | 0.309 | 0 | 1 |
| Child Mortality | 0.173 | 0.378 | 0 | 1 |
| Multiple Birth | 0.052 | 0.292 | 0 | 4 |
| Gender [Male] | 0.514 | 0.500 | 0 | 1 |
| Mother's Age | 25.182 | 6.567 | 6.917 | 49.583 |
| Mother's Age Squared | 677.238 | 356.618 | 47.840 | 2458.507 |
| Prev Sibling 24 months | 0.258 | 0.437 | 0 | 1 |
| Birth Order | 3.559 | 2.403 | 1 | 18 |
| Birth Order Squared | 18.441 | 24.309 | 1 | 324 |

Table C3: Summary Statistics - Nigeria

| | Mean | SD | Min | Max |
|---|---|---|---|---|
| Infant Mortality | 0.095 | 0.293 | 0 | 1 |
| Child Mortality | 0.142 | 0.349 | 0 | 1 |
| Multiple Birth | 0.043 | 0.266 | 0 | 3 |
| Gender [Male] | 0.504 | 0.500 | 0 | 1 |
| Mother's Age | 24.617 | 6.282 | 7.833 | 49.500 |
| Mother's Age Squared | 645.483 | 337.663 | 61.361 | 2450.250 |
| Prev Sibling 24 months | 0.272 | 0.445 | 0 | 1 |
| Birth Order | 3.623 | 2.426 | 1 | 17 |
| Birth Order Squared | 19.012 | 24.526 | 1 | 289 |

Table C4: Summary Statistics - Uganda

# D Robustness checks: Country-level Analysis

## D.1 Three Year Lag

| | (1)<br>Main, FE<br>b/se | (2)<br>Main, FE<br>b/se | (3)<br>Main, IV<br>b/se | (4)<br>Main, IV<br>b/se | (5)<br>Ext, FE<br>b/se | (6)<br>Ext, FE<br>b/se | (7)<br>Ext, IV<br>b/se | (8)<br>Ext, IV<br>b/se |
|---|---|---|---|---|---|---|---|---|
| log(Population) | 1.846$^{***}$ | 2.242$^{***}$ | 0.103 | 0.220 | 1.034$^{*}$ | 1.174$^{*}$ | 0.141 | 0.295$^{*}$ |
| | (0.498) | (0.594) | (0.128) | (0.165) | (0.383) | (0.446) | (0.099) | (0.131) |
| Urbanization | -0.020$^{*}$ | -0.025$^{**}$ | -0.002 | -0.003 | -0.010 | -0.014$^{+}$ | 0.002 | 0.001 |
| | (0.010) | (0.009) | (0.009) | (0.010) | (0.007) | (0.007) | (0.008) | (0.010) |
| log(GDP pc) | 0.278$^{+}$ | 0.297$^{+}$ | 0.243$^{*}$ | 0.297$^{*}$ | 0.131 | 0.147 | 0.289$^{**}$ | 0.334$^{**}$ |
| | (0.151) | (0.153) | (0.119) | (0.126) | (0.130) | (0.135) | (0.106) | (0.113) |
| Intrastate Conflict | 0.033 | 0.016 | -0.363$^{**}$ | -0.380$^{**}$ | -0.036 | -0.044 | -0.396$^{***}$ | -0.445$^{***}$ |
| | (0.054) | (0.056) | (0.113) | (0.123) | (0.051) | (0.052) | (0.099) | (0.116) |
| State Elections | 0.214 | 0.254 | 0.160 | 0.217 | 0.185 | 0.233$^{+}$ | 0.236$^{**}$ | 0.306$^{**}$ |
| | (0.175) | (0.156) | (0.117) | (0.138) | (0.132) | (0.137) | (0.087) | (0.118) |
| Polity 2 | 0.014 | 0.016 | 0.008 | 0.008 | 0.005 | 0.007 | -0.001 | -0.002 |
| | (0.014) | (0.014) | (0.013) | (0.013) | (0.007) | (0.006) | (0.008) | (0.008) |
| log(Oil Value pc) | -0.066$^{**}$ | -0.065$^{*}$ | 0.067$^{+}$ | 0.066$^{+}$ | -0.015 | -0.016 | 0.011 | 0.005 |
| | (0.022) | (0.026) | (0.035) | (0.034) | (0.024) | (0.027) | (0.025) | (0.027) |
| Foreign Aid pc | -0.000 | 0.000 | 0.000 | 0.001 | -0.000$^{*}$ | -0.000 | -0.001 | -0.000 |
| | (0.000) | (0.000) | (0.001) | (0.001) | (0.000) | (0.000) | (0.001) | (0.001) |
| ELF | | | -0.682 | -0.740 | | | -1.020$^{**}$ | -1.082$^{*}$ |
| | | | (0.459) | (0.531) | | | (0.362) | (0.438) |
| N. Local Gov pc 3yr lag | 0.114$^{*}$ | | 0.096 | | 0.085$^{*}$ | | 0.086$^{+}$ | |
| | (0.054) | | (0.067) | | (0.033) | | (0.052) | |
| N. Local Gov pc Squared 3 yr lag | -0.002$^{*}$ | | -0.002 | | -0.001$^{*}$ | | -0.001 | |
| | (0.001) | | (0.001) | | (0.000) | | (0.001) | |
| | (0.175) | (0.172) | (0.121) | (0.130) | (0.127) | (0.135) | (0.112) | (0.124) |
| log(N. Local Gov pc) 3yr lag | | 0.347$^{**}$ | | 0.337$^{+}$ | | 0.142$^{+}$ | | 0.374$^{*}$ |
| | | (0.112) | | (0.183) | | (0.078) | | (0.149) |
| Constant | -31.059$^{***}$ | -37.162$^{***}$ | -3.766$^{+}$ | -5.983$^{*}$ | -17.609$^{**}$ | -19.687$^{*}$ | -4.726$^{**}$ | -7.539$^{***}$ |
| | (7.479) | (9.044) | (2.056) | (2.536) | (6.223) | (7.198) | (1.496) | (2.057) |
| Country FE | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Year FE | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Observations | 605 | 605 | 591 | 591 | 524 | 524 | 519 | 519 |

Standard errors are clustered at the country level.

Table D1: Fixed Effects and IV Models, Annual, Main and Extended Services Index

## D.2 Imputed Data

Since data can be sparse for some developing countries, especially given the long time series, we follow Ross (2006) and Stasavage (2005) and simulate missing data using multiple imputation (MI).[1] MI works well under the assumption that missingness is random *conditional on covariates*. Given our comprehensive set of controls, we believe this is a reasonable option for dealing with missing values.

[1]Missing data are imputed using Stata's MI command, with the number of imputations $m = 20$. The MI procedure relies on a standard multivariate normal imputation framework.

| | (1) Main b/se | (2) Main b/se | (3) Main b/se | (4) Main b/se | (5) Ext b/se | (6) Ext b/se | (7) Ext b/se | (8) Ext b/se |
|---|---|---|---|---|---|---|---|---|
| log(Population) | 1.577* | 1.642* | 1.579* | 1.602* | 0.104 | 0.045 | 0.101 | 0.035 |
| | (0.656) | (0.720) | (0.662) | (0.733) | (0.074) | (0.097) | (0.075) | (0.099) |
| Urbanization | -0.024* | -0.029** | -0.024* | -0.029* | -0.005 | -0.007 | -0.005 | -0.007 |
| | (0.010) | (0.010) | (0.010) | (0.011) | (0.005) | (0.005) | (0.005) | (0.005) |
| log(GDP pc) | 0.256** | 0.295** | 0.266** | 0.300** | 0.245*** | 0.268*** | 0.250*** | 0.269*** |
| | (0.094) | (0.108) | (0.096) | (0.110) | (0.070) | (0.072) | (0.069) | (0.072) |
| Intrastate Conflict | -0.067 | -0.077 | -0.069 | -0.078 | -0.091+ | -0.098+ | -0.092+ | -0.098+ |
| | (0.058) | (0.063) | (0.059) | (0.063) | (0.048) | (0.050) | (0.049) | (0.050) |
| State Elections | 0.053 | 0.074 | 0.064 | 0.086 | 0.084 | 0.104 | 0.087 | 0.105 |
| | (0.081) | (0.087) | (0.087) | (0.092) | (0.074) | (0.078) | (0.075) | (0.080) |
| Polity 2 | 0.010 | 0.011 | 0.010 | 0.011 | 0.009 | 0.009 | 0.009 | 0.009 |
| | (0.011) | (0.011) | (0.011) | (0.011) | (0.007) | (0.006) | (0.007) | (0.006) |
| log(Oil Value pc) | -0.061* | -0.062* | -0.058* | -0.059* | -0.017 | -0.013 | -0.017 | -0.013 |
| | (0.024) | (0.026) | (0.023) | (0.025) | (0.018) | (0.019) | (0.018) | (0.019) |
| Foreign Aid pc | -0.000 | 0.000 | -0.000 | 0.000 | -0.001* | -0.000 | -0.001* | -0.000 |
| | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) |
| N. Regional Gov pc 5yr lag | 0.127* | | | | 0.059* | | | |
| | (0.050) | | | | (0.026) | | | |
| N. Regional Gov pc Squared 5 yr lag | -0.002* | | | | -0.001+ | | | |
| | (0.001) | | | | (0.000) | | | |
| log(N. Regional Gov pc) 5yr lag | | 0.212 | | | | 0.032 | | |
| | | (0.144) | | | | (0.093) | | |
| N. Regional Gov pc 3yr lag | | | 0.123* | | | | 0.059* | |
| | | | (0.053) | | | | (0.027) | |
| N. Regional Gov pc Squared 3yr lag | | | -0.002* | | | | -0.001+ | |
| | | | (0.001) | | | | (0.000) | |
| log(N. Regional Gov pc) 3yr lag | | | | 0.161 | | | | 0.020 |
| | | | | (0.123) | | | | (0.098) |
| Constant | -26.543* | -27.472* | -26.609* | -26.866* | -3.870** | -2.975+ | -3.852** | -2.806 |
| | (10.196) | (11.214) | (10.301) | (11.405) | (1.351) | (1.693) | (1.369) | (1.756) |
| Country FE | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Year FE | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Observations | 932 | 932 | 932 | 932 | 1039 | 1039 | 1039 | 1039 |

Table D2: Fixed Effects Models, Annual

### D.3 Quinquennial Data

Our main analysis uses annual, country-level data. While it is standard practice in comparative politics, relying on annual data in a developing country context poses certain challenges. In addition to issues of missing data, measurement errors are a real concern, which are not adequately addressed using multiple imputation. A reasonable alternative to annual data with multiple imputation is the use of quinquennial analysis (García 2014). For this approach we first calculate for all our variables the 5-year average around each country-year observation. For example, for the quinquennial average of our services index in country $i$ centered in 1995, we calculate the average from 1993 to 1997. We only construct the average if data are available for at least three of the five years. This ameliorates random measurement error and implicitly imputes some of the missing data.

We then estimate two-way fixed-effects models. First, we test the robustness of our results to a model that uses every year of the quinquennial data, which is akin to a moving average analysis. Alternatively, we only use every fifth year in the data, starting in 1960. Again, we lag our averaged regional government per capita measure by five or three years in a quadratic and logged specification. Across the quinquennial analysis we find robust evidence for either the quadratic, logged specifications (or both), firmly supporting our prior results.

| | (1) | (2) | (3) | (4) |
|---|---|---|---|---|
| | FE | FE | FE | FE |
| | b/se | b/se | b/se | b/se |
| log(Population) | 0.099 | 0.244 | 0.088 | 0.185 |
| | (0.134) | (0.197) | (0.209) | (0.283) |
| Foreign Aid pc | 0.001 | 0.002 | 0.001 | 0.001 |
| | (0.001) | (0.001) | (0.001) | (0.001) |
| Urbanization | -0.010 | -0.017 | -0.013 | -0.018 |
| | (0.013) | (0.012) | (0.013) | (0.012) |
| log(GDP pc) | -0.057 | -0.068 | 0.143 | 0.107 |
| | (0.239) | (0.242) | (0.213) | (0.222) |
| Intrastate Conflict | -0.130 | -0.172 | -0.035 | -0.076 |
| | (0.141) | (0.143) | (0.125) | (0.132) |
| State Elections | $0.298^{+}$ | $0.354^{*}$ | $0.374^{*}$ | $0.428^{*}$ |
| | (0.156) | (0.157) | (0.161) | (0.161) |
| Polity 2 | -0.002 | 0.000 | 0.003 | 0.006 |
| | (0.015) | (0.015) | (0.018) | (0.018) |
| log(Oil Value pc) | -0.021 | -0.012 | -0.037 | -0.029 |
| | (0.025) | (0.023) | (0.026) | (0.026) |
| N. Regional Gov pc 5yr lag | $0.155^{*}$ | | | |
| | (0.074) | | | |
| N. Regional Gov pc 5yr lag Squared | $-0.002^{*}$ | | | |
| | (0.001) | | | |
| log(N. Regional Gov pc) 5yr lag | | $0.280^{*}$ | | |
| | | (0.135) | | |
| N. Regional Gov pc 3yr lag | | | $0.140^{+}$ | |
| | | | (0.073) | |
| N. Regional Gov pc 3yr lag Squared | | | $-0.003^{**}$ | |
| | | | (0.001) | |
| log(N. Regional Gov pc) 3yr lag | | | | 0.193 |
| | | | | (0.138) |
| Constant | -2.159 | -4.016 | -3.334 | -4.324 |
| | (2.427) | (3.173) | (3.241) | (4.186) |
| Country FE | ✓ | ✓ | ✓ | ✓ |
| Time FE | ✓ | ✓ | ✓ | ✓ |
| Observations | 573 | 573 | 614 | 614 |
| Log-Likelihood | 60.74 | 51.15 | 33.13 | 20.84 |
| AIC | -59.47 | -40.29 | -4.267 | 20.33 |
| BIC | 75.40 | 94.58 | 132.8 | 157.3 |

Table D3: Fixed Effects Models, Quinquennial, All Years, Main Index

| | (1) FE b/se | (2) FE b/se | (3) FE b/se | (4) FE b/se |
|---|---|---|---|---|
| log(Population) | 0.119 | $0.404^{+}$ | 0.030 | 0.078 |
| | (0.135) | (0.205) | (0.210) | (0.280) |
| Foreign Aid pc | 0.000 | 0.001 | 0.002 | 0.002 |
| | (0.001) | (0.001) | (0.002) | (0.002) |
| Urbanization | -0.011 | -0.021 | -0.013 | -0.018 |
| | (0.017) | (0.015) | (0.012) | (0.012) |
| log(GDP pc) | -0.139 | -0.172 | 0.204 | 0.205 |
| | (0.296) | (0.294) | (0.228) | (0.236) |
| Intrastate Conflict | -0.207 | $-0.287^{+}$ | 0.033 | 0.001 |
| | (0.171) | (0.166) | (0.144) | (0.149) |
| State Elections | 0.227 | 0.292 | $0.356^{+}$ | $0.426^{*}$ |
| | (0.181) | (0.188) | (0.179) | (0.187) |
| Polity 2 | 0.004 | 0.005 | 0.010 | 0.011 |
| | (0.015) | (0.015) | (0.016) | (0.016) |
| log(Oil Value pc) | -0.015 | 0.004 | -0.040 | -0.033 |
| | (0.029) | (0.024) | (0.029) | (0.029) |
| N. Regional Gov pc 5yr lag | $0.176^{*}$ | | | |
| | (0.079) | | | |
| N. Regional Gov pc 5yr lag Squared | $-0.002^{+}$ | | | |
| | (0.001) | | | |
| log(N. Regional Gov pc) 5yr lag | | $0.444^{*}$ | | |
| | | (0.165) | | |
| N. Regional Gov pc 3yr lag | | | 0.127 | |
| | | | (0.081) | |
| N. Regional Gov pc 3yr lag Squared | | | $-0.002^{*}$ | |
| | | | (0.001) | |
| log(N. Regional Gov pc) 3yr lag | | | | 0.113 |
| | | | | (0.177) |
| Constant | -1.796 | $-5.630^{+}$ | -2.904 | -3.383 |
| | (2.973) | (3.066) | (3.119) | (4.039) |
| Country FE | ✓ | ✓ | ✓ | ✓ |
| Time FE | ✓ | ✓ | ✓ | ✓ |
| Observations | 123 | 123 | 127 | 127 |
| Log-Likelihood | 9.837 | 8.118 | 13.18 | 10.75 |
| AIC | 12.33 | 13.76 | 5.636 | 8.510 |
| BIC | 57.32 | 55.95 | 51.14 | 51.17 |

Table D4: Fixed Effects Models, Quinquennial, Every 5th Year, Main Index

| | (1) | (2) | (3) | (4) |
|---|---|---|---|---|
| | FE | FE | FE | FE |
| | b/se | b/se | b/se | b/se |
| log(Population) | -0.001 | 0.054 | -0.017 | -0.004 |
| | (0.085) | (0.120) | (0.123) | (0.179) |
| Foreign Aid pc | -0.001 | -0.000 | -0.001 | -0.000 |
| | (0.001) | (0.001) | (0.001) | (0.001) |
| Urbanization | -0.012 | -0.017 | -0.009 | -0.014 |
| | (0.010) | (0.011) | (0.011) | (0.011) |
| log(GDP pc) | -0.151 | -0.170 | 0.013 | -0.020 |
| | (0.170) | (0.166) | (0.164) | (0.169) |
| Intrastate Conflict | -0.163 | -0.184 | -0.129 | -0.149 |
| | (0.104) | (0.110) | (0.095) | (0.101) |
| State Elections | 0.293* | 0.346** | 0.344* | 0.400** |
| | (0.116) | (0.123) | (0.130) | (0.142) |
| Polity 2 | 0.001 | 0.004 | -0.001 | 0.003 |
| | (0.009) | (0.009) | (0.010) | (0.010) |
| log(Oil Value pc) | 0.006 | 0.015 | -0.002 | 0.005 |
| | (0.018) | (0.018) | (0.020) | (0.020) |
| N. Regional Gov pc 5yr lag | 0.124* | | | |
| | (0.056) | | | |
| N. Regional Gov pc 5yr lag Squared | -0.002* | | | |
| | (0.001) | | | |
| log(N. Regional Gov pc) 5yr lag | | 0.156+ | | |
| | | (0.080) | | |
| N. Regional Gov pc 3yr lag | | | 0.137* | |
| | | | (0.061) | |
| N. Regional Gov pc 3yr lag Squared | | | -0.002** | |
| | | | (0.001) | |
| log(N. Regional Gov pc) 3yr lag | | | | 0.091 |
| | | | | (0.101) |
| Constant | 0.187 | -0.280 | -0.939 | -0.560 |
| | (1.997) | (2.271) | (2.227) | (2.837) |
| Country FE | ✓ | ✓ | ✓ | ✓ |
| Time FE | ✓ | ✓ | ✓ | ✓ |
| Observations | 529 | 529 | 543 | 543 |
| Log-Likelihood | 292.2 | 275.4 | 271.1 | 248.2 |
| AIC | -526.5 | -492.8 | -484.2 | -438.4 |
| BIC | -402.6 | -368.9 | -359.5 | -313.7 |

Table D5: Fixed Effects Models, Quinquennial, All Years, Extended Index

| | (1) | (2) | (3) | (4) |
|---|---|---|---|---|
| | FE | FE | FE | FE |
| | b/se | b/se | b/se | b/se |
| log(Population) | -0.002 | 0.070 | -0.090 | -0.091 |
| | (0.081) | (0.112) | (0.136) | (0.193) |
| Foreign Aid pc | -0.000 | 0.000 | 0.000 | 0.001 |
| | (0.001) | (0.001) | (0.001) | (0.001) |
| Urbanization | -0.012 | -0.018 | -0.005 | -0.011 |
| | (0.011) | (0.012) | (0.009) | (0.011) |
| log(GDP pc) | -0.122 | -0.149 | 0.198 | 0.187 |
| | (0.199) | (0.187) | (0.157) | (0.163) |
| Intrastate Conflict | -0.189$^{+}$ | -0.211$^{+}$ | -0.079 | -0.100 |
| | (0.109) | (0.111) | (0.106) | (0.114) |
| State Elections | 0.370$^{**}$ | 0.420$^{**}$ | 0.445$^{*}$ | 0.509$^{*}$ |
| | (0.126) | (0.137) | (0.186) | (0.187) |
| Polity 2 | 0.002 | 0.005 | -0.001 | 0.002 |
| | (0.009) | (0.008) | (0.009) | (0.009) |
| log(Oil Value pc) | 0.011 | 0.024 | -0.003 | 0.008 |
| | (0.016) | (0.017) | (0.019) | (0.020) |
| N. Regional Gov pc 5yr lag | 0.112$^{+}$ | | | |
| | (0.055) | | | |
| N. Regional Gov pc 5yr lag Squared | -0.001 | | | |
| | (0.001) | | | |
| log(N. Regional Gov pc) 5yr lag | | 0.170 | | |
| | | (0.103) | | |
| N. Regional Gov pc 3yr lag | | | 0.126$^{+}$ | |
| | | | (0.067) | |
| N. Regional Gov pc 3yr lag Squared | | | -0.002$^{*}$ | |
| | | | (0.001) | |
| log(N. Regional Gov pc) 3yr lag | | | | 0.038 |
| | | | | (0.133) |
| Constant | -0.164 | -0.836 | -1.460 | -1.014 |
| | (2.148) | (2.230) | (1.931) | (2.781) |
| Country FE | ✓ | ✓ | ✓ | ✓ |
| Time FE | ✓ | ✓ | ✓ | ✓ |
| Observations | 111 | 111 | 113 | 113 |
| Log-Likelihood | 67.28 | 63.29 | 64.62 | 59.73 |
| AIC | -102.6 | -96.58 | -97.25 | -89.47 |
| BIC | -59.21 | -55.93 | -53.61 | -48.56 |

Table D6: Fixed Effects Models, Quinquennial, Every 5th Year, Extended Index

## D.4 Controlling for Expenditures

Improvements in service delivery might be driven by overall government expenditures on health and education or the amount of fiscal resources allocated to at sub-national level. Controlling for the latter is difficult due to severe data limitations. Data on fiscal decentralization for our sample are sparse, often covering only a handful of years for each country. Moreover, changes in the allocation of fiscal resources are part of our theoretical mechanism. Hence, admittedly, we cannot fully disentangle the interplay between government fragmentation and fiscal decentralization. We are able, however, to control for overall expenditures on health and education. The table below estimates our standard fixed effects models with 5 and 3-year lags, adding expenditures on health and education as a percentage of GDP (WDI) as a control variable and using multiple imputation (due to higher levels of missingness).

| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) |
|---|---|---|---|---|---|---|---|---|
| | Main | Main | Main | Main | Ext | Ext | Ext | Ext |
| | b/se | b/se | b/se | b/se | b/se | b/se | b/se | b/se |
| log(Population) | 1.470* | 1.541* | 1.484* | 1.493+ | 0.110 | 0.064 | 0.106 | 0.046 |
| | (0.691) | (0.756) | (0.694) | (0.761) | (0.070) | (0.102) | (0.070) | (0.099) |
| Urbanization | -0.020* | -0.025* | -0.020* | -0.025* | -0.005 | -0.007 | -0.005 | -0.007 |
| | (0.010) | (0.011) | (0.010) | (0.011) | (0.005) | (0.005) | (0.005) | (0.005) |
| log(GDP pc) | 0.231* | 0.269* | 0.240* | 0.274* | 0.231** | 0.249** | 0.236** | 0.250** |
| | (0.104) | (0.116) | (0.106) | (0.118) | (0.078) | (0.081) | (0.079) | (0.081) |
| Intrastate Conflict | -0.062 | -0.071 | -0.064 | -0.072 | -0.086 | -0.090 | -0.087 | -0.091+ |
| | (0.055) | (0.060) | (0.055) | (0.060) | (0.054) | (0.054) | (0.054) | (0.054) |
| State Elections | 0.051 | 0.076 | 0.061 | 0.089 | 0.082 | 0.102 | 0.086 | 0.104 |
| | (0.082) | (0.091) | (0.088) | (0.096) | (0.068) | (0.071) | (0.069) | (0.073) |
| Polity 2 | 0.009 | 0.010 | 0.010 | 0.010 | 0.006 | 0.006 | 0.006 | 0.006 |
| | (0.011) | (0.011) | (0.011) | (0.011) | (0.007) | (0.007) | (0.007) | (0.007) |
| log(Oil Value pc) | -0.059* | -0.060* | -0.055* | -0.056* | -0.018 | -0.014 | -0.018 | -0.013 |
| | (0.026) | (0.028) | (0.026) | (0.027) | (0.019) | (0.019) | (0.019) | (0.019) |
| Foreign Aid pc | -0.000 | 0.000 | -0.000 | 0.000 | -0.001* | -0.000 | -0.001+ | -0.000 |
| | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) |
| Services Expenditures | 0.007 | 0.009 | 0.007 | 0.008 | 0.015* | 0.016* | 0.015* | 0.016* |
| | (0.008) | (0.008) | (0.008) | (0.008) | (0.007) | (0.007) | (0.007) | (0.007) |
| N. Regional Gov pc 5yr lag | 0.130* | | | | 0.052* | | | |
| | (0.050) | | | | (0.025) | | | |
| N. Regional Gov pc Squared 5 yr lag | -0.002* | | | | -0.001 | | | |
| | (0.001) | | | | (0.001) | | | |
| log(N. Regional Gov pc) 5yr lag | | 0.220 | | | | 0.040 | | |
| | | (0.148) | | | | (0.091) | | |
| N. Regional Gov pc 3yr lag | | | 0.129* | | | | 0.052* | |
| | | | (0.051) | | | | (0.026) | |
| N. Regional Gov pc Squared 3yr lag | | | -0.002* | | | | -0.001 | |
| | | | (0.001) | | | | (0.001) | |
| log(N. Regional Gov pc) 3yr lag | | | | 0.157 | | | | 0.020 |
| | | | | (0.131) | | | | (0.091) |
| Constant | -24.880* | -25.912* | -25.146* | -25.199* | -3.989** | -3.257+ | -3.941** | -2.970 |
| | (10.752) | (11.749) | (10.796) | (11.826) | (1.278) | (1.792) | (1.297) | (1.777) |
| Country FE | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Year FE | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Observations | 932 | 932 | 932 | 932 | 1039 | 1039 | 1039 | 1039 |

Table D7: Fixed Effects Models, Annual

## D.5 Lagged DV

| | (1) FE b/se | (2) FE b/se | (3) FE b/se | (4) FE b/se |
|---|---|---|---|---|
| Services Index, Main | 0.940*** | 0.942*** | 0.940*** | 0.943*** |
| | (0.017) | (0.018) | (0.017) | (0.019) |
| log(Population) | 0.049 | 0.097 | 0.044 | 0.089 |
| | (0.118) | (0.138) | (0.117) | (0.143) |
| Urbanization | -0.002 | -0.002 | -0.001 | -0.002 |
| | (0.002) | (0.002) | (0.002) | (0.002) |
| log(GDP pc) | -0.001 | -0.001 | 0.003 | 0.003 |
| | (0.031) | (0.033) | (0.033) | (0.034) |
| Intrastate Conflict | -0.001 | -0.004 | -0.000 | -0.004 |
| | (0.020) | (0.021) | (0.020) | (0.021) |
| State Elections | 0.010 | 0.024 | 0.009 | 0.025 |
| | (0.026) | (0.021) | (0.025) | (0.021) |
| Polity 2 | 0.002 | 0.002 | 0.001 | 0.002 |
| | (0.002) | (0.002) | (0.002) | (0.002) |
| log(Oil Value pc) | -0.006 | -0.005 | -0.006 | -0.005 |
| | (0.006) | (0.006) | (0.006) | (0.006) |
| Foreign Aid pc | 0.000* | 0.000* | 0.000* | 0.000* |
| | (0.000) | (0.000) | (0.000) | (0.000) |
| N. Regional Gov pc 5yr lag | 0.021+ | | | |
| | (0.012) | | | |
| N. Regional Gov pc Squared 5 yr lag | -0.000+ | | | |
| | (0.000) | | | |
| log(N. Regional Gov pc) 5yr lag | | 0.042 | | |
| | | (0.028) | | |
| N. Regional Gov pc 3yr lag | | | 0.027* | |
| | | | (0.010) | |
| N. Regional Gov pc Squared 3yr lag | | | -0.000* | |
| | | | (0.000) | |
| log(N. Regional Gov pc) 3yr lag | | | | 0.048* |
| | | | | (0.022) |
| Constant | -0.777 | -1.475 | -0.740 | -1.390 |
| | (1.850) | (2.169) | (1.838) | (2.233) |
| Country FE | ✓ | ✓ | ✓ | ✓ |
| Year FE | ✓ | ✓ | ✓ | ✓ |
| Observations | 518 | 518 | 520 | 520 |
| Log-Likelihood | 539.5 | 537.5 | 542.7 | 539.4 |
| AIC | -1017.0 | -1013.0 | -1023.3 | -1016.9 |
| BIC | -885.2 | -881.2 | -891.5 | -885.0 |

Table D8: Fixed Effects Models, Annual, Main Index

## D.6 Excluding Small Countries

| | (1) | (2) | (3) | (4) |
|---|---|---|---|---|
| | FE | FE | FE | FE |
| | b/se | b/se | b/se | b/se |
| log(Population) | 1.008** | 1.202** | 1.014* | 1.102* |
| | (0.366) | (0.436) | (0.391) | (0.457) |
| Urbanization | -0.013 | -0.013+ | -0.013 | -0.012 |
| | (0.008) | (0.007) | (0.009) | (0.007) |
| log(GDP pc) | 0.195 | 0.175 | 0.204 | 0.183 |
| | (0.136) | (0.137) | (0.145) | (0.142) |
| Intrastate Conflict | -0.033 | -0.040 | -0.029 | -0.034 |
| | (0.048) | (0.049) | (0.048) | (0.050) |
| State Elections | 0.147 | 0.212 | 0.193 | 0.239 |
| | (0.139) | (0.146) | (0.140) | (0.144) |
| Polity 2 | 0.002 | 0.007 | 0.003 | 0.007 |
| | (0.007) | (0.006) | (0.007) | (0.007) |
| log(Oil Value pc) | -0.035 | -0.028 | -0.020 | -0.019 |
| | (0.030) | (0.030) | (0.028) | (0.028) |
| Foreign Aid pc | -0.000 | -0.000 | -0.000 | -0.000 |
| | (0.000) | (0.000) | (0.000) | (0.000) |
| N. Regional Gov pc 5yr lag | 0.207** | | | |
| | (0.063) | | | |
| N. Regional Gov pc Squared 5 yr lag | -0.008* | | | |
| | (0.003) | | | |
| log(N. Regional Gov pc) 5yr lag | | 0.243** | | |
| | | (0.087) | | |
| N. Regional Gov pc 3yr lag | | | 0.193* | |
| | | | (0.072) | |
| N. Regional Gov pc Squared 3yr lag | | | -0.008+ | |
| | | | (0.004) | |
| log(N. Regional Gov pc) 3yr lag | | | | 0.166+ |
| | | | | (0.081) |
| Constant | -17.815** | -20.538** | -18.028** | -19.065* |
| | (6.119) | (7.071) | (6.538) | (7.407) |
| Country FE | ✓ | ✓ | ✓ | ✓ |
| Year FE | ✓ | ✓ | ✓ | ✓ |
| Observations | 503 | 503 | 505 | 505 |
| Log-Likelihood | 177.7 | 159.5 | 171.8 | 156.5 |
| AIC | -295.4 | -259.1 | -283.7 | -253.0 |
| BIC | -168.8 | -132.5 | -156.9 | -126.3 |

Table D9: Fixed Effects Models, Annual, Extended Index

### D.7 Sensitivity Analysis

While the fixed effects models control for any unobserved, time-invariant confounding variables, it is still possible that there exist other unobserved, time-varying variables that correlate both with the number of Regional governments per capita and the quality of services provision. As an additional robustness check we implement a sensitivity analysis that provides a bound estimate of size of any remaining omitted variable needed to invalidate our findings. This approach follows (Nunn and Wantchekon 2001) and (Bellows and Miguel 2008). To estimate the size of the theoretical bias we have to compare our estimates for the effect of the number of Regional governments per capita across different sets of regression models. Specifically, we will take the estimate from our "full" specification (all control variables and fixed effects) and compare it to the estimate from a "sparse" or "restricted" model. The ratio $\frac{\hat{\beta_{full}}}{\hat{\beta_{sparse}}-\hat{\beta_{full}}}$ increases in the size of the estimated regression coefficient for the full model, which is the conservative estimate of the effect, and decreases in the differences between regression coefficients between the conservative and more permissive model, i.e. the degree to which observable factors change the estimate. The higher the ratio, the larger the selection on unobservables must be to explain the estimated effect. Bellows and Miguel (2008) suggest a value of 1 (100% of the variation) as a rule of thumb threshold below which selection on unobservables could cast doubt on the results. To calculate the ratio, we have to define what our "sparse" regression model is. We estimate three alternative sets of sparse specifications. The first just including the number of regional governments per capita (and its square) and a full set if country and year fixed effects, the second excluding the fixed effects but including our other control variables, the third excluding all variables but our main independent variable and its square. The ratios resulting from each of these sparse models with the non-imputed data are 2.02, 1.34, and 1.93 for the linear coefficient. This suggests that the bias through selection on unobservables would have to be on average between 134% and 202% of the selection on observables. Ratios for the quadratic term are between 0.92 and 1.15. This sensitivity check adds additional credibility to our finding: even if the assumptions for the fixed effects models are violated, the underlying bias driving the findings would have to be very large in a substantive sense, relative to our other variables, to account for the observed association.

### D.8 Interaction With Polity

| | (1) Main b/se | (2) Main b/se | (3) Ext b/se | (4) Ext b/se |
|---|---|---|---|---|
| log(Population) | 2.027** | 2.027** | 1.154* | 1.154* |
| | (0.568) | (0.568) | (0.443) | (0.443) |
| Urbanization | -0.026** | -0.026** | -0.014* | -0.014* |
| | (0.009) | (0.009) | (0.006) | (0.006) |
| log(GDP pc) | 0.276 | 0.276 | 0.125 | 0.125 |
| | (0.167) | (0.167) | (0.133) | (0.133) |
| Intrastate Conflict | -0.015 | -0.015 | -0.060 | -0.060 |
| | (0.063) | (0.063) | (0.052) | (0.052) |
| State Elections | 0.194 | 0.194 | 0.190 | 0.190 |
| | (0.151) | (0.151) | (0.152) | (0.152) |
| Polity Dummy | 0.239 | 0.239 | 0.162 | 0.162 |
| | (0.145) | (0.145) | (0.100) | (0.100) |
| log(Oil Value pc) | -0.066* | -0.066* | -0.023 | -0.023 |
| | (0.031) | (0.031) | (0.028) | (0.028) |
| Foreign Aid pc | 0.000 | 0.000 | -0.000 | -0.000 |
| | (0.000) | (0.000) | (0.000) | (0.000) |
| log(N. Local Gov pc) 5yr lag | 0.398* | 0.398* | 0.230* | 0.230* |
| | (0.149) | (0.149) | (0.085) | (0.085) |
| Polity Dummy × log(N. Local Gov pc) 5yr lag | -0.116 | -0.116 | -0.058 | -0.058 |
| | (0.118) | (0.118) | (0.079) | (0.079) |
| Constant | -33.591*** | -33.591*** | -19.249* | -19.249* |
| | (8.624) | (8.624) | (7.070) | (7.070) |
| Observations | 602 | 602 | 522 | 522 |
| Log-Likelihood | -28.41 | -28.41 | 171.3 | 171.3 |
| AIC | 122.8 | 122.8 | -280.6 | -280.6 |
| BIC | 268.0 | 268.0 | -148.6 | -148.6 |

Table D10: Fixed Effects Models, Annual

## D.9 Index Components

| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) |
|---|---|---|---|---|---|---|---|---|
| | Comp1 | Comp1 | Comp1 | Comp2 | Comp2 | Comp2 | Comp2 | Ext |
| | b/se | b/se | b/se | b/se | b/se | b/se | b/se | b/se |
| log(Population) | 31.682*** | 34.429*** | 31.675*** | 33.317*** | 194.289*** | 207.631*** | 194.671*** | 203.055*** |
| | (6.700) | (7.337) | (6.953) | (7.786) | (47.869) | (52.673) | (49.102) | (53.748) |
| Urbanization | 0.165 | 0.069 | 0.146 | 0.064 | -0.573 | -1.108 | -0.668 | -1.125 |
| | (0.145) | (0.131) | (0.142) | (0.135) | (0.812) | (0.771) | (0.808) | (0.790) |
| log(GDP pc) | -1.911 | -1.307 | -1.605 | -1.151 | 11.653 | 14.124 | 12.921 | 15.036 |
| | (1.932) | (2.001) | (1.954) | (2.030) | (12.344) | (13.494) | (12.434) | (13.591) |
| Intrastate Conflict | -0.450 | -0.582 | -0.466 | -0.606 | -2.057 | -2.876 | -2.420 | -3.241 |
| | (0.532) | (0.564) | (0.567) | (0.615) | (5.964) | (6.393) | (6.199) | (6.631) |
| State Elections | -0.830 | -0.646 | -0.656 | -0.408 | -1.187 | 0.264 | -0.490 | 1.104 |
| | (0.903) | (0.744) | (0.825) | (0.662) | (5.369) | (4.593) | (5.298) | (4.641) |
| Polity 2 | 0.138 | 0.148 | 0.144 | 0.150 | 1.051 | 1.105 | 1.078 | 1.118 |
| | (0.095) | (0.092) | (0.094) | (0.093) | (0.783) | (0.769) | (0.786) | (0.778) |
| log(Oil Value pc) | -0.192 | -0.221 | -0.215 | -0.220 | -4.619* | -4.632* | -4.679* | -4.650* |
| | (0.318) | (0.340) | (0.314) | (0.323) | (1.952) | (2.132) | (1.818) | (1.970) |
| Foreign Aid | 0.001 | 0.009 | 0.002 | 0.010 | -0.010 | 0.039 | -0.003 | 0.042 |
| | (0.006) | (0.007) | (0.006) | (0.007) | (0.039) | (0.044) | (0.040) | (0.045) |
| N. Local Gov pc 5yr lag | 1.797* | | | | 9.311* | | | |
| | (0.711) | | | | (3.906) | | | |
| N. Local Gov pc Squared 5 yr lag | -0.027** | | | | -0.111* | | | |
| | (0.009) | | | | (0.050) | | | |
| log(N. Local Gov pc) 5yr lag | | 4.074* | | | | 19.025+ | | |
| | | (2.004) | | | | (9.983) | | |
| N. Local Gov pc 3yr lag | | | 1.572* | | | | 9.056* | |
| | | | (0.663) | | | | (3.911) | |
| N. Local Gov pc Squared 3 yr lag | | | -0.023* | | | | -0.116* | |
| | | | (0.009) | | | | (0.051) | |
| log(N. Local Gov pc) 3yr lag | | | | 2.732 | | | | 14.752 |
| | | | | (1.817) | | | | (11.275) |
| Constant | -443.926*** | -486.264*** | -444.783*** | -469.106*** | -3282.697*** | -3480.930*** | -3292.533*** | -3412.257*** |
| | (96.794) | (106.588) | (100.964) | (113.606) | (733.107) | (802.813) | (753.511) | (819.529) |
| Observations | 934 | 934 | 940 | 940 | 932 | 932 | 938 | 938 |
| Log-Likelihood | -2332.9 | -2351.5 | -2358.9 | -2378.3 | -3918.3 | -3938.7 | -3949.4 | -3971.4 |
| AIC | 4733.7 | 4771.0 | 4785.7 | 4824.6 | 7904.6 | 7945.5 | 7966.8 | 8010.9 |
| BIC | 4898.3 | 4935.5 | 4950.5 | 4989.4 | 8069.1 | 8110.0 | 8131.4 | 8175.5 |

Table D11: Fixed Effects Models, Annual, Index Components 1 and 2

| | (1) Comp3 b/se | (2) Comp3 b/se | (3) Comp3 b/se | (4) Comp3 b/se | (5) Comp4 b/se | (6) Comp4 b/se | (7) Comp4 b/se | (8) Comp4 b/se |
|---|---|---|---|---|---|---|---|---|
| log(Population) | 62.612** | 57.345** | 64.191** | 58.964** | 34.520* | 40.451* | 33.916* | 41.261** |
| | (20.317) | (20.632) | (20.240) | (21.206) | (14.892) | (15.109) | (14.709) | (14.658) |
| Urbanization | 0.094 | -0.077 | 0.086 | -0.087 | -0.662** | -0.710** | -0.671** | -0.710** |
| | (0.277) | (0.283) | (0.270) | (0.279) | (0.209) | (0.203) | (0.216) | (0.202) |
| log(GDP pc) | -1.105 | 0.068 | -1.094 | -0.131 | 10.422* | 10.403* | 10.510* | 10.730* |
| | (7.529) | (7.364) | (7.394) | (7.324) | (3.952) | (4.026) | (4.040) | (4.106) |
| Intrastate Conflict | -3.531 | -3.755 | -3.496 | -3.709 | 0.206 | -0.081 | 0.157 | -0.090 |
| | (2.684) | (2.799) | (2.718) | (2.781) | (1.758) | (1.692) | (1.786) | (1.694) |
| State Elections | -0.674 | 1.107 | -0.555 | 0.838 | 9.295+ | 8.905+ | 9.197+ | 8.991+ |
| | (3.352) | (3.934) | (3.355) | (3.891) | (4.824) | (4.628) | (4.875) | (4.768) |
| Polity 2 | 0.459+ | 0.492+ | 0.469+ | 0.489+ | 0.111 | 0.109 | 0.100 | 0.105 |
| | (0.256) | (0.259) | (0.254) | (0.258) | (0.331) | (0.334) | (0.331) | (0.332) |
| log(Oil Value pc) | 0.853 | 1.253 | 0.941 | 1.156 | -2.069** | -2.058** | -2.014** | -2.064** |
| | (1.715) | (1.757) | (1.648) | (1.771) | (0.613) | (0.715) | (0.586) | (0.660) |
| Foreign Aid | 0.020 | 0.041+ | 0.020 | 0.041+ | -0.020 | -0.016 | -0.018 | -0.017 |
| | (0.024) | (0.024) | (0.024) | (0.024) | (0.012) | (0.011) | (0.011) | (0.011) |
| N. Local Gov pc 5yr lag | 3.370* | | | | 0.560 | | | |
| | (1.590) | | | | (1.247) | | | |
| N. Local Gov pc Squared 5 yr lag | -0.041* | | | | 0.002 | | | |
| | (0.019) | | | | (0.016) | | | |
| log(N. Local Gov pc) 5yr lag | | -3.871 | | | | 4.933 | | |
| | | (3.155) | | | | (3.304) | | |
| N. Local Gov pc 3yr lag | | | 3.515* | | | | 1.075 | |
| | | | (1.683) | | | | (1.355) | |
| N. Local Gov pc Squared 3yr lag | | | -0.042* | | | | -0.021 | |
| | | | (0.020) | | | | (0.018) | |
| log(N. Local Gov pc) 3yr lag | | | | -2.557 | | | | 5.837+ |
| | | | | (3.119) | | | | (3.447) |
| Constant | -928.439** | -841.236* | -953.144** | -864.834* | -552.897* | -644.065* | -544.347* | -659.460** |
| | (336.325) | (341.678) | (336.558) | (352.206) | (234.774) | (242.203) | (232.054) | (235.633) |
| Observations | 880 | 880 | 883 | 883 | 604 | 604 | 607 | 607 |
| Log-Likelihood | -3380.7 | -3388.2 | -3392.2 | -3399.8 | -2062.3 | -2060.5 | -2071.1 | -2069.1 |
| AIC | 6827.5 | 6842.4 | 6850.5 | 6865.6 | 4190.5 | 4187.0 | 4208.3 | 4204.2 |
| BIC | 6985.2 | 7000.1 | 7008.3 | 7023.5 | 4335.8 | 4332.3 | 4353.7 | 4349.7 |

Table D12: Fixed Effects Models, Annual, Index Components 3 and 4

| | (1) Comp5 b/se | (2) Comp5 b/se | (3) Comp5 b/se | (4) Comp5 b/se | (5) Comp6 b/se | (6) Comp6 b/se | (7) Comp6 b/se | (8) Comp6 b/se |
|---|---|---|---|---|---|---|---|---|
| log(Population) | -23.155$^{+}$ | -26.738$^{+}$ | -25.668$^{+}$ | -29.673$^{*}$ | 34.569 | 44.188$^{+}$ | 36.523 | 45.803$^{+}$ |
| | (13.642) | (14.119) | (13.556) | (14.369) | (24.279) | (25.671) | (24.534) | (26.155) |
| Urbanization | 0.146 | 0.214 | 0.165 | 0.229 | -0.718$^{*}$ | -0.930$^{**}$ | -0.773$^{*}$ | -0.939$^{**}$ |
| | (0.212) | (0.212) | (0.216) | (0.213) | (0.340) | (0.311) | (0.357) | (0.325) |
| log(GDP pc) | -4.620 | -4.855 | -4.642 | -4.942 | 9.639 | 10.323$^{+}$ | 9.827 | 10.513$^{+}$ |
| | (4.178) | (4.227) | (4.106) | (4.165) | (6.052) | (6.048) | (6.098) | (6.111) |
| Intrastate Conflict | -1.648 | -1.509 | -1.944$^{+}$ | -1.781$^{+}$ | 0.798 | 0.365 | 1.003 | 0.612 |
| | (1.010) | (0.985) | (1.058) | (1.030) | (2.683) | (2.760) | (2.716) | (2.751) |
| State Elections | 1.349 | 1.344 | 1.230 | 1.246 | 1.967 | 2.079 | 2.390 | 2.417 |
| | (2.497) | (2.493) | (2.552) | (2.535) | (4.285) | (4.331) | (4.652) | (4.668) |
| Polity 2 | -0.051 | -0.065 | -0.049 | -0.060 | 0.437 | 0.474 | 0.446 | 0.478 |
| | (0.206) | (0.202) | (0.202) | (0.199) | (0.491) | (0.476) | (0.487) | (0.474) |
| log(Oil Value pc) | 1.510$^{**}$ | 1.479$^{*}$ | 1.511$^{**}$ | 1.512$^{**}$ | -2.727$^{**}$ | -2.619$^{**}$ | -2.611$^{**}$ | -2.549$^{**}$ |
| | (0.545) | (0.556) | (0.515) | (0.509) | (0.919) | (0.906) | (0.917) | (0.865) |
| Foreign Aid | -0.013 | -0.017 | -0.012 | -0.016 | -0.011 | 0.006 | -0.008 | 0.004 |
| | (0.012) | (0.012) | (0.012) | (0.012) | (0.019) | (0.020) | (0.020) | (0.020) |
| N. Local Gov pc 5yr lag | -1.089 | | | | 3.119 | | | |
| | (0.908) | | | | (1.869) | | | |
| N. Local Gov pc Squared 5 yr lag | 0.012 | | | | -0.025 | | | |
| | (0.013) | | | | (0.026) | | | |
| log(N. Local Gov pc) 5yr lag | | -3.426 | | | | 9.549$^{+}$ | | |
| | | (2.747) | | | | (5.152) | | |
| N. Local Gov pc 3yr lag | | | -1.159 | | | | 3.183$^{+}$ | |
| | | | (0.931) | | | | (1.746) | |
| N. Local Gov pc Squared 3yr lag | | | 0.015 | | | | -0.041$^{+}$ | |
| | | | (0.012) | | | | (0.023) | |
| log(N. Local Gov pc) 3yr lag | | | | -3.751 | | | | 9.472$^{*}$ |
| | | | | (2.789) | | | | (3.927) |
| Constant | 344.981 | 399.675$^{+}$ | 384.180$^{+}$ | 446.081$^{+}$ | -504.562 | -650.331 | -534.998 | -677.192 |
| | (212.351) | (219.980) | (212.704) | (225.538) | (385.639) | (406.234) | (390.600) | (415.781) |
| Observations | 752 | 752 | 756 | 756 | 800 | 800 | 805 | 805 |
| Log-Likelihood | -2384.4 | -2384.5 | -2404.5 | -2403.9 | -3092.2 | -3093.7 | -3118.9 | -3119.4 |
| AIC | 4836.9 | 4836.9 | 4877.0 | 4875.8 | 6250.3 | 6253.4 | 6303.8 | 6304.9 |
| BIC | 4994.0 | 4994.1 | 5034.3 | 5033.1 | 6404.9 | 6408.0 | 6458.6 | 6459.6 |

Table D13: Fixed Effects Models, Annual

## D.10 Interaction with Ethnic Fractionalization

| | (1) Main b/se | (2) Main b/se | (3) Ext b/se | (4) Ext b/se |
|---|---|---|---|---|
| log(Population) | 1.972*** | 1.972*** | 1.376** | 1.376** |
| | (0.485) | (0.485) | (0.435) | (0.435) |
| Urbanization | -0.028*** | -0.028*** | -0.014+ | -0.014+ |
| | (0.008) | (0.008) | (0.008) | (0.008) |
| log(GDP pc) | 0.343* | 0.343* | 0.122 | 0.122 |
| | (0.145) | (0.145) | (0.133) | (0.133) |
| Intrastate Conflict | -0.007 | -0.007 | -0.044 | -0.044 |
| | (0.047) | (0.047) | (0.044) | (0.044) |
| State Elections | 0.207 | 0.207 | 0.208 | 0.208 |
| | (0.146) | (0.146) | (0.144) | (0.144) |
| Polity 2 | 0.015 | 0.015 | 0.007 | 0.007 |
| | (0.014) | (0.014) | (0.007) | (0.007) |
| log(Oil Value pc) | -0.072* | -0.072* | -0.025 | -0.025 |
| | (0.029) | (0.029) | (0.030) | (0.030) |
| Foreign Aid | -0.000 | -0.000 | -0.000 | -0.000 |
| | (0.000) | (0.000) | (0.000) | (0.000) |
| log(N. Local Gov pc) 5yr lag | 0.953+ | 0.953+ | 0.097 | 0.097 |
| | (0.471) | (0.471) | (0.413) | (0.413) |
| log(N. Local Gov pc) 5yr lag × ELF | -0.763 | -0.763 | 0.196 | 0.196 |
| | (0.548) | (0.548) | (0.538) | (0.538) |
| Constant | -33.255*** | -33.255*** | -22.653** | -22.653** |
| | (7.399) | (7.399) | (7.029) | (7.029) |
| Observations | 602 | 602 | 522 | 522 |
| Log-Likelihood | -26.78 | -26.78 | 164.2 | 164.2 |
| AIC | 119.6 | 119.6 | -266.4 | -266.4 |
| BIC | 264.8 | 264.8 | -134.4 | -134.4 |

Table D14: Fixed Effects Models, Annual, Interaction with ELF

## D.11 WB and IMF Adjustment Programs

Data on IMF structural adjustment programs and World Bank adjustment programs comes from Dreher (2006) and Boockmann and Dreher (2003) respectively.

| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) |
|---|---|---|---|---|---|---|---|---|
| | FE | FE | FE | FE | FE | FE | FE | FE |
| | b/se | b/se | b/se | b/se | b/se | b/se | b/se | b/se |
| log(Population) | 1.044** | 1.303** | 1.037* | 1.179* | 0.685 | 0.798 | 0.683 | 0.726 |
| | (0.374) | (0.440) | (0.388) | (0.454) | (0.479) | (0.504) | (0.490) | (0.506) |
| Urbanization | -0.010 | -0.015* | -0.010 | -0.014+ | -0.002 | -0.007 | -0.003 | -0.006 |
| | (0.007) | (0.007) | (0.007) | (0.007) | (0.006) | (0.006) | (0.007) | (0.006) |
| log(GDP pc) | 0.103 | 0.125 | 0.111 | 0.130 | 0.119 | 0.130 | 0.126 | 0.130 |
| | (0.129) | (0.133) | (0.133) | (0.138) | (0.103) | (0.106) | (0.104) | (0.106) |
| Intrastate Conflict | -0.040 | -0.051 | -0.038 | -0.045 | -0.011 | -0.017 | -0.009 | -0.013 |
| | (0.050) | (0.050) | (0.050) | (0.052) | (0.064) | (0.064) | (0.064) | (0.064) |
| State Elections | 0.152 | 0.199 | 0.178 | 0.228 | 0.200 | 0.222+ | 0.213 | 0.237+ |
| | (0.130) | (0.138) | (0.131) | (0.135) | (0.127) | (0.129) | (0.126) | (0.127) |
| Polity 2 | 0.004 | 0.007 | 0.005 | 0.007 | 0.001 | 0.002 | 0.001 | 0.002 |
| | (0.007) | (0.006) | (0.007) | (0.007) | (0.005) | (0.005) | (0.005) | (0.005) |
| log(Oil Value pc) | -0.024 | -0.027 | -0.015 | -0.016 | 0.014 | 0.011 | 0.021 | 0.021 |
| | (0.024) | (0.029) | (0.023) | (0.027) | (0.029) | (0.033) | (0.027) | (0.030) |
| Foreign Aid | -0.001* | -0.000 | -0.000+ | -0.000 | -0.000 | 0.000 | -0.000 | 0.000 |
| | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) |
| IMF Program | -0.029 | -0.011 | -0.038 | -0.027 | | | | |
| | (0.060) | (0.066) | (0.059) | (0.065) | | | | |
| WB Program | | | | | -0.039 | -0.040 | -0.039 | -0.040 |
| | | | | | (0.024) | (0.024) | (0.024) | (0.024) |
| N. Local Gov pc 5yr lag | 0.092** | | | | 0.043 | | | |
| | (0.029) | | | | (0.029) | | | |
| N. Local Gov pc Squared 5 yr lag | -0.001* | | | | -0.000 | | | |
| | (0.000) | | | | (0.001) | | | |
| log(N. Local Gov pc) 5yr lag | | 0.239** | | | | 0.142+ | | |
| | | (0.083) | | | | (0.075) | | |
| N. Local Gov pc 3yr lag | | | 0.088* | | | | 0.044 | |
| | | | (0.033) | | | | (0.031) | |
| N. Local Gov pc Squared 3 yr lag | | | -0.001** | | | | -0.000 | |
| | | | (0.000) | | | | (0.000) | |
| log(N. Local Gov pc) 3yr lag | | | | 0.142+ | | | | 0.096 |
| | | | | (0.078) | | | | (0.068) |
| Constant | -17.542** | -21.495** | -17.494** | -19.618* | -12.286 | -13.948+ | -12.287 | -12.858 |
| | (6.073) | (7.094) | (6.285) | (7.324) | (7.558) | (7.933) | (7.748) | (7.951) |
| Observations | 518 | 518 | 520 | 520 | 397 | 397 | 399 | 399 |
| Log-Likelihood | 170.4 | 163.4 | 167.6 | 159.6 | 171.7 | 170.1 | 171.9 | 170.5 |
| AIC | -280.8 | -266.9 | -275.2 | -259.1 | -283.4 | -280.2 | -283.9 | -281.1 |
| BIC | -153.3 | -139.4 | -147.6 | -131.5 | -163.9 | -160.7 | -164.2 | -161.4 |

Table D15: Fixed Effects Models, Annual, Controlling for IMF and WB Adjustment Programs

### D.12 Influential Observations – Jackknife

We further explore the issue of influential observations by relying on the jackknife approach. We consecutively drop each country on our sample, one at a time, and re-estimate our core models. This approach does not affect any of our main findings. For example, for the extended services index we find for each separate estimation in the jackknife statistically significant effects for the logged measure of administrative units per capita (see Figure D1). The same applies to our model with the squared specification. This suggests that a single country is unlikely to explain our overall results. Moreover, Figure D2 shows the dfbeta statistic for each run of the jackknife estimation for Model (5) in the main table. Using the rule-of-thumb threshold of 1, we can see that only Benin (434), Cote d'Ivoire (437), Togo (461), and Rwanda (517) could be considered influential observations. Table D16 repeats the estimation of Model (5) excluding all four countries simultaneously. We still find a positive and statistically significant effect for the number of administrative units per capita.

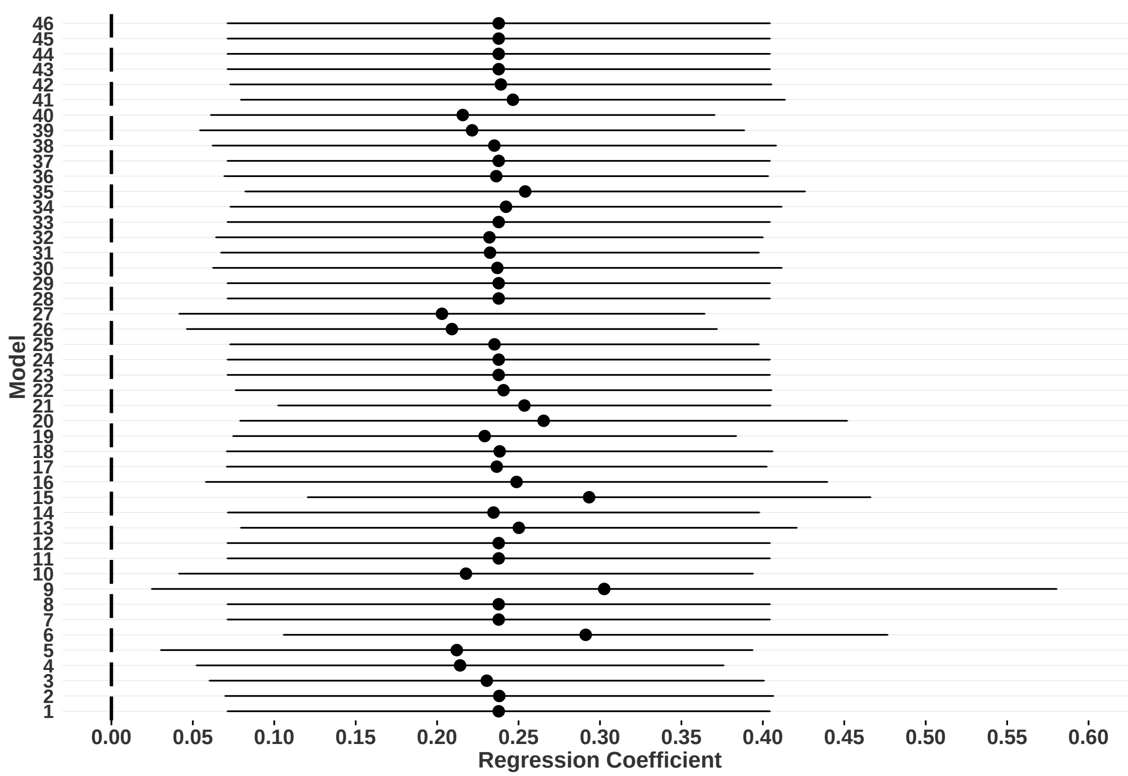


Figure D1: Regression Coefficient for the logged Administrative Units per capita variable. Based on Model (5) in the Main Table.

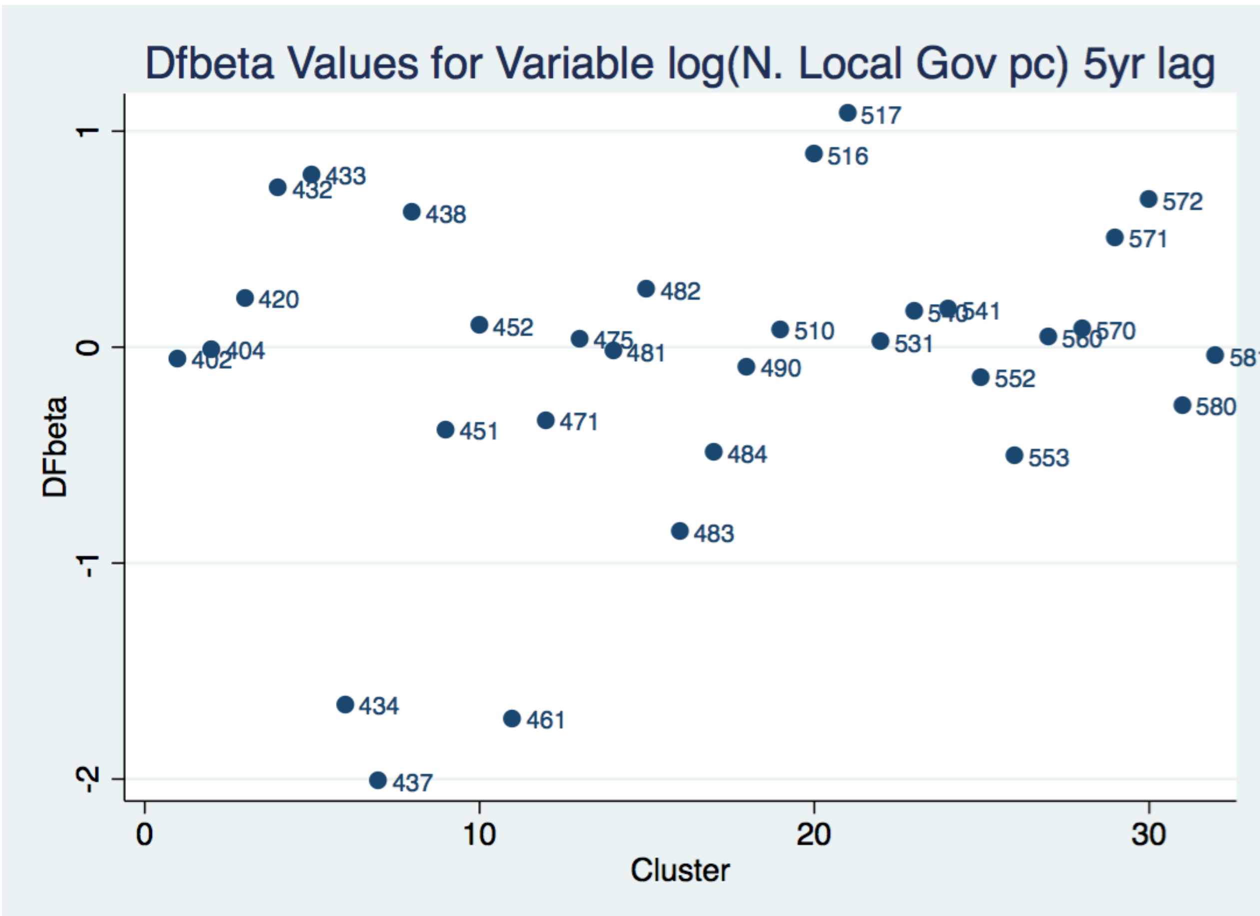


Figure D2: Dfbeta statistics for N. Local Gov pc Squared 5 yr lag, leaving one country out at a time. Based on Model (5) in the Main Table

| | (1) |
|---|---|
| | Ext, FE |
| | b/se |
| log(Population) | 1.769*** |
| | (0.468) |
| Urbanization | -0.016* |
| | (0.007) |
| log(GDP pc) | 0.196 |
| | (0.151) |
| Intrastate Conflict | -0.055 |
| | (0.052) |
| State Elections | 0.051 |
| | (0.108) |
| Polity 2 | 0.009 |
| | (0.007) |
| log(Oil Value pc) | -0.063+ |
| | (0.032) |
| Foreign Aid | -0.000+ |
| | (0.000) |
| log(N. Local Gov pc) 5yr lag | 0.457* |
| | (0.195) |
| Constant | -28.960*** |
| | (7.621) |
| Observations | 429 |
| Log-Likelihood | 131.7 |
| AIC | -209.3 |
| BIC | -99.65 |

Table D16: Fixed Effects Model, Annual, Excluding Influential Clusters

# E Sub-national analysis

In this section we provide additional information on the process of regional government fragmentation in the three countries we use for the sub-national, individual-level analysis. For each country we provide brief information on the splits that took place as well as a description of the responsibilities of the top-tier regional government with respect to service delivery.

In this section we refer to mother and splinter districts or states. When a district or state splits, the district/state which contains the former capital of the district/state is defined as the 'mother' and the other new district/state is referred to as the 'splinter'. In many cases (though not all) the mother district retains the pre-split district name. For example, in Malawi the Machinga district split in 1998. The 'mother' state retained the pre-split capital and district name (both called Machinga), and the 'splinter' district was named Balaka, with Balaka Township as its new capital.

## E.1 Cross-National Context

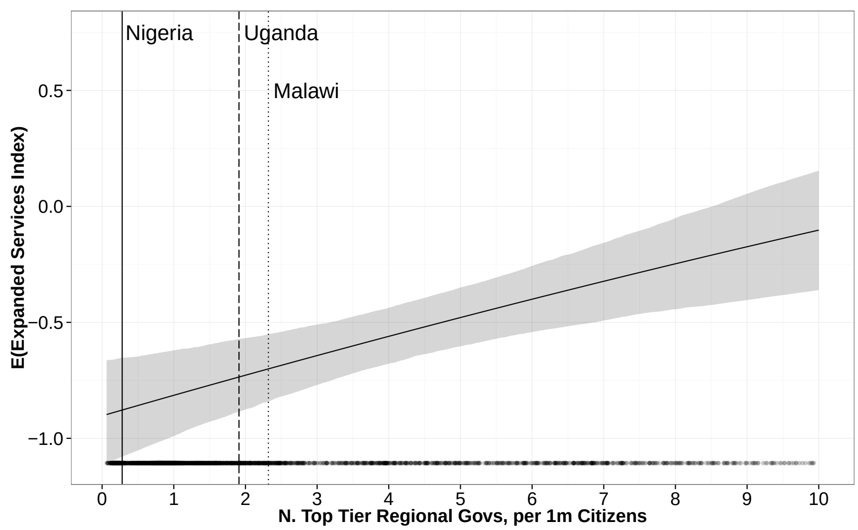


Figure E1: Simulated effect of the number of regional governments per 1 million citizens on the expanded summary index. Gray shading indicates 95% confidence interval; includes a rug of the data distribution. Based on Model (5) in Table 1 in the main paper.

### E.2 Malawi Splits

Malawi is headed by a central government, with significant power given to local district authorities, through 28 district assemblies. At the time of its independence from the United Kingdom in 1964, Malawi had 23 districts, until Mwanza district split and formed a separate district from Blantyre in 1971. In 1998, the central government of Malawi introduced a decentralization policy, which integrated local authorities into one body (the district assemblies), devolved authority to the districts, and gave local authorities greater power to levy their own taxes and raise their own revenue. As part of the decentralization reform, four new districts were created from existing districts. Details of these splits are below:

| Year of Split | Mother District | Splinter District |
|---|---|---|
| 1998 | Machinga | Balaka |
| 1998 | Nkhata Bay | Likoma |
| 1998 | Mulanje | Phalombe |
| 2003 | Mwanza | Neno |

District governments in Malawi are given significant power over service distribution, including preschool and primary education, family welfare services, housing, town and regional planning, water and sanitation, refuse collection and disposal, and environmental protection. In health services, the district governments have authority over public health, including primary care and health protection services. They share responsibility for hospitals with the central government (Commonwealth Local Government Forum). However, in practice, constraints on local governments such as lack of funding, human capital and technological capital, in addition to the central government's reluctance to relinquish powers has limited the practical abilities of the district assemblies in their ability to direct service distribution (Jagero et al., 2014).

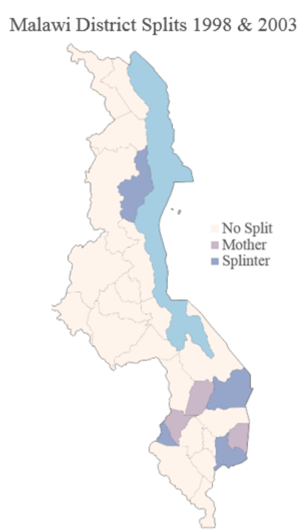


Figure E2: Creation of New Districts in Malawi

### E.3 Nigeria Splits

When Nigeria gained independence from the United Kingdom in 1960, they had only a two-tiered government structure with a central government and three regional governments. A fourth regional government was added in 1963. In 1967, Nigeria created a three-tier government structure, breaking the four regional governments into 12 states and 299 local governments. The evolution of the Nigerian government can be seen in Table E1 below:

| Year | Federal Government | Regional/State Governments | Local Governments |
|---|---|---|---|
| 1960 | 1 | 4* | N/A |
| 1961 | 1 | 3 | N/A |
| 1963 | 1 | 4 | N/A |
| 1967 | 1 | 12 | 299 |
| 1970 | 1 | 12 | 299 |
| 1976 | 1 | 19 | 299 |
| 1979 | 1 | 19 | 301 |
| 1981 | 1 | 19 | 703 |
| 1984 | 1 | 19 | 301** |
| 1987 | 1 | 21 | 449 |
| 1991 | 1 | 30 | 500 |
| 1991 | 1 | 30 | 589 |
| 1996 | 1 | 36 | 774 |

Source: Central Bank of Nigeria (2000)
*Includes Southern Cameroon which pulled out of the federation in 1961
** The Buhari military administration abolished the LGAs created by the Shagari administration and reverted to the 301 LGSAs listed in the 1979 constitution

Table E1: Change in Subnational Government Units in Nigeria

A list of all new states created from 1987-1996 are listed below:

| Year of Split | Mother State | Splinter State |
| --- | --- | --- |
| 1987 | Cross River | Akwa Ibom |
| 1987 | Katsina | Kaduna |
| 1991 | Imo | Abia |
| 1991 | Bendel/Edo* | Delta |
| 1991 | Anambra | Enugu |
| 1991 | Kano | Jigawa |
| 1991 | Sokoto | Kebbi |
| 1991 | Benue and Kwara | Kogi |
| 1991 | Oyo | Osun |
| 1991 | Gongola/Adamawa* | Taraba |
| 1991 | Borno | Yobe |
| 1996 | Rivers | Bayelsa |
| 1996 | Abia and Enugu | Ebonyi |
| 1996 | Ondo | Ekiti |
| 1996 | Bauchi | Gombe |
| 1996 | Plateau | Nassarawa |
| 1996 | Sokoto | Zamfara |

Note: Bendel split into Edo and Delta, with Edo retaining the previous capital city. Gongola split into Adawama and Taraba, with Adawama retaining the previous capital city.

In 1987, the Akwa Ibom state was created from Cross River and Kaduna was created from Katsina. Cross River and Akwa Ibom had previously argued for separate statehood in 1976, and had been rejected by the federal government who said the size and population of Cross River and Akwa Ibom was not sufficient for separate statehood. Katsina and Kaduna had previously been separate provinces and also had argued for separate statehood in 1976.

In 1991, President Ibrahim Babangida announced the creation of nine additional states: Abia from Imo, Delta from Edo (the previous Bendel state), Enugu from Anambra, Kebbi from Sokoto, Kogi from Benue and Kwara, Osun from Oyo, Tarana from Adawama (the previous Gongola state), Jigawa from Kano, and Yobe from Borno. Publically, Babangida stated that these additional states were created to improve inter-ethnic balance, social justice and development, however political reasons relating to Babandigas desire to stay in power, a political coup by southern minorities in the oil-rich southern Delta states, and political pressure from the Igbo ethnic group were likely to also play a role (Suberu, 2001). Abia, Delta and Enugu were created to appease the Igbo ethnic groups wish for additional Igbo-majority states. Jigawa and Kogi both were created to appease people in the populous and fragmented areas who argued for equity in access to development projects and ethnic equity.

Six additional states were announced by General Sani Abacha in 1996: Bayelsa from Rivers, Ebonyo from Abia and Enugu, Ekiti from Ondo, Gombe from Bauchi, Nassarawa from Plateau, and Zamfara from Sokoto. There were seventy-two requests for new states, and the federal government approved one request from each of the geographic regions. Of these requests, Bayelsa argued for split from Rivers, a populous

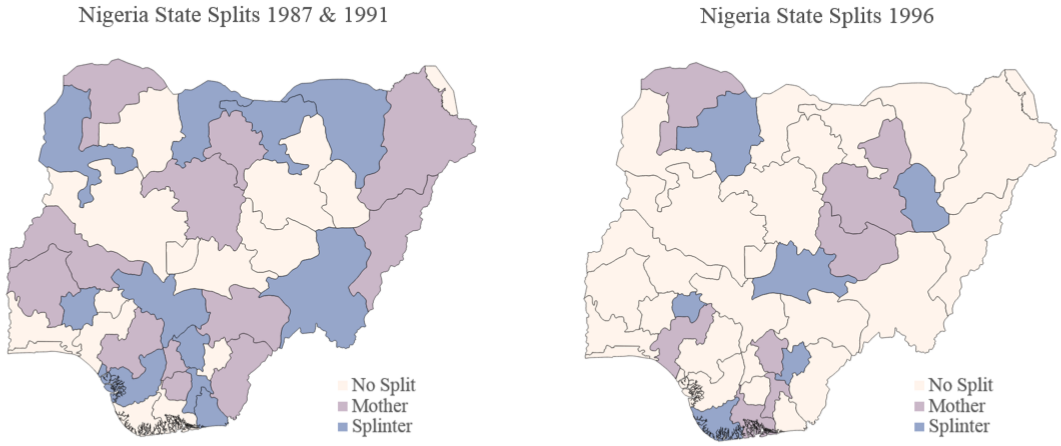


Figure E3: Creation of New States in Nigeria

and fragmented state, to obtain equal access to developmental projects and ethnic equity (Suberu, 2001).

Health services are legislated and implemented by both the federal and state governments. The federal government has developed national health policies and lead HIV/AIDS response and immunization programs. The state owns general hospitals where secondary care is provided and directs state health policies, and local government responsible for local community services, such as primary care clinics (Okojie, 2009).

### E.4 Uganda Splits

| Year of Split | Mother State | Splinter State |
|---|---|---|
| 1997 | Moyo | Adjumani |
| 1997 | Iganga | Bugiri |
| 1997 | Tororo | Busia |
| 1997 | Soroti | Katakwi |
| 1997 | Luwero | Nakasongola |
| 1997 | Masaka | Sembabule |
| 2000 | Kabarole | Kamwenge |
| 2000 | Mukono | Kayunga |
| 2000 | Kabarole | Kyenjojo |
| 2000 | Iganga | Mayuge |
| 2000 | Kitgum | Pader |
| 2000 | Mbale | Sironko |
| 2000 | Mpigi | Wakiso |
| 2000 | Arua | Yumbe |
| 2001 | Soroti | Kaberamaido |
| 2001 | Rukungiri | Kanungu |
| 2001 | Moroto | Nakapiripirit |
| 2005 | Lira | Amolatar |
| 2005 | Katakwi | Amuria |
| 2005 | Pallisa | Budaka |
| 2005 | Kapchorwa | Bukwo |
| 2005 | Tororo | Butaleja |
| 2005 | Mbarara | Ibanda |
| 2005 | Kotido | Kaabong |
| 2005 | Mbarara | Isingiro |
| 2005 | Kamuli | Kaliro |
| 2005 | Mbarara | Kiruhuura |
| 2005 | Arua | Koboko |
| 2005 | Mbale | Manafwa |
| 2005 | Mubende | Mityana |
| 2005 | Luwero | Nakaseke |
| 2006 | Kotido | Abim |
| 2006 | Gulu | Amuru |
| 2006 | Masindi | Buliisa |
| 2006 | Lira | Dokolo |

| | | |
|---|---|---|
| 2006 | Iganga | Namutumba |
| 2006 | Arua | Nyadri |
| 2006 | Apac | Oyam |
| 2007 | Kumi | Bukedea |
| 2007 | Manafwa | Bududa |
| 2007 | Rakai | Lyantonde |
| 2009 | Nakapiripirit | Amudat |
| 2009 | Mukono | Buikwe |
| 2009 | Kamuli | Buyende |
| 2009 | Kyenjojo | Kyegegwa |
| 2009 | Kitgum | Lamwo |
| 2009 | Lira | Otuke |
| 2009 | Nebbi | Zombo |
| 2010 | Pader | Agago |
| 2010 | Lira | Alebtong |
| 2010 | Bushenyi | Buhweju |
| 2010 | Masaka | Bukomansimbi |
| 2010 | Sironko | Bulambuli |
| 2010 | Mpigi | Butambala |
| 2010 | Mukono | Buvuma |
| 2010 | Mpigi | Gomba |
| 2010 | Masaka | Kalungu |
| 2010 | Pallisa | Kibuku |
| 2010 | Masindi | Kiryandongo |
| 2010 | Apac | Kole |
| 2010 | Kapchorwa | Kween |
| 2010 | Kiboga | Kyankwanzi |
| 2010 | Iganga | Luuka |
| 2010 | Masaka | Lwengo |
| 2010 | Bushenyi | Mitoma |
| 2010 | Bugiri | Namayingo |
| 2010 | Moroto | Napak |
| 2010 | Kumi | Ngora |
| 2010 | Bundibugyo | Ntoroko |
| 2010 | Amuru | Nwoya |
| 2010 | Bushenyi | Rubirizi |
| 2010 | Soroti | Serere |

| | | |
|---|---|---|
| 2010 | Bushenyi | Sheema |

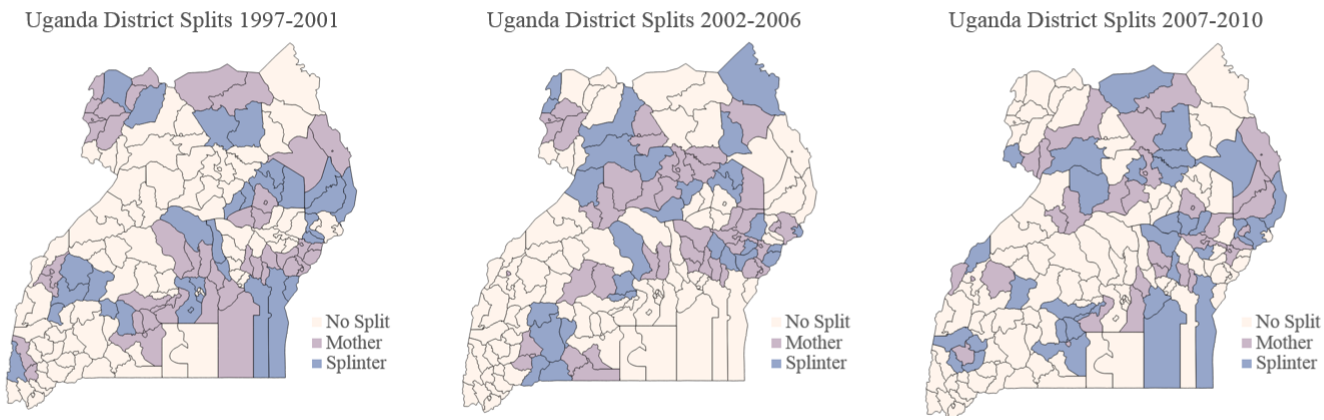


Figure E4: Creation of New Districts in Uganda

### E.5 Malawi and Uganda Mechanism Analysis

We perform an additional analysis on health access measures related to infant mortality to try to determine what mechanisms might be driving increases or decreases in infant and child mortality. We use the same methodology as our sub-national analysis, running separate models for splinter and mother districts. We estimate models at the level of birth with:

$$Outcome_{it} = \alpha + \delta_i + \gamma_t + \mathbf{x_{it}}\beta + \mathbf{s_{it}}\omega + \epsilon_{it}$$

where $\delta_i$ and $\gamma_t$ represent district and year fixed-effects, our set of birth-level controls, $\mathbf{x_{it}}$ include infant gender, infant's birth order and its square, a dummy for whether the infant was born within 24 months of its previous sibling, an indicator of whether an infant was a multiple birth, and mother's age and its square. Outcomes studied are *anyantenatal*, *numantenatal*, *mdnurse*, *vitaminA*, *iron*, *bloodpressure*, *urinesample*, *bloodsample*, and *malaria*. For all outcomes measured in this section, an increase in the outcome would indicate improvement in antenatal care and thus should be associated with a decrease in infant mortality. *Anyantenatal* and *numantenatal* measure use of prenatal care, while *mdnurse*, *vitaminA*, *iron*, *bloodpressure*, *urinesample*, *bloodsample*, and *malaria* measure quality of care. *Anyantenatal* is an indicator for whether the mother had any antenatal care appointments prior to their child's birth. $Numantenatal$ is similar in that it measures the number of antenatal appointments prior to a child's birth. $Mdnurse$ indicates whether there was a doctor or nurse present at a child's birth. $VitaminA$ indicates whether a mother received a Vitamin A dose in the first two months after her child's delivery. $Iron$ measures whether a mother was given or bought iron tablets and/or iron syrup during her pregnancy. *Bloodpressure* indicates whether a mother's blood pressure was taken as part of antenatal care, *urinesample* indicates whether a urine sample was taken from a mother as part of antenatal care, *bloodsample* indicates whether a blood sample was taken from a mother as part of antenatal care, and *malaria* is an indicator of whether or not the mother took an antimalarial drug during pregnancy.

Information on the mechanisms listed here are pulled from the DHS surveys for respective countries and are available only for births that happened within five years prior to the date of survey data collection. In Malawi, DHS surveys were collected in 2000, 2004, and 2010, thus data on mechanisms is available for the years 1995 through 2010. In Uganda, DHS surveys were collected in 2001, 2006, and 2011, with data on mechanisms available for the years 1996 through 2011. DHS surveys were collected in Nigeria in 1990, 2003, 2008, and 2013, however the 1990 survey did not collect data on all the mechanisms included in the analysis. Therefore, data on mechanisms is available for 1998-2013 in Nigeria. As the first recent waves of state splits in Nigeria occurred in 1987, we do not have data for the pre-split period in Nigeria, thus we are unable to run regressions on mechanisms for Nigeria.

Results from the mechanism analysis for mother and splinter districts are shown in Table E3 and Table E4. Baseline figures shown in columns (1) and (3) are average values of each outcome across all district types in the year of the first district split in our analysis, which is 1998 in Malawi and 1997 in Uganda.

Results in column (2) of Table E3, show that in Malawi, while mothers in a mother district had more antenatal appointments than non-splitting districts, the measures of quality of antenatal care were significantly worse in mother districts: *mdnurse*, *bloodpressure*, *urinesample*, *bloodsample*, and *malaria* all showed decrease in use for mother districts versus non-splitting districts. It was not clear from the mechanism analysis in Uganda what might be driving an increase in infant and child mortality in mother districts.

Results in column (2) of Table E4, show that in Malawi, mothers in splinter districts had improved values of *anyantenatal*, *numantenatal*, *mdnurse*, and *malaria* relative to non-splitting districts, suggesting both increased use of antenatal care and some improvements in access to or usage of physicians or nurses during birth. In Uganda, results in column (4) show that mothers in splinter districts had improvements in use of *vitaminA*, *bloodpressure*, *bloodsample*, and *malaria* relative to non-splitting districts.

| | (1) | (2) | (3) | (4) |
|---|---|---|---|---|
| | (Malawi) | | (Uganda) | |
| | Baseline [1998] | Coefficient | Baseline [1997] | Coefficient |
| anyantenatal | 0.971 | 0.002 | 0.948 | 0.012 |
| | (0.167) | (0.008) | (0.222) | (0.010) |
| numantenatal | 4.215 | 0.238*** | 4.227 | 0.098 |
| | (2.146) | (0.083) | (2.847) | (0.103) |
| mdnurse | 0.935 | -0.029** | 0.090 | 0.003 |
| | (0.245) | (0.011) | (0.286) | (0.006) |
| vitaminA | 0.468 | -0.051 | 0.153 | -0.001 |
| | (0.499) | (0.023) | (0.361) | (0.022) |
| iron | 0.706 | 0.024 | 0.540 | 0.028 |
| | (0.456) | (0.017) | (0.499) | (0.021) |
| bloodpressure | 0.847 | -0.033* | 0.652 | 0.031 |
| | (0.360) | (0.018) | (0.477) | (0.023) |
| urinesample | 0.236 | -0.078*** | 0.175 | -0.020 |
| | (0.425) | (0.020) | (0.381) | (0.019) |
| bloodsample | 0.436 | -0.079*** | 0.242 | 0.075*** |
| | (0.425) | (0.020) | (0.429) | (0.020) |
| malaria | 0.735 | -0.039** | 0.364 | 0.055** |
| | (0.441) | (0.017) | (0.429) | (0.024) |
| Year FE | ✓ | ✓ | ✓ | ✓ |
| District FE | ✓ | ✓ | ✓ | ✓ |

Table E3: Fixed Effects Sub-National Mechanism Models - Mother Districts

| | (1) | (2) | (3) | (4) |
|---|---|---|---|---|
| | (Malawi) | | (Uganda) | |
| | Baseline [1998] | Coefficient | Baseline [1997] | Coefficient |
| anyantenatal | 0.971 | 0.038*** | 0.948 | 0.010 |
| | (0.167) | (0.015) | (0.222) | (0.010) |
| numantenatal | 4.215 | 0.607*** | 4.227 | 0.095 |
| | (2.146) | (0.152) | (2.847) | (0.100) |
| mdnurse | 0.935 | 0.090*** | 0.090 | -0.044*** |
| | (0.245) | (0.021) | (0.286) | (0.005) |
| vitaminA | 0.468 | 0.001 | 0.153 | 0.035* |
| | (0.499) | (0.043) | (0.361) | (0.020) |
| iron | 0.706 | 0.156*** | 0.540 | 0.020 |
| | (0.456) | (0.032) | (0.499) | (0.021) |
| bloodpressure | 0.847 | 0.039 | 0.652 | 0.046** |
| | (0.360) | (0.034) | (0.477) | (0.022) |
| urinesample | 0.236 | -0.040 | 0.175 | 0.010 |
| | (0.425) | (0.038) | (0.381) | (0.017) |
| bloodsample | 0.436 | 0.006 | 0.242 | 0.114*** |
| | (0.425) | (0.039) | (0.429) | (0.019) |
| malaria | 0.735 | 0.091*** | 0.364 | 0.097*** |
| | (0.441) | (0.032) | (0.429) | (0.022) |
| Year FE | ✓ | ✓ | ✓ | ✓ |
| District FE | ✓ | ✓ | ✓ | ✓ |

Table E4: Fixed Effects Sub-National Mechanism Models - Splinter Districts

### E.6 Placebo Tests - Malawi, Nigeria, and Uganda

To ensure our results were not due to pre-existing trends, we ran placebo tests for Malawi, Nigeria, and Uganda. In each country, we created false "splits" five, six, seven, eight, nine and ten years prior to the actual split and looked for short-term effects in the splintering districts. No consistent pre-existing trends were found.

| | Number of Years Prior to First Split | | | | | |
|---|---|---|---|---|---|---|
| | 5 years | 6 years | 7 years | 8 years | 9 years | 10 years |
| | (1) | (2) | (3) | (4) | (5) | (6) |
| Infant Mortality | 0.016 | 0.016 | 0.021 | 0.010 | 0.001 | -0.011 |
| | (0.023) | (0.024) | (0.021) | (0.016) | (0.020) | (0.023) |
| Child Mortality | 0.043 | 0.045* | 0.050 | 0.034 | 0.027 | 0.020 |
| | (0.027) | (0.025) | (0.029) | (0.027) | (0.034) | (0.033) |
| District FE | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Year FE | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |

Standard errors are clustered at the district-level.

Table E5: Malawi Fixed Effects Sub-National Models - Splinter Districts

| | Number of Years Prior to First Split | | | | | |
|---|---|---|---|---|---|---|
| | 5 years | 6 years | 7 years | 8 years | 9 years | 10 years |
| | (1) | (2) | (3) | (4) | (5) | (6) |
| Infant Mortality | 0.004 | 0.003 | 0.018 | 0.011 | 0.014 | 0.024** |
| | (0.013) | (0.007) | (0.004) | (0.005) | (0.008) | (0.009) |
| Child Mortality | 0.004 | 0.004 | 0.007 | 0.001 | -0.002 | 0.008 |
| | (0.017) | (0.011) | (0.016) | (0.020) | (0.029) | (0.023) |
| State FE | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Year FE | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |

Standard errors are clustered at the state-level.

Table E6: Nigeria Fixed Effects Sub-National Models - Splinter Districts

| | Number of Years Prior to First Split | | | | | |
|---|---|---|---|---|---|---|
| | 5 years | 6 years | 7 years | 8 years | 9 years | 10 years |
| | (1) | (2) | (3) | (4) | (5) | (6) |
| Infant Mortality | -0.005 | 0.007 | 0.008 | 0.009 | -0.001 | 0.024 |
| | (0.015) | (0.020) | (0.025) | (0.032) | (0.031) | (0.039) |
| Child Mortality | 0.001 | 0.008 | 0.013 | 0.004 | -0.011 | -0.003 |
| | (0.028) | (0.034) | (0.034) | (0.042) | (0.040) | (0.049) |
| County FE | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Year FE | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |

Standard errors are clustered at the county-level.

Table E7: Uganda Fixed Effects Sub-National Models - Splinter Districts

## E.7 Analysis of 'Mother' Districts

Pre-trends for non-splitting districts, mother districts, and splinter districts are shown in Figure E5. Fixed effects models comparing mother districts to districts that did not split are shown in Table E8.

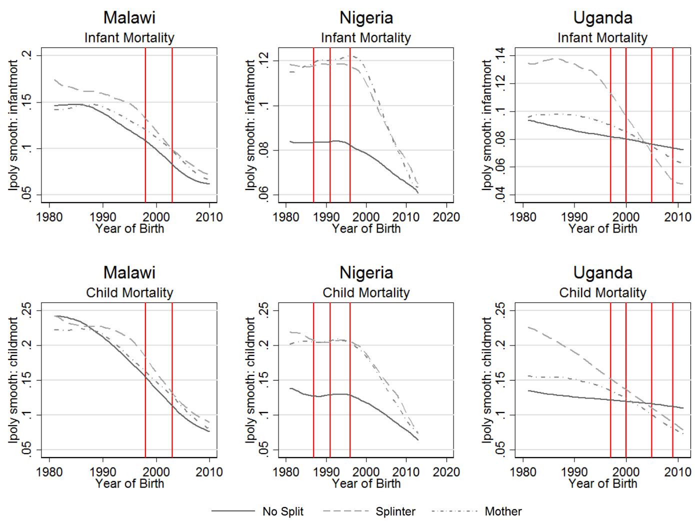


Figure E5: Infant and Child mortality rates in Malawi, Nigeria, and Uganda for non-splitting, splinter and mother districts. Only districts and states that split in initial waves of splits are shown here. Red lines represent waves of district and state splits

| | (1) Malawi (1) | (2) Malawi (2) | (3) Malawi (3) | (4) Nigeria (1) | (5) Nigeria (2) | (6) Nigeria (3) | (7) Uganda (1) | (8) Uganda (2) | (9) Uganda (3) |
|---|---|---|---|---|---|---|---|---|---|
| Infant Mortality | 0.0033 | 0.0000 | 0.0099 | -0.0020 | -0.0011 | 0.0124* | 0.0077 | 0.0018* | 0.0109* |
| | (0.0109) | (0.0012) | (0.0137) | (0.0109) | (0.0010) | (0.0071) | (0.0053) | (0.0010) | (0.0065) |
| Child Mortality | 0.0141 | 0.0014 | 0.0202 | -0.0041 | -0.0017 | 0.0193** | 0.0065 | 0.0014 | 0.0142 |
| | (0.0119) | (0.0013) | (0.0133) | (0.0171) | (0.0016) | (0.0090) | (0.0077) | (0.0014) | (0.0092) |
| District FE | ✓ | ✓ | ✓ | | | | ✓ | ✓ | ✓ |
| State FE | | | | ✓ | ✓ | ✓ | | | |
| Year FE | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| All Splits Included | ✓ | ✓ | | ✓ | ✓ | | ✓ | ✓ | |
| 1st Split Waves Only | | | ✓ | | | ✓ | | | ✓ |
| Years Since Split Tx | | ✓ | | | ✓ | | | ✓ | |

Standard errors are clustered at the district level in Malawi and Uganda and at the state level in Nigeria.

Table E8: Fixed Effects Sub-National Models - Mother Districts

### E.8 Ethnic Diversity in Uganda Pre- and Post-District Splits

We obtained detailed information on ethnicity using raw data from the 2002 Ugandan census. The census provides us with residents' ethnic groups and state of residency in the year 2002, allowing us to calculate the ethnic diversity in 2002 for districts that had previous split in 1997, 2000, and 2001. To calculate the Pre-Split index we calculated ethnic diversity as if the districts of interest had not split and were still one combined district. To calculate a measure of ethnic diversity we used the formula: $\sum_{i=1}^{n} p^2$ where p is the population share of the ethnic group within the district.

| | | | | Post-Split Index | |
|---|---|---|---|---|---|
| Year of Split | Mother | Splinter | Pre-Split Index | Mother | Splinter |
| 1997 | Moyo | Adjumani | 0.430 | 0.352 | 0.527 |
| 1997 | Iganga | Bugiri | 0.436 | 0.815 | 0.179 |
| 1997 | Tororo | Busia | 0.186 | 0.287 | 0.282 |
| 1997 | Soroti | Katakwi | 0.640 | 0.687 | 0.963 |
| 1997 | Luwero | Nakasongola | 0.344 | 0.484 | 0.382 |
| 1997 | Masaka | Sembabule | 0.498 | 0.562 | 0.319 |
| 2000 | Kabarole | Kamwenge | 0.330 | 0.522 | 0.279 |
| 2000 | Mukono | Kayunga | 0.280 | 0.351 | 0.145 |
| 2000 | Kabarole | Kyenjojo | 0.330 | 0.522 | 0.433 |
| 2000 | Iganga | Mayuge | 0.436 | 0.815 | 0.327 |
| 2000 | Kitgum | Pader | 0.880 | 0.945 | 0.829 |
| 2000 | Mbale | Sironko | 0.793 | 0.756 | 0.890 |
| 2000 | Mpigi | Wakiso | 0.598 | 0.603 | 0.598 |
| 2000 | Arua | Yumbe | 0.661 | 0.611 | 0.853 |
| 2001 | Soroti | Kaberamaido | 0.640 | 0.687 | 0.601 |
| 2001 | Rukungiri | Kanungu | 0.493 | 0.440 | 0.778 |
| 2001 | Moroto | Nakapiripirit | 0.550 | 0.751 | 0.479 |

Table E9: Ethnic Diversity Measures in Uganda

## E.9 Fixed Effects Sub-National Models with Time Trends and Comparison of Early to Later Splits

As robustness tests, we first ran models that also included time trends, with and without year fixed effects. Results are in columns 1-4 in the tables below. In addition, we ran short-term regressions, comparing districts that split earlier with districts that split later, separately for splinter and mother districts. For Malawi, there were two waves of district splits in 1998 and 2003. Using data prior to 2003, we compared districts that split in 1998 to those that split in 2003. In Nigeria, there were three waves of state splits in 1987, 1991 and 1996. Using data prior to 1991, we compared districts that split in 1987 to those that split in 1991 and 1996. In Uganda, there were four waves of district splits in 1997, 2000, 2005-2006, and 2010-2011. Using data prior to 2005, we compared districts that split in 1997 to those that split in 2005-2006 and 2010-2011. We did not include districts that split in 2000 so that we could have a longer time frame.

| | (1) | (2) | (3) | (4) | (5) |
|---|---|---|---|---|---|
| | | | Malawi | | |
| Infant Mortality | -0.0221*** | -0.0131*** | -0.0037*** | -0.0024*** | -0.0491*** |
| | (0.0025) | (0.0033) | (0.0003) | (0.0004) | (0.0041) |
| Child Mortality | -0.0126*** | -0.0004 | -0.0025*** | -0.0009* | -0.0449** |
| | (0.0045) | (0.0043) | (0.0006) | (0.0005) | (0.0088) |
| | | | Nigeria | | |
| Infant Mortality | 0.0058 | -0.0090 | -0.0022** | -0.0019 | -0.0315** |
| | (0.0087) | (0.0092) | (0.0009) | (0.0012) | (0.0124) |
| Child Mortality | 0.0123 | -0.0153 | -0.0044*** | -0.0033* | -0.0568** |
| | (0.0153) | (0.0152) | (0.0014) | (0.0018) | (0.0231) |
| | | | Uganda | | |
| Infant Mortality | -0.0168* | -0.0071 | -0.0036*** | -0.0023* | -0.0225* |
| | (0.0086) | (0.0092) | (0.0012) | (0.0014) | (0.0127) |
| Child Mortality | -0.0238** | -0.0077 | -0.0051*** | -0.0029 | -0.0146 |
| | (0.0111) | (0.0129) | (0.0015) | (0.0019) | (0.0224) |
| District/State FE | X | X | X | X | X |
| Year FE | | X | | X | X |
| Year Trend | X | X | X | X | |
| All Splits Included | X | X | X | X | |
| Splits to Later Splits | | | | | X |
| Years Since Split Tx | | | X | X | |

Standard errors are clustered at the district-level in Malawi and Uganda and at the state-level in Nigeria. District fixed effects are used in Malawi and Uganda. State fixed effects are used in Nigeria.

Table E10: Fixed Effects Sub-National Models - Splinter Districts

| | (1) | (2) | (3) | (4) | (5) |
|---|---|---|---|---|---|
| | | | Malawi | | |
| Infant Mortality | -0.0048 | 0.0033 | -0.0016 | -0.0000 | 0.0152 |
| | (0.0102) | (0.0109) | (0.0010) | (0.0012) | (0.0125) |
| Child Mortality | 0.0011 | 0.0141 | -0.0005 | 0.0014 | 0.0255 |
| | (0.0114) | (0.0119) | (0.0013) | (0.0013) | (0.0118) |
| | | | Nigeria | | |
| Infant Mortality | 0.0144 | -0.0020 | -0.0014 | -0.0011 | 0.0114 |
| | (0.0096) | (0.0109) | (0.0008) | (0.0010) | (0.0080) |
| Child Mortality | 0.0272 | -0.0041 | -0.0033** | -0.0017 | 0.0176* |
| | (0.0164) | (0.0171) | (0.0015) | (0.0016) | (0.0092) |
| | | | Uganda | | |
| Infant Mortality | -0.0090 | -0.0001 | -0.0018* | -0.0000 | 0.0092 |
| | (0.0055) | (0.0058) | (0.0009) | (0.0011) | (0.0109) |
| Child Mortality | -0.0153** | -0.0049 | -0.0030** | -0.0008 | 0.0140 |
| | (0.0076) | (0.0089) | (0.0012) | (0.0015) | (0.0165) |
| District/State FE | X | X | X | X | X |
| Year FE | | X | | X | X |
| Year Trend | X | X | X | X | |
| All Splits Included | X | X | X | X | |
| Splits to Later Splits | | | | | X |
| Years Since Split Tx | | | X | X | |

Standard errors are clustered at the district-level in Malawi and Uganda and at the state-level in Nigeria. District fixed effects are used in Malawi and Uganda. State fixed effects are used in Nigeria.

Table E11: Fixed Effects Sub-National Models - Mother Districts

# F National Leaders

Our theoretical argument also suggests that the improvements in public services are, in part, due to a potential increase in the supply of high-quality leaders. For example, government fragmentation might increase the number of governors that can leverage their tenure to build a reputation as competent national leaders. If true, countries with higher levels of government fragmentation should have a growing share of national leaders with a history of holding office at the regional level. We explore this observable implication by assembling an original dataset that includes information on the career trajectories of all the candidates for the highest executive position across sub-Saharan Africa, which includes data on $1,815$ candidates from 285 elections in 48 countries.[2] We expect to observe an increase in the share of governors running for president over time, and governors should be more likely to run for office in countries with high levels of regional government fragmentation. Indeed, we find evidence for these implications of our theory.

Figure F1 shows the trend in the share of presidential candidates with previous experience as regional governors. Consistent with our theoretical expectations, until the 1990s, presidential candidates were not drawn from the pool of governors, since governors were either not autonomous or had yet to establish a reputation for good governance. Instead, the post-colonial leaders were drawn from the ranks of either the military or the independence movement. By contrast, after the decentralization reforms of the early 1990s, there is a rather dramatic increase in the share of presidential candidates that previously served as regional governors.

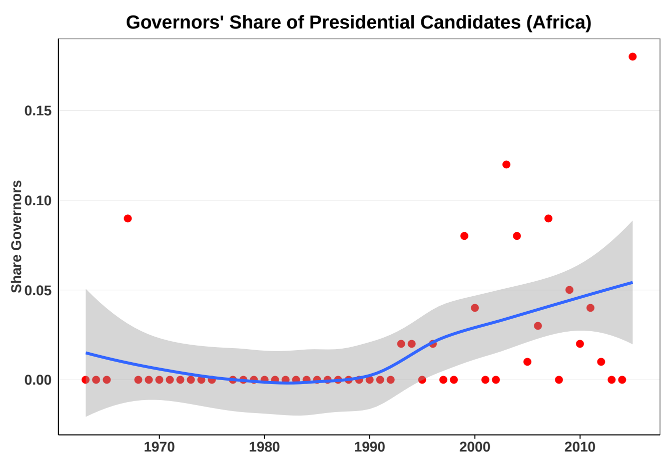


Figure F1: Share of Candidates for the Highest Executive Position with Experience as Regional Governors (across Sub-Saharan Africa, Post-independence Era). Estimation line including 95% confidence interval derived from local regression using the loess procedure.

We further examine the relationship between the prevalence of governor candidates and regional government fragmentation by running a series of multi-level models using country-election-year as the unit of analysis. Specifically, we regress the number of presidential candidates that has previous experience

[2]Of these 285 elections, 234 are presidential elections, three are in constitutional monarchies, and 48 are parliamentary elections. In the latter case we consider party leaders to be candidates for prime minister.

as regional governors on the number of regional governments, as well as year and country fixed effects. We find that a one-standard-deviation increase in the number of regional governments is associated with a 0.18-standard-deviation increase in the number of governor candidates ($pvalue = 0.014$). Similarly, a one-standard-deviation increase in the number of regional governments increases the likelihood that at least one candidate has gubernatorial experience by 6 percentage points ($pvalue = 0.016$). These findings are consistent with our theoretical argument.

# References

Boockmann, Bernhard, and Axel Dreher. 2003. "The Contribution of the IMF and World Bank to Economic Freedom." *European Journal of Political Economy* 19 (3): 633–649.

Dreher, Axel. 2006. "IMF and Economic Growth: The Effects of Programs, Loans, and Compliance Conditionality." *World Development* 34 (5): 769–788.

García, Fernando Martel. 2014. "Democracy is Good for the Poor: A Procedural Replication of Ross (2006)." *Research & Politics* 1 (3): 1–10.

Ross, Michael. 2006. "Is Democracy Good for the Poor?" *American Journal of Political Science* 50 (4): 860–874.

Stasavage, David. 2005. "Democracy and Education Spending in Africa." *American Journal of Political Science* 49 (2): 343–358.

The DHS Program. 2015. Survey Process. [Online; accessed 22-March-2015].