Appendix: Economic Perception to Political Performance Evaluation: Establishing Precursors to Economic Voting in Africa

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A1. List of Countries in the Sample

<Table A1 about here>

While there are similarly phrased survey questions also in Round 1, it could not be used due to severe missingness in key variables. For instance, response to subjective performance evaluation exhibited 31% missingness. This is mainly due to high levels of missingness for Botswana (23%), Ghana (100%), and Nigeria (100%).

A2. Variable Definitions

A few notes on the dependent variable: First, the question wordings were consistent for all rounds used. Second, the main analysis of this paper uses a continuous dependent variable coding which ranges from zero to one with equidistance between the response categories since this, combined with an OLS regression, allows easier interpretation of the results. Results are consistent when alternative specifications including ordered probit are used. Third, "Don't know" or "Refuse to Answer" responses were coded as missing. To mitigate any concerns for systematic missingness, I conduct additional tests, including directly modeling the missingness, using multiple imputations approach (Honaker, King, and Blackwell 2011), and re-running the estimation with all missing observations coded as the lowest possible value, and get consistent results (See below).

The question for the key independent variable on subjective economic evaluation was also asked in all countries over the three rounds with the same wordings. For convenience of interpretation, this variable is coded as a continuous variable based on five response categories of the original question (Much Worse, Worse, The Same, Better, Much Better). Alternative estimation models including ordered probit estimation and using categorical independent variable codings yields consistent results (See below).

A3. Relationship between Subjective Political Performance Evaluation and Vote Choice

It may be important to acknowledge that the subjective political performance evaluation may not always translate directly into vote choice. Indeed, many factors could intervene to influence actual voting choice, including campaign effects, social pressure, or vote buying, to name a few. However, it is difficult to theoretically envision a situation where there is no plausible link between voters' performance evaluation and vote choice, and the two are completely orthogonal. Moreover, we can consider a number of correlational measures to examine whether the two move hand in hand. Unfortunately, we do not have information about respondents' actual vote choice in Afrobarometer. As a second-best, I use respondents' intended vote choice as a proxy for actual vote choice and confirm that it exhibits high correlation with the incumbent performance evaluation variable. Round 4 of Afrobarometer asked question "If a presidential election were held tomorrow, which party's candidate would you vote for?" The response matching the executive's party was coded as one and others zero to create a binary incumbent vote choice variable. The Pearson correlation coefficient for subjective performance evaluation and intended vote choice indicates a moderate positive relationship especially given that the incumbent vote choice is a binary variable ($r = 0.45$). If we convert the performance evaluation variable into a binary variable and derive a Yule correlation coefficient for binary data, we get a much stronger

positive correlation ($Y = 0.75$). Second, we could also compare the intended vote choice to the actual election results. Comparing the proportion of respondents reporting the intention to vote for the leading party in a given country and that party's actual vote share in the next election, we confirm a moderate positive relationship. The Pearson correlation coefficient indicates a moderate positive relationship ($r = 0.43$). While the ideal data for this correlational test would involve subnational level geocoded voting results across countries at a granular level, such data is difficult to come by for many of the countries in the sample. Though not perfect, these correlation coefficients provide some confidence about the link between the subjective evaluations and the ultimate vote choice.

A4. Summary Statistics

<Table A2 about here>

<Table A3 about here>

A5. Missingness

As stated in the footnote 9, there are 5.9%, 5.8%, and 8.1% missingness in the dependent variable for rounds 2-4 respectively. To account for the potential bias that may be introduced due to such missingness, I first model the missingness in the dependent variable as a function of the independent variables in the model. *Table A2* indicates that those who think the economy is doing worse, are older, less educated, female, urban resident, non-coethnic, non-copartisan, and surveyed closer to the election were more likely to be coded as missing.

To account for any potential bias introduced due to such systematic missingness, I conducted two additional robustness checks. First, I used multiple imputations approach (Honaker, King, and Blackwell 2011) to fill in the missing values as much as possible and rerun the main estimation model on the imputed dataset. Second, I re-ran estimations while treating all missing observations to have the lowest value for the performance evaluation variable (i.e. equal to zero) and rerun the model. Though somewhat extreme, the assumption here is that those who are less supportive of the incumbent due to various factors are more likely to refuse to answer. This is a more conservative approach compared to, for example, Mattes and Bratton (2007) who consider refused to answer or don't know answers as neutral. The results from these two exercises are consistent with the main finding. *Figure A1* shows that the results from both the model using imputed dataset and the model with the most conservative assumption are consistent with the model using the original data as reported in the main text. All models include County- and Year-Fixed effects and robust standard errors clustered by country and round.

<Figure A1 about here>

<Table A4 about here>

A6. Continuous Versus Categorical Dependent Variable

As noted earlier, the dependent variable, performance evaluation of chief executive as well as the key independent variable, subjective evaluation of the economy, are based on

respondents' answers to questions that provided them with ordered categorical responses as their answering options. As such, some may be skeptical about coding these responses into continuous variable and using ordinary least squares approach for the reasons of ease in presentation and interpretation. Yet examining the same sets of variables with models more suited for ordered categorical dependent variable does not seem to change the substantive results. Here, one such model, namely ordered probit regression with country- and round-fixed effects is considered as an example.

The ordered probit model, which does not make the relatively strong equal interval assumption in ordinary least squares regression, is presented as the following:

$$Pr(y_{ijt} = k|x_{ijt}) = \int_{\tau_k}^{\tau_{k-1}} N\,(x_{ijt}\beta, 1)dx_{ijt}\beta$$

where y is the response, x is a vector of covariates including the fixed effects terms, ijt indexes cases as before, k indexes categories of the response, τ is a $k + 1$ vector of cutpoints with $t_0 = -\infty$, $s_1 = 0$, and $s_j = \infty$ for identification, and N indicates the probability distribution function of the Normal distribution.

The table reports the results from using ordered probit as its model specification with the same independent variables employed in the original least squares models presented earlier. While it is hard to directly interpret the raw coefficients, the coefficients and standard errors reported for each variable seem to be consistent with the estimates provided earlier using OLS.

It is true that we have lost some valuable information by turning categorical variables into continuous variables even though the estimates seem consistent. The table shows the results from using a five-category coding for *Economic Perception* variable (base category: *"The Same"*) instead of the continuous coding. It confirms the direction and the magnitude of each of the categories as expected: negative economic perception hurts performance

evaluation, while positive economic perception helps. Yet, it also shows that the more extreme perceptions have greater coefficient differentials compared to the more moderate perceptions. For instance, moving from having the perception that the economy is *The Same* to *Worse* is associated with a 0.041 decrease in terms of performance evaluation of the executive, while moving from *"The Same"* to *"Much Worse"* is associated with an additional decrease of 0.077. Moreover, at the extremes, negative perception of the economy is associated with greater absolute magnitude when compared to positive perception (*"Much Worse"= -0.117 and "Much Better"=0.083*.)

<Table A5 about here>

<Table A6 about here>

<Table A7 about here>

A7. Separate Models for Economic Evaluation, Coethnicity, and Copartisanship

<Table 8 about here>

A8. Full Interaction Model

<Table A9 about here>

A9. Tools and Steps Used in GIS

For the geocoding exercise, information on subnational administrative units down to towns and village level were available for Rounds 3 and 4. For the Round 2, the lowest subnational administrative units available were districts and regions. While for some countries districts are aligned with the level 2 subnational administrative units, they are not in other cases. To circumvent this issue and match the respondents to the level 2 units, I used the names of the locations given in the Afrobarometer data and created approximate addresses. For instance, for a randomly drawn respondent with survey id 5466, the reconstructed address was Amoni, Teso, Western, Kenya ([Town/village, District, Region, Country]) which yielded the geocoded coordinate of (34.24476, 0.6181615) ([longitude, latitude]).

The light data used are from light density raster images that are "Average Visible, Stable Lights, & Cloud Free Coverages" the from National Oceanic and Atmospheric Administration (NOAA)'s Defense Meteorological Satellite Program (DMSP). The rasters capture annual composite images of time-stable lights are created by overlaying all images captured during a calendar year at night from 20:30 to 22:00 local time, dropping images where lights are covered by cloud or overpowered by the aurora or solar glare (near the poles), and removing ephemeral lights like fires and lightning. The resulting measure is a six-bit number (ranging from 0 to 63) calculated for every 30-second area (approximately 1 square kilometer).[i]

To convert the original raster files in a usable format, the following steps have been taken using *ArcGIS 10.2.2*. First, individual raster files for the years 1997-2010 are added and imported as a generic ESRI Grid file and clipped for only relevant areas using the *Clip* tool to facilitate faster calculations. For a number of years, there were more than one raster file available since there were more than one satellite capturing the night images. In such cases, a

simple average was calculated between the available rasters for a given year using *Raster Calculator*.[ii] Next, *Zonal Statistics* tool was used to calculate the average light density by GADM Subnational Level 2, to create a fine-grained measure of the local economy. Lastly, the appropriate local level light density was appended to individual respondents using *Extract Multi Values to Points* tool. Since there are a total of fourteen years and many steps involved in deriving the output, the steps were built and executed as a *Model* in *ArcGIS 10.2.2*. A major concern in using luminosity data is about top-coded values and bleeding. These issues, however, are of less concern within Africa. As Michalopoulos and Papaioannou (2013, p. 121), there are very few instances of top-coding (only 0.00017% are top-coded for 2007 and 2008) and since luminosity is quite low across African regions, bleeding is not a major problem either.

A10. Additional Extensions and Robustness Checks

In this section, I consider two additional extensions to better establish the robustness of the estimated results. First, in a smaller subset of the sample where data are available, I control for additional observable characteristics at the individual level - namely, wealth, information, and public goods access - that may be correlated with the economic and subsequent performance evaluation. Second, I implement a selection on observable variables approach to assess the likelihood that the estimates are being driven by unobserved heterogeneity.

Controlling for Additional Observables: Wealth, Information, and Public Goods Provision

Although it is not possible to take into account all such potential confounds especially given the limits of the survey data, using a sub-sample of only the more recent rounds allows

us to consider at least a few additional key variables, namely the level of wealth, public goods provision, and access to information.

First, the level of income has been considered as an important determinant of political participation such as voting and turnout (Verba and Nie 1987; Wolfinger and Rosenstone 1980; Brady, Verba, and Schlozman 1995). In the context of African Politics, higher income has been associated with a higher turnout (Kuenzi and Lambright, 2007; Kuenzi and Lambright 2011), but the association with incumbent support is unclear. Some have reported null finding for the association between income and government support (Youde 2005, Hoffman and Long 2013), while others have found that higher income group is associated with incumbent support (Lindberg and Morrison 2005).

Since a dependable measure of individual income is unavailable in the Afrobarometer, a 4-point scale of wealth variable is used as a proxy, following previous analyses of Afrobarometer data (Robinson 2014; Lieberman and McClendon 2013). In terms of coding, respondents are assigned 3 points if she or he reports owning a radio, a television, and a car; 2 points indicates that the respondent owns a radio and a television; 1 point indicates that she or he owns only a radio; and 0 indicates that she or he does not own even a radio. This measure has been found to be more reliable than questions about numerical cash income, which is available for only the latest rounds of the survey (Lieberman and McClendon 2013: 580).[iii]

Next, one implicit assumption in the theory of economic voting is the availability of information which citizens can use to evaluate politician performance (Anderson 2007). Yet in the context of African Politics, it is possible that information scarcities present difficulties for citizens to assess the politician performance (Posner 2005; Hoffman and Long 2013). Considering such context, it may be the case that access to media has a positive effect on performance evaluation as incumbents may have more resources at their disposal to better

utilize the media. However, the findings on the effects of information on performance evaluation in the African context have been mixed (e.g. Casey 2015; Humphreys and Weinstein 2012; Lieberman, Posner, and Tsai 2014). To gauge the level of access to information, a 5-point measure of a respondent's access to the news is used based on how often a respondent reported getting news from the television, radio, or newspaper.[iv]

Finally, the provision of public goods and services can also influence the performance evaluation of the chief executive. For instance, in their study of the 2007 Kenyan elections, Kimenyi and Romero (2008) argue that access to public goods influences voter opinions, alongside other factors such as their ethnicity, absolute and relative living standards, and perceptions of discrimination.[v] It may be the case that those with better access to public goods are more likely to have a favorable opinion towards the incumbent. Yet there is no direct way of capturing public goods provision to a given respondent in the sample. As a second-best measure, I use a 9-point scale (0-8) additive measure as a proxy, created by assigning one point for each public goods, including electricity grids, piped water systems, sewage systems, post offices, schools, police stations, health clinics, and paved roads, observed by survey enumerators.

Table A10 reports the results from including these additional covariates in a smaller sample, using only Rounds Three and Four due to variable availability issues. The results indicate that the additional covariates - wealth, access to information, and public goods provision - have small and insignificant effects on the dependent variable, and they do not add much to the model fit: the adjusted R^2 does not change even at the third decimal place. Moreover, the inclusion of these variables does not seem to affect the sign, magnitude, and significance of the previously reported results of the key independent variable, *Economic Evaluation*.

<Table A10 about here>

Using Selection on Observables to Assess the Bias from Selection

Despite the attempts to control for observable factors, the estimates reported may still be biased by unobservable factors correlated with selection into the levels of economic evaluation and the subsequent political performance evaluation. For example, we will overestimate the effects if those who are more dissatisfied with political performance are also more likely to agree to participate in surveys. Likewise, we will underestimate the effects if such respondents were more likely to participate. To see if the estimates are robust to such potential bias, I bound the effects with best- and worst-case scenarios following Oster (2019).[vi] This approach uses the selection on observables to assess the potential bias from unobservables arising due to potential selection effects, and provides a measure to gauge the strength of the likely bias arising from such unobservables, i.e. how much stronger selection on unobservables, relative to selection on observables, must be to explain away the full estimated effect.

Formally, consider the following model: $Y = \beta X + W_1 + W_2 + \epsilon$, where W_1 is observed and W_2 is unobserved and the coefficient of interest is β. Note that β cannot be recovered from regression because of the unobserved elements in the model (this is the standard omitted variable bias issue). Oster (2019) introduce the proportional selection assumption, which links the relationship between X and the observed variables to the relationship between X and and the unobserved variables. This link invokes a degree of proportionality, which is denoted with δ. A value of $\delta = 1$ implies that the observed and unobserved variables are equally important in explaining X; $\delta < 1$ implies that observables

are more important and $\delta > 1$ that the unobservables are more important. Intuitively, this method bounds how correlated unobserved covariates may be with the independent variable of interest, relative to those included in the regression.[vii]

Comparing our models with and without observables following Oster (2019), we first set $\widehat{\beta^*} = .218$ and $R^* = .035$ for the model without observables, and $\widehat{\beta^*} = .180$ and $R = .192$ for the model with observables, where $\widehat{\beta^*}$ and R^* are the coefficient estimate and R^2 from the regression including observable covariates, and $\widehat{\beta^*}$ and R are the coefficient and R^2 from the uncontrolled regression. Following standard convention, we set $R_{max} = 1.5 * R^*$ and derive the bias-corrected coefficient for our key independent variable of interest, economic perception, at $\delta = 0.5$ (i.e. unobservables are half as important as observables) and $\delta = 1$ (i.e. equal selection).[viii] In the former case, the corrected coefficient is 0.137, and in the latter case 0.093.[ix] Conducting the same exercise for the coethncity variable, we get values below 0.06 as the corrected coefficients under both conditions. In other words, this analysis suggests that while the bias-corrected estimates are lower than the controlled estimates of the economic perception, the effect of economic perception is stronger than that of coethnicity under both assumptions about the extent of unobservable selection and it is unlikely that there exists a significant threat of bias from some unobserved variable(s) that is large enough to put the reported estimates from the main model into question.

A11. Replication of Table 1 (Model 5) by Country

<Figure A2 about here>

<Table A11 about here>

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Table A1: Executives (Survey Rounds, Years), Terms, Ethnicity, and Party

Country & Executives (Rounds, Years)[a]	**Term**[b]	**Ethnicity**[c]	**Party Identification**[d]
Benin			
Mathieu Kerekou (R3, 05)	96-06	Betamaribe	Independent
Yayi Boni (R4, 08)	06-	Yoruba	Independent
Botswana			
Festus Gontebanye Mogae (R1/2/3, 99/03/05)	98-08	Mokalanga	Botswana Democratic Party
Ian Khama (R4, 08)	08-	Mongwato	Botswana Democratic Party
Burkina Faso			
Blaise Compaore (R4, 08)	87-	Mossi	Congress for Democracy and Progress
Cape Verde			
Pedro Verona Rodrigues Pires (R2/3/4, 02/05/08)	01-11	N/A	African Party for the Independence of Cape Verde
Ghana			
John Agyekum Kufuor (R1/2/3/4, 99/02/05/08)	01-09	Akan	New Patriotic Party
Kenya			
Mwai Kibaki (R2/3, 03/05)	02-13	Kikuyu	National Rainbow Coalition
Mwai Kibaki (R4, 08)	02-13	Kikuyu	Party of National Unity
Lesotho			
Pakalitha Mosisili (R1/2/3/4, 00/03/05/08)	98-12	N/A	Lesotho Congress for Democracy
Liberia			
Ellen Johnson Sirleaf (R4, 08)	06-	Gola/Kru	Unity Party
Madagascar			
Marc Ravalomanana (R3/4, 05/08)	02-09	N/A	Tiako i Madagasikara
Malawi			
Bakili Muluzi (R1/2, 01/02)	94-04	Yao	United Democratic Front
Bingu wa Mutharika (R3/4, 05/08)	04-12	Lomwe	Democratic Progressive Party
Mali			
Amadou Toumani (R1/2/3/4, 01/02/05/08)	91-12	Mandinka/Peul	Alliance for Democracy in Mali
Mozambique			
Joaquim Chissano (R2, 02)	90-05	Cisena/Gitonga	Front of Liberation of Mozambique
Armando Guebuza (R3/4, 05/08)	05-	Ronga/Makua	Front of Liberation of Mozambique
Namibia			
Sam Nujoma (R1/2, 99/03)	90-05	Wambo	Swapo Party of Namibia
Hifikepunye Pohamba (R3/4, 00/03/05)	05-	Wambo	Swapo Party of Namibia
Nigeria			
Olusegun Obasanjo (R1/2/3, 00/03/05)	99-07	Yoruba	People's Democratic Party
Umaru Musa Yar'Adua (R4, 08)	07-10	Fulani	People's Democratic Party
Senegal			
Wade (R2/3/4, 02/05/08)	00-12	Wolof	Senegalese Democratic Party
South Africa			
Thabo Mbeki (R1/2/3/4, 00/02/06/08)	99-08	Xhosa	African National Congress
Tanzania			
Benjamin Mkapa (R1/2/3, 01/03/05)	95-05	N/A	Chama cha Mapinduzi
Jakaya Kikwete (R4, 08)	05-	N/A	Chama cha Mapinduzi
Uganda			
Yoweri Museveni (R1/2/3/4, 00/02/05/08)	86-	Munyankole	National Resistence Movement
Zambia			
Levy Mwanawasa (R1/2/3/4, 00/02/05/09)	02-08	Lenje/Tonga	Movement for Multiparty Democracy
Zimbabwe			
Robert Mugabe (R1/2/3/4, 99/03/05/09)	87-	Sezuru/Shona	Zimbabwe African National Union-Patriotic Front

Notes:

[a] Country names marked in italic, followed by incumbent chief executive's name during the time of the Afrobarometer surveys. Survey rounds and years (last two digits) in brackets.

[b] Last two digits.

[c] Benin, Kenya, Malawi, Mali, Senegal, and Zambia based on Kramon and Posner (2013). The rest is compiled by the author. Marked as not applicable (N/A) if information not available.

[d] Based on the name of the party at the time of closest previous election.

Table A1

Table A2: Summary Statistics

Variable	**Min**	**Max**	$\tilde{\mathbf{x}}$	**n**	$\bar{\mathbf{x}}$	**s**
Performance Evaluation[a]	0.00	1.00	0.67	72263	0.62	0.32
Economic Evaluation[b]	0.00	1.00	0.50	75355	0.48	0.27
Electoral Proximity[c]	-43.00	-3.00	-17.00	77411	-17.61	9.27
	Levels			**n**	%	$\sum$%
Age[d]	18 to 29			30573	40.1	40.1
	30 to 44			25871	34.0	74.1
	45 to 64			15183	19.9	94.1
	65 and above			4528	6.0	100.0
Education[e]	No Formal Schooling			15562	20.2	20.2
	Primary Only			26267	34.0	54.2
	Secondary			27308	35.4	89.5
	Post-Secondary			8066	10.4	100.0
Female[f]	Male			38706	50.0	50.0
	Female			38705	50.0	100.0
Urban[f]	Rural			48082	62.1	62.1
	Urban			29329	37.9	100.0
Coethnicity[g]	Non-Coethnic			46714	73.4	73.4
	Coethnic			16913	26.6	100.0
Copartisanship[h]	Non-Copartisan			43096	55.7	55.7
	Copartisan			34315	44.3	100.0

Notes:

[a] Based on the response to question: *"Do you approve or disapprove of the way the following people have performed their jobs over the past twelve months, or haven't you heard enough about them to say: The President."*

[b] Based on the response to question: *"Looking back, how do you rate the following compared to twelve months ago: Economic conditions in this country?"*

[c] Calculated using interview dates reported by interviewer and election dates data from African Elections Database (2013). The formula used is *-1*(months to/from nearest election)*.

[d] Transformed into indicators to capture different sorts of generational patterns (Gelman and Hill 2007: 66-67).

[e] Collapsed 10 categories in Rounds 2-4 to match 4 categories in Round 1.

[f] Answered by interviewer.

[g] Based on whether one's ethnic group matches that of the incumbent chief executive. Respondent ethnicity based on the response to the question: *"Which [Ghanaian/Kenyan/etc.] language is your home language?"*

[h] Based on whether one's partisan identification matches that of the incumbent chief executive. Respondent partisanship based on the response to the question: *"Do you feel close to any particular political party? If yes, which party is that?"*

Table A2

Table A3: Summary Statistics with Category Breakdown

Variable	**Levels**	**n**	%	∑%
Performance Evaluation[a]	Stongly Disapprove	8680	12.0	12.0
	Disapprove	12604	17.4	29.5
	Approve	31294	43.3	72.8
	Strongly Approve	19685	27.2	100.0
Economic Evaluation[b]	Much Worse	8343	11.1	11.1
	Worse	20306	26.9	38.0
	Same	19299	25.6	63.6
	Better	23943	31.8	95.4
	Much Better	3464	4.6	100.0
Age[c]	18 to 29	30573	40.1	40.1
	30 to 44	25871	34.0	74.1
	45 to 64	15183	19.9	94.1
	65 and above	4528	6.0	100.0
Education[d]	No Formal Schooling	15562	20.2	20.2
	Primary Only	26267	34.0	54.2
	Secondary	27308	35.4	89.5
	Post-Secondary	8066	10.4	100.0
Female[e]	Male	38706	50.0	50.0
	Female	38705	50.0	100.0
Urban[e]	Rural	48082	62.1	62.1
	Urban	29329	37.9	100.0
Coethnicity[f]	Non-Coethnic	46714	73.4	73.4
	Coethnic	16913	26.6	100.0
Copartisanship[g]	Non-Copartisan	43096	55.7	55.7
	Copartisan	34315	44.3	100.0
		n	$\bar{\mathbf{x}}$	**s**
Electoral Proximity[h]		77411	-17.6	9.3

Notes:

[a] Based on the response to question: "Do you approve or disapprove of the way the following people have performed their jobs over the past twelve months, or haven't you heard enough about them to say: The President."

[b] Based on the response to question: "Looking back, how do you rate the following compared to twelve months ago: Economic conditions in this country?"

[c] Transformed into indicators to capture different sorts of generational patterns (Gelman and Hill 2007: 66-67).

[d] Collapsed 10 point-scales in Rounds 2-4 to match 4 points-scale in Round 1.

[e] Answered by interviewer.

[f] Based on whether one's ethnic group matches that of the incumbent chief executive. Respondent ethnicity based on the response to the question: "Which [Ghanaian/Kenyan/etc.] language is your home language?"

[g] Based on whether one's partisan identification matches that of the incumbent chief executive. Respondent partisanship based on the response to the question: "[Do you feel close to any particular political party? If yes,] Which party is that?"

[h] Calculated using interview dates reported by interviewer and election dates data from African Elections Database (2013). The formula used is $-1 *$ (months to/from nearest election).

Table A3

Table A4: Missingenss Regression Results with Country and Round Fixed Effects

	Dependent variable:
	Missingness in the DV
Economic Evaluation	-0.023^{***}
	(0.003)
Age: 30-44	0.002
	(0.002)
Age: 45-64	0.009^{***}
	(0.003)
Age: 65 and Above	0.019^{***}
	(0.004)
Education: Primary Only	-0.020^{***}
	(0.003)
Education: Secondary	-0.030^{***}
	(0.003)
Education: Post-Secondary	-0.034^{***}
	(0.004)
Female	0.014^{***}
	(0.002)
Urban	0.010^{***}
	(0.002)
Electoral Proximity	0.002^{***}
	(0.0001)
Coethnic	-0.012^{***}
	(0.002)
Copartisan	-0.025^{***}
	(0.002)
Constant	0.072^{***}
	(0.006)
Country Fixed Effects	Yes
Round Fixed Effects	Yes
Observations	61,000
R^2	0.053
Adjusted R^2	0.053
Residual Std. Error	0.224 (df = 60970)
F Statistic	117.589^{***} (df = 29; 60970)
Note:	*p<0.1; **p<0.05; ***p<0.01

Table A4: Missingness Regression Results with Country and Round Fixed Effects

Table A5: Orderd Probit Regression Results with Country and Round Fixed Effects

	Dependent variable:				
	Performance Evaluation: Executive[a]				
	(1)	(2)	(3)	(4)	(5)
Economic Perception: Much Worse[b]	−0.390***	−0.397***	−0.389***	−0.408***	−0.396***
	(0.015)	(0.015)	(0.015)	(0.017)	(0.017)
Economic Perception: Worse[b]	−0.133***	−0.135***	−0.133***	−0.140***	−0.137***
	(0.011)	(0.012)	(0.012)	(0.013)	(0.013)
Economic Perception: Better[b]	0.169***	0.172***	0.169***	0.172***	0.151***
	(0.011)	(0.011)	(0.011)	(0.012)	(0.012)
Economic Perception: Much Better[b]	0.362***	0.362***	0.359***	0.360***	0.336***
	(0.021)	(0.022)	(0.022)	(0.023)	(0.023)
Age: 30 to 44[c]		0.041***	0.041***	0.031***	0.022**
		(0.010)	(0.010)	(0.011)	(0.011)
Age: 45 to 64[c]		0.112***	0.113***	0.107***	0.092***
		(0.012)	(0.012)	(0.013)	(0.013)
Age: 65 and above[c]		0.164***	0.165***	0.138***	0.125***
		(0.020)	(0.020)	(0.023)	(0.023)
Education: Primary Only[d]		0.029**	0.026**	0.008	−0.002
		(0.013)	(0.013)	(0.014)	(0.014)
Education: Secondary[d]		−0.049***	−0.052***	−0.057***	−0.058***
		(0.014)	(0.014)	(0.015)	(0.015)
Education: Post-Secondary[d]		−0.103***	−0.108***	−0.111***	−0.101***
		(0.018)	(0.018)	(0.019)	(0.019)
Female[e]		−0.002	−0.002	−0.006	0.001
		(0.008)	(0.008)	(0.009)	(0.009)
Urban[e]		−0.089***	−0.085***	−0.096***	−0.069***
		(0.009)	(0.009)	(0.010)	(0.010)
Electoral Proximity[f]			0.008***	0.008***	0.007***
			(0.001)	(0.001)	(0.001)
Coethnicity[g]				0.274***	0.234***
				(0.012)	(0.012)
Copartisanship[h]					0.444***
					(0.010)
Country- & Round-Fixed Effects	Yes	Yes	Yes	Yes	Yes
Observations	70,614	69,509	69,509	57,586	57,586
AIC	169061.00	165961.98	165754.46	138199.37	136183.30
Residual Deviance	169005.00	165889.98	165680.46	138131.37	136113.30

Notes: *Standard error* in parentheses. $* p < 0.05$, $** p < 0.01$, $*** p < 0.001$

[a] Question: *"Do you approve or disapprove of the way the following people have performed their jobs over the past twelve months, or haven't you heard enough about them to say: The President."*

[b] Based on the response to question: *"Looking back, how do you rate the following compared to twelve months ago: Economic conditions in this country?"* Coded as a categorical variable (*Much Worse = 0, Worse = 0.25, The Same = 0.5, Better = 0.75, Much Better = 1*). Base category is *"The Same."*

[c] Transformed into indicators to capture generational patterns (Gelman and Hill 2007: 66-67). Base category is *"18 to 29."*

[d] Base category is "No Formal Education".

[e] Answered by interviewer.

[f] Constructed as *1*(months to/from nearest election)*, such that larger numbers imply increasing proximity. The election dates are from African Elections Database (2013). Individual dates of interviews are from the Afrobarometer.

[g] Based on whether one's ethnic group matches that of the incumbent chief executive. Respondent ethnicity based on the response to the question: *"Which [Ghanaian/Kenyan/etc.] language is your home language?"*

[h] Based on whether one's partisan identification matches that of the incumbent chief executive. Respondent partisanship based on the response to the question: *"[Do you feel close to any particular political party? If yes,] Which party is that?"*

Table A6: Orderd Probit Regression Results with Country and Round Fixed Effects

	Dependent variable:				
	Performance Evaluation: Executive[a]				
	(1)	(2)	(3)	(4)	(5)
Economic Evaluation[b]	0.689***	0.699***	0.687***	0.710***	0.668***
	(0.015)	(0.016)	(0.016)	(0.017)	(0.017)
Age: 30-44[c]		0.040***	0.040***	0.030***	0.022**
		(0.010)	(0.010)	(0.011)	(0.011)
Age: 45-64[c]		0.112***	0.113***	0.107***	0.092***
		(0.012)	(0.012)	(0.013)	(0.013)
Age: 65 and Above[c]		0.164***	0.165***	0.138***	0.125***
		(0.020)	(0.020)	(0.023)	(0.023)
Education: Primary Only[d]		0.029**	0.026**	0.007	−0.003
		(0.013)	(0.013)	(0.014)	(0.014)
Education: Secondary[d]		−0.048***	−0.051***	−0.057***	−0.057***
		(0.014)	(0.014)	(0.015)	(0.015)
Education: Post-Secondary[d]		−0.102***	−0.107***	−0.111***	−0.100***
		(0.018)	(0.018)	(0.019)	(0.019)
Female[e]		−0.002	−0.002	−0.007	0.0003
		(0.008)	(0.008)	(0.009)	(0.009)
Urban[e]		−0.088***	−0.085***	−0.096***	−0.069***
		(0.009)	(0.009)	(0.010)	(0.010)
Electoral Proximity[f]			0.008***	0.008***	0.007***
			(0.001)	(0.001)	(0.001)
Coethnicity[g]				0.274***	0.235***
				(0.012)	(0.012)
Copartisanship[h]					0.444***
					(0.010)
Country- & Round-Fixed Effects	Yes	Yes	Yes	Yes	Yes
Observations	70,614	69,509	69,509	57,586	57,586
AIC	169092.03	165927.80	165716.06	138226.72	136212.19
Residual Deviance	169042.03	165993.80	165784.06	138164.72	136148.19

Notes: *Standard Error* in parentheses. $* p < 0.05$, $** p < 0.01$, $*** p < 0.001$

[a] Based on the response to question: *"Do you approve or disapprove of the way the following people have performed their jobs over the past twelve months, or haven't you heard enough about them to say: The President."*. Coded as a continuous variable created from four responses (*Strongly Disapprove = 0, Disapprove = 0.33, Approve = 0.67, Strongly Approve = 1*).

[b] Based on the response to question: *"Looking back, how do you rate the following compared to twelve months ago: Economic conditions in this country?"* Coded as a continuous variable based on five response categories of the original question (*Much Worse = 0, Worse = 0.25, The Same = 0.5, Better = 0.75, Much Better = 1*).

[c] Transformed into indicators to capture different sorts of generational patterns (Gelman and Hill 2007: 66-67). Base category is *"18 to 29."*

[d] Base category is *"No Formal Education."*

[e] Answered by interviewer.

[f] Following Eifert et al. (2010: 501), the Electoral Proximity variable is constructed as *1*(months to/from nearest election)*, such that larger numbers imply increasing proximity. The election dates are from African Elections Database (2013). Individual dates of interviews recorded in the Afrobarometer data were used for calculation.

[g] Based on whether one's ethnic group matches that of the incumbent chief executive. Respondent ethnicity based on the response to the question: *"Which [Ghanaian/Kenyan/etc.] language is your home language?"*

[h] Based on whether one's partisan identification matches that of the incumbent chief executive. Respondent partisanship based on the response to the question: *"[Do you feel close to any particular political party? If yes,] Which party is that?"*

Table A6

Table A7: Using Categorical Coding for *Economic Perception*

	Dependent variable:				
	Performance Evaluation: Executive[a]				
	(1)	(2)	(3)	(4)	(5)
Economic Perception: Much Worse[b]	−0.117***	−0.119***	−0.116***	−0.123***	−0.118***
	(0.004)	(0.004)	(0.004)	(0.005)	(0.005)
Economic Perception: Worse[b]	−0.039***	−0.040***	−0.039***	−0.042***	−0.041***
	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)
Economic Perception: Better[b]	0.042***	0.043***	0.042***	0.043***	0.036***
	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)
Economic Perception: Much Better[b]	0.083***	0.082***	0.081***	0.081***	0.073***
	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)
Age: 30 to 44[c]		0.010***	0.010***	0.007**	0.005*
		(0.003)	(0.003)	(0.003)	(0.003)
Age: 45 to 64[c]		0.028***	0.029***	0.027***	0.023***
		(0.003)	(0.003)	(0.004)	(0.004)
Age: 65 and above[c]		0.041***	0.041***	0.034***	0.030***
		(0.005)	(0.005)	(0.006)	(0.006)
Education: Primary Only[d]		0.007*	0.006*	0.001	−0.001
		(0.004)	(0.004)	(0.004)	(0.004)
Education: Secondary[d]		−0.013***	−0.014***	−0.016***	−0.015***
		(0.004)	(0.004)	(0.004)	(0.004)
Education: Post-Secondary[d]		−0.028***	−0.029***	−0.030***	−0.027***
		(0.005)	(0.005)	(0.005)	(0.005)
Female[e]		−0.0001	−0.0002	−0.001	0.0004
		(0.002)	(0.002)	(0.002)	(0.002)
Urban[e]		−0.024***	−0.023***	−0.026***	−0.019***
		(0.002)	(0.002)	(0.003)	(0.003)
Electoral Proximity[f]			0.002***	0.002***	0.002***
			(0.0001)	(0.0002)	(0.0002)
Coethnicity[g]				0.068***	0.056***
				(0.003)	(0.003)
Copartisanship[h]					0.117***
					(0.003)
Constant	0.676***	0.677***	0.720***	0.741***	0.703***
	(0.007)	(0.008)	(0.008)	(0.009)	(0.009)
Country- & Round-Fixed Effects	Yes	Yes	Yes	Yes	Yes
Observations	70,614	69,509	69,509	57,586	57,586
R^2	0.152	0.158	0.160	0.165	0.193
Adjusted R^2	0.152	0.158	0.160	0.164	0.193

Notes: *Standard error* in parentheses. $* p < 0.05$, $** p < 0.01$, $*** p < 0.001$

[a] Question: *"Do you approve or disapprove of the way the following people have performed their jobs over the past twelve months, or haven't you heard enough about them to say: The President."*

[b] Question: *"Looking back, how do you rate the following compared to twelve months ago: Economic conditions in this country?"* Coded as a continuous variable (*Much Worse = 0, Worse = 0.25, The Same = 0.5, Better = 0.75, Much Better = 1*).

[c] Transformed into indicators to capture generational patterns (Gelman and Hill 2007: 66-67). Base category is *"18 to 29."*

[d] Base category is *"No Formal Education."*

[e] Answered by interviewer.

[f] Constructed as *1*(months to/from nearest election)*. The election dates are from African Elections Database (2013). Individual dates of interviews recorded in the Afrobarometer data were used for calculation.

[g] Question: *"Which [Ghanaian/Kenyan/etc.] language is your home language?"*

[h] Question: *"[Do you feel close to any particular political party? If yes,] Which party is that?"*

Table A8: Separate Models for Economic Evaluation, Coethnicity, and Copartisanship

	Dependent variable:			
	Performance Evaluation: Executive			
	(1)	(2)	(3)	(4)
Economic Evaluation	0.187***			0.180***
	(0.004)			(0.004)
Coethnicity		0.073***		0.056***
		(0.003)		(0.003)
Copartisanship			0.125***	0.117***
			(0.002)	(0.003)
Age: 30-44	0.010***	0.005*	0.004*	0.005*
	(0.003)	(0.003)	(0.003)	(0.003)
Age: 45-64	0.029***	0.024***	0.020***	0.023***
	(0.003)	(0.004)	(0.003)	(0.004)
Age: 65 and Above	0.041***	0.032***	0.032***	0.029***
	(0.005)	(0.006)	(0.005)	(0.006)
Education: Primary Only	0.006*	0.001	0.002	−0.001
	(0.004)	(0.004)	(0.003)	(0.004)
Education: Secondary	−0.014***	−0.014***	−0.014***	−0.015***
	(0.004)	(0.004)	(0.004)	(0.004)
Education: Post-Secondary	−0.028***	−0.027***	−0.024***	−0.027***
	(0.005)	(0.005)	(0.005)	(0.005)
Female	−0.0002	−0.002	0.0002	0.0004
	(0.002)	(0.003)	(0.002)	(0.002)
Urban	−0.023***	−0.027***	−0.015***	−0.018***
	(0.002)	(0.003)	(0.002)	(0.003)
Electoral Proximity	0.002***	0.003***	0.002***	0.002***
	(0.0001)	(0.0002)	(0.0001)	(0.0002)
Constant	0.625***	0.738***	0.670***	0.608***
	(0.008)	(0.008)	(0.008)	(0.009)
Observations	69,509	58,692	71,064	57,586
R^2	0.159	0.136	0.167	0.192
Adjusted R^2	0.159	0.135	0.166	0.192
Residual Std. Error	0.292	0.299	0.291	0.289
Residual Std. Error	(df = 69477)	(df = 58664)	(df = 71032)	(df = 57556)
F Statistic	425.152***	341.050***	458.743***	472.724***
	(df = 31; 69477)	(df = 27; 58664)	(df = 31; 71032)	(df = 29; 57556)
Note:				*p<0.1; **p<0.05; ***p<0.01

Table A8

Table A9: Full Interaction Models with Country and Round Fixed Effects

	Performance Evaluation: Executive[a]				
	(1)	(2)	(3)	(4)	(5)
Economic Perception[b]	0.169***	0.202***	0.139***	0.092***	0.090***
	(0.006)	(0.008)	(0.012)	(0.016)	(0.021)
Age: 30-44[c]	0.006*	0.006*	0.006*	0.006*	0.006*
	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)
Age: 45-64[c]	0.026***	0.026***	0.026***	0.026***	0.026***
	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)
Age: 65 and Above[c]	0.032***	0.032***	0.032***	0.033***	0.033***
	(0.008)	(0.008)	(0.008)	(0.008)	(0.008)
Education: Primary Only[d]	−0.002	−0.002	−0.002	−0.002	−0.002
	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)
Education: Secondary[d]	−0.009*	−0.009*	−0.009*	−0.010**	−0.010**
	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)
Education: Post-Secondary[d]	−0.024***	−0.025***	−0.024***	−0.027***	−0.027***
	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)
Female[e]	−0.001	−0.001	−0.001	−0.001	−0.001
	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)
Urban[e]	−0.021***	−0.021***	−0.021***	−0.022***	−0.022***
	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)
Electoral Proximity[f]	0.0004*	0.0005**	0.001***	0.0005**	0.001***
	(0.0002)	(0.0002)	(0.0004)	(0.0002)	(0.0004)
Coethnicity[g]	0.056***	0.097***	0.056***	0.056***	0.097***
	(0.004)	(0.007)	(0.004)	(0.004)	(0.007)
Copartisanship[h]	0.107***	0.118***	0.106***	0.106***	0.118***
	(0.003)	(0.006)	(0.003)	(0.003)	(0.006)
*Economic Perception*Coethnicity*		−0.083***			−0.083***
		(0.012)			(0.012)
*Economic Perception*Copartisanship*		−0.023**			−0.023**
		(0.011)			(0.011)
*Economic Perception*Electoral Proximity*			−0.002***		−0.002***
			(0.001)		(0.001)
Access to Information (Normalized)[i]				−0.030***	−0.030***
				(0.010)	(0.010)
*Economic Perception*Access To Information*				0.092***	0.093***
				(0.018)	(0.018)
Constant	0.544***	0.531***	0.556***	0.571***	0.572***
	(0.009)	(0.009)	(0.010)	(0.012)	(0.013)
Country- & Year-Fixed Effects	Yes	Yes	Yes	Yes	Yes
Observations	36,869	36,869	36,869	36,869	36,869
R^2	0.204	0.205	0.204	0.205	0.206
Adjusted R^2	0.204	0.205	0.204	0.204	0.206

Note: *p<0.1; **p<0.05; ***p<0.01

[a] Question: *"Do you approve or disapprove of the way the following people have performed their jobs over the past twelve months, or haven't you heard enough about them to say: The President."*
[b] Question: *"Looking back, how do you rate the following compared to twelve months ago: Economic conditions in this country?"*
[c] Transformed into indicators to capture generational patterns (Gelman and Hill 2007: 66-67). Base category is *"18 to 29."*
[d] Base category is "No Formal Education".
[e] Answered by interviewer.
[f] Constructed as *1*(months to/from nearest election)*, such that larger numbers imply increasing proximity.
[g] Question: *"Which [Ghanaian/Kenyan/etc.] language is your home language?"*
[h] Question: *"[Do you feel close to any particular political party? If yes,] Which party is that?"*
[i] Normalized to [0, 1] scale from the original [0, 4] scale for ease of comparison.

Table A9

Table A10: OLS with Additional Covariates and Country and Round Fixed Effects

	Dependent variable - Performance Evaluation: Executive[a]			
	(1)	(2)	(3)	(4)
Economic Evaluation[b]	0.168***	0.168***	0.167***	0.168***
	(0.028)	(0.028)	(0.028)	(0.028)
Age: 30-44[c]	0.006	0.007	0.008	0.008
	(0.006)	(0.006)	(0.006)	(0.005)
Age: 45-64[c]	0.027***	0.028***	0.029***	0.027***
	(0.009)	(0.009)	(0.009)	(0.009)
Age: 65 and Above[c]	0.034***	0.035***	0.037***	0.034***
	(0.013)	(0.013)	(0.013)	(0.013)
Education: Primary Only[d]	−0.001	−0.001	−0.001	−0.002
	(0.010)	(0.009)	(0.009)	(0.009)
Education: Secondary[d]	−0.008	−0.006	−0.008	−0.010
	(0.012)	(0.011)	(0.011)	(0.011)
Education: Post-Secondary[d]	−0.021	−0.018	−0.020	−0.024
	(0.015)	(0.015)	(0.015)	(0.014)
Female[e]	−0.002	−0.002	−0.002	−0.001
	(0.006)	(0.006)	(0.006)	(0.007)
Urban[e]	−0.019***	−0.018***	−0.019***	−0.024**
	(0.007)	(0.007)	(0.007)	(0.010)
Electoral Proximity[f]	0.0004	0.0004	0.0004	0.0004
	(0.0002)	(0.0002)	(0.0002)	(0.0002)
Coethnicity[g]	0.053***	0.053***	0.053***	0.056***
	(0.017)	(0.017)	(0.017)	(0.017)
Copartisanship[h]	0.105***	0.106***	0.106***	0.107***
	(0.014)	(0.014)	(0.014)	(0.015)
Wealth[i]		−0.003	−0.003	−0.004
		(0.004)	(0.003)	(0.004)
Access To Information[j]			0.004*	0.004
			(0.002)	(0.002)
Public Goods[k]				0.001
				(0.003)
Constant	0.543***	0.545***	0.533***	0.534***
	(0.038)	(0.038)	(0.038)	(0.038)
Country- & Year-Fixed Effects	Yes	Yes	Yes	Yes
Observations	39,021	38,985	38,964	36,869
R^2	0.206	0.206	0.206	0.205
Adjusted R^2	0.205	0.205	0.205	0.204

Notes: *Robust standard errors clustered by country and round* in parentheses. $* p < 0.05$, $** p < 0.01$, $*** p < 0.001$

[a] Question: *"Do you approve or disapprove of the way the following people have performed their jobs over the past twelve months, or haven't you heard enough about them to say: The President."*

[b] Question: *"Looking back, how do you rate the following compared to twelve months ago: Economic conditions in this country?"*

[c] Base category is "18 to 29". Base category is *"No Formal Education."*

[e] Answered by interviewer.

[f] The election dates are from African Elections Database (2013). Individual dates of interviews are from the Afrobarometer.

[g] Question: *"Which [Ghanaian/Kenyan/etc.] language is your home language?"*

[h] Question: *"[Do you feel close to any particular political party? If yes,] Which party is that?"*

[i] 4-point scale based on ownership of radio, television, or car.

[j] 4-point scale based on access to television, radio, or newspaper.

[k] 9-point scale based on interviewer responses.

Table A10

Table A11: Replication of *Table 1 (Model 5)* Excluding One Country at a Time

Dropped Country	Coefficient on Economic Evaluation	Standard Errors
BWA	0.182***	0.026
GHA	0.179***	0.027
LSO	0.18***	0.025
MWI	0.181***	0.027
MLI	0.192***	0.023
NAM	0.185***	0.026
NGA	0.164***	0.022
ZAF	0.162***	0.022
TZA	0.18***	0.025
UGA	0.18***	0.028
ZMB	0.182***	0.027
CPV	0.18***	0.025
KEN	0.181***	0.026
MOZ	0.182***	0.026
SEN	0.177***	0.028
ZWE	0.187***	0.026
BEN	0.177***	0.027
MDG	0.18***	0.025
BFA	0.181***	0.026
LBR	0.177***	0.026

Table A11: Replication of Table 1 (Model 5) Excluding One Country at a Time

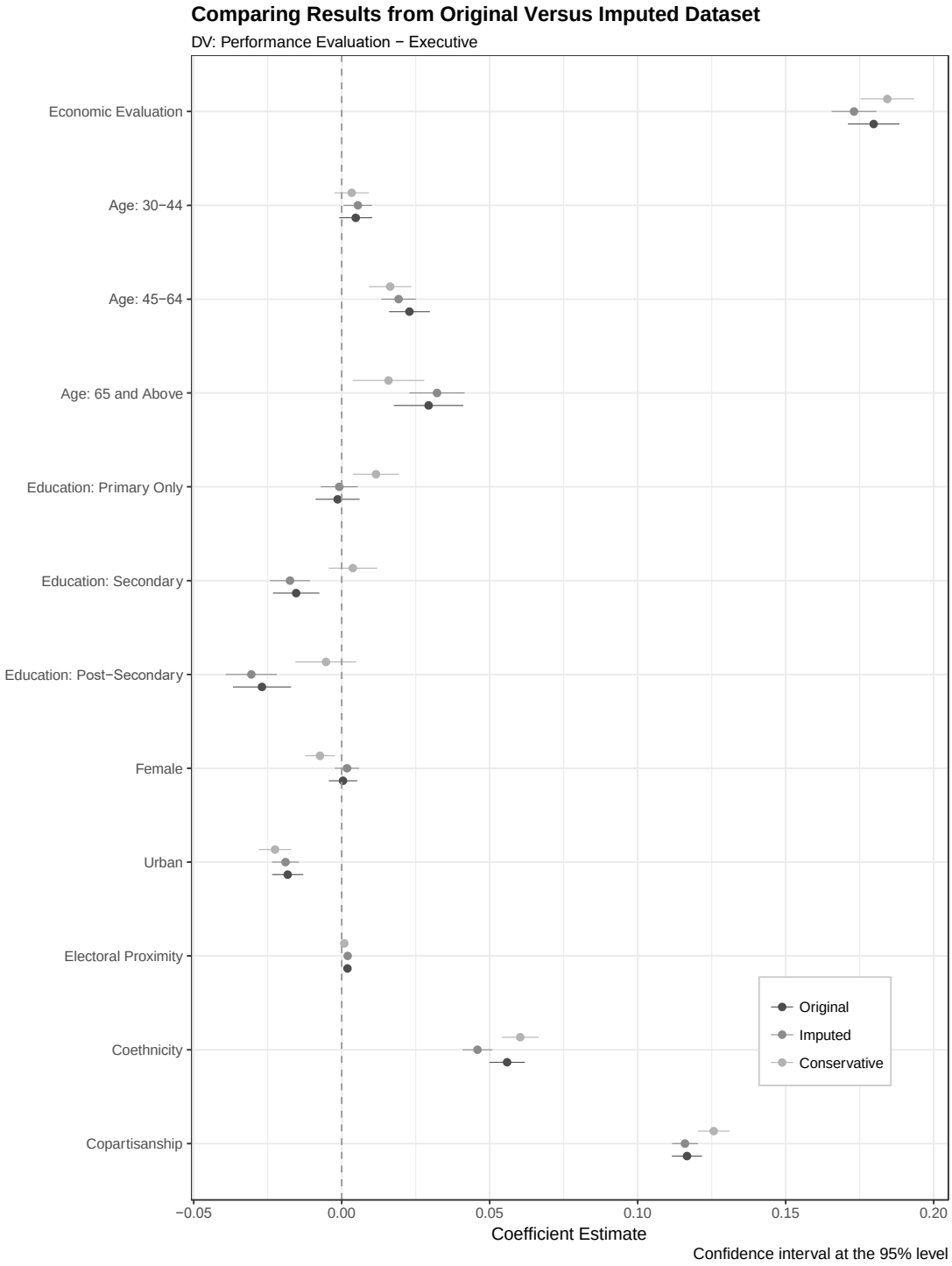

Figure A1. Accounting for Potential Bias from Missingness

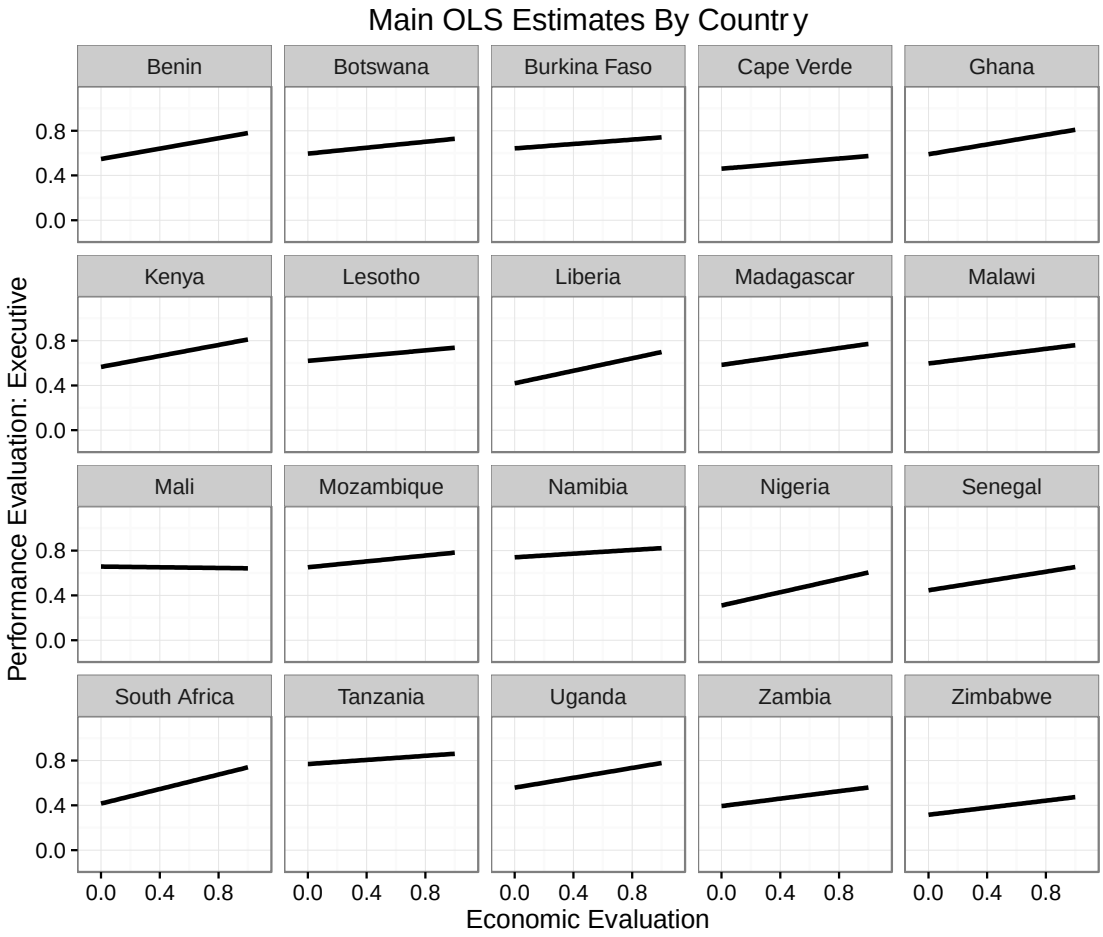

Figure A2. Replication of Table 1 (Model 5) by Country

[i] See http://ngdc.noaa.gov/eog/dmsp.html for more details

[ii] The specific formula used, for instance, for the year 2000 was, $(float(l2000_1) + float(l_{2000_2}))/float(l_{2000_2})$, where *l20001* and *l20002* are rasters in ESRI Grid format newly created through *Copy Raster* tool.

[iii] The results are also consistent when the so-called "lived poverty index" (Bratton, Mattes, and Gyimah-Boadi 2005) is used instead. This index is an additive measure six poverty-related items in the Afrobarometer, namely how often during the past year, the respondent or anyone in their family have gone without enough (1) food to eat, (2) clean water for home use, (3) medicines or medical treatment, (4) fuel to cook food, (5) a cash income, or (6) school expenses for children.

[iv] The coding was done as the following: (*Never = 0, Less Than Once a Month = 1, A Few Times a Month = 2, A Few Times a Week = 4, Every Day = 4*.)

[v] Kimenyi and Romero (2008) use respondents' evaluation of the Kibaki's performance for improving living conditions, creating jobs, or reducing education costs.

[vi] This approach is similar to the sensitivity bounds approach developed by Altonji, Elder, and Taber (2005) or Bellows and Miguel (2009). In earlier works, similar approaches using bounds analysis to account for selection effects have followed the work of Lee (2009). For more detailed discussions on the technique, see Oster (2019).

[vii] In a general form, if observables and unobservables have the same explanatory power in the dependent variable, Oster (2019) suggests that the following is a consistent estimator of the effect of c on y: $\widehat{\alpha} = \hat{\alpha}^* - (\hat{\alpha} - \hat{\alpha}^*) * \frac{R_{max} - R^*}{R^* - R}$. In addition, R_{max} is the R^2 in a regression of y on all observable and unobservable controls.

[viii] We can also consider more extreme cases. For instance, at if we set $R_{max} > 0.98$ and assume that unobservables are half as important as observables (i.e. $\delta = 0.5$), the coefficient on economic perception tends to zero. Similarly, if we assume equal selection (i.e. $\delta = 1$), the coefficient, again, tends to zero at around $R_{max} > 0.58$. However, considering that the main model already explains almost 20 percent of variations in the dependent variable, *Performance Evaluation: Executive*, this extremely conservative configuration is likely to be unrealistic.

[ix] The Stata program PSACALC developed by Oster (2019) was used.