

Methodology

Researchers calculated each respondent's distance to the nearest of four stops in Nigeria on the Lagos-Kano Standard Gauge Railway: Abuja, Kubwa, Jere and Kaduna. Online sources indicate that this segment of the railway has many more stations; however, [these four were readily identifiable](#) and most sources indicated they were regularly used for non-direct routes (although some sources indicate the Jere station may not be fully open to passengers). The quality of information available about the railway varies from year to year, and these stops are meant to serve as a proxy for Nigerian respondents' exposure to the railway, rather than as a canonical list of all stops. Researchers used a point within these four cities' bounds to represent the railroad's location, rather than attempting to determine the actual location of the station.

Researchers defined the "construction" period as track-laying. Some sources indicate that [track-laying began in July 2013](#), but researchers did not include that year in the construction period because the Spring 2013 Global Attitudes Survey was conducted several months beforehand, in March and April. Researchers used June 15, 2016, as the completion date because most sources indicated that the upgraded railway opened to passenger service on that day, although it was [officially "inaugurated" later that summer](#).

Researchers used GPS coordinates representing the location of respondents' households for the years 2016 and onward. For the years before, researchers used the GPS coordinates for the respondents' primary sampling unit (PSU), generally a [local government area](#), obtained from the Google Places API. The distances were calculated as straight lines in kilometers. The 5% of respondents who declined to have their coordinates recorded were excluded from the analysis.

To conduct a multiyear analysis, researchers first standardized the weights from each year of survey data to sum to 1,000. Analyses were then conducted using the [Survey package in R](#). The relationship between distance and railroad completion was confirmed using a binomial (logistic) regression, with a 0/1 dependent variable representing opinion toward China; 0 represented either somewhat or very unfavorable, and 1 represented somewhat or very favorable. The independent variables were: distance interacted by a 0/1 variable representing whether the railroad was complete; religion (recoded to Christian, Muslim, ancestral/tribal religions and other); age; education (recoded to [ISCED](#) levels 1, 2, 3 and 5); ethnicity (recoded to Hausa, Yoruba, Ibo/Igbo and other); region (South, South West, South East, North West, North East and Middle Belt/North Central); and the year of survey administration. The relationship remained robust when distance was calculated using its logarithm and when its raw value was used. The coefficients (with distance as a raw value) are as follows:

Regression coefficients predicting favorability toward China

Estimate represents the predicted shift in probability that a respondent would have a positive or negative opinion of China. Because a lower value of distance indicates closeness, a negative coefficient indicates increased positivity as respondents grow closer. For other variables, a negative coefficient indicates decreased positivity. The model also included terms that accounted for the year in which each survey was conducted.

	Estimate	Std. error	T value	P value
(Intercept)	1.822	0.819	2.224	0.026
Respondent distance	-0.000	0.001	-0.247	0.805
After Railway - True	-0.482	0.364	-1.323	0.186
Religious identify - Christian	-0.743	0.772	-0.963	0.336
Religious identify - Muslim	-0.455	0.781	-0.583	0.560
Religious identify - other	-0.291	0.839	-0.346	0.729
Education (Linear)	0.309	0.096	3.220	0.001
Education (Quadratic)	0.122	0.100	1.228	0.220
Education (Cubic)	-0.007	0.104	-0.063	0.950
Age	0.003	0.003	0.866	0.387
Region - North East	0.592	0.242	2.448	0.015
Region - North West	-0.010	0.207	-0.046	0.963
Region - South	0.437	0.222	1.965	0.050
Region - South East	0.845	0.280	3.015	0.003
Region - South West	0.156	0.232	0.674	0.500
Ethnicity - Ibo	0.197	0.266	0.739	0.460
Ethnicity - other	0.118	0.179	0.656	0.512
Ethnicity - Yoruba	0.575	0.242	2.375	0.018
Respondent distance By After Railway - True	-0.002	0.001	-3.010	0.003

Note: Respondents' distances were calculated "as the crow flies" to the closest one of four cities: Abuja, Kubwa, Jere and Kaduna. Don't know responses were not included in this analysis.

Source: Pew Research Global Attitudes Surveys, years 2014-2019, total N = 6,264.

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Finally, researchers conducted a separate analysis to ensure that the Lagos segment of the railway – which was under construction during the years 2017-19 – did not confound the analysis by driving down opinion among residents of Lagos, who would be counted as far from the segment of railway analyzed in this study. Researchers tested this possibility by replicating the multiyear analysis using 2016 data only. During that year, the Abuja segment was complete, but the Lagos segment had not broken ground. The results were consistent with the multiyear trend.