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Rethinking Environmental Attitudes in Latin America and the Caribbean

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Main Findings:

- In 21 countries in Latin America and the Caribbean (LAC), more than 50% of people see environmental protection as a priority
- Traditional measures of socioeconomic status, wealth and education, do not predict support for environmental protection
- Men and rural residents are more supportive of environmental protection than are women and urban residents
- Contextual component: individuals living in wealthier regions of a country are less likely to support environmental protection, than are those in poorer areas, as are individuals living in countries with higher CO_2 emissions

The threats posed by various forms of environmental degradation are some of the most pressing issues of the 21st century.[1] Despite the success of some policy efforts, overcoming the knotty collective action problem that the environment presents will require more concerted efforts at the local, regional, and global levels.[2] An important determinant of the effectiveness of such efforts may very well be public opinion.

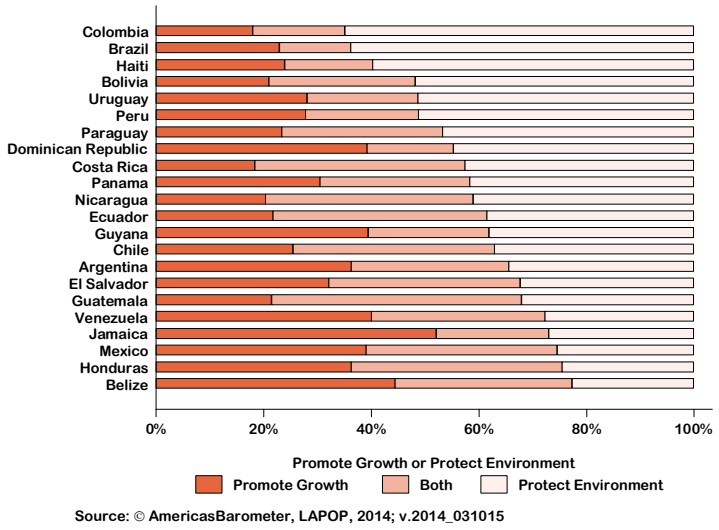
While there are many avenues through which one might explore public opinion on the environment, determining who is more inclined to prioritize environmental protection is an important first step. Sustainability efforts require the commitment of resources and can have economic implications. Therefore, this *Insights* report assesses factors that predict individuals' willingness to trade-off economic growth for environmental protection in the Latin America and Caribbean (LAC) region.

The 2014 wave of the AmericasBarometer survey included a new question asked to 35,212 individuals in 23 countries:

ENV1: In your opinion, what should be given higher priority: to protect the environment, or promote economic growth?

Figure 1 illustrates the breakdown of responses by country.[3] In 11 of 22 countries, at least 40% of respondents express support for the strict prioritization of environmental protection. Further, in 21 countries more than 50% of respondents support environmental protection or see economic growth and environmental protection as equal priorities. This first glance at the distribution of responses suggests that individuals in Latin America and the Caribbean are fairly supportive of environmental efforts. This is consistent with other research suggesting higher levels of environmental awareness and concern are found in the LAC region compared to other parts of the world.[4] These realities make the Latin America and Caribbean region a particularly interesting context within which to study cross-national and individual-level variation in public opinion toward environmental protection.

Figure 1. Response Proportion for Environmental Support by Country



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Who Prioritizes the Environment in the Latin America and Caribbean Region?

In theorizing about the determinants of pro-environmental attitudes, previous research has largely centered on Inglehart's post-materialism framework (Inglehart, 1981). The

[1] This perspective has been presented by several organizations, including the United Nations and the UN's Intergovernmental Panel on Climate Change (IPCC, 2014).

[2] See among others Ostrom, 1990.

[3] While the question was also asked in the United States, this report focuses solely on countries in the LAC region.

4 A 2007-2008 Gallup Poll shows that 11 of the 20 countries with the highest percentage of respondents attributing global warming to human activity are located in Central and South America, and in these 11 countries over 50% of the population reports awareness of global warming, (Pelham 2009).

general notion is that individuals' preferences over issues such as environmental protection shift as individuals acquire wealth. The reason is that economic security allows for more time and resources to be allocated to non-need based interests, like the environment. Thus, the post-materialism framework posits that the lower a person is on the socioeconomic spectrum, the less likely he or she is to prioritize the environment.

Empirical analyses have shown various levels of support for hypotheses related to the post-materialism school. Several studies find statistical support for a positive relationship between post-materialism values and environmental attitudes, but the connection is not all that substantial (e.g. Inglehart, 1981; Gelissen, 2007; Kvaloy, Finseraas, and Listhaug, 2012). Despite only meager evidence, however, the literature on this subject largely continues in this tradition. Franzen and Meyer (2010), for example, develop a derivative of post-materialism which they refer to as the "prosperity hypothesis." They posit that environmental preferences are a function of individuals' income, but the rate at which income affects environmental attitudes decreases as an individual reaches the highest income levels. The practice of offering an adaptation to post-materialism is fairly common in environmental public opinion research. The intuitive appeal appears to outweigh inconsistency in its explanatory power, which leads to the theory's continued importance. Given its continued relevance to discussions of public opinion and the environment, this *Insights* report assesses the extent to which socioeconomic indicators commonly associated with post-materialistic values (fail to) predict public opinion in the Latin America and Caribbean region.[5]

In order to determine the effects of socioeconomic status on support for environmental protection, I use an OLS regression model.[6] The dependent variable is drawn from the ENV1 question; responses to it have been recoded such that a 0 denotes an economic growth answer, 50 denotes a "both" answer, and 100 represents an environmental protection answer.[7] I predict environmental attitudes with five socioeconomic and demographic variables: wealth, education, age, urban (versus rural), and gender (and country fixed effects, included but not shown).[8]

Figure 2 presents the predicted effects with dots, and the 95% confidence intervals are captured by the error bars. If these error bars cross the vertical line denoting 0, the variable's effect on environmental attitudes is not statistically distinguishable from 0. Only those

[5] Some might argue the focus on Latin America and the Caribbean leads to an exclusion of highly industrialized countries, like those of Western Europe and the United States, which then weakens the argument being made against post-materialism. The LAC region, however, varies widely in levels of development not only across countries, but also within countries. While this variation might not capture the entire scope of development, I do think that it is an appropriate region to be exploring socioeconomic status's influence on environmental attitudes.

[6] It is important to note that when employing a multinomial logistic regression framework, the analysis that follows holds for the comparison between environmental protection and economic growth responses, but not for the comparison of economic growth responses to the both answers. Wealth, education, and age are all positively related to giving a "both" answer, while urban residence remains in the negative direction. This would suggest that those who offer an unsolicited answer of "both" are different than those who respond based on given options.

[7] When asked the ENV1 question, respondents were prompted with two response options: promoting economic growth or protecting the environment. Many respondents, however, offered an answer of "both." For the analysis of this report, the coding rule assumes that responding "both" falls in the middle. That said, multinomial logistic regression yields different results when comparing the "both" respondents to others and therefore, an alternative coding scheme might be more appropriate for research that is less interested in the endpoint options and more interested in the "both" response (see footnote 6).

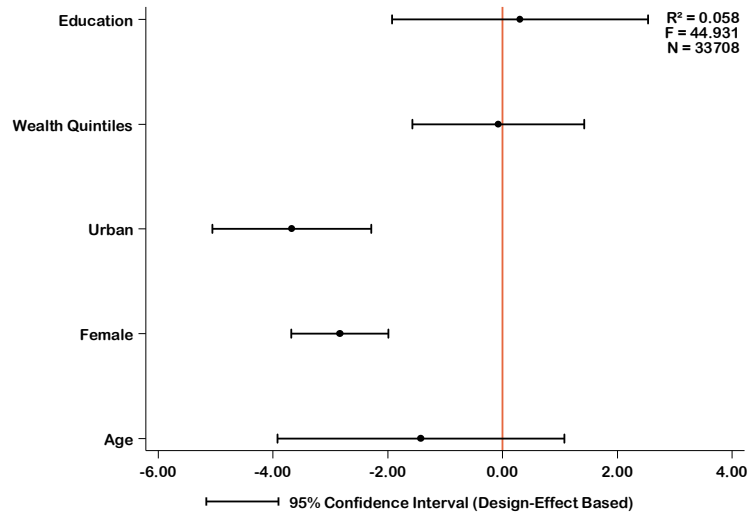
[8] Wealth is measured as quintiles of household possessions, see Córdova, 2009 for more discussion (QUINTAL). The education measure is categorical in nature, where the lowest category measures no education and the highest denotes post-secondary (EDR). Age is measured continuously, in years (Q2). Urban is measured using the country's census data, and is noted by the enumerator (UR). Gender is also noted by the enumerator and not asked of the respondent (Q1).

variables with error bars that do not cross 0 can be said to be related to environmental support. For the analysis, each independent variable is scaled from 0 to 1; this means that the maximum predicted effect of each independent variable on the 0 to 100 dependent variable is represented by the coefficient (the dot). Figure 2 shows that the highest predicted effect of any independent variable on environmental attitudes is -3.67 (for urban), which means that not a single variable included in the model shifts attitudes by more than 4 units on the environmental scale ranging from 0 to 100.

As shown in Figure 2, the traditional socioeconomic factors – relative wealth, age, and education – do not affect individuals' support for environmental protection on average for the LAC region. Wealthier or more educated individuals are no more likely to express a willingness to prioritize the environment than those with lower socioeconomic statuses. This is a striking result, as it is clearly at odds with the predictions of the post-materialism hypothesis. Overall, it does not appear that there is much evidence to support the post-materialism hypothesis in the LAC region.

The only two variables that have a statistically significant relationship with environmental attitudes are those that measure gender and place of residence. Individuals living in urban areas are less likely to express pro-environmental tendencies than those living in rural areas, as are females (less likely) compared to men (more likely). The first finding might be explained by the fact that individuals in rural areas are more directly dependent on the environment and understand the necessity of sustainable practices. It could also be the case that those living in rural areas have more experience with environmental problems as they have less access to more modern environmental protection (i.e. water sanitation, greener energy solutions, etc.).[9]

Figure 2. Socioeconomic and Demographic Predictors of Environmental Support



Socioeconomic status does not predict environmental attitudes.

The direction of the coefficient for gender is somewhat surprising given that, while gender is not always found to have an effect on environmental attitudes, in those studies where a relationship is found it is generally the case that women express more environmentally friendly attitudes than men (e.g. Franzen and Meyer, 2010; Kvaloy, et al., 2012). In this sample, however, it appears that females are marginally less willing to sacrifice economic growth for environmental protection. It could be that in the Latin American and Caribbean context, on average women are more aware of what the household needs, and therefore less willing to prioritize the environment; it may be that they are simply more conservative, on average. Either way, future research should

[9] The World Health Organization and UNICEF's 2014 report finds that over 70% of the people without clean water access are living in rural areas (WHO, 2014: 8).

probe into the reasons why those in urban areas and women in the LAC region are less likely to express strong support for environmental protection measures.

Does Context Matter?

Does the context in which one lives help predict individuals' concern about environmental protection? Given that the initial results indicate measures relevant to the post-materialism model (that is, socioeconomic characteristics) do not predict environmental attitudes in Latin America and the Caribbean, in this section I extend the model to incorporate the "objective problems" hypothesis that Inglehart offers as an additional determinant of environmental attitudes (Inglehart, 1995). Inglehart argues that the relationship between post-materialism and environmental attitudes is moderated by individuals' situations as "people are concerned about the environment because they face serious objective problems," (Inglehart, 1995: 57). The idea is that whether or not individuals have personal economic security, they may recognize that their quality of life is not independent of their surroundings (i.e. access to clean water, clean air, etc.). In order to offer a test of the extent to which contextual factors matter, I first incorporate the economic status of each individual's region and country. It could be that individuals living in wealthier areas of a country or in a wealthier country have a higher likelihood of prioritizing the environment, regardless of their own economic situation. Then, in a separate model I assess the relevance of a different type of "objective problem": the level of countries' per capita CO_2 emissions.[10] These measures allow me to test whether contextual factors beyond wealth might affect individuals' willingness to make the trade-off between economics and the environment.

Including the effects of context on individuals' attitudes has become more common in recent literature.[11] For example, Eisenstadt and West (n.d.) test multiple hypotheses of environmental attitudes, one of which they call the "extractivist debate hypothesis." In their analysis, they find that individuals living in areas of Ecuador that have a history of oil extraction express lower levels of environmental concern, while those living in areas that are being considered for future oil extraction projects are more concerned for the environment. This could be characterized as a challenge to the post-materialism framework, as those individuals who have an opportunity to grow the economy with extraction projects are more environmentally concerned. Individuals who are more exposed to oil extraction are less concerned with reversing its effects than those who are being presented with possible extraction sites.

The results for the economic model are shown in Figure 3.[12] As the figure shows, the per capita GDP of a country is not a statistically significant determinant of environmental attitudes. Wealthier nations are no more likely to have individuals who are environmentally supportive than are poorer countries.[13] Further, while the average wealth of a region is

[10] Data from the World Bank in 2010 were used to calculate the measures of national per capita GDP and per capita CO_2 emissions. The regional economic status measure was created by calculating the average of LAPOP's wealth quintile measure for each subnational region. This measure is based on a complex analysis of ownership of household items (see Córdova 2009).

[11] Previous research using contextual variables varies widely across studies, particularly as the population of interest changes. There is a lack of consensus as to how these "objective problems" should influence public opinion towards the environment. For a more detailed discussion of these studies, see Kvaloy, et al., 2012: 14). Kvaloy, et al., 2012 refer this hypothesis as the "objective conditions hypothesis."

[12] Again, the independent variables have been re-scaled to range from 0 to 1. In the models that use aggregate-level data, country-fixed effects are not included. See Appendix for full regression output.

[13] When the average regional wealth indicator is not included in the analysis, the per capita GDP coefficient is negative and statistically significant. This, however, is still in line with the conclusion that wealthier countries are no more likely (maybe less likely) to prioritize the environment over economic growth.

statistically related to environmental protection prioritization, it is in the *opposite* direction predicted by the post-materialism framework. The post-materialism expectation would be that individuals living in poorer contexts would be the most willing to prioritize economic growth, but the analysis instead shows that individuals in poorer regions are more supportive of environmental protection.[14] Overall, the analyses in this report reveal that economic status at the individual, regional, and national level does not correlate with environmental attitudes in the ways expected by the post-material school of thought.

Figure 4 displays the results of a second expanded model that includes the CO_2 emissions measure.[15] The results show that higher CO_2 emissions are related to lower levels of support for environmental prioritization, which is also at odds with Inglehart's "objective problems" expectation.[16] While not a perfect proxy, one might expect that higher CO_2 emissions are linked to poorer air quality. This in turn, would translate into individuals living in countries with higher emissions having more environmentally friendly attitudes, yet no support for that

Figure 3. Extended Economic Model Predicting Environmental Support

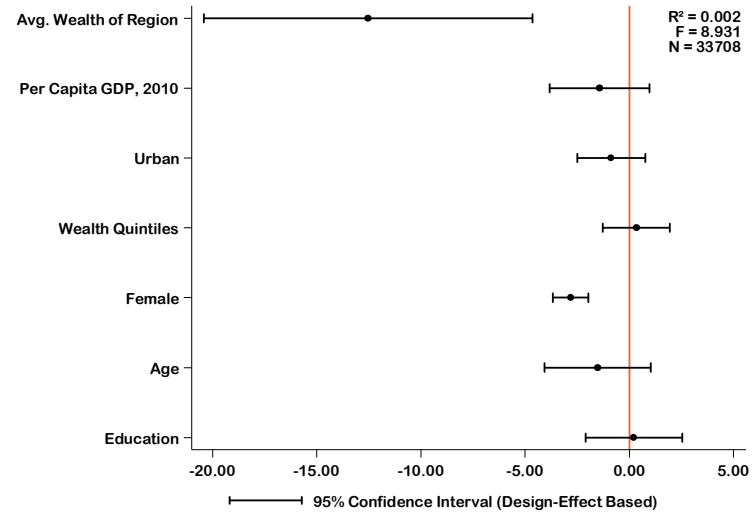


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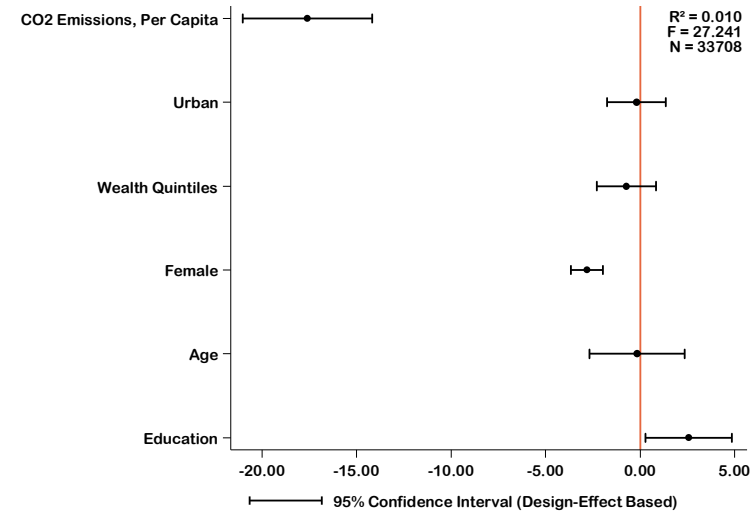
Figure 4. Extended CO_2 Emissions Model Predicting Environmental Support



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"objective problems" hypothesis is found in this analysis. One explanation for this contrary finding might be that the countries with the highest per capita emissions are those countries that are most economically dependent on industries that are less sustainable, and therefore less willing to put the environment first. This is consistent with the findings by Eisenstadt and West (n.d.) with respect to the

[14] These results, like those in the earlier model, were produced using OLS Regression with clustered standard errors at the country levels. Since the model incorporates country-level variables, country fixed effects are not included. When using a hierarchical model to account for the nested nature of the data (i.e. individuals in regions/countries), however, the coefficient for average regional wealth remains negative, but it becomes statistically insignificant. While this could be seen as an unstable finding, it still speaks to the conclusion that wealth, at any level, does a poor job of predicting environmental attitudes.

[15] See Appendix for regression output. Since the per capita GDP measure and the CO_2 emissions measures are so highly correlated, these variables had to be used in separate models to avoid being dropped from analysis for multicollinearity.

[16] Similar to Footnote 12, when using hierarchical models – the CO_2 coefficient fails to achieve conventional levels of statistical significance. According to Inglehart, however, these objective conditions measures should still produce positive coefficients – with the countries with the highest emission levels being the most likely to have pro-environmental attitudes.

history of oil extraction and future extraction as potential influences on these attitudes.

At the same time, the per capita CO_2 measure is highly correlated with the per capita GDP measure (r = 0.8), meaning that the individuals living in the highest emitting countries are generally the individuals living in the wealthiest countries in the region. While only a correlation, this further suggests that individuals who have already experienced the economic growth associated with more harmful environmental practices are less willing to sacrifice that economic security. One interpretation of the data, then, is that these individuals are living in a material society, while it is the individuals living in "pre-material" (less industrialized, less developed) conditions who are more willing to prioritize the environment. It is difficult to know whether or not individuals recognize the potentially negative relationship between economic growth and environmental protection, but one explanation for these results might be that individuals who have not been exposed to the economic benefits of industrial expansion are less interested in that possibility if it would jeopardize the security of their environment. Of course, there are also other reasons that could explain the results found in this report, including country-specific factors not taken into consideration in this study of the LAC region. For the sake of brevity, I leave those for future studies.

Conclusion

This *Insights* report uses 2014 AmericasBarometer data to assess the determinants of individuals' willingness to prioritize environmental efforts over economic growth. The report puts the post-materialism school of thought to the test and finds it does a poor job of explaining why so many individuals in the Latin America and Caribbean region express environmentally friendly attitudes. Socioeconomic status, measured by the wealth and education variables, has no effect on such attitudes in the pooled analysis for the LAC region. Age is also not a significant predictor of environmental attitudes. An individual's urban (versus rural) place of residence and gender do predict individuals' environmental attitudes, albeit by relatively small amounts.

These results reveal a hole in our understanding of public opinion and the environment. In a region that is facing other difficulties, why is it that such a large portion of the population is willing to sacrifice much needed economic growth in order to ensure sustainability?

The expansions of the model to test the "objective problems" hypothesis that stems from Inglehart's discussion of the relevance of different contextual factors for environmental attitudes (in one model, regional and national measures of wealth; in another model, a country-level CO_2 emissions variable) provide a step towards answering this question. Individuals in more affluent regional settings are less-likely to support environmental protection than those living in poorer sub-national settings. In addition, the average individual in countries that are contributing more CO_2 emissions is less supportive of environmental protection at the expense of economic growth. It may be that individuals in these circumstances are less willing to sacrifice economic success obtained through industrialization compared to those who have yet to experience or "benefit" from the traditionally less environmentally friendly industries.

Much remains to be done, yet this study reinforces the idea that the contexts within which individuals live need to be taken into consideration. Future research should consider the experience that an individual has with environmental realities (e.g. water shortages and air pollution) and with economic dependence on industries that degrade the environment. By better understanding who is more likely to prioritize the environment, we

can better understand where pro-environmental policies are more likely to resonate with the public, and therefore take a step toward such outcomes as the creation of more efficient and effective campaigns to increase awareness and concerns regarding pressing environmental issues in the region.

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Appendix

Table 1. Predictors of Environmental Attitudes in Latin America and the Caribbean, 2014

Variables	Model 1 Individual-level	Model 2 Extended, economic	Model 3 Extended, CO_2 emissions
Age	-1.425	-1.523	-0.163
	(1.275)	(1.299)	(1.290)
Female	-2.836***	-2.816***	-2.811***
	(0.430)	(0.433)	(0.433)
Urban	-3.672***	-0.871	-0.198
	(0.705)	(0.833)	(0.787)
Quintiles of Wealth	-0.074	0.336	-0.724
	(0.764)	(0.820)	(0.801)
Education	0.304	0.212	2.573**
	(1.138)	(1.183)	(1.166)
Per Capita GDP		-1.435	
		(1.217)	
Avg. Regional Wealth		-12.532***	
		(4.020)	
CO_2 Emissions			-17.591***
			(1.744)
Mexico	-6.433***		
	(2.128)		
Guatemala	4.295**		
	(2.090)		
El Salvador	-0.286		
	(2.061)		
Honduras	-6.405***		
	(2.141)		
Nicaragua	9.717***		
	(2.006)		
Costa Rica	12.496***		
	(2.343)		
Panama	5.491**		
	(2.323)		
Colombia	23.334***		
	(2.026)		
Ecuador	8.213***		
	(2.163)		
Bolivia	14.980***		
	(2.244)		
Peru	11.762***		
	(2.232)		

Paraguay	11.078***		
	(2.029)		
Chile	6.552***		
	(2.328)		
Uruguay	12.387***		
	(2.075)		
Brazil	20.875***		
	(2.343)		
Venezuela	-5.866**		
	(2.615)		
Argentina	Reference Country		
Dominican Republic	2.758		
	(2.135)		
Haiti	16.451***		
	(2.381)		
Jamaica	-13.502***		
	(2.100)		
Guyana	-2.273		
	(2.380)		
Belize	-12.003***		
	(2.318)		
Constant	54.499***	64.398***	60.993***
	(1.970)	(2.057)	(1.069)
Observations	33,708	33,708	33,708
R-squared	0.058	0.002	0.010

Standard errors in parentheses
***p<0.01, **p<0.05, p*<0.01