Examining the Mechanisms by which Women's Agency Affects Environmental Health: A Structural Equations Modeling Approach

By

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Abstract

Though previous authors have consistently reported a positive relationship between women's agency and environmental health, a causal relationship between the two variables has yet to be identified due to the confounding variable of progressive values. This paper uses a structural equation modeling framework to control for progressive values and draw inferences about the relationship between women's agency and environmental health in a society. Using data from 194 countries, I exploit a combination of Maximum Likelihood and Full-Information Maximum Likelihood models to analyze the pathways through which the latent confounder of progressive values in a society influences both environmental health and women's agency. By predicting and accounting for these relationships, I demonstrate that the relationship between overall women's political empowerment and environmental health is statistically significant and may be causal. Furthermore, I show that while the percentage of women in parliament specifically appears to drive environmental health among UN-designated developed countries, this relationship is not statistically significant among developing and transitioning countries. The results of this analysis provide a more complex understanding of the factors impacting environmental health and suggest that increasing women's political agency is a promising approach to combatting global climate change.

1. Introduction

This paper examines the impact of women's political agency on environmental health at the country-level. Though existing literature has consistently documented a positive correlation between women's agency and countries' environmental performance across levels of development and institutional characteristics, a convincing causal relationship between the two

variables has yet to be identified. Despite using various controls and empirical methods, previous scholars have struggled to eliminate the confounding variable of progressive values in societies, which potentially drives both women's empowerment and environmental health. This research aims to progress the literature towards a causal inference using structural equation modeling to analyze the pathways of relationships between progressive values, women's agency, and environmental health in society.

Evaluation of potential social solutions to global climate change is timely, as NASA has reported that the earth's average surface temperature has risen over two degrees Fahrenheit since the late 19th century, with most of the warming occurring in the last 40 years. Furthermore, the global sea level has risen eight inches over the last century and this rate accelerates slightly every year. Ice sheets are shrinking, glaciers are retreating, and extreme weather events are becoming more frequent. Global climate change poses a significant threat to water, energy, transportation, wildlife, agriculture, ecosystems, and human health, and policymakers are struggling to develop solutions. Meanwhile, as an increasing number of women have entered the political sphere throughout the world, the environmental initiatives in many countries have expanded. If women in positions of political power do in fact drive the implementation of climate change solutions, promoting and subsidizing the empowerment of women is an avenue for achieving environmental health of which society must take advantage.

2. Literature Review

Existing research cites ecofeminist theory and gender disparities in environmental attitudes as factors that may explain the association between women's agency and environmental health. Merchant (1987) explains the linkage between environmental degradation and capitalist

patriarchal domination, which ties women to nature due to the mutual oppression they face by a society that prioritizes production and male domination. Gaard (2011) contextualizes ecofeminism in the twenty-first century by arguing that the intersectional ecological-feminist approach it advocates is key to securing gender justice, climate justice, sustainable agriculture, affordable housing, universal healthcare, reproductive rights, and food security. Ecofeminist scholars argue that connecting the environmental and feminist movements is important because the goals of both movements are founded in values of health, safety, and collective well-being. Kwauk and Braga (2017) point out that since women and girls are disproportionately impacted by climate change, they are likely to prioritize environmental sustainability initiatives if equipped with the education and resources to do so.

Furthermore, Bord and O'Connor (1997) explore the potential of gender disparities in environmental risk perceptions to drive a gender gap in environmental attitudes. Their research is based in the theory that once environmental issues are linked to personal health and well-being risks, women's levels of concern tend to surpass those of men. Their findings indicate that women are significantly more likely to rate both health and ecological risks highly. According to their analysis, the primary factor behind gender disparity in environmental attitudes is gender disparity in perceived health risks. While this suggests that women are more likely to promote environmental preservation than men, it is worth pointing out that this does not necessarily mean they will have the opportunity to advance pro-environment policies as legislators or gain enough participation in national parliaments to reflect their concerns for the environment.

The literature supporting a correlation between women's agency in society and that society's environmental health is increasingly robust. Lorenzen (2019) uses ordinary least squares regression to examine the relationship between countries' Environmental Performance

Index (EPI) and overall women's political empowerment. She identified a strong positive correlation between women's political empowerment and environmental sustainability. This relationship remains consistent for the other dependent variables she tests, including ecoregion protection and environmental policy performance. Though a positive correlation is consistent and significant, a causal pattern cannot by drawn from this analysis due to the potential of further confounding variables for which Lorenzen does not account. Similarly, Nugent and Shandra's (2009) cross-national analysis found a positive correlation between the proportion of women in governmental positions and a state's creation of protected land areas, but no causal relationship was pinpointed.

Similarly, Norgaard and York (2005) examine the relationship between gender equality and state environmentalism by estimating the impact of the percentage of parliamentary positions occupied by women on participation in sixteen multilateral environmental treaties. Norgaard and York use a variety of controls to distinguish gender equality from overall social and political freedom and obtain a positive coefficient indicating that countries with greater representation of women in parliament are more likely to ratify environmental treaties. The authors attribute this result to the fact that women have more pro-environmental values, are more risk averse, and participate more frequently in environmental movements than do men. However, they acknowledge the existence of an underlying social structure which may propagate domination of women and nature or alternatively constitute progressive societal values that could potentially influence both gender equality and state environmentalism. Thus, due to the potential for the progressiveness of societal values to drive both women's participation in parliament and ratification of environmental treaties, a causal relationship cannot be drawn from their research.

Mavisakalyan and Tarverdi (2019) attempt to estimate causality using an instrumental variable of years since suffrage to proxy for the electoral experience of females in the society. They justify usage of this variable as an instrument by arguing that a country's history of suffrage should drive women's participation in parliament but does not drive contemporary policy outcomes, such as environmental policies. While they obtain a positive and statically significant coefficient and thus claim causality, the question remains of whether the instrument is sound. The progressive values of a society still have the potential to influence both years since women's suffrage and a country's Climate Laws, Institutions, and Measures Index (CLIMI), which is the measurement of environmental performance they employ as the dependent variable.

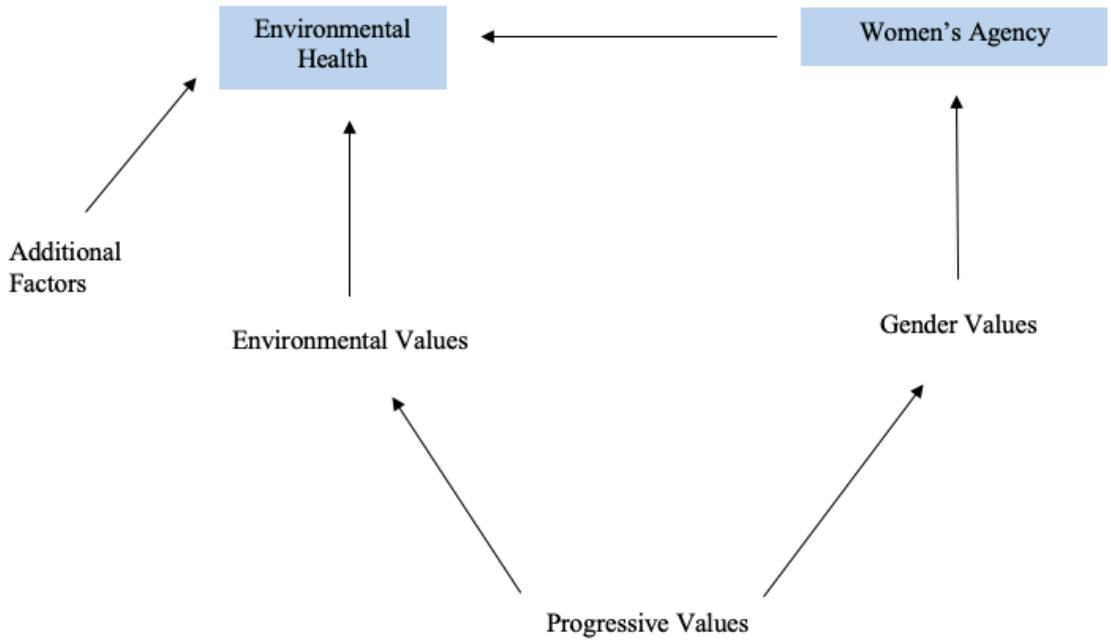
Ramsetter and Habersack (2020) look specifically at voting patterns within the European Parliament (EP) and report that female parliamentarians are more likely to support environmental legislation than male parliamentarians when controlling for political ideology and nationality. Though female parliamentarians were significantly more likely to cast votes in favor of pro-environment policies than their male counterparts, the authors acknowledge that this difference could be a result of gender differences in party affiliation and ideology. Similarly to Norgaard and York, Ramsetter and Habersack acknowledge that progressive values my drive both the number of women in the EP and votes for pro-environmental policies, since they find political ideology to be the largest predictor of voting choices. If progressive parties have both higher female participation and more pro-environment voting patterns, the relationship between female participation and pro-environmental policies is likely tied to party affiliation and thus cannot be estimated to be causal. Still, the authors cite risk perceptions, socialization theory, and health and safety concerns among women as potential mechanisms in the gender disparity revealed through their analysis aside from party affiliation.

In another study examining the factors behind countries' levels of environmental performance, Thombs (2020) explores the relationship between political equality and the economic growth-CO2 emissions relationship. He finds that political equality mitigates CO2 emissions across country income groups. However, when interreacted with economic growth, his findings suggest that political equality strengthens the relationship between economic growth and CO2 emissions. This may be due to the potential of political equality to lead to an increase in overall investment in the economy, further stimulating economic growth. While this study contradicts the theory that political equality reduces CO2 emissions, it does suggest that under certain conditions, greater political equality across demographic groups can mitigate CO2 emissions. Thus, it is possible that greater overall gender equality in societies with more stagnant economics can lead to lower CO2 emissions.

3. Theoretical Framework and Empirical Strategy

As pointed out by Norgaard and York (2005), progressive values in a society present a confounder in the relationship between women's agency and environmental health because they have the potential to drive both variables. Addressing this confounder is key to drawing causal inferences about the relationship. I have developed the following theoretical model to visualize the pathways through which underlying progressive values in a society can impact the political agency of women and a country's level of environmental health. This model depicted in Figure 1 provides the foundation for the structural equation framework in this analysis.

Figure 1: Theoretical Model



In this model, the focal relationship between women's agency and environmental health is denoted at the top with the variables highlighted in blue. At the bottom of the model, the latent confounding variable of progressive values is portrayed. Predictably, progressive values influence environmental health through progressive environmental values specifically. This pathway is demonstrated through arrows indicating a direct relationship between progressive values and environmental values, and between environmental values and environmental health. Similarly, progressive values are likely to drive women's political agency through progressive gender values. Thus, arrows are drawn indicating a direct relationship between progressive values and gender values, and between gender values and women's agency. Accounting for the specific categories of societal values through which the confounding variable of progressive values operates maximizes my structural equation modeling analysis of the influence of

progressive values on the focal variables. Furthermore, the diagram accounts for additional factors that may impact environmental health, such as GDP per capita.

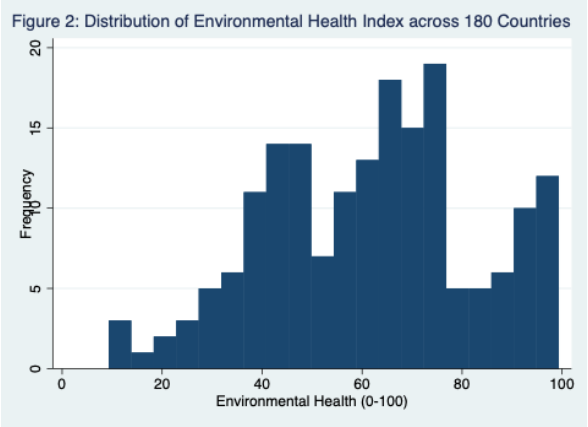
Prior to developing my structural equation models, I conducted an Ordinary Least Squares (OLS) analysis of the relationship between women's empowerment and environmental performance, which is primarily measured using a country's environmental health score. The results of this analysis are included in Appendix A and are consistent with those produced by Lorenzen (2019), Mavisakalyan and Tarverdi (2019), and Norgaard and York (2005). These results indicate a positive correlation between women's agency and environmental performance. Structural equation modeling allows me to further validate this relationship by permitting prediction of the statistical relationships between the confounder of progressive values and the focal variables. This approach relies on manipulation of multiple indicators to measure the latent confounding variable of progressive values. In this analysis, I use social policy performance as an indicator of overall progressive values. Furthermore, I use environmental policy performance and a gender inequality index as indicators of environmental values and gender values respectively. While these indicators do not independently provide a complete measurement of progressive values, when combined they capture the impact of progressive values on the focal relationship. Furthermore, by examining the relationships between the confounding variables in addition to the relationships between the confounding and focal variables, I can provide a more comprehensive understanding of progressive values as a confounder. Additionally, the Full-Information Maximum Likelihood estimation strategy addresses missing values in the data and allows me to draw conclusions about the entire data set rather than simply those for which I have all the control variables necessary to account for progressive values.

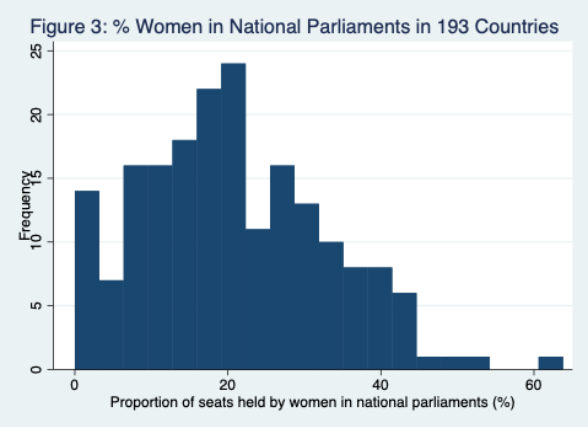
4. Data

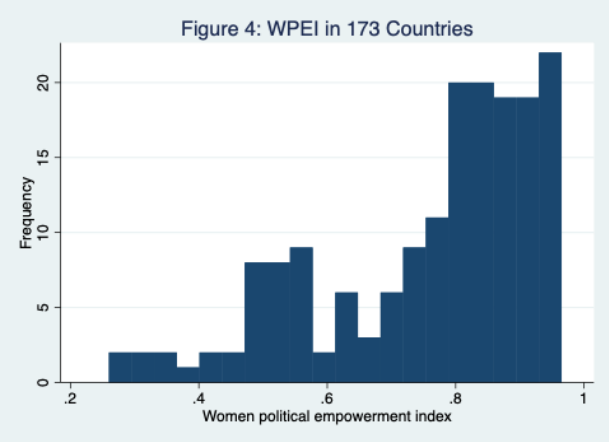
This analysis relies on data from the Quality of Government (QoG) Basic Dataset developed by the University of Gothenburg and drawn from over 100 different data sources. It is important to note that while the QoG Basic Dataset includes data for 194 countries, each sub-dataset within QoG does not include data for all 194 countries. The QoG Basic Dataset includes the percentage of seats held by women in national parliaments for every country, which I use as the primary independent variable to measure women's political agency. To measure the outcome variable of environmental health, I use an index of environmental health included in the Quality of Government (QoG) Basic Dataset. The index was developed by the Yale Center for Environmental Law and Policy and countries are weighted on a scale from 1-100 based on the distribution of global disability-adjusted life-years lost to the environmental health risks in the overall 2018 Environmental Performance Index (EPI). Using indicators for air quality, water and sanitation, and heavy metals, the environmental health index comprehensively measures environmental threats to human health and well-being.

As an alternate measure of women's agency, I use the Women's Political Empowerment Index (WPEI) included in the QoG Basic Dataset. The Women's Political Empowerment Index is based on women's civil liberties, civil society participation, and political participation and scored on a scale of 0-1 by averaging the women's civil liberties index, women's civil society participation index, and women's political participation index. Furthermore, I control for GDP per capita as an additional factor impacting EPI in this analysis using the measure for GDP per capita includes in the QoG dataset.

Before testing the independent and dependent variables empirically, it is helpful to examine their distributions. The following histograms demonstrate the spread of the environmental health scores, the percentage of female seats in parliament, and WPEI.







In Figure 2, the distribution of environmental health scores across 180 countries is bimodal, with countries clustered around environmental health scores of 40-80. In Figure 3, it can be seen that the distribution of the percentage of women in national parliaments across 193 countries is right-skewed. There is a cluster of countries with 15-20% of their national parliaments composed of women, with few countries reporting over 40% of parliamentarians to be female. This is important to note because though women have some representation in national parliaments, in few cases do they compose the majority of voices in national legislatures. In Figure 4, the distribution of WPEI's across 173 countries is left-skewed. Countries are largely

clustered around a WPEI of 0.8 to 1, indicating high levels of women's political empowerment on average. This is important to note because it signifies high levels of women's empowerment overall and less variation than may be expected across countries.

In the structural equation model analysis, I use a measure of social policy performance from the Sustainable Government Indicators (SGI) data set, which is included in the Quality of Government Basic Dataset. Countries' overall social policy performance is scored on a scale from 1 (absence of effective social policies) to 10 (highly effective social policies) based on 8 equally weighted categories including education, social inclusion, health, families, pensions, integration, safe living, and global inequalities. I also rely on SGI's measure of environmental policy performance, which is scored on a scale from 1 (absence of effective environmental policies) to 10 (highly effective environmental policies) based on environmental policy, energy productivity, greenhouse gas emissions, particulate matter, biocapacity, waste generation, material recycling, biodiversity, renewable energy, and material footprint. The Gender Inequality Index, which is used to reflect gender values in the structural equation models, is scaled from 0 (least disparity between men and women) to 1 (maximal disparity between men and women) based on measures of health, education, political empowerment, and labor market participation. It is worth noting that the SGI dataset within QoG only contains data for 41 countries, meaning I cannot draw inferences about all 194 countries based off my Maximum Likelihood structural equation analysis. Fortunately, Full-Information Maximum Likelihood estimation allows me to obtain estimates for the relationships between social policy performance, environmental policy performance, gender inequality, and the focal variables for the missing countries. Through imputing values for the missing countries by determining the value that maximizes the likelihood function, this strategy provides the ability to utilize the full QoG dataset.

5. Results

The following tables present the results of my structural equation models. The model depicted in Table 1 relies on a Maximum Likelihood estimation strategy, which estimates population parameters based on sample data such that the likelihood of obtaining the observed values is maximized. Meanwhile, Tables 2 and 4 rely on a Full-Information Maximum Likelihood strategy, which expands the Maximum Likelihood strategy to include missing data using overall assumptions about its missingness in relation to the model.

Table 1: Maximum Likelihood Model

	(1)	(2)	(3)	(4)	(5)
VARIABLES	enviropolicies	envirohealth	genderinequalindex	propwomenparliament	/
enviropolicies		-2.172			
		(1.360)			
propwomenparliament		0.355**			
		(0.159)			
gdppercap		0.000619***			
		(0.000120)			
socialpolicies	0.646***		-0.0634***		
	(0.148)		(0.00808)		
genderinequalindex				-63.81***	
				(15.79)	
var(e.enviropolicies)					0.957***
					(0.211)
var(e.envirohealth)					82.25***
					(18.17)
var(e.genderinequalindex)					0.00285***
					(0.000629)
var(e.propwomenparliament)					72.88***
					(16.10)
Constant	2.109**	65.60***	0.514***	35.12***	
	(0.911)	(7.453)	(0.0497)	(2.431)	
Observations	41	41	41	41	41

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

The Maximum Likelihood Model in Table 1 estimates a positive and statistically significant coefficient of 0.355 at the 95% level, as shown in column 2. This indicates that for every additional percentage of a national parliament that is female, the EPI increases by 0.355. Thus, the Maximum Likelihood Model produces a positive coefficient while accounting for the influence of overall social policies as well as environmental policies and gender equality in relation to the focal variables, arguably eliminating the influence of the confounder of progressive values on EPI or percentage of women in parliament. This suggests that there is potential for a causal relationship between the percentage of women in national parliaments and environmental health. However, it is also important to note that the 41 countries included in the SGI data set include countries with high levels of development throughout the EU, North America, Japan, and Australia, and thus the Maximum Likelihood Model only estimates a positive causal relationship for those 41 countries.

Table 2: Full-Information Maximum Likelihood Model, Proportion of Women in Parliament

	(1)	(2)	(3)	(4)	(5)
VARIABLES	enviropolicies	envirohealth	genderinequalindex	propwomenparliament	/
mean(socialpolicies)					3.594***
					(0.305)
mean(gdppercap)					17,742***
					(1,455)
var(e.enviropolicies)					1.050***
					(0.246)
var(e.envirohealth)					164.1***
					(23.06)
var(e.genderinequalindex)					0.00371***
					(0.000955)
var(e.propwomenparliament)					126.8***
					(13.10)
var(socialpolicies)					4.055***
					(0.880)
var(gdppercap)					3.629e+08***
					(3.901e+07)
cov(socialpolicies,gdppercap)					25,088***
					(4,108)

enviropolicies		5.637***			
		(0.894)			
propwomenparliament		0.0322			
		(0.0950)			
gdppercap		0.000350***			
		(7.46e-05)			
socialpolicies	0.912***		-0.0881***		
	(0.128)		(0.00802)		
genderinequalindex				-22.25***	
				(4.544)	
Constant	0.375	33.61***	0.681***	28.84***	
	(0.787)	(5.143)	(0.0512)	(1.857)	
Observations	194	194	194	194	194

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

The Full-Information Maximum Likelihood Model in Table 2 yields a positive coefficient of .0322, however it is not significant, meaning a positive relationship between the percentage of women in parliament and environmental health cannot be drawn from this model. Since this is a Full-Information model, it attempts to estimate the relationship for countries with missing data, which in this case is a group of 153 countries composed largely of countries with developing economies or economies in transition. The lack of statistical significance and the weakness of the coefficient when all 194 countries are pulled into the model may indicate disparity in the relationship between percentage of women in parliament and environmental health based off of whether the country is developed or developing/in transition. To test this theory, I subset the data into UN-designated developed economies and UN-designated developing economies/economies in transition and run separate baseline regressions for each set of countries. The results are displayed in Table 3.

Table 3: Baseline OLS Regression Sub-setting Developed and Developing/Transitioning Countries

VARIABLES	(1) UN Designated Developing Economies/Economies in Transition envirohealth	(2) UN Designated Developed Countries envirohealth
propwomenparliament	0.168	0.397**
	(0.131)	(0.188)
gdppercap	0.000556***	0.000503***
	(8.79e-05)	(0.000137)
Constant	44.61***	54.88***
	(3.495)	(5.631)
Observations	126	33
R-squared	0.246	0.515

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

As predicted, the baseline regression testing the relationship between percentage of women in parliament for developing/transitioning countries does not yield a statistically significant coefficient, while the regression testing the relationship among developed countries produces a positive and statistically significant coefficient of 0.397. This suggests that there is in fact disparity between developed and developing/transitioning countries with respect to the relationship between the percentage of women in parliament and environmental health. Thus, though a positive and potentially causal relationship exists between the two variables for developed countries, this analysis suggests it cannot be generalized to include developing/transitioning countries as well. While some may suggest that this disparity exists because more developed countries have higher proportions of women in parliament, the scatter plot included in Appendix B demonstrates that there is no correlation between level of development and the proportion of women in a country's national parliament.

To explore whether this disparity is observed solely when analyzing the proportion of women in parliament or whether it is indicative of women's agency altogether, I test another

Full-Information Maximum Likelihood Model using the Women's Political Empowerment Index as the independent variable representing women's agency in Table 4. Interestingly, this Full-Information analysis produces a positive coefficient of 26.52, significant at the 99% level. By estimating the relationship between progressive values and the focal variables using social policy performance, environmental policy performance, and gender inequality index, the results of this model confirm a strong positive relationship between overall women's political empowerment and environmental health is viable for all 185 countries included.

Table 4: Full-Information Maximum Likelihood Model, Women's Political Empowerment Index

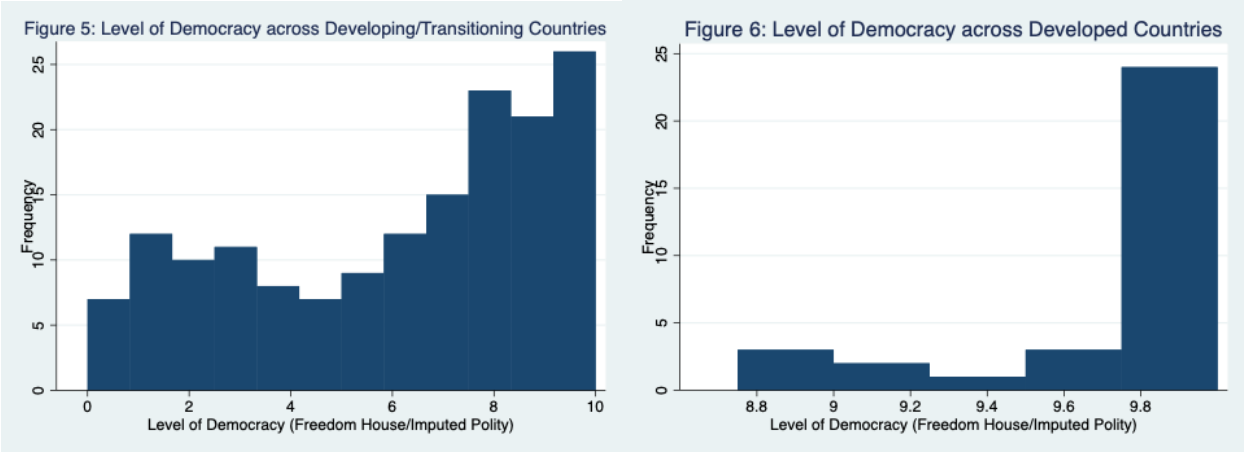
	(1)	(2)	(3)	(4)	(5)
VARIABLES	enviropolicies	envirohealth	genderinequalindex	womenempowerment	/
mean(socialpolicies)					3.686***
					(0.313)
mean(gdppercap)					17,818***
					(1,453)
var(e.enviropolicies)					1.028***
					(0.239)
var(e.envirohealth)					163.5***
					(21.83)
var(e.genderinequalindex)					0.00399***
					(0.00112)
var(e.womenempowerment)					0.0215***
					(0.00238)
var(socialpolicies)					3.866***
					(0.883)
var(gdppercap)					3.628e+08***
					(3.901e+07)
cov(socialpolicies,gdppercap)					24,701***
					(4,078)
enviropolicies		4.627***			
		(0.929)			
womenempowerment		26.52***			
		(7.918)			
gdppercap		0.000405***			
		(7.53e-05)			
socialpolicies	0.870***		-0.0905***		
	(0.132)		(0.00861)		
genderinequalindex				-0.441***	
				(0.0603)	

Constant	0.681	15.48**	0.698***	0.922***	
	(0.809)	(7.159)	(0.0557)	(0.0248)	
Observations	185	185	185	185	185

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Two compelling questions are generated from the results of my structural equation model analysis. The first is why disparity in the relationship between the proportion of women in parliament and environmental health exists between developed and developing/transitioning countries. The second is why this disparity does not appear when I exchange the independent variable of percentage of women in parliament with the women's political empowerment index. One potential theory to address the first question is that a country's level of democracy, which is effectively a measure of its political freedom and strength of its institutions, plays a role in the extent to which women in parliament would actually be able to influence public policy to promote environmental health. If women have a relatively high proportion of seats in parliament but the parliament functions within an autocratic rather than democratic government and thus has little ability to influence policy, the seats women hold in the parliament are less likely to have an effect on policy outcomes. Therefore, the positive relationship between percentage of women in parliament and environmental health may be less apparent in countries with lower levels of democracy. The QoG basic dataset provides an indicator of level of democracy that scores each country on a scale from 1 (least democratic) to 10 (most democratic) based off Freedom House and Polity scores transformed to a scale of 1-10 and averaged. If non-developed countries generally have lower levels of democracy than developed countries, this would explain the disparity in the relationship between these two groups. This theory is supported by the

distributions of levels of democracy subset between non-developed and developed countries in figures 5 and 6.

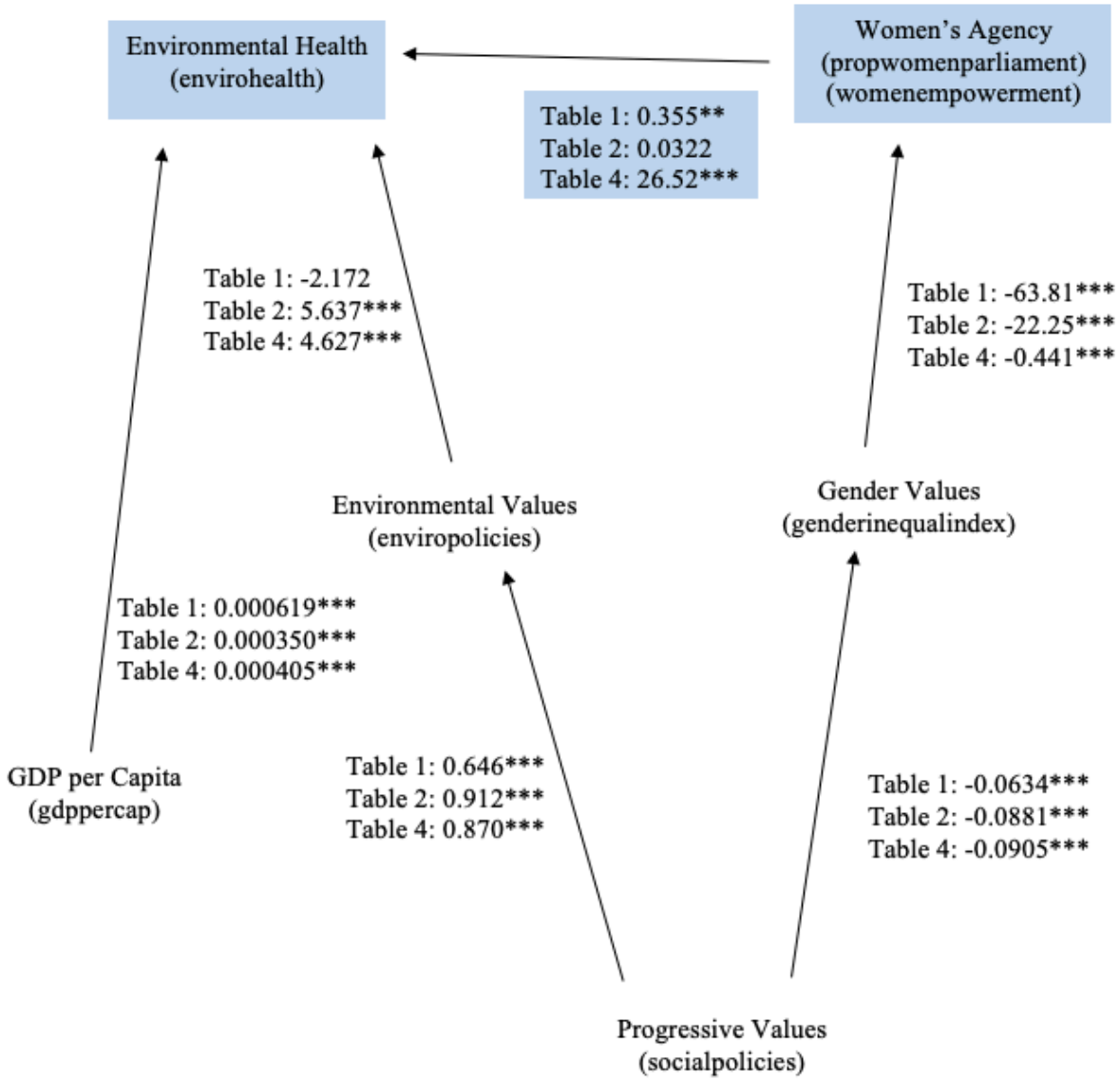


As demonstrated in Figure 5, the distribution of levels of democracy among non-developed countries is left-skewed, but the spread of these 146 countries is still well-dispersed across levels of democracy from 1 (least democratic) to 10 (most democratic). Conversely, in Figure 6, the distribution of levels of democracy among developed countries is profoundly left skewed and the spread of countries only ranges from a score of 8.8 to 10. It is clear from these distributions that developed countries are collectively far more democratic than non-developed countries, which may account for the disparity in the relationship between percentage of women in parliament and environmental health between the two groups.

To address the second question produced by my results, I theorize that this disparity in the relationship between developed vs. non-developed countries does not exist when a more comprehensive measurement of women's political empowerment is used because the percentage of women in parliament may not be the most significant indicator of women's agency in a society. The Women's Political Empowerment Index accounts for women's civil liberties, women's participation in civil society, and women's political participation. In addition to a measure for the proportion of women in parliament, this index includes the percentage of female

journalists, percentage of female participation in civil society organizations, freedom of discussion, labor market freedom, power distributed by gender, property rights, and access to justice for women. Referring back to Figure 3, the percentage of women in national parliaments is well under 50% for most countries. It is possible that women are less equipped to influence environmental performance through representation in parliament than through their participation in civil society through non-government organizations, work as journalists, or through other positions within the labor market. This would explain the consistent positive correlation between overall women's political empowerment and environmental health across all 185 countries included in the analysis in Table 4.

Figure 7: Diagram of Structural Equation Model Analysis Results



The diagram in Figure 7 displays the results of my structural equation models corresponding to the theoretical diagram in Figure 1. This provides a visual of the relationships between each variable predicted by my structural equation analysis. As seen in the diagram, the relationship between progressive values and environmental values is positive for Tables 2 and 4, suggesting that more effective social policies in a society drive more effective environmental policies, which indicates higher valuation of the environment. Subsequently, environmental policies drive environmental health. Similarly, social policies and gender inequality are

negatively correlated, indicating that more effective social policies reduce gender inequality. More equality between the genders then leads to greater agency among women. Analysis of these pathways isolates the focal relationship between environmental health and women's agency and reveals the potential for a causal relationship between the focal variables.

While this research focusses on clearing the path to causality by providing a more comprehensive understanding of the confounding variable of progressive values using pathway analysis, there is still potential for omitted variable bias. Additional factors impacting environmental health aside from GDP per capita are likely, and future research should investigate other variables that may need to be included in order to estimate causality. Furthermore, my analysis suggests that an instrumental variable driving women's agency but independent of gender values in a society is key to pinpointing a causal relationship between women's agency and environmental health. One potential instrument is aid that is applied to countries without an application process. Forced aid may be directed at women's initiatives that increase their agency while not being an outcome of a country's progressive values. Unfortunately, data of this sort is scarce and would need to be collected for this method to work.

6. Conclusion

My structural equations analysis confirms the positive correlation between women's agency and environmental health indicated by previous literature using a different method and suggests that a causal relationship between the two variables is viable. By eliminating the confounding variable of progressive values through the pathways of environmental and gender values, I isolate the relationship between women's agency and environmental health and better understand its primary confounder. Additionally, I find that while the percentage of women in

parliament only drives environmental health in developed countries, overall women's political empowerment is arguably a driving factor in environmental health across all countries. This analysis contributes to existing literature by documenting a disparity in the relationship between percentage of women in parliament and environmental health among developed countries and developing/transitioning countries. Additionally, it documents a disparity in the relationship when percentage of women in parliament is used as the independent indicator of women's agency as opposed to when overall women's political empowerment is analyzed. These findings provide a foundation for future research to further evaluate the relationship between women's agency and environmental health and are sufficient to suggest that policies promoting women's agency are a feasible approach to combat the global threat of climate change caused by deteriorating environmental health and to create a more sustainable society.

7. References

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8. Appendix A: Results of OLS Analysis

Table 5: OLS Regression, EPI on % Women in Parliament with Controls

VARIABLES	(1) EPI
% Women in Parliament	0.0960**
	(0.0399)
HDI	65.86***
	(3.442)
Level of Democracy	0.656***
	(0.172)
Constant	3.340
	(2.301)
Observations	179
R-squared	0.763

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 6: OLS Regression, CO2 Emissions on % Women in Parliament

VARIABLES	(1) CO2 Emissions
% Women in Parliament	-0.0667**
	(0.0285)
HDI	29.26***
	(2.493)
Level of Democracy	-0.710***
	(0.124)
Constant	-9.969***
	(1.647)
Observations	186
R-squared	0.434

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

9. Appendix B: Additional Figures