

## Supplementary S1

**Table S1 Descriptive statistics of variables.**

Variable	Obs.	Mean	Std. Dev.	Min	Max
<i>lnPP</i>	232	10.41	2.856	1.38	15.91
<i>lnGDPPC</i>	232	8.715	1.431	5.53	11.98
<i>lnPOP</i>	232	15.72	2.22	9.327	21.04
<i>lnAGE1564</i>	222	4.143	0.105	3.876	4.438
<i>lnAGE65</i>	222	1.919	0.701	-0.013	3.259
<i>lnPDEN</i>	232	4.391	1.422	0.443	9.797
<i>lnURB</i>	231	3.965	0.492	2.564	4.605
<i>lnUPRI</i>	183	3.28	0.6	1.127	4.605
<i>lnMAN</i>	210	2.437	.599	-0.191	3.869
<i>lnSER</i>	215	3.995	0.206	3.151	4.47
<i>lnCOR</i>	193	3.716	0.798	0.366	4.605

**Table S2 Pearson correlation coefficients.**

	<i>lnGDPPC</i>	<i>lnPOP</i>	<i>lnAGE1564</i>	<i>lnAGE65</i>	<i>lnPDEN</i>	<i>lnURB</i>	<i>lnUPRI</i>	<i>lnMAN</i>	<i>lnSER</i>	<i>lnCOR</i>
<i>lnGDPPC</i>	1									
<i>lnPOP</i>	-0.271 <sup>a</sup>	1								
<i>lnAGE1564</i>	0.679 <sup>a</sup>	-0.058	1							
<i>lnAGE65</i>	0.678 <sup>a</sup>	-0.05	0.548 <sup>a</sup>	1						
<i>lnPDEN</i>	0.165 <sup>b</sup>	-0.052	0.223 <sup>a</sup>	0.164 <sup>b</sup>	1					
<i>lnURB</i>	0.729 <sup>a</sup>	-0.048	0.584 <sup>a</sup>	0.518 <sup>a</sup>	0.039	1				
<i>lnUPRI</i>	-0.076	-0.657 <sup>a</sup>	-0.103	-0.199 <sup>a</sup>	-0.069	-0.007	1			
<i>lnMAN</i>	0.031	0.488 <sup>a</sup>	0.14 <sup>b</sup>	0.223 <sup>a</sup>	0.031	0.258 <sup>a</sup>	-0.255 <sup>a</sup>	1		
<i>lnSER</i>	0.557 <sup>a</sup>	-0.301 <sup>a</sup>	0.322 <sup>a</sup>	0.533 <sup>a</sup>	0.354 <sup>a</sup>	0.417 <sup>a</sup>	0.016	-0.171 <sup>b</sup>	1	
<i>lnCOR</i>	0.707 <sup>a</sup>	-0.344 <sup>a</sup>	0.432 <sup>a</sup>	0.551 <sup>a</sup>	0.122 <sup>c</sup>	0.469 <sup>a</sup>	-0.068	0.052	0.512 <sup>a</sup>	1

Superscripts a, b, and c denote significance at the 1%, 5%, and 10% levels, respectively.

**Table S3 VIF test for multicollinearity.**

Variable	Model
<i>lnGDPPC</i>	6.67
<i>lnPOP</i>	2.11
<i>lnAGE1564</i>	2.14
<i>lnAGE65</i>	2.52
<i>lnPDEN</i>	1.4
<i>lnURB</i>	3.2
<i>lnUPRI</i>	1.92
<i>lnMAN</i>	1.46
<i>lnSER</i>	2.24
<i>lnCOR</i>	2.26
Mean VIF	2.59

The POLS (RE) estimation results for the low- (high-) income group are shown in Table S4 (Table S5). For the low-income group, the F-test statistics presented in Table S4 generally suggest accepting the null hypothesis in favor of the POLS model, except for specification (4) in column 5. In specification (4), the F-test rejects the null hypothesis at 10% significance, while conventionally at least 5% significance is required to be confident in rejecting the null hypothesis. In addition, the LM statistics in Table S3 reveal that the POLS is a more efficient estimator than the RE. For the high-income group, as indicated in Table S4, the F-test and the LM test show that the FE and the RE models are preferred over the POLS model. Meanwhile, the Hausman test implies that the RE model is preferred over the FE model.

Table S4 shows that the estimated coefficient of GDP per capita and its square term have a positive and a negative impact at the 1% or 5% levels of significance, respectively, in all the specifications (except for specifications (3) and (6)) for the low-income countries. Meanwhile, Table S5 shows that the estimated coefficients of GDP per capita and its square term have the signs of an inverted U-shape but not statistically significant in all six specifications for the high-income countries. The evidence of the EKC for low-income countries is plausible. Environmental concern has been a global phenomenon and no longer limited to wealthy nations (Dunlap and Mertig, 1995; Sulemana et al., 2017). The increasing public concern regarding environmental quality in some low-income countries may even make these countries implement the environmental standards of developed countries at the early stages of development (Stern, 2004). The lack of evidence for the EKC hypothesis in the sub-sample of high-income countries could be caused by underestimated amounts of inadequately managed plastic waste. High-income countries declare extremely small amounts of inadequately managed plastic waste. However, these declarations are underestimated since several illegal dumps and uncontrolled landfills are not declared (D'Amato et al., 2018; Santos et al., 2019; Tisserant et al., 2017). Moreover, none of these appear in official statistics declared by the states in the World Bank databases. Furthermore, the large amount of plastic waste sent by high-income countries to low- and middle-income countries (OECD, 2022a) are registered as plastic waste discarded in the destination country, not in the originating country.

**Table S4 Determinants of plastic pollution for the low-income group.**

Variable	Model Specification					
	(1) POLS	(2) POLS	(3) POLS	(4) POLS	(5) POLS	(6) POLS
<i>lnGDPPC</i>	8.03*** (2.882)	7.928*** (2.891)	5.144 (3.126)	7.752*** (2.864)	7.207*** (2.71)	3.166 (2.836)
<i>(lnGDPPC)<sup>2</sup></i>	-0.496** (0.193)	-0.49** (0.193)	-0.299 (0.21)	-0.491** (0.191)	-0.429** (0.182)	-0.176 (0.191)
<i>lnPOP</i>	0.878*** (0.08)	0.898*** (0.084)	0.83*** (0.083)	0.885*** (0.08)	1.012*** (0.122)	0.953*** (0.13)
<i>lnPDEN</i>		-0.089 (0.11)				0.041 (0.116)
<i>lnAGE1564</i>			4.201* (2.457)			6.385*** (2.401)
<i>lnAGE65</i>			-1.274** (0.533)			-1.592*** (0.51)
<i>lnURB</i>				0.613* (0.359)		0.665* (0.385)
<i>lnUPRI</i>					0.881*** (0.288)	0.872*** (0.273)
<i>lnMAN</i>	0.217 (0.27)	0.235 (0.271)	0.341 (0.278)	0.095 (0.277)	0.202 (0.256)	0.171 (0.264)
<i>lnSER</i>	0.621 (0.761)	0.906 (0.841)	0.763 (0.767)	0.554 (0.758)	0.733 (0.749)	0.876 (0.793)
<i>lnCOR</i>	-0.323 (0.196)	-0.321 (0.197)	-0.244 (0.197)	-0.281 (0.196)	-0.183 (0.185)	-0.028 (0.18)
Constant	-36.85*** (11.1)	-37.53*** (11.15)	-42*** (12.88)	-37*** (11.01)	-40.44*** (10.74)	-50.83*** (12.22)
R <sup>2</sup>	0.7319	0.7342	0.7286	0.7392	0.6467	0.7046
Obs.	86	86	84	85	78	78
Test statistics:						
F-test (POLS vs. FE)	1.47	1.56	1.26	1.75*	1.14	1.11
LM test (POLS vs. RE)	1.01	1.05	0.43	1.15	0.57	0.00
Hausman test (FE vs. RE)	5.41	8.33	5.8	10.05	5.63	14.37

Notes: Countries with an average per capita GDP lower than the median GDP per capita are included in the low-income group. The standard errors are in parentheses. \*, \*\*, and \*\*\* denote significance at the 10%, 5%, and 1% levels, respectively.

**Table S5 Determinants of plastic pollution for the high-income group.**

Variable	Model Specification					
	(1) RE	(2) RE	(3) RE	(4) RE	(5) RE	(6) RE
<i>lnGDPPC</i>	10.82 (11.47)	10.94 (11.52)	7.153 (11.24)	12.17 (11.14)	11.86 (14.6)	7.577 (15.3)
<i>(lnGDPPC)<sup>2</sup></i>	-0.558 (0.571)	-0.563 (0.574)	-0.377 (0.559)	-0.647 (0.555)	-0.604 (0.728)	-0.389 (0.761)
<i>lnPOP</i>	0.963*** (0.207)	0.964*** (0.208)	0.967*** (0.195)	0.886*** (0.203)	1.315*** (0.369)	1.157*** (0.368)
<i>lnPDEN</i>		0.007 (0.227)				0.085 (0.308)
<i>lnAGE1564</i>			7.648 (5.603)			6.148 (6.71)
<i>lnAGE65</i>			-1.385** (0.682)			-1.23 (0.83)
<i>lnURB</i>				2.58** (1.213)		0.319 (2.448)
<i>lnUPRI</i>					1.122 (0.776)	0.616 (0.803)
<i>lnMAN</i>	-0.699 (0.635)	-0.703 (0.638)	0.347 (0.668)	-0.963 (0.627)	-1.149 (0.94)	-0.369 (1.045)
<i>lnSER</i>	-0.626 (1.688)	-0.662 (1.793)	1.94 (1.894)	-0.722 (1.656)	-3.514 (2.597)	-0.241 (3.285)
<i>lnCOR</i>	-1.524** (0.768)	-1.532** (0.774)	-1.301* (0.728)	-1.384* (0.762)	-1.268 (0.805)	-1.269 (0.804)
Constant	-46.85 (55.94)	-47.28 (56.25)	-71.29 (53.3)	-60.75 (54.6)	-50.07 (70.17)	-64.67 (67.47)
R <sup>2</sup>	0.4351	0.4358	0.5295	0.4627	0.3749	0.4815
Obs.	88	88	86	88	70	70
Test statistics:						
F-test (POLS vs. FE)	6.84***	6.53***	6.2***	6.3***	7.77***	5.41***
LM test (POLS vs. RE)	28***	26.41***	25.64***	30.92***	27.07***	21.72***
Hausman test (FE vs. RE)	7.67	7.45	6.73	6.78	3.66	4.12

Notes: Countries with average per capita GDP higher than the median GDP per capita are included in the high-income group. The standard errors are in parentheses. \*, \*\*, and \*\*\* denote significance at the 10%, 5%, and 1% levels, respectively.

## Supplementary S2

### Low-income group (65 countries)

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Algeria, Armenia, Bangladesh, Belarus, Belize, Benin, Bolivia, Burkina Faso, Cambodia, Cameroon, China, Cuba, Dominican Republic, Ecuador, Egypt, El Salvador, Ethiopia, Fiji, Guatemala, Guinea, Guyana, Haiti, Honduras, India, Indonesia, Iraq, Jamaica, Jordan, Kenya, Kosovo, Lao PDR, Madagascar, Marshall Islands, Mauritania, Moldova, Mongolia, Morocco, Mozambique, Myanmar, Nepal, Niger, Nigeria, Pakistan, Papua New Guinea, Peru, Philippines, Samoa, Senegal, Serbia, Solomon Islands, Sri Lanka, St. Vincent and the Grenadines, Sudan, Thailand, Togo, Tonga, Tunisia, Tuvalu, Uganda, Uzbekistan, Vanuatu, Vietnam, West Bank and Gaza, Yemen, and Zimbabwe

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### High-income group (63 countries)

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Andorra, Antigua and Barbuda, Argentina, Austria, Azerbaijan, Barbados, Belgium, Brazil, Brunei Darussalam, Bulgaria, Canada, Cayman Islands, Chile, Colombia, Costa Rica, Croatia, Cyprus, Czech Republic, Denmark, Dominica, Estonia, Finland, France, Germany, Greece, Grenada, Guam, Hungary, Iceland, Iran, Ireland, Italy, Japan, Kazakhstan, Kuwait, Latvia, Lebanon, Lithuania, Luxembourg, Maldives, Malta, Mexico, Monaco, Montenegro, Netherlands, Northern Mariana Islands, Norway, Oman, Panama, Puerto Rico, Romania, Russian Federation, San Marino, Singapore, Slovak Republic, St. Lucia, Suriname, Sweden, Trinidad and Tobago, Turkey, United Arab Emirates, United Kingdom, and Uruguay

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