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Economic Development and Preferences for Redistribution

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Abstract

This study empirically analyzes whether people's preferences for redistribution change as their countries develop. The results show that after controlling for income inequality, political orientation, and demographic and institutional factors, among others, people in more developed countries are more in favor of redistribution. This implies that concern for, or a social norm of caring about, the poor grows as a country becomes richer.

Keywords: *Redistribution, GDP per capita, Social preferences, Social norms*

JEL Classification: D31, D63, H20

1. Introduction

Guan Zhong (?-645 B.C.), an ancient Chinese statesman, stated, "Well fed, well bred," which is broadly interpreted as "First comes food, then morality" (Bertolt Brecht). Indeed, empirical evidence indicates that the focus on matters such as women's legal rights (Doepke and Tertilt, 2009) and animal welfare (Frank, 2008) tends to increase with economic development. Then, what about the attitudes toward the poor? In particular, how do preferences for redistribution from the rich to the poor vary with economic development? The study addresses this question.

Previous empirical studies indicate that preferences for redistribution depend on current as well as expected income, income inequality, beliefs regarding determinants of success, altruism, religion, and risk attitude, among other factors (Alesina and Giuliano, 2011). Very few studies report a relationship, positive or negative, between economic development and preferences for redistribution. The research study of Dion and Birchfield (2010), who suggest a negative association between per capita GDP and average country-level support for redistribution, is an exception.

In contrast to their study, and seemingly consistent with Guan Zhong's saying, our estimates depict a statistically significant, *positive* correlation between GDP per capita and preferences for redistribution, that is, the average support for redistribution increases with economic development. To our knowledge, this study is the first to describe such a significant relationship. This could be attributed to two main reasons. First, the study uses data covering more countries, both developing and developed, and longer time periods, which increase the variation in GDP per capita. Second, the study controls for individual characteristics such as political orientation, social preferences, and religious beliefs, which are not included in Dion and Birchfield (2010). In fact, if we control for only demographic factors (such as income, age, gender, and education), we obtain a negative relationship between economic development and preferences for redistribution.

2. Data and Empirical Strategy

This study uses two data sources, the World Values Survey (WVS) and the World Development Indicators (WDI) 2016.[1]

The dependent variable, *Preferences for redistribution*, is measured by the following question in the WVS (on a 1-10 scale): "People should take more responsibility to provide for themselves (1)"—"Government should take more responsibility to ensure that everyone is provided for (10)." (See Appendix B for the details of the variables used in this study).

The explanatory variable of our main interest is (log of) *GDP per capita*. We use "GDP per capita, PPP (constant 2011 international $)" in the WDI for this variable. In the main model (Model 4), the minimum and maximum Log GDP per capita in the sample are 7.04 and 11.1, respectively. Another explanatory variable obtained from the WDI is the *Gini index*.[2][3]

All other variables are obtained from the WVS, including *Ideology* (political orientation), *Hard work* (belief on whether hard work brings success), religious denominations, and demographic variables such as income (within-country household income deciles), age, gender, and education (dummies for secondary and university-level education).[4] Since the extent of *altruism* of the respondent is not available, whether the

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[1] In Model 1, waves 2 (1989-1993), 3 (1994-1998), 4 (1999-2004), 5 (2005-2009), and 6 (2010-2014) of the WVS are used. In the main model (Model 4), waves 2, 3, 5, and 6 are used (see Appendix A for more details).

[2] There is very little reliable data on the Gini index, or more generally, on income inequality (Atkinson and Brandolini, 2001). The World Income Inequality Database (WIID) is often used, but it is a collection of data from different sources/studies, which raises a concern regarding data consistency. To mitigate this issue, we use a single data source for the Gini index, the WDI 2016, although it is not perfect either.

[3] Since the amount of this data is limited, it has been complemented in the following way. When the data for a survey country-year of the WVS is not available, the Gini coefficient of a different year included in the same wave, if any, is used. If, in such a case, the survey year is sandwiched between two years in the same wave for which Gini coefficients are available, then the average of the two is used.

[4] This study treats the scale of household income (1-10) within each country as continuous. We have similar results when this variable is treated as categorical (by using dummies), in which case the variable "*Income squared*" in the models below is omitted. Education is a proxy for

respondent considers unselfishness as an especially important quality for his/her children to learn at home, is used as a proxy for his/her own altruism. *Self-employed* is a dummy for being self-employed, and is used as a proxy for risk aversion, as in Alesina and La Ferrara (2005).

The summary statistics of the variables are reported in Table 1.[5]

Table 1. Summary statistics for the main model (Model 4)

Variable	Mean	Std. Dev.
Preferences for redistribution	6.129	2.959
Log of GDP per capita	9.414	0.936
Income	4.713	2.318
Age	41.677	16.329
Female	0.497	0.500
Married	0.636	0.481
Unemployed	0.093	0.291
Secondary education	0.260	0.438
University	0.183	0.387
Gini index	39.852	10.876
Ideology	5.685	2.360
Hard work	4.285	2.820
Altruism	0.322	0.467
Catholic	0.261	0.439
Protestant	0.144	0.352
Orthodox	0.133	0.339
Jew	0.002	0.049
Muslim	0.153	0.360
Hindu	0.022	0.147

expected income.

[5] *Poverty headcount ratio* from the WDI, complemented in the same way as the Gini index, is not statistically significant in the main model (Model 4), and the results, including the sign of GDP per capita, are similar. Thus, it is not included in our analysis.

Buddhist	0.027	0.163
Other religion	0.065	0.246
Self-employed	0.114	0.318

Notes: The number of observations is 111,996 for all variables.

This study uses an ordered logit model to estimate statistical associations between preferences for redistribution and economic development. Our regression equation is:

$$Y^*_{ict} = \alpha GDPPC_{ct} + \beta X_{ict} + F_c + W_w + \varepsilon_{ict},$$

where subscripts *i*, *c*, and *t* indicate individual, country, and year, respectively. Y^*_{ict} is a latent variable, $GDPPC_{ct}$ is the log of GDP per capita in PPP (constant 2011 international $), X_{ict} is the vector of the explanatory variables discussed above, and F_c and W_w are country and survey-wave dummies, respectively. The country dummies are included to control for unobserved, time-invariant factors (e.g., culture and institutions) inherent in each country.

3. Results

Table 2 shows the estimation results, which are largely consistent with previous major work such as Alesina and La Ferrara (2005) and Alesina and Giuliano (2011). For example, women, the unemployed, people who consider unselfishness important for children (*Altruism*), and the Orthodox are more supportive of redistribution, while income, marriage, education, right-wing ideology, being Catholic or Protestant, and self-employment reduce the desire for redistribution.[6]

The interaction term between GDP per capita and income indicates that the support for redistribution decreases with income. This is observed more in the more

[6] In Model 4, for example, the coefficient of income is calculated as $0.0985 - 0.0232 \times Log\ GDP\ per\ capita + 0.004 \times income$, which is negative because the minimum Log GDP per capita in the sample is 7.04.

developed countries, which confirms Dion and Birchfield (2010)'s finding. The Gini index is negatively correlated with support for redistribution, which might be because of the reverse causality, that is, people who are more anti-redistribution tolerate more income inequality.[7]

Most notably, the coefficients of the log of GDP per capita are all positive and significant, indicating that the average support for redistribution increases with economic development. Figures 1(a) and 1(b) support this result. Figure 1(a) (Figure 1(b)) shows that the probability with which the most anti-redistribution (pro-redistribution) outcome is chosen decreases (increases) with economic development, holding the other variables at their means. (See Appendix C for predicted probabilities of each preference category (1-10) for different levels of GDP per capita.)

Table 2. GDP per capita and preferences for redistribution

	Model 1	Model 2	Model 3	Model 4
Log of GDP per capita	0.3150***	0.3251***	0.3645**	0.3582**
	(0.101)	(0.119)	(0.148)	(0.147)
Income	-0.0002	0.0343	0.0959*	0.0985*
	(0.046)	(0.046)	(0.051)	(0.050)
Log of GDP per capita *Income	-0.0140***	-0.0166***	-0.0234***	-0.0232***
	(0.004)	(0.005)	(0.005)	(0.005)
Income squared	0.0048***	0.0045**	0.0043**	0.0040**
	(0.002)	(0.002)	(0.002)	(0.002)
Age	0.0062***	0.0060***	0.0090***	0.0092***
	(0.002)	(0.002)	(0.002)	(0.002)
Age squared	-0.0000**	-0.0001***	-0.0001***	-0.0001***
	0.000	0.000	0.000	0.000
Female	0.0680***	0.0439***	0.0426***	0.0386***
	(0.010)	(0.011)	(0.012)	(0.012)
Married	-0.0277***	-0.0210*	-0.0252**	-0.0244**
	(0.010)	(0.011)	(0.012)	(0.012)
Unemployed	0.0756***	0.0763***	0.0836***	0.0709***
	(0.016)	(0.018)	(0.021)	(0.020)

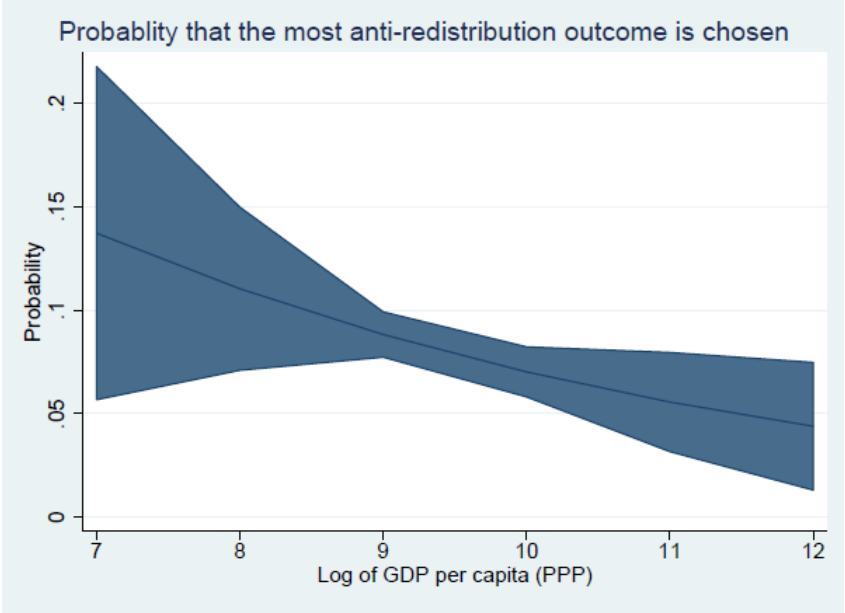
[7] The coefficients of *Hard work*, indicating that people who consider hard work a determinant of success support redistribution more, are difficult to interpret, and require further scrutiny.

Secondary education	-0.0968***	-0.1006***	-0.1160***	-0.1201***
	(0.014)	(0.013)	(0.016)	(0.015)
University	-0.1292***	-0.1209***	-0.1410***	-0.1438***
	(0.016)	(0.016)	(0.018)	(0.018)
Gini index	-0.0194***	-0.0186***	-0.0187**	-0.0188**
	(0.004)	(0.005)	(0.008)	(0.007)
Ideology		-0.0742***	-0.0875***	-0.0855***
		(0.005)	(0.006)	(0.006)
Hard work			-0.0589***	-0.0590***
			(0.005)	(0.005)
Altruism			0.0379***	0.0385***
			(0.013)	(0.014)
Catholic				-0.0348*
				(0.020)
Protestant				-0.1455***
				(0.026)
Orthodox				0.1080***
				(0.036)
Jew				0.0455
				(0.120)
Muslim				-0.0695
				(0.044)
Hindu				-0.0936
				(0.148)
Buddhist				0.0353
				(0.090)
Other religion				-0.0339
				(0.033)
Self-employed				-0.0960***
				(0.025)
N	184443	143709	113844	111996
Pseudo R-squared	0.025	0.026	0.03	0.031

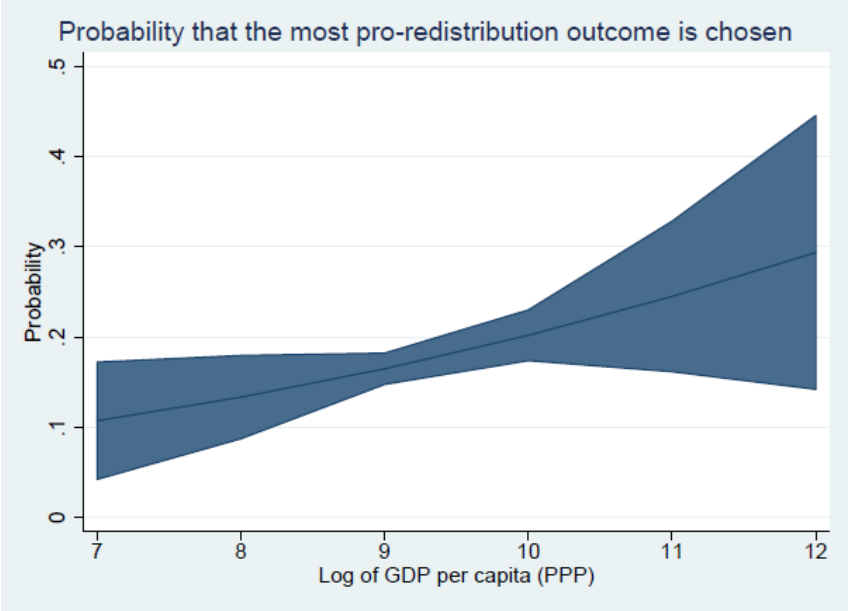
Notes: Estimated coefficients from ordered logit models. The dependent variable is *Preferences for redistribution*. Country and wave dummies are also included in all regressions. The parentheses denote the standard errors clustered by income deciles within each country.
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Figure 1. Probabilities that the most anti- and pro-redistribution outcomes are chosen

(a)



(b)



Notes: The graphs depict the probabilities that the most anti-redistribution (1) and pro-redistribution (10) outcomes are chosen, given the different levels of GDP per capita, while holding other variables at their means. The upper and lower curves show 95% confidence intervals.

4. Conclusion

We have shown a statistically significant, positive relationship between economic development and preferences for redistribution. Combined with the evidence that the rich are more *against* redistribution within each country, this result implies that people are impurely altruistic (Chowdhury and Jeon, 2014), or a social norm of caring about the poor gradually develops as a country becomes richer. Although individuals themselves may not necessarily become more moral as they grow richer, it may be applicable to the people or citizens of a country overall.

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Appendix

A. Sample countries and WVS waves (Model 4)

Country	Wave
Albania	3
Armenia	3, 6
Australia	3, 5, 6
Azerbaijan	3
Bangladesh	3
Belarus	3, 6
Brazil	2, 5, 6
Bulgaria	3, 5
Burkina Faso	5
Canada	5
Chile	3, 5, 6
Colombia	5, 6
Cyprus	5, 6
Czech Republic	3

Dominican Republic	3
Ecuador	6
Egypt, Arab Rep.	5
El Salvador	3
Estonia	3, 6
Finland	5
France	5
Georgia	5, 6
Germany	5, 6
Ghana	5
Hungary	5
India	2, 5
Indonesia	5
Iraq	6
Italy	5
Japan	5
Kazakhstan	6
Kyrgyz Republic	6
Latvia	3
Lithuania	3
Macedonia, FYR	3
Mali	5
Mexico	3, 5, 6
Moldova	3, 5
Morocco	5
Netherlands	5, 6
Nigeria	2, 3
Norway	5
Pakistan	6
Peru	3, 5, 6
Philippines	6
Poland	5, 6
Romania	3, 5, 6
Russian Federation	3, 6
Rwanda	5, 6
Serbia	5
Slovak Republic	3
Slovenia	5, 6
South Africa	2, 3, 5, 6
Spain	5, 6
Sweden	5, 6
Switzerland	5
Thailand	5, 6
Tunisia	6
Turkey	3, 5, 6
Ukraine	3, 5, 6
United Kingdom	5
United States	3, 5, 6

Uruguay	3, 5, 6
Venezuela, RB	3
Vietnam	5
Zambia	5

Notes: The total number of countries is 66. The waves of the WVS were conducted in the following years. Wave 2: 1989-1993, Wave 3: 1994-1998, Wave 4: 1999-2004, Wave 5: 2005-2009, and Wave 6: 2010-2014.

B. Variables and definitions

Variable	Definition
Preferences for redistribution (WVS: Variable E037)	Measured by the following question (on a 1-10 scale): "People should take more responsibility to provide for themselves (1)"—"Government should take more responsibility to ensure that everyone is provided for (10)."
Log of GDP per capita (WDI 2016)	Log of GDP per capita, PPP (constant 2011 international $) (Min: 7.0388, Max: 11.094)
Income (WVS: X047)	Scale of household income (from 1 to 10) within each country
Age (WVS: X003)	Age of the respondent (Min: 15, Max: 99)
Female (WVS: X001)	Dummy variable, which takes the value of 1 if the respondent is female
Married (WVS: X007)	Dummy variable, which takes the value of 1 if the respondent is "Married" or "Living together as married"
Unemployed (WVS: X028)	Dummy variable, which takes the value of 1 if the respondent is unemployed
Secondary education (WVS: X025)	Dummy variable, which takes the value of 1 if the respondent's highest educational level attained is "Complete secondary: University-preparatory type/Full secondary, maturity level certificate" or "Some university without degree/Higher education-lower-level tertiary certificate"
University (WVS: X025)	Dummy variable, which takes the value of 1 if the respondent's highest educational level attained is "University with degree/Higher education-upper-level tertiary certificate"
Gini index (WDI 2016)	Gini index (Min: 24.6, Max: 64.8)
Ideology (WVS: E033)	Political self-positioning on a 1-10 scale. Left (1)—Right (10)
Hard work (WVS: E040)	Answer to the following question on a 1-10 scale: "In the long run, hard work usually brings a better life (1)"—"Hard work doesn't generally bring success—it's more a matter of luck and connections (10)."
Altruism (WVS: A041)	Dummy variable, which takes the value of 1 if the respondent chooses "Unselfishness" as one of the answers to the following question: "Here is a list of qualities that children can be encouraged to learn at home. Which, if any, do you consider to be especially important? Please choose up to five!"

Catholic (WVS: F025)	Dummy variable, which takes the value of 1 if the respondent is Roman Catholic, Aglipayan, Brgy. Sang Birhen, El Shaddai, Filipinista, or Greek Catholic
Protestant (WVS: F025)	Dummy variable, which takes the value of 1 if the respondent is/belongs to Protestant, Alliance, Anglican, Assembly of God, Baptist, Born Again, Charismatic, Christian Fellowship, Christian Reform, Church of Christ, Evangelical, Faith in God, Free Church, Independent African Church, Israelita Nuevo Pacto Universal, Jesus is Lord, Jesus Miracle Crusade, Lutheran, Mennonite, Methodists, Pentecostal, Presbyterian, Salvation Army, Seven Day Adventist, The Worldwide Church of God, Unitarian, United, United Church of Christ in the Philippines, or Evangelical/Apostolic Faith Mission (South Africa)
Orthodox (WVS: F025)	Dummy variable, which takes the value of 1 if the respondent is Orthodox
Jew (WVS: F025)	Dummy variable, which takes the value of 1 if the respondent is Jewish
Muslim (WVS: F025)	Dummy variable, which takes the value of 1 if the respondent is a Muslim, Al-Hadis, Shia, Sunni, or Druse
Hindu (WVS: F025)	Dummy variable, which takes the value of 1 if the respondent is a Hindu
Buddhist (WVS: F025)	Dummy variable, which takes the value of 1 if the respondent is a Buddhist or Hoa Hao
Other religion (WVS: F025)	Dummy variable, which takes the value of 1 if the respondent belongs to other religious denominations
Self-employed (WVS: X028)	Dummy variable, which takes the value of 1 if the respondent is self-employed.

Notes: The categorization of religious denominations follows Fish (2011) (p. 268). The reference category for their dummies is "No religious denomination."

C. Probabilities of outcomes for different levels of GDP per capita

		Preferences for redistribution									
		1	2	3	4	5	6	7	8	9	10
GDPPC	7	0.137	0.069	0.117	0.110	0.104	0.148	0.077	0.076	0.055	0.107
	8	0.110	0.058	0.103	0.102	0.101	0.154	0.085	0.087	0.066	0.133
	9	0.088	0.048	0.089	0.092	0.096	0.155	0.091	0.098	0.077	0.165
	10	0.070	0.040	0.075	0.081	0.089	0.152	0.095	0.107	0.089	0.202
	11	0.056	0.032	0.063	0.070	0.080	0.145	0.096	0.114	0.099	0.245
	12	0.044	0.026	0.052	0.060	0.070	0.134	0.094	0.118	0.109	0.294

Notes: Each row reports the probabilities that the outcomes (1 being most anti-redistribution and 10 most pro-redistribution) are chosen given the level of GDP per capita, holding all the other variables at their means. The table shows that a stronger support for redistribution is more likely in the more developed countries.

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