

Does Wealth Inequality Matter for Growth? The Effect of Billionaire Wealth, Income Distribution, and Poverty



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NOVEMBER 2014

Research questions



1. How does wealth inequality affect economic growth?
2. Does the relationship between growth and inequality depend on the nature (source) of this inequality?
Does inequality based on political connections differ from one that is based on success as an entrepreneur?
3. What is the relative growth effect of wealth inequality, income inequality and poverty

Large empirical literature exists on the topic

- Cross - country & cross-sectional regressions suggest that income inequality is bad for growth:
 - Alesina & Rodrik (QJE, 1994)
 - Persson & Tabellini (AER, 1994)
- Different results in a panel set-up
 - Forbes (AER, 2000)
 - Barro (JEG, 2000)
- Poverty v. Inequality (Ravallion 2012)
- Work on the effect of billionaire wealth:
 - Morck, Stangeland, and Yeung (2000)
 - Morck, Wolfenzon, and Yeung (2005)

Inequality v. Poverty



- Ravallion (2012): recently cast serious doubt on inequality as a determinant of growth, suggesting that it is initial poverty rather than income inequality that affects economic growth of countries.

Key contributions of this paper



- Use a proxy for wealth inequality instead of (in addition to) income inequality measures
- Examine effects of politically connected v. unconnected wealth (“Are all inequalities created equal?”)
- Employ a variety of estimation techniques
 - Fixed effects model
 - IV approach

Data source for the paper

- Forbes magazine's list of billionaires:
 - Published list of billionaires from around the world since 1987
 - Estimate wealth based on the holdings of individuals in public companies or estimated holdings in private companies using standard price multiples
- We use the Forbes' billionaire data set to create two variables:
 - Proxy measure of wealth inequality =
Sum of wealth of all billionaires in a country/ Country GDP
 - E.g. Country 1 has 3 billionaires with wealths equal to \$5 billion, \$2 billion and \$1 billion respectively, and country GDP = \$500 billion/ year
 - Measure of wealth inequality = $(5 + 2 + 1) / 500 = 1.6\%$

Sample of countries is balanced between developed & developing or OECD vs. non-OECD



Table 1 – Panel A: Breakdown of countries which appear in 1987

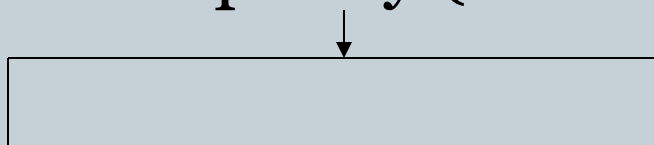
Developed / developing	OECD	Non - OECD	Grand Total
Developed	14	3	17
Developing	1	4	5
Grand Total	15	7	22

Panel B: Breakdown of countries which appear on the list at least once

Developed / developing	OECD	Non - OECD	Grand Total
Developed	19	6	25
Developing	2	14	16
Grand Total	21	20	41

We split wealth inequality into two components

- Wealth Inequality (or Billionaire wealth/GDP)



“Politically connected”
billionaire wealth /GDP

“Politically unconnected”
billionaire wealth /GDP

- Classify billionaires as politically connected or not (A billionaire can be in only one of the two categories)
- Previous example: Suppose billionaire 2 gets classified as politically connected
- Politically connected billionaire wealth / GDP = $\$2/\$500 = 0.4\%$
- Politically unconnected billionaire wealth / GDP = $\$6/\$500 = 1.2\%$

How do we classify someone as “politically connected”?



- *Extensive* search on Factiva & Lexis-Nexis
- “Criteria”:
 - Have political connections played a material role in the success of the billionaire?
 - Would they have been billionaires absent political connections?
 - Careful to distinguish between explicit government support from a generally pro-business regulatory environment
- Classic examples: Oligarchs from Russia or the cronies of Suharto (Indonesia)

Ranking of countries in terms of politically connected matches priors

Countries that rank highest in terms of politically connected wealth inequality

1. Malaysia
2. Colombia
3. Indonesia
4. Thailand
5. Mexico

Median rank on TI's Corruption Perceptions Index: 32 /41 (1995) & 94/174 (2012)

Countries that rank lowest in terms of politically connected wealth inequality

1. Hong Kong
2. Netherlands
3. Singapore
4. Sweden
5. Switzerland and
6. United Kingdom

Median rank on TI's Corruption Perceptions Index: 9 /41 (1995) & 8/174 (2012)

Other countries which just follow these include – Chile, South Korea, Philippines, Argentina, and, India. Italy has the 11th highest level of politically connected wealth inequality in our sample– the highest of any European country.

Correlations between wealth distribution data from UNU-WIDER & Forbes' list of billionaires

Raw correlation coefficient and Spearman rank correlation coefficient for the share of wealth going to the top decile and our measure of wealth inequality for a sample of 18 countries are 0.54 (p-value = 0.0199) and 0.58 (p-value = 0.0122).

Cross-country correlation between the Gini coefficients of wealth available for 22 countries for the year 2000 from the Davies et al. (2008) data set and our measure of wealth inequality for 2002: 0.50 (p = 0.0188).

These are relatively high positive correlations

What we include in our data set



- 20-year period from 1988 – 2007 divided into 4 periods of 5 years duration each
- All countries in the world subject to availability of data on covariates. When a country does not have billionaires, we set billionaire wealth = 0 (more on this later)
- ~ 100 countries (anywhere between 20 – 40 countries have billionaires in any of the four periods of our sample)
- This gives us ~ 400 country-period combinations

Summary Statistics

Table 2: Summary statistics for Forbes' billionaire data set

	1987	1992	1996	2002
No. of countries with billionaires	23	31	38	42
Total billionaire wealth (in billions of USD)	\$352	\$612	\$1,152	\$1,649
Billionaire wealth as a fraction of GDP	2.6%	2.9%	4.4%	5.5%
Politically connected billionaire wealth (in billions of USD)	\$46	\$68	\$124	\$69
Politically connected billionaire wealth / total billionaire wealth	13.2%	11.1%	10.8%	4.2%
Politically connected billionaire wealth as a fraction of GDP	0.35%	0.32%	0.47%	0.23%

Empirics: What is the effect of wealth inequality on economic growth?

Dependent variable	Explanatory Variables
Economic Growth in a 5 - year period for country i in period t	<p>Standard controls</p> <ol style="list-style-type: none">1. Income per capita, poverty2. Human Capital3. Measure of market distortions
	<ol style="list-style-type: none">4. Wealth inequality or5. Pol. connected w. inequality and pol. unconnected w. inequality <p>All variables (1. – 5.) are measured for country i at the end of period $(t-1)$</p>

Specification closely follows Forbes (2000)



OLS – along with country and period fixed effects

Modify Forbes' (2000) specification by including wealth inequality, poverty, and a dummy variable equal to 1 when a country has billionaires in period (t-1) and 0 otherwise

$$\text{Growth}_{i,t} = \beta_0 + \beta_1 \text{Wealth inequality}_{i,(t-1)} + \beta_2 \text{Income inequality}_{i,(t-1)} + \beta_3 \text{Headcount poverty}_{i,(t-1)} + \beta_4 \text{Income}_{i,(t-1)} + \beta_5 \text{Schooling}_{i,(t-1)} + \beta_6 \text{PPPI}_{i,(t-1)} + \beta_7 \text{Dummy}_{i,(t-1)} + \alpha_i + \eta_t + v_{i,t} \quad (1)$$

We also split wealth inequality into two components – politically connected and politically unconnected wealth inequality and introduce them in the specification jointly

Divide billionaire wealth by GDP or K stock or population

Impact of wealth inequality, income inequality, and poverty on economic growth

	(1)	(2)	(3)	(4)	(5)	(6)
Wealth Inequality	-0.131*	-0.542	-49.40***			
	(0.0758)	(0.347)	(13.29)			
Politically unconnected wealth inequality				-0.0449	-0.148	-47.27
				(0.0698)	(0.296)	(37.17)
Politically connected wealth inequality				-0.330***	-1.624***	-51.24**
				(0.0970)	(0.533)	(22.97)
Income Inequality	0.000576	0.000792*	0.000505	0.000542	0.000783*	0.000506
	(0.000434)	(0.000456)	(0.000429)	(0.000437)	(0.000456)	(0.000430)
Headcount Poverty	0.000196	0.000149	0.000246	0.000193	0.000140	0.000243
	(0.000263)	(0.000274)	(0.000262)	(0.000278)	(0.000284)	(0.000271)
Country on list dummy	-0.00433	-0.00521	-0.00480	-0.00619	-0.00659	-0.00497
	(0.00839)	(0.00850)	(0.00739)	(0.00832)	(0.00845)	(0.00867)
Number of observations	160	149	160	160	149	160
R-sq	0.59	0.59	0.61	0.60	0.60	0.61
F	28.47	21.71	30.91	34.33	24.03	32.45

Including the controls: GDP/ capita; Schooling & Price level of investment S.e. in parentheses * p < 0.10, ** p < 0.05, *** p < 0.01

Economic Effect of the Estimated Coefficient



- - 0.131 coefficient on wealth inequality:
1 standard deviation increase in this measure
⇒ Real GDP per capita growth slowdown of 0.49%
- Given an average real GDP per capita growth during the 1988 – 2007 period = 1.9%, real GDP per capita growth slowdown of 0.49% → growth slowdown of 0.26 (quarter) of mean GDP per capita growth

Impact of income inequality and/or headcount poverty without controls for wealth inequality

	(1)	(2)	(3)	(4)	(5)	(6)
Income Inequality	0.000597 (0.000444)		0.000302 (0.000399)	-0.000168 (0.000466)		-0.000289 (0.000317)
Headcount Poverty	0.000171 (0.000252)	0.000234 (0.000172)		0.000185 (0.000236)	0.000212 (0.000152)	
GDP Per Capita	-0.0915*** (0.0307)	-0.0640*** (0.0180)	-0.0944*** (0.0239)	-0.00177 (0.00779)	0.00612 (0.00481)	-0.00456 (0.00405)
Female years of secondary schooling	-0.00175 (0.0247)	-0.00858 (0.0216)	-0.00401 (0.0146)	-0.00461 (0.0133)	-0.00594 (0.00814)	-0.00610 (0.00672)
Male years of secondary schooling	0.00359 (0.0239)	0.0129 (0.0149)	0.00663 (0.0137)	0.0170* (0.00935)	0.0171** (0.00707)	0.00976 (0.00620)
Price Level of Investment	-0.105*** (0.0372)	-0.0325 (0.0273)	-0.0941** (0.0365)	-0.0841 (0.101)	-0.0537 (0.0337)	-0.107 (0.0917)
Number of observations	160	256	265	160	256	265
R-sq	0.56	0.39	0.46	0.28	0.22	0.16

S.e.in parentheses * p < .10, ** p <.05, *** p <.01

Comparing our results with Forbes (2000) (1/2)



	(1)	(2)	(3)	(4)
Panel A: Not introducing dummy variable for first half of the sample period				
Income Inequality	0.000751 (0.000886)	0.000991 (0.000830)	0.00102 (0.000858)	0.000947 (0.000840)
Wealth Inequality (GDP used for normalization)		-0.154*** (0.0484)		
Wealth Inequality (Physical capital used for normalization)			-0.578*** (0.179)	
Wealth Inequality (Population used for normalization)				-6.255*** (2.061)
Number of observations	162	162	152	162
R^2	0.39	0.45	0.44	0.42
F	5.343	8.717	8.740	7.138

S.e.in parentheses * p < .10, ** p <.05, *** p <.01

Comparing our results with Forbes (2000) (2/2)

	(1)	(2)	(3)	(4)
Panel B: Introducing dummy variable for first half of the sample period & corresponding interactions				
Income Inequality	0.000419 (0.000894)	0.000757 (0.000858)	0.000698 (0.000896)	0.000630 (0.000847)
Wealth Inequality (GDP used for normalization)		-0.131** (0.0493)		
Wealth Inequality (Physical capital used for normalization)			-0.525** (0.201)	
Wealth Inequality (Population used for normalization)				-7.771*** (2.690)
Income Inequality X First half of sample period	0.000750** (0.000327)	0.000492 (0.000333)	0.000614* (0.000327)	0.000742** (0.000317)
Wealth Inequality X First half of sample period (GDP used for normalization)		0.0691 (0.0797)		
Wealth Inequality X First half of sample period (Physical capital used for normalization)			-0.0110 (0.324)	
Wealth Inequality X First half of sample period (Population used for normalization)				-6.665 (5.169)
Number of observations	162	162	152	162
R^2	0.41	0.46	0.46	0.46
F	4.720	9.321	9.280	6.751

S.e.in parentheses * $p < .10$, ** $p < .05$, *** $p < .01$

Alternative estimation strategies adopted



1. Use a Random Effects (RE) specification
2. Use an IV strategy

Results are robust across these estimation strategies

Idea behind the Instrumental Variables (IV) strategy



$$\begin{aligned} \text{Wealth Inequality} &= \text{Billionaire wealth} / \text{GDP} \\ &= \text{“Average” wealth held by billionaire} / \text{Per capita income} \\ &\quad * \text{Number of billionaires} / \text{Population} \end{aligned}$$

Average wealth held by billionaires across countries within the same region are correlated.

We predict wealth inequality in a given country by predicting the average level of billionaire wealth in a country.

e.g. A weighted average of the billionaire wealth in Canada and Mexico is used as an instrument for the wealth held by the “average” U.S. billionaire.

Assumptions in the Instrumental Variables (IV) strategy



1. Exclusion Restriction: Excluded instrument (average billionaire wealth in countries within the same region) does not affect economic growth in a given country other than through own-country wealth inequality
2. Relevance Criteria: Excluded instrument (average billionaire wealth in countries within the same region) is sufficiently correlated with the included endogenous regressor (own-country wealth inequality)

Our instruments pass the over-identification tests & the first stage F-stats are all in excess of 10.

We also get similar results with the use of a different instrument – the country's exchange rate.

Conclusions



1. High levels of wealth inequality appear to have negative consequences for economic growth; income inequality and initial poverty do not
2. Wealth inequality arising on account of political connections reduces economic growth v. wealth inequality arising otherwise
3. => Growth-related policy debate should focus on distribution of wealth



Thank you