

## Discussion Paper and Working Paper Series

# Extraordinary Wealth, Globalization and Corruption

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Working/Discussion Paper #247

March 2009

### Abstract:

The billionaires of the world attract significant attention from the media and the public. The popular press is full of books selling formulas on how to become rich. Surprisingly, only a limited number of studies have explored empirically the determinants of extraordinary wealth. Using a large data set we explore whether globalization and corruption affect extreme wealth accumulation. We find evidence that an increase in globalization increases super-richness. In addition, we also find that an increase in corruption leads to an increase in the creation of super fortune. This supports the argument that in kleptocracies large sums are transferred into the hands of a small group of individuals.

Keywords: Globalization, Extraordinary Wealth, Corruption, Superstars

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\*For helpful comments and suggestions thanks are due to Alison Macintyre and David Savage

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# I. INTRODUCTION

The billionaires of the world attract significant attention from both the media and the public, with some billionaires generating a celebrity stardom. The richest person on earth for more than a decade, William Gates III, is constantly in the media. If we search for “Bill Gates”, a Google search generates 27 million hits. This is five times as many as if we search for “Robert De Niro” who is seen as one of the greatest actors of his time (see <http://www.imdb.com>). The popular press is also full of books that sell formulas how to become rich. For example, looking at recent releases through Amazon we can find titles such as “Think Like a Billionaire, Become a Billionaire”, “Millionaire in 365 Days: The Daily Plan to Get There”, “Be a Real Estate Millionaire: Secret Strategies to Lifetime Wealth Today”, or simple how “How To Become a Millionaire”. Moreover, positional concerns due to relative judgments are common. Neumayer (2004, p. 793) stresses that the “accumulation of great fortunes creates uneasiness, envy and concern in many people”. People seemed to constantly compare themselves with their environment and care greatly about their relative position, which influences individual choices. Thus, not only is the absolute level of an individual’s situation important (e.g., income), but also the relative position. Frank (1999) emphasizes that research provides “compelling evidence that concern about relative position is a deep-rooted and ineradicable element in human nature” (p. 145). Relative changes may also induce envy in all different environments. Friedman (1962) referred to the following example in the academic world: “The college professor whose colleague wins a sweepstake will envy him but is unlikely to bear him any malice or to feel unjustly treated. Let the colleague receive a trivial raise that makes

his salary higher than the professor's own, and the professor is far more likely to feel aggrieved. After all, the goddess of chance, as of justice, is blind. The salary raise was deliberate judgment of relative merit" (p. 166, cited in McAdams, 1992, p. 103).

Surprisingly, only a limited number of studies have explored empirically the determinants of extraordinary wealth. It seems that Neumayer's (2004) study was the first one that explored the issue at the global level using a cross-sectional analysis. As a dependent variable the study used the number of billionaires in each country (working with the *Forbes* list.) The results show a positive and statistical significant correlation for GDP per capita and population size. Thus, it is easier to accumulate great wealth in richer and more populous countries. The study also shows that the protection of property rights is positively correlated with extraordinary wealth, but in the two reported estimations the coefficient was only statistically significant at the 10% level. Morck, Strangeland, and Yeung (1998) find that economic growth depends on who owns the physical capital and not just on the stock of physical capital itself. They observe a correlation between lower rates of economic growth and entrenched family control of a nation's capital. On the other hand, entrepreneur billionaire's control of capital is correlated with faster rates of economic growth. Other studies have more a local perspective. Goldman (1998) explores why Russian businessmen appeared for the first time in the 1990s in the *Forbes* list even while Russia's president Boris Yeltsin and its Prime Minister Sergei Kiriyenko were seeking a \$20 billion IMF loan. Studies by John J. Siegfried and his co-authors discuss how, where and why fortune in different countries arose from different industries looking at Australia (Siegfried and Round 1994), US (Blitz and Siegfried 1992), UK (Siegfried and Roberts 1991), New Zealand (Hazledine and Siegfried 1998). Kennickell (2003)

investigates wealth development in the US. Looking at two lists, (one of them the Forbes data on the 400 wealthiest Americans), the author concludes that wealth grew relatively strongly at the very top of the distribution together with the share of total household wealth held by the listed names in the Forbes' list. Similarly, looking at the Forbes 400 richest list in the US between 1982 and 2002 Kopczuk and Saez (2004) also find a strong wealth gain for those wealthy individuals with concentration within the top 100 and in the years of the stock market bubble of the late 1990s.

In this paper we use an international perspective to explore the relationship between globalization, corruption and extraordinary wealth. We work with the *Forbes* list of billionaires using a panel of 8 years between 1996 and 2003. The results indicate that individuals in more globalized countries are better able to accumulate extraordinary wealth. However, we also find that there is a positive relationship between an increase in corruption and an increase in extraordinary wealth.

## II. METHODOLOGICAL APPROACH

### *1. Data Sets and Hypotheses*

Using the *Forbes* list of billionaires<sup>1</sup> as a dependent variable, we develop a panel of 8 years between 1996 and 2003. We stress that the international environment facing a country might be a key factor to understanding extreme wealth accumulation. Countries' capacity to act globally by creating international networks guarantees the flow of

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<sup>1</sup> Based on country of citizenship and not residency. For a description of the methodology see [http://www.forbes.com/2008/03/05/billionaire-methodology-acknowledgements-billionaires08-ex\\_lk\\_0305thanks.html](http://www.forbes.com/2008/03/05/billionaire-methodology-acknowledgements-billionaires08-ex_lk_0305thanks.html)

information, goods and capital, thereby increasing the possibility set for super-rich people and reducing restrictions to act more efficiently. Thus, we would predict a positive correlation between an increase in globalization and an increase in extreme wealth accumulation. Moreover, more globalized environments are correlated with a higher degree of competitiveness and a lower level of protection against competitors from foreign countries which should not hinder the creation of super fortune (Neumayer 2004). To investigate this question we will work with an interesting data set provided by Dreher (2006) that (contrary to other studies) provides an overall measure of globalization that covers several dimensions of globalization based on 23 variables.

In addition, we explore the correlation between corruption and super richness. In a state where corruption is rampant, the allocation of resources is distributed in a discretionary and unequal manner. Long-term relationships with a few firms might be established to share nation's wealth at the expense of ordinary people (Rose-Ackerman 1999). Thus, in kleptocracies wealth is often transferred into the hands of a small group of individuals. For example, Levin and Satarov (2000), e.g., analyze corruption and institutions in Russia, and raise the criticism that corruption is an integral part of Russia's economy. They state that the degree of corruption exceeds the total expenditures on science, education, health care, culture, and art. In some industries, criminal groups spend up to 50% of their revenues to bribe officials (p. 115). Goldman (1998) stresses that Russia is a unique case where various oligarchs accumulated their wealth in a short time. A large proportion of the biggest banks were linked to organized crime. For example, former deputy minister of the petroleum industry Vagit Alekperov ended up owning much of the industry he had previously supervised. Thus, Goldman (1998) concludes that

the Russian case was based on expropriation of what was formerly state property and not due to the creation of new productive entities. We would therefore predict that a higher level of corruption may lead to more extraordinary wealth accumulation. First, we use the International Country Risk Guide (ICRG) that provides yearly data (see Knack 1999) on corruption. The corruption variable assesses the corruption within the political system. Lower scores indicate "high government officials are likely to demand special payments" and that "illegal payments are generally expected throughout lower levels of government" in the form of "bribes connected with import and export licenses, exchange controls, tax assessment, police protection, or loans". To check the robustness we are also going to use the "control of corruption" variable available in the Kaufmann, Kraay, and Mastruzzi (2003) data set covering the years 1996, 1998, 2000, and 2002.

In another robustness check we will also use the control of corruption variable developed by Kaufmann et al. (2003). The proxy measure is driven by the traditional notion of corruption namely "the exercise of public power for private gain" covering a variety of aspects ranging from the frequency of "additional payments to get things done" to the effects on the business environment (p. 8). The values lie between  $-2.5$  and  $2.5$ , with higher scores corresponding to a lower level of corruption.

In line with Neumayer (2004) we control for the economic development (GDP per capita) and the population size of a country. The idea is that a larger population size allows for a larger number of super rich people compared to smaller population size. In addition, a higher GDP goes in line with a better infrastructure (physical and organizational) and better access to higher social and human capital. Moreover, it has been argued that it might be easier to accumulate greater wealth in an economy where

people are wealthier (Neumayer 2004). We therefore collect that information from the *World Development Indicators*.

## 2. Specification of the Test Equation

To test our two hypotheses, we propose the following baseline equation:

$$NBI_{it} = \alpha + \beta_1 CTRL_{it} + \beta_2 GLOB_{it} + \beta_3 CORR_{it} + TD_t + REGION_i + \varepsilon_{it} \quad (1)$$

where  $i$  indexes the countries in the sample,  $NBI_{it}$  denotes countries' billionaires over the periods 1996 to 2003.  $GLOB_{it}$  is our index for globalization and  $CORR_{it}$  the level of corruption (higher values, lower corruption). The regressions also contain two key control variables,  $CTRL_i$ , namely GDP per capita and the population size. To control for time as well as regional invariant factors, we include fixed time,  $TD_t$ , and fixed regional effects,  $REGION_i$ <sup>2</sup>.  $\varepsilon_{it}$  denotes the error term<sup>3</sup>. We report three models, namely FE regressions, left censored tobit models due to a large amount of zeros in the data set, and probit models where 1 measures whether a country has at least one billionaire. To facilitate the interpretation of the results, we also report the marginal effects of the probit estimations instead of only the estimated probit coefficients so that we can discuss not only the direction of the effects but also their sizes. The estimated probit coefficients are based on a non-linear estimation technique and cannot be interpreted readily in terms of

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<sup>2</sup> We differentiate between Europe, Latin America, North America, North Africa, Sub Saharan Africa, the Pacific, Asia, the Caribbean and Australia.

<sup>3</sup> For an overview of the countries and summary statistics see Appendix *Table A1 and Table A2*.

the quantitative sizes of the effects. Other independent variables are held at their mean when computing the marginal effects for a particular independent variable.

### III. EMPIRICAL RESULTS

*Table 1* presents the results. In the first three specifications we only explore the impact of *GLOB* on *NBI*, controlling for time and regional fixed effects. As can be seen the coefficient *GLOB* is always statistically significant at the 1% level. An increase of the globalization index by one unit increases the number of billionaires by more than 3 people. Specification [3] also shows that an increase in the globalization index by one unit is correlated with an increase in the number of billionaires by 37%. Thus, the effect is not at all negligible. Moreover, these simple specifications explain almost 40% of variance in *NBI*.

In the next three regressions we add *CORR* together with the two *CTRL* variables. First, we use the ICRG data set to measure the lack of corruption (see [4] to [6]). The negative coefficients indicate that a decrease in corruption leads to an increase in extraordinary wealth. In all three regressions the coefficients are statistically significant at the 1 or 5% level. Specification [4] shows that on average a one unit increase in *CORR* reduces the number of billionaires by 1.2 and specification [5] indicates that such an increase reduces the probability of generating a billionaire by 7%. The effect of *GLOB* decreases after extending the specification but the quantitative effect is still relatively strong. The idea of the next three specifications ([7] to [9]) is to check the robustness of the relationship between *CORR* and *NBI*. We therefore use an alternative proxy for *CORR*, namely the Kaufmann et al. variable “control of corruption”. It should be noted



that higher values are related to a lower corruption level, and also that the number of observations decreases as we move from 8 to 4 years of country data. *Table 1* reports that the previously received results remain robust. Both, *GLOB* and *CORR* are statistically significant reporting even larger quantitative effects. Thus, we can conclude that our two hypotheses cannot be rejected.

Looking at the control variables we find (in line with our predictions) that the population size as well as the GDP per capita is positively correlated with *NBI*. As a further robustness check we also run probit regressions with standard errors adjustments where we cluster at the country level. The obtained findings lead to the same conclusions. We also explore how government interventions or economic freedom affect super wealth. We therefore use the *Economic Freedom of the World* data base from 2000 to 2003 (Gwartney and Lawson 2006). We use the size of government index as first variable (*GOV*). It covers: general government consumption spending as a percentage of total consumption, transfers and subsidies as a percentage of GDP, government enterprises and investments as a share of total investment, and top marginal tax rate. These components indicate the extent to which countries rely on the political process to allocate resources and goods and services (.....). Such interventions may prevent the generation of super wealth. The results show a negative correlation between *GOV* and *NBI*. Thus, an increase in economic freedom is positively correlated with the accumulation of extreme wealth. However, the coefficient is only statistically significant in one out of 6 regressions (t- or z-values between 1.43 and 1.92). Thus, we cannot state that government size matters. Neumayer (2004) finds a similar result working with the US Heritage Foundation's Index of Economic Freedom.

Table 1: Determinants of Extreme Wealth (NBI)

Explanatory variables	FE	RE Tobit (left censored)	Probit	FE	RE Tobit (left censored)	Probit	FE	RE Tobit (left censored)	Probit
	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]
GLOB (globalization index)	3.465*** (5.33)	19.352*** (10.85)	1.275*** (12.85) <i>0.370</i>	2.640** (2.48)	8.038*** (3.05)	0.702*** (4.72) <i>0.222</i>	3.074** (2.35)	10.163*** (2.92)	0.745*** (3.44) <i>0.204</i>
CORR (lack of corruption) ICRG				-1.180** (-2.40)	-3.379*** (-3.15)	-0.225*** (-3.50) <i>-0.071</i>			
CORR (control of corruption) Kaufmann et al.							-1.994* (-1.82)	-7.515*** (-2.68)	-0.333** (-1.98) <i>-0.091</i>
CTRL: log (GDP per capita)				1.354*** (2.20)	9.805*** (5.58)	0.517*** (5.81) <i>0.164</i>	1.722** (2.09)	11.692*** (4.65)	0.618*** (4.29) <i>0.169</i>
CTRL: population size				1.07e-08*** (3.44)	3.74e-08 *** (6.12)	1.53e-09*** (4.67) <i>4.85e-10</i>	1.03e-08 *** (2.73)	4.85e-10*** (4.85)	1.85e-09*** (3.96) <i>5.08e-10</i>
Regional fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R <sup>2</sup> / Pseudo R <sup>2</sup>	0.381		0.346	0.394		0.369	0.401		0.373
Prob > F/ Prob > chi2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
# of observations	976	976	912	875	875	820	473	473	445

Notes: t-statistics or z-statistics in parentheses, marginal effects in italics. \*, \*\* and \*\*\* denote significance at the 10%, 5% and 1% level, respectively. The probit regressions (1=having a billionaire, 0=not having one) have a lower amount of observations, as some countries have no variation. CORR: higher values = lower level of corruption.

Moreover, the picture does not change when we focus on alternative proxies such as regulatory restraints that limit the freedom of exchange in credit, labor, and product markets (*REG*) or the legal structure and security of property rights (*LEG*).

## IV. CONCLUDING REMARKS

This paper has studied the effect of globalization and corruption on the generation of extraordinary wealth. Although the media and the popular press is full of discussions on how to become rich, we only find limited amount of studies that have explored empirically the determinants of extraordinary wealth. What we do find in the literature besides the literature discussed in the introduction is, for example, the discussion of the phenomenon of superstars. Rosen's (1981) seminal paper has initiated a lively discussion about stardom and salary structure – stressing that in many professions a relatively small number of people boast prodigious salaries and dominate the field. Since then, the superstar effect has been investigated not only in the economics of sports, but also in the entertainment industry, such as Hollywood economics (De Vany 2004), cultural economics (Frey 2000) and in winner-take-all markets, where a small heterogeneity in performance translates into large reward differences (Frank and Cook 1995). Our results indicate that globalization enhances super-richness. Countries' capacity to create international networks guaranteeing the freedom to exchange information, goods and capital seems to be a key ingredient in enhancing the accumulation of extraordinary wealth. However, this positive relation to the creation of new productive entities is only one side of the coin. The other side of the coin shows that extraordinary wealth is also

generated through corrupt activities. We find that a higher level of corruption is correlated with super-richness. It seems that in corrupt environments, wealth is often transferred into the hand of a small group of individuals. For example, experiences in Russia and Indonesia (under Suharto) have shown that a number of assets in the privatizations and expropriation process were transferred to “insiders” of the system in place. As Goldman (1998, p. 15) stresses, these people are not “Andrew Carnegies, Henry Fords, Bill Gates’ or even John D. Rockefellers”.

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*Table A1: Countries (122 countries, based on specification [1])*

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Albania	Germany	Nigeria
Algeria	Ghana	Norway
Argentina	Greece	Oman
Australia	Guatemala	Pakistan
Austria	Guinea-Bissau	Panama
Bahamas	Guyana	Papua New Guinea
Bahrain	Haiti	Paraguay
Bangladesh	Honduras	Peru
Barbados	Hong Kong	Philippines
Belgium	Hungary	Poland
Belize	Iceland	Portugal
Benin	India	Romania
Bolivia	Indonesia	Russian Federation
Botswana	Iran	Rwanda
Brazil	Ireland	Senegal
Bulgaria	Israel	Sierra Leone
Burundi	Italy	Singapore
Cameroon	Jamaica	Slovakia
Canada	Japan	Slovenia
Central African Republic	Jordan	South Africa
Chad	Kenya	Spain
Chile	South Korea	Sri Lanka
China	Kuwait	Sweden
Colombia	Latvia	Switzerland
Congo, Republic of	Lithuania	SYRIA
Congo, the Democratic Republic of the	Luxembourg	Tanzania, United Republic of
Costa Rica	Madagascar	Thailand
Cote D'Ivoire	Malawi	Togo
Croatia	Malaysia	Trinidad and Tobago
Cyprus	Mali	Tunisia
Czech Republic	Malta	Turkey
Denmark	Mauritius	Uganda
Dominican Republic	Mexico	Ukraine
Ecuador	Morocco	United Arab Emirates
Egypt	Myanmar	United Kingdom
El Salvador	Namibia	United States
Estonia	Nepal	Uruguay
Fiji	Netherlands	Venezuela
Finland	New Zealand	Zambia
France	Nicaragua	Zimbabwe
Gabon	Niger	

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Table A2: Descriptive Statistics (Key Variables)

Variables	Obs.	Mean	Std. Dev.	Min	Max
NBI	2558	1.167	9.638	0	269
GLOB	976	2.323	0.982	0.722	5.420
CORR (ICRG)	1098	2.944	1.263	0	6
CORR (Kaufmann et al.)	719	-1.48E-10	0.997909	-2.050	2.583
CTRL: log(gdp per capita)	1447	7.530	1.575	4.085	10.751
CTRL: population size	1575	6.09E+07	4.42E+08	0.769	6.29E+09