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Does Wealth Distribution and the Source of Wealth Matter for Economic Growth? Inherited v. Uninherited Billionaire Wealth and Billionaires' Political Connections*

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5.1 Introduction

Social scientists have grappled for decades with the key question of whether inequality in control over a society's resources facilitates or hinders economic growth. While there is a large theoretical and empirical literature on this topic, the question is far from settled.

Three important aspects of the literature contribute to this lack of consensus. First, while theoretical discussions are usually based on the distribution of wealth, empirical studies tend to use the distribution of income rather than wealth because data on the distribution of wealth do not exist for a sufficient number of countries (see, for example, Aghion, Caroli and Garcia-Penalosa, 1999, pp. 1617–18; Bénabou, 1996; and Ravallion, 2012, p. 506).[1]

Second, the literature does not adequately treat the varying nature and sources of inequality. Indonesia and the United Kingdom, for instance, have similar Gini coefficients – 32.5 and 33.7, respectively. Yet they differ markedly on such dimensions as the role of political connections in achieving economic

*We thank (without implicating) Lakshmi Iyer, Scott Masten, Jagadeesh Sivadasan, Joel Slemrod, Dmitriy Stolyarov, and Dietrich Vollrath for helpful comments. We also thank seminar participants at the Central Bank of Poland, Columbia University, Harvard Business School, Hong Kong University of Science and Technology, the International Economic Association Roundtable, London Business School, the Midwest Economic Association Annual Conference, the Eastern Economic Association Annual Conference, University of Michigan, and Wesleyan University for helpful comments. Jan Svejnar also benefited from the Grant Agency of the Czech Republic (Grant P402-15-24642S).

K. Basu et al. (eds.), *Inequality and Growth: Patterns and Policy*

success and causing their distribution of income and wealth. It is striking that virtually all empirical studies ignore this distinction and most of them analyze the effects of overall measures of inequality on economic growth.[2]

Third, in a pioneering multi-country study, Ravallion (2012) has cast doubt on inequality as a determinant of economic growth. His research suggests that it is initial poverty rather than income inequality that affects economic growth of countries.

In this paper, we continue our research in this area (Bagchi and Svejnar, 2015), addressing the shortcomings noted in the first two points above and providing new evidence on the third point, namely whether inequality or poverty affects economic growth. As in Bagchi and Svejnar (2015), we first develop a measure of wealth inequality based on *Forbes* magazine's annual worldwide listing of billionaires. We then split billionaire wealth into three components reflecting the extent, if any, to which billionaire wealth has been obtained through political connections (cronyism) and whether it was generated by entrepreneurship or through inheritance. The focus on the relative role played by inherited billionaire wealth is the new aspect of our research. We next use annual data for 1987–2007 to construct four five-year panels and test hypotheses regarding the effects on growth of our measures of self-made politically unconnected, self-made politically connected, and inherited wealth inequality, income inequality, and poverty. Ours is the first paper to examine the effect of these different components of wealth inequality on economic growth in a cross-country, panel data setting.[3] We also tackle a methodological issue in much of the literature in this area, namely that findings may be biased on account of endogeneity of inequality in the growth regressions. We follow one of the leading empirical studies in this area – Forbes (2000) – and estimate a fixed effects model with lagged values of the explanatory variables. We also find that our results hold when we use a random effects approach in estimation.

As mentioned above, our key results come from specifications in which we account for the fact that some billionaires acquired wealth through the use of political connections or cronyism, while others created it in a relatively standard legal environment, and some inherited it. Hence, beyond the classification of billionaires as politically connected and politically unconnected (see Bagchi and Svejnar, 2015), we classify billionaires based on whether wealth was generated primarily through entrepreneurship or primarily through inheritance. Using these classifications, we split billionaire wealth into three components: that attributable to entrepreneurs who exploited political connections in generating wealth; entrepreneurs who did not exploit such connections; and those who inherited wealth. We then normalize these measures of billionaire wealth by GDP or physical capital stock or population and characterize the resulting variables as three distinct components of wealth inequality. We find that

the effect on growth of inequality based on self-made politically connected wealth and inherited wealth is negative, while the effects of self-made politically unconnected wealth inequality, income inequality, and initial poverty are statistically insignificant. The results suggest that researchers need to pay attention to the sources and nature of wealth inequality. Another important conclusion is that in an encompassing model, it is the components of wealth inequality, rather than income inequality or poverty that have a significant effect on economic growth.

The structure of the paper is as follows. In section 5.2, we offer a brief review of the theoretical and empirical literature that examines the impact of inequality and poverty on growth. In section 5.3, we present our empirical strategy and describe the data set used. In section 5.4, we present the main results capturing the impact of wealth inequality (and its components), income inequality, and poverty on growth. We also discuss a number of robustness checks that show that our findings are robust. Section 5.5 offers concluding remarks and outlines potential avenues for future work.

5.2 Review of the existing literature

The early view espoused by Kuznets (1955) and Kaldor (1956, 1961) was that economic development influences income distribution, with economic growth raising income inequality in the first stages of economic development and reducing it later (the 'inverted-U hypothesis'). Kuznets' hypothesis has been extensively examined and generally it has not received further empirical support (see, for example, Fields, 2001).

The more recent studies on growth and development examine the causation between inequality and growth in the opposite direction.[4] The emphasis is on the effect of wealth inequality – and, to a lesser extent, income inequality – on economic growth, with the theoretical literature yielding two main strands of studies. The first literature focuses on various transmission mechanisms through which greater initial inequality generates economic growth. Important mechanisms are a higher savings propensity of the rich (Bourguignon, 1981) and investment indivisibilities (Attanasio and Binelli, 2003). The other literature identifies economic and political channels through which inequality can be harmful for growth – redistributive taxation that would be favored by the median voter and which would reduce incentives and hence also growth (Meltzer and Richard, 1981; Alesina and Rodrik, 1994; Barro, 1999), credit constraints generated by low levels of collateral by the poor (Galor and Zeira, 1993), sociopolitical instability originating from the sense of relative deprivation by the poor (Gupta, 1990), and increased fertility among the poor who cannot afford to provide adequate education to their children (De La Croix and Doepke, 2003). The idea common to many of these theories is that extreme

wealth concentration may distort economic policies and therefore lead to poor economic performance.

As mentioned earlier, the absence of adequate data on the distribution of wealth has led researchers to rely on alternatives, usually data on income inequality as a proxy for wealth inequality. Two partial exceptions are a pioneering study by Alesina and Rodrik (1994) and an important later study by Deininger and Olinto (2000), both of which employ land holdings as a measure of wealth inequality. However, as Alesina and Rodrik (1994) mention, land is only one component of wealth and it does not quite fit their model's concept of capital as an accumulating asset. In addition, inequality in landholding is not an adequate proxy for wealth inequality in more developed economies.[5] In fact, our own calculations based on the 26 countries for which data exist indicate that there is no correlation between the Gini coefficient for land (sourced from Deininger and Olinto (2000)) and Gini coefficient for wealth, nor do we find a correlation between the 20 countries for which we have data on the Gini coefficient for land and the share of wealth going to the top decile of the population of a country (Bagchi and Svejnar, 2015).[6] In contrast, our measure of billionaire wealth normalized by GDP is positively correlated with both the Gini coefficient for wealth and the share of wealth going to the top decile.[7]

The empirical literature dealing with income inequality and economic growth is based on cross-country regressions (see, for example, Alesina and Rodrik, 1994, Persson and Tabellini, 1994, and Perotti, 1996) and, more recently, on panel data analysis (see, for example, Forbes, 2000 and Barro, 2000).[8] We contribute in the spirit of the latter literature.

Finally, an important motivation for our study comes from Morck, Stangeland, and Yeung (2000) who show that when the world's billionaires are divided into those who were self-made versus those who inherited their wealth, a country's per capita GDP grows faster if its self-made billionaire wealth is larger as a fraction of GDP and slower if inherited billionaire wealth is larger as a fraction of GDP. The authors argue that the negative consequences of having the very wealthy control a large fraction of a country's assets can lead to entrenchment, bias capital allocation, retard capital market development, obstruct entry by outsider entrepreneurs, and cumulatively retard economic growth. These observations have led Morck, Wolfenzon, and Yeung (2005) to conclude that "inequality involving new money wealth seems different from inequality involving old money wealth." They suggest that "economists need to think less about concentration of wealth per se and more about concentration of wealth in whose hands."

We use this finding, as well as our earlier research (Bagchi and Svejnar, 2015), as our point of departure in analyzing the effect of different sources and nature

of wealth inequality on growth. In particular, the negative correlation between inequality and growth in a cross-section of countries could thus have more to do with the fact that a large share of the national wealth is held by a small number of politically connected families or families with inherited wealth than with higher tax rates or higher expenditure on transfers and subsidies, which are among the channels through which inequality is often believed to affect growth.

The literature on the effect of poverty vs income inequality on economic growth is represented by a pioneering contribution by Ravallion (2012). He employs country-level data based on household surveys to examine the effect of initial poverty and income distribution on subsequent economic growth. Ravallion's dataset includes 90 countries with two surveys at varying points in time. Most of the estimation is hence carried out in a cross-sectional setting, but for about two-thirds of the countries there are three or more surveys and these countries are used for robustness checks, including the GMM estimation and allowing for country fixed effects. Ravallion's (2012) key cross-sectional result, obtained in an OLS model, is that poverty rather than income inequality influences economic growth and that the effect of poverty on growth is negative.

5.3 Data and empirical approach

5.3.1 Construction of data on wealth inequality

We follow Bagchi and Svejnar (2015) and employ a new source of data – *Forbes* magazine's annual listing of billionaires. *Forbes* has been publishing a list of the four hundred richest Americans since 1982 and in 1987 it enlarged its coverage to cover the richest individuals and families around the world.[9] We employ this latter list and assign each billionaire to a country with the locus of his business activities, which often coincides with his location. We generate three measures of wealth inequality defined for each year as the sum of the wealth of all the billionaires in a given country divided by either the country's GDP or physical capital stock or population.[10] Our first measure parallels that reported by *The Economist* (October 13, 2012 issue, SS3–SS6) for several countries.

Given the nature of our wealth inequality variables, we focus, of course, on the effects of concentration of wealth at the top of the wealth distribution pyramid. As such, our research belongs to the class of studies that examine inequality through the concentration of wealth or income in the top quantiles rather than taking into account the entire distribution (for example, Davies et al., 2008; Piketty and Saez, 2003; and Wolff, 2006). Focusing on the top of the distribution is desirable because over the last several decades concentration of

income and wealth at the top has increased (for example, Piketty and Saez, 2003, Kopczuk and Saez, 2004, and *The Economist*, 2012) and it is also widely believed that this concentration affects economic, political and social outcomes (for example, Stiglitz, 2012). Consequently, in a number of countries, including the United States and France, government tax authorities have taken keen interest in this group. Finally, Voitchovsky (2005) shows that inequality in different parts of the income distribution has different effects on growth and that a single inequality statistic for the entire distribution is insufficient to capture the effects of inequality on growth. Our research reported here and in Bagchi and Svejnar (2015) hence focuses on the impact on growth of wealth inequality at the very top of the distribution.

The key aspect of the present research is the focus on whether wealth has been acquired through political connections or through inheritance. As in Bagchi and Svejnar (2015), we identify the fraction of a country's billionaire wealth that has been generated through the use of political connections by classifying each billionaire into one of two categories: those who benefited from political connections in creating their wealth and those who did not. We create a dummy variable called "Political connections" and set it equal to 1 when we conclude, through an extensive search on Factiva and LexisNexis using news sources from around the world, that political connections had a material part to play in the success of the billionaire. We code this variable 0 when we conclude that political connections have not been crucial to the billionaire's rise to riches even though he may have had prior political connections. The criterion we use for classifying billionaires as being politically connected is that our extensive review of evidence indicates that the person would not have become a billionaire in the absence of political connections that resulted in favoritism and/or explicit government support. Three examples of billionaires who are classified as politically connected are given in the Data Appendix A.3. A complete classification of billionaires into the two categories of politically connected and politically unconnected is available from the authors on request.

As our discussion indicates, our measure is conservative in that only individuals who quite clearly benefited from political connections as a means of becoming billionaires are included in the politically connected category. In our sample, politically connected billionaires represent 4–13 percent of total billionaire wealth, depending on the year under consideration.[11]

The classification with respect to self-made versus inherited billionaire wealth – the key feature of this paper – is relatively more straightforward. If our research suggests that the billionaire had started the enterprise to which his wealth can be attributed, we classify such a billionaire as self-made. The list of billionaires also includes individuals who inherited wealth and now continue to either be passively involved or actively involved in growing the business.

Individuals in both of these categories are classified as billionaires with inherited wealth. In our sample, inherited billionaires account for anywhere between 54 and 72 percent of total billionaire wealth, depending on the year under consideration. We also observe a secular trend in that inherited wealth declines monotonically over the 1987–2002 period.

Our panel begins in 1987 – the first year in which the Forbes magazine's list of billionaires from around the world was published. Constructing the five-year panel structure in Forbes (2000) means that we use lists from years 1987, 1992, 1997, and 2002. We do so, but we substitute billionaire information from 1996 for 1997 because Forbes magazine changed its editorial criteria for inclusion in its billionaire list for the period 1997 to 2000. Further details regarding the construction of the wealth inequality variable and the robustness of results to using the 1997 list instead of the 1996 list are provided in the Data Appendix A.1.

The unit of observation in our sample is a country-(five-year) period combination. Summary statistics for the country-period observations with billionaires in the Forbes' data are provided in Table 5.1.[12]

As may be seen from Table 5.1, the number of countries on the *Forbes* magazine list grows over time. While only 23 countries appear on the first list in 1987, there are 42 countries on the list by 2002. The level of wealth inequality in these countries, calculated as the sum of all billionaire wealth in the country normalized by GDP, ranges from a low of 3.5 percent in 1987 and 1992, to a high of 7.6 percent in 1996. A list of countries which appear in the billionaire lists in each year of the sample is given in Data Appendix A.2.

We augment the sample that corresponds to the billionaire lists from the *Forbes* magazine with countries that do not have billionaires but for which data on all other variables are available. We include these countries in our base regressions and assign them a value of zero for components of billionaire wealth inequality. Assigning a value of zero is reasonable given the comprehensive nature of Forbes magazine's coverage of billionaires.

As in Bagchi and Svejnar (2015), for income inequality we employ data from the second round of the World Income Inequality Database compiled by the UNU-WIDER project on "Global Trends in Inequality and Poverty". This is the most recent data set on income inequality and it provides information on various measures of income inequality for over 150 countries with most observations drawn from the period between 1970 and 2006. We exclude from the data observations that do not cover an entire country or an entire population. Since the Gini coefficient is the most commonly available income inequality measure in the Database (and also the one used in the key study by Forbes, 2000), we use it instead of other possible measures. To reduce any inconsistency resulting from the fact that some Gini coefficients are based on income, whereas others are based on expenditure, we follow Deininger and Squire's suggestion and

Table 5.1 Summary statistics for Forbes' billionaire data

	1987	1992	1996	2002
No. of countries with billionaires	23	31	38	42
Total billionaire wealth (billions $)	$353	$612	$1,152	$1,649
Billionaire wealth, normalized by GDP	3.5%	3.5%	7.6%	5.4%
Billionaire wealth, normalized by physical capital stock	0.69%	0.90%	1.7%	1.2%
Billionaire wealth, normalized by population	0.035%	0.047%	0.11%	0.10%
Self-made politically unconnected billionaire wealth (billions $)	92.2	161.7	372.9	705.9
Self-made politically unconnected billionaire wealth, normalized by GDP	0.97%	0.95%	2.48%	1.68%
Self-made politically unconnected billionaire wealth, normalized by physical capital stock	0.23%	0.27%	0.62%	0.41%
Self-made politically unconnected billionaire wealth, normalized by population	0.0089%	0.014%	0.034%	0.034%
Self-made politically connected billionaire wealth (billions $)	15.4	26.7	56.7	26.1
Self-made politically connected billionaire wealth, normalized by GDP	0.70%	0.58%	0.85%	0.28%
Self-made politically connected billionaire wealth, normalized by physical capital stock	0.10%	0.11%	0.16%	0.042%
Self-made politically connected billionaire wealth, normalized by population	0.0013%	0.0018%	0.0041%	0.0014%
Inherited billionaire wealth (billions $)	245.7	423.7	722.9	917.4
Inherited billionaire wealth, normalized by GDP	1.85%	1.95%	4.27%	3.42%
Inherited billionaire wealth, normalized by physical capital stock	0.36%	0.52%	0.96%	0.77%
Inherited billionaire wealth, normalized by population	0.025%	0.031%	0.068%	0.066%

Notes:
The summary statistics are calculated only for the countries with billionaires when they have data on all the covariates. In the process, we lose between 1 to 4 countries given the lack of data on control variables depending on the year.
The billionaire list for 1996 is used instead of the billionaire list for 1997. Reasons for using the 1996 list instead of the 1997 list are mentioned in the text and details are provided in the Data Appendix A.1.

add the value of 6.6 to Gini coefficients based on expenditure or consumption (Deininger and Squire, 1998).

Finally, as in Bagchi and Svejnar (2015), for initial poverty we use the head-count index (H_{it}), given by the proportion of the population living in households with consumption per capita (or income when consumption is not available) below the poverty line and sourced from the World Bank's PovcalNet tool. Following Ravallion (2012), we set the poverty line at $2 per person

per day at 2005 PPP, which is the median poverty line amongst developing countries. For robustness, we also use a lower line of $1.25 a day which is the expected value of the poverty line in the poorest countries in terms of consumption per person and obtain similar results as those obtained with the $2 per person per day definition.

5.3.2 Empirical approach

The key new explanatory variables, the components of wealth inequality, are constructed as the respective component of billionaire wealth normalized by the country's GDP or physical capital stock or population. In other words, once we have classified billionaires as politically connected or not and as self-made or inherited, we add up the wealth of all self-made politically unconnected billionaires, all self-made politically connected billionaires, and all inherited billionaires, and normalize these sums by the country's GDP or physical capital stock or population. We call the resulting variables "Self-made politically unconnected wealth inequality", "Self-made politically connected wealth inequality", and "Inherited wealth inequality." Thus:

$$\begin{aligned}&\text{Billionaire wealth} = \text{Self-made politically unconnected}\\&\text{billionaire wealth} + \text{Self-made politically connected}\\&\text{billionaire wealth} + \text{Inherited billionaire wealth}\end{aligned} \tag{1a}$$

Equivalently,

$$\begin{aligned}&\text{Billionaire wealth/GDP} = \text{Self-made politically unconnected}\\&\text{billionaire wealth/ GDP} + \text{Self-made politically connected}\\&\text{billionaire wealth/GDP} + \text{Inherited billionaire wealth/GDP}\end{aligned} \tag{1b}$$

$$\begin{aligned}&\text{Wealth Inequality} = \text{Self-made politically unconnected wealth}\\&\text{inequality} + \text{Self-made politically connected wealth}\\&\text{inequality} + \text{Inherited wealth inequality}\end{aligned} \tag{1c}$$

and analogously for normalization by physical capital stock and population.

The choice of these variables for normalizing is based on the fact that the preferred denominator – total wealth holdings in each country – is unavailable. At the same time, it is important to normalize the raw billionaire wealth holdings by a measure of the size of a given economy since not doing so would lead to artificially inflated values of wealth inequality for countries with a high per capita income and a large population. Thus, in the absence of measures of wealth holdings for each country, we use GDP, physical capital stock, and population as alternatives for normalizing billionaire wealth.[13] In using

a country's physical capital stock, we generate values of the physical stock of a country by the perpetual-inventory method (Nehru and Dhareshwar, 1993) and define wealth inequality as the ratio of the sum of billionaire wealth for a given country in a given year to the total estimated physical stock of capital in that country in that year.[14] Using GDP, physical capital stock, and population for normalizing billionaire wealth yield mostly similar results.

An important theme in the literature on the effects of income inequality and growth is that cross-country, cross-sectional regressions may lead to omitted variable bias (Forbes, 2000) and non-robustness of results (Levine and Renelt, 1992, and Deininger and Squire, 1998). To overcome these concerns, we use panel data to examine the effects on growth of the three types of wealth inequality, income inequality, and poverty. We start by using a fixed effects specification that is similar to Forbes (2000), with the difference being that we use the three measures of wealth distribution, income distribution, and poverty (rather than just income distribution) as our key regressors of interest. As in Forbes (2000), we regress the real GDP growth rate per capita in a five-year period t on the values of the explanatory variables at the end of period t-1 (that is, in the year preceding the start of the five-year period t). We also assume that in a fixed effects model the values of the lagged variables may be viewed as being predetermined and therefore unlikely to suffer from problems related to reverse causality (endogeneity). Our initial specification hence is:

$$\begin{aligned}\text{Growth}_{i,t} = {} & \beta_0 + \beta_1 \text{ Self-Made Politically Unconnected Wealth Inequality}_{i,(t-1)} + \beta_2 \text{ Self-Made Politically Connected Wealth Inequality}_{i,(t-1)} + \beta_3 \text{ Inherited Wealth Inequality}_{i,(t-1)} + \beta_4 \text{ Income Inequality}_{i,(t-1)} + \beta_5 \text{ Headcount Poverty}_{i,(t-1)} + \beta_6 \text{ Income}_{i,(t-1)} + \\ & \beta_7 \text{ Schooling}_{i,(t-1)} + \beta_8 \text{ PPPI}_{i,(t-1)} + \beta_9 \text{ Dummy}_{i,(t-1)} + \alpha_i + \eta_t + \nu_{i,t} \end{aligned} \quad (2)$$

where i denotes country and t annual time period (with t=1, 2, ... T). Growth is measured as the average annual growth rate in real GDP per capita in country i in period t, while the components of wealth inequality, income inequality, and headcount poverty have been defined above. "Income" is the real GDP per capita. "Schooling" is defined as the average years of secondary schooling in the male and female populations aged 25 and above, and PPPI is the value of the investment deflator, used as a proxy for market distortions. "Dummy" is coded 1 for all country-period observations which have at least one billionaire and 0 for countries which do not. Country fixed effects α_i are included to account for time-invariant country idiosyncratic factors, while period fixed effects η_t control for any global shocks in each period that are common across countries. Finally, $\nu_{i,t}$ is the random error term. We cluster standard errors at the country level in order to allow arbitrary country-specific serial correlation (Bertrand, Duflo, and Mullainathan, 2004).

Not all countries included in the estimation have billionaires in any given year. As in Bagchi and Svejnar (2015), we control for this feature by using a dummy variable with a value of 1 if a country had billionaires in a given year and 0 if it did not. Including this dummy variable into the regression allows country-year observations without billionaires to have different fixed effects than countries with billionaires in any given period. Moreover, including countries without billionaires allows us to estimate more precisely the effects of the other variables on economic growth.

The other variables used in equation (2) are relatively standard in the inequality-growth literature. The dependent variable, namely the growth rate in real GDP per capita, is calculated as the average annual compounded growth rate over a five-year period of Gross Domestic Product per capita in constant prices and expressed in national currency (IMF, 2009).[15] The level of initial income at the start of each period is measured by the log of real GDP per capita in International dollars in 2000 Constant Prices from the Penn World Tables v6.2. Schooling is captured by the average years of secondary schooling in the male and female population aged 25 and above (Barro and Lee, 2001). Because data on schooling are unavailable for years 1987, 1992, 1997, and 2002, we use instead data from 1985, 1990, 1995, and 2000. Finally, the Price Level of Investment (PPPI) is obtained by dividing the purchasing power parity (PPP) for investment goods by the US dollar exchange rate. This variable is used frequently as a proxy for market distortion that affects the cost of investment, such as tariffs, government regulations, corruption, and the cost of foreign exchange. This variable is common in growth regressions and it is also derived from the Penn World Tables.[16] In addition, we include initial poverty and headcount poverty, defined above, as key explanatory variables. Summary statistics for all these variables for the sample included in estimation are presented in Table 5.2.

5.4 Empirical results

In section 5.4.1, we present the results from our base specification – a fixed effects model with lagged values of the explanatory variables in which billionaire wealth is normalized by GDP, physical capital stock, and population, respectively. In section 5.4.2 we summarize the results of a number of robustness checks.

5.4.1 Base specification

In Table 5.3 we report the estimates of equation (2), with the components of wealth inequality, income inequality, and initial poverty being the key explanatory variables. The data are from countries reporting some incidence of poverty as measured by $2 per day. The Hausman test indicates that the fixed

Table 5.2 Descriptive statistics for dependent variable and all control variables

Panel A: Summary Statistics

	Definition	Source	Period/Year	Mean	Std. Dev.	Minimum	Maximum
Growth Rate	Growth in real GDP per capita	IMF World Economic Outlook Database	1988 – 1992	1.6%	3.9%	–7.4%	9.2%
			1993 – 1997	1.7%	3.8%	–11.4%	10.3%
			1998 – 2002	1.2%	2.2%	–3.4%	7.4%
			2003 – 2007	3.8%	1.7%	0.5%	10.4%
Income	Ln of Real GDP per capita in 2000 constant Prices (In International dollar per person)	Penn World Tables v6.2	1987	8.09	0.71	6.58	9.23
			1992	7.98	0.81	6.60	9.19
			1997	8.14	0.79	6.67	9.31
			2002	8.24	0.76	6.79	9.44
Female Schooling	Average years of secondary schooling in the female population aged 25 and above	Barro & Lee (2001)	1985	0.67	0.45	0.05	1.60
			1990	0.82	0.61	0.05	2.20
			1995	1.00	0.68	0.06	2.49
			2000	1.13	0.67	0.08	2.61
Male Schooling	Average years of secondary schooling in the male population aged 25 and above	Barro & Lee (2001)	1985	1.05	0.47	0.30	1.96
			1990	1.16	0.61	0.13	2.37
			1995	1.27	0.70	0.17	3.12
			2000	1.38	0.69	0.16	3.10
PPPI	Price level of investment, measured as the PPP of investment/ exchange rate relative to the US	Penn World Tables v6.2	1987	69.8	62.9	24.9	367.6
			1992	74.6	46.5	31.7	325.0
			1997	68.7	21.8	22.4	111.4
			2002	62.1	25.8	27.0	138.6
Self-made Politically Unconnected Wealth Inequality	Self-made politically unconnected billionaire wealth, divided by GDP	Forbes' listings & own estimates	1987	0.016%	0.087%	0%	0.47%
			1992	0.092%	0.41%	0%	2.47%
			1996	0.93%	3.41%	0%	21.33%
			2002	0.31%	0.76%	0%	3.38%

Self-made Politically Connected Wealth Inequality	Self-made politically connected billionaire wealth, divided by GDP	Forbes' listings & own estimates	1987	0.11%	0.45%	0%	2.28%
			1992	0.25%	0.71%	0%	2.66%
			1996	0.62%	2.27%	0%	13.77%
			2002	0.22%	0.86%	0%	5.35%
Inherited Wealth Inequality	Inherited billionaire wealth, divided by GDP	Forbes' listings & own estimates	1987	0.065%	0.21%	0%	0.88%
			1992	0.33%	0.77%	0%	2.94%
			1996	1.10%	2.06%	0%	8.85%
			2002	0.71%	1.79%	0%	10.11%
Income Inequality	Gini coefficient of any quality level and with either person or household as the unit of analysis	UNU-WIDER World Income Inequality Database	1987	45.5	10.4	22.7	62.0
			1992	48.7	9.3	29.4	69.5
			1997	50.9	8.2	29.5	71.0
			2002	50.6	8.0	26.7	66.6
Headcount Poverty	Percentage of the population in households with consumption per capita below $2/ day	World Bank PovcalNet tool	1987	47.0	31.9	0.1	96.5
			1992	48.5	31.8	0.2	95.2
			1997	43.2	30.5	0.5	92.4
			2002	39.1	27.2	0.2	90.7

Panel B: Pair-wise Pearson Correlations of Variables

		1	2	3	4	5	6	7	8	9	10
1	Growth Rate	1									
2	Income	0.16	1								
3	Female Schooling	0.17	**0.70**	1							
4	Male Schooling	**0.26**	**0.57**	**0.83**	1						
5	PPPI	–0.19	–0.13	–0.16	**–0.23**	1					
6	Self-Made Politically Unconnected Wealth Inequality	–0.03	0.14	**0.26**	**0.21**	–0.07	1				
7	Self-Made Politically Connected Wealth Inequality	–0.00	**0.21**	**0.28**	**0.31**	–0.11	**0.46**	1			
8	Inherited Wealth Inequality	–0.03	**0.33**	**0.31**	**0.27**	–0.09	**0.37**	**0.40**	1		
9	Income Inequality	**–0.22**	–0.14	–0.01	**–0.28**	**0.24**	0.04	–0.04	0.06	1	
10	Headcount Poverty	–0.03	**–0.84**	**–0.68**	**–0.54**	0.02	**–0.10**	–0.11	–0.25	0.07	1

Note: This table presents summary statistics and Pearson correlation coefficients between the regression variables. Panel A includes the mean, standard deviation, minimum, and maximum. Panel B reports the Pearson correlation coefficients with boldface indicating statistical significance at the 1% level. Growth Rate is the annual rate of growth in real GDP per capita, averaged over a 5-year period; Income is the log of Real GDP per capita in 2000 constant prices (in international dollar per person); Female Schooling is the average years of secondary schooling in the female population aged 25 and above; Male Schooling is the average years of secondary schooling in the male population aged 25 and above; PPPI is price level of investment, measured as the PPP of investment/ exchange rate relative to the USA; Self-made Politically Unconnected (Connected) Wealth Inequality is self-made politically unconnected (connected) billionaire wealth, divided by GDP. Inherited wealth inequality is defined similarly using the total wealth of all billionaires classified as inherited. Income Inequality is the Gini coefficient of any quality level and with either person or house-hold as the unit of analysis. Headcount Poverty is the percentage of the population in households with consumption per capita below $2/ day.

effects specification is more appropriate than the random effects specification in each case and in Table 5.3 we therefore report the fixed effects estimates.[17] Estimates from the random effects specification yield similar results and they are discussed as part of our robustness checks.

In column (1) of Table 5.3 we present results from the specification in which the components of wealth inequality have been constructed by dividing respective billionaire wealth by GDP, while estimates in columns (2) and (3) come from specifications where billionaire wealth has been divided by the country's physical capital stock and population, respectively.

The results indicate that it is self-made politically connected wealth inequality and inherited wealth inequality that have a significant negative effect on growth while self-made politically unconnected wealth inequality does not. The estimated effects of both income inequality and poverty are insignificant in all three specifications. These results hence suggest that it is important to distinguish the nature of wealth inequality in drawing inferences about the effect of wealth inequality on growth and they highlight the negative effect

Table 5.3 Impact of components of wealth inequality, income inequality, and headcount poverty on economic growth

	(1)	(2)	(3)
Dependent variable: Growth rate in real GDP per capita			
Self-made Politically Unconnected Wealth Inequality	0.0333	0.325*	–21.40
	(0.0335)	(0.166)	(30.88)
Self-made Politically Connected Wealth Inequality	–0.287***	–1.327**	–42.76
	(0.0960)	(0.561)	(26.36)
Inherited Wealth Inequality	–0.356*	–2.413	–96.02
	(0.199)	(1.567)	(64.52)
Income Inequality	0.000525	0.000695	0.000489
	(0.000415)	(0.000437)	(0.000411)
Headcount Poverty	0.000402	0.000378	0.000403
	(0.000289)	(0.000301)	(0.000286)
Income	–0.0833***	–0.0867***	–0.0836***
	(0.0282)	(0.0295)	(0.0288)
Female Schooling	0.00565	0.00687	0.00913
	(0.0220)	(0.0227)	(0.0218)
Male Schooling	0.00592	0.00262	0.00527
	(0.0222)	(0.0231)	(0.0221)
Price level of investment	–0.0694*	–0.0640*	–0.0632*
	(0.0370)	(0.0364)	(0.0361)
Country On List Dummy	0.00143	0.00194	-0.00155
	(0.0102)	(0.0109)	(0.00905)
Constant	0.624**	0.649**	0.626**
	(0.236)	(0.248)	(0.241)
Number of observations	160	149	160
R^2	0.62	0.62	0.61
F	64.91	62.56	80.81

Notes:
Growth Rate is the average annual compounded growth rate over a 5-year period of Gross Domestic Product per capita in constant prices and expressed in national currency; Income is the log of Real GDP per capita in International dollars in 2000 constant prices; Female (Male) Schooling is the average years of secondary schooling in the female (male) population aged 25 and above; PPPI is price level of investment, measured as the PPP of investment/ exchange rate relative to the USA (rescaled here by dividing by 1,000); Self-made Politically Unconnected (Connected) Wealth Inequality is self-made politically unconnected (connected) billionaire wealth, divided by GDP (col. (1)), physical capital stock (col. (2)), and population (col. (3)). Inherited wealth inequality is defined similarly using the total wealth of all billionaires classified as inherited. Measures of billionaire wealth are based on Forbes' billionaire lists for 1987, 1992, 1996, and 2002 along with author calculations. Country on List Dummy = 1 if a country has billionaires in a given year, 0 otherwise and is also based on author calculations. Column (2) is estimated using observations for which the capital to GDP ratio is between 2.58 to 14.43, corresponding to the 5th and 95th percentile values of the distribution of capital to GDP.

A list of countries included in this estimation are: Algeria, Bangladesh, Bolivia, Botswana, Brazil, Burundi, Cameroon, Central African Republic, Chile, China, Colombia, Costa Rica, Dominican Republic, Ecuador, Egypt, El Salvador, Fiji, Gambia, Ghana, Guatemala, Haiti, Honduras, Hungary, India, Indonesia, Iran, Jamaica, Jordan, Kenya, Lesotho, Malawi, Malaysia, Mali, Mauritania, Mexico, Mozambique, Nepal, Nicaragua, Niger, Pakistan, Panama, Papua New Guinea, Paraguay, Peru, Philippines, Poland, Rwanda, Senegal, Sierra Leone, South Africa, Sri Lanka, Swaziland, Thailand, Trinidad and Tobago, Tunisia, Turkey, Uganda, Venezuela, and Zambia.

All regressions include country and period fixed effects. Robust standard errors, clustered by country, in parentheses *$p<0.10$, **$p<0.05$, ***$p<0.01$.

of self-made politically connected wealth inequality and inherited wealth inequality in comparison to the insignificant (or even positive) impact of self-made politically unconnected wealth inequality.

In terms of the economic significance of the estimated impact of wealth inequality, note that the –0.287 coefficient on self-made politically connected wealth inequality in column (1) implies that a one standard deviation (1.35 percent) increase in the level of wealth inequality would result in a 0.39 percent decrease in real GDP per capita growth. Similarly, a one standard deviation increase in the level of inherited wealth inequality, holding constant the levels of self-made wealth inequality, results in a 0.55 percent slowdown in per capita GDP growth. Given that the mean per capita GDP growth over the period 1987–2007 was 1.9 percent, the slowdown of 0.39 percent associated with self-made politically connected wealth inequality and 0.55 percent associated with inherited wealth inequality are substantial in magnitude.

The estimated effects of the control variables are in line with what has been reported elsewhere in the literature. The effect of initial income is negative and significant at the 1% test level, thus providing support for the conditional convergence hypothesis that countries relatively close to their steady-state output level will experience a slower rate of growth. The coefficient on the price level of investment is also negative as is common. The coefficient on the variables corresponding to male and female schooling are positive but not significant. These coefficients are similar to those found in other growth models estimated using the same technique (for example, Caselli et al., 1996).

5.4.2 Additional robustness checks

We conduct a number of robustness checks (RCs) to assess the robustness of the result that self-made politically connected wealth inequality and inherited wealth inequality have a negative effect on economic growth whereas self-made politically unconnected wealth inequality does not. In the interest of brevity, the results are summarized below, with the detailed estimates being available from the authors upon request.

(a) RC1: Robustness to *Forbes* magazine's choice of countries for the billionaires in the data set: As described in Data Appendix A.1, in a total of 30 of the 1,652 entries we assign a person a different country than what was assigned to him by *Forbes* magazine. We examine the robustness of our results to *Forbes* magazine's assignment of country and find that the results remain essentially unchanged.
(b) RC2: Use of a random effects instead of a fixed effects specification: Our use of the country fixed effects model is based on the results of the Hausman test. In all cases, the results of the Hausman test reject the null hypothesis of no correlation between the unobserved country-specific random effects and the explanatory variables, implying that random effects estimates are

biased and inconsistent. However, we have also estimated the random effects specification, given that Griliches and Hausman (1986) stress that observing similar estimates across alternative panel data estimation techniques signals the absence of serious errors-in-variables problems. Using the random effects specification, we find that self-made politically connected wealth inequality has a coefficient that is negative and statistically significant at the 1% level in all three specifications. Inherited wealth inequality is not statistically significant, but it is negative in all three specifications. Finally, self-made politically unconnected wealth inequality is statistically insignificant all throughout.

(c) RC3: Robustness to inclusion of additional explanatory variables:

(i) Adding a measure of institutional quality: The inclusion of country fixed effects deals with the problem of omitted variable bias in that all country-specific factors that are invariant over time (for example, a country's legal origin) are controlled for by the country fixed effect. However, the fixed effects specification does not deal with country-specific factors that may vary over time. Given the importance that the literature assigns to the quality of a country's institutions (for example, Rodrik, Subramanian, and Trebbi, 2004), we examine the robustness of our results to the inclusion of a measure of institutional quality. We employ the very widely used Economic Freedom Index constructed by the Fraser Institute and we find that controlling for this aggregate measure of institutional quality does not alter any of the findings of our paper.

(ii) Controlling for the exchange rate: The *Forbes*' billionaire list converts wealth in local currency into US dollars using the current exchange rates. Fluctuations in the exchange rates thereby induce a variation in the measure of wealth inequality even when the true underlying level of wealth inequality in the country is unchanged. We examine the robustness of our results to inclusion of the exchange rate as a control and find that our basic results continue to hold when this control is included.

(d) RC4: Using $1.25 per day per person as the poverty line: Thus far we have used a headcount measure of poverty based on the fraction of individuals consuming less than $2 per person per day, as used by Ravallion (2012). In addition, like him, we also consider for robustness a lower consumption threshold of $1.25 per day per person which is the expected value of the poverty line in the poorest countries. The results obtained with such a threshold are very similar to those obtained previously.

5.5 Concluding remarks

A key question in the social sciences is whether inequality in control over a society's resources facilitates or hinders economic growth. The question has been studied intensively, but the answer is far from clear-cut, in part because

theoretical arguments have been based largely on the distribution of wealth, while empirical studies have been forced to use the distribution of income as a proxy. We build on Bagchi and Svejnar (2015) and bridge this gap by using the first global measure of wealth inequality, focusing on the concentration of wealth at the very top of the pyramid – billionaire wealth. We proceed to split it into three individual components (self-made politically unconnected wealth, self-made politically connected wealth and inherited wealth) and estimate the effect of these components of wealth inequality on economic growth. In addition, motivated by Ravallion's (2012) recent finding that poverty rather than income inequality determines economic growth, we provide the first direct comparison of the effects of the components of wealth inequality, income inequality, and poverty on growth.

Our key finding is that when we enter self-made politically unconnected, self-made politically connected wealth, and inherited wealth inequality as three separate explanatory variables into our regressions, it is self-made politically connected and inherited wealth inequality that have a significant negative effect on growth, while the effects of self-made politically unconnected wealth inequality, income inequality, and poverty are insignificant.

Our research suggests that the policy debate about sources of economic growth ought to focus on the distribution of wealth rather than on the distribution of income. Moreover, particular attention ought to be paid to the politically connected concentration of wealth as a possible cause of slower economic growth. Further research in this area is obviously needed, especially with respect to the effects of wealth inequality at different parts of the wealth distribution, the effect of unequal distribution of income on growth, and the role of poverty.

A Data Appendix

5A.1 Construction of billionaire lists

Forbes magazine published a list of the four hundred richest individuals in the United States, the so-called "Forbes Four Hundred", for the first time in 1982. It was then followed by the publication of a list of individuals and families from all countries from around the world having more than $1 billion in wealth (in nominal terms) in 1987. Since then, these lists have been published annually. For all countries of the world but the United States, we exclusively rely on the wealth data provided in the billionaire lists. In the case of the United States only, where additional information is available from the Forbes Four Hundred, we also use the information contained therein and aggregate the wealth of family members whose individual amounts of wealth are below a billion dollars, but cumulatively sum up to more than a billion dollars. We add them to the list

of billionaires to get an augmented list. This step is necessary in order to make the numbers comparable for the United States over all four years of the sample. All of our results are robust to the exclusion of United States from the sample.

In the vast majority of the cases, the locus of business activities for a billionaire is the same as the person's country of origin and/ or his country of birth. However, they do not match up in all cases. When that happens, we depart from *Forbes* magazine's chosen categorization of country and instead assign him to the country where he presently resides and maintains his business activities. For example, in the case of Stelios Haji-Ionnanou of EasyAir, whose business activities are currently based in the U.K. where he spends a considerable fraction of his time, we classify him as British. However considering his Greek origin, *Forbes* classifies him as Greek. Likewise in the case of Lakshmi Mittal of ArcelorMittal who *Forbes* classifies as Indian considering that he is of Indian origin, we choose to classify him as British since he moved out of India in the late 1970s and has been settled in London, U.K. since 1995. However, such circumstances arise in only 30 of the 1,652 entries on our list – that is, less than 2 percent of the total number of entries. These 30 billionaires who we categorize against a particular country different from *Forbes*' initial classification account for less than 2 percent of the total billionaire wealth and the results we obtain for wealth inequality are robust to whether we go with our choice of a country or with *Forbes*' magazine original assignment of country.

Finally, *Forbes* magazine changed its editorial policy for four years, between 1997 and 2000. In these years, they included only those billionaires who were either self-made (for example, Warren Buffett) or those who inherited their wealth and were actively managing it themselves (for example, Carlos Slim Helu of Mexico). This leads to the exclusion of billionaires from around the world who simply inherited their wealth and were no longer actively involved themselves in growing their businesses, such as the duPonts and Rockefellers in the U.S., the Quandt family of Germany (the largest shareholder in BMW), and Liliane Bettencourt of France (the largest shareholder in L'Oreal) to provide a few examples.[18] Thus while the three other years of the panel – 1987, 1992, and 2002 included all categories of billionaires, including those who simply inherited their wealth and were not actively managing it themselves such as those mentioned above, the 1997 list, generally failed to include them by design making it challenging to have the lists comparable across the four years. Given this limitation of the 1997 list, we use the 1996 list instead, assuming that had *Forbes* chosen to include all billionaires in their 1997 listing, then the measures of wealth inequality and political connections we would have arrived at for 1997 are similar to what we arrive at by looking at the 1996 list. That said, the correlation coefficient between wealth inequality, constructed from the 1996 and 1997 lists is 0.9456 (p-value=0.0000) and that between politically connected wealth inequality for the two years is 0.9600 (p-value=0.0000).

5A.2 Countries that appear on the *Forbes'* billionaire list at least once in the four years – 1987, 1992, 1996, and 2002 and level of wealth inequality in those countries

Table 5.A.1 Level of wealth inequality in countries that show up at least once on Forbes' list of billionaires

Country	1987	1992	1996	2002
Argentina	–	1.3%	2.5%	1.0%
Australia	1.0%	0.7%	0.4%	1.4%
Bahrain	–	–	16.4%	–
Belgium	–	–	–	1.5%
Brazil	2.0%	1.5%	2.4%	2.9%
Canada	3.3%	2.9%	2.6%	6.2%
Chile	–	7.2%	11.5%	4.3%
China	–	–	–	0.1%
Colombia	10.5%	7.8%	3.9%	1.2%
Denmark	–	1.0%	2.6%	2.4%
Ecuador	–	–	5.6%	–
France	0.4%	1.3%	2.3%	4.5%
Germany	2.2%	4.9%	5.4%	10.5%
Greece	–	3.8%	9.8%	2.3%
Hong Kong	15.7%	20.0%	39.9%	25.6%
India	0.4%	0.8%	0.9%	2.5%
Indonesia	2.3%	2.3%	11.9%	0.9%
Ireland	–	–	–	1.1%
Israel	–	–	1.9%	5.6%
Italy	0.9%	1.0%	1.3%	3.2%
Japan	3.5%	2.2%	1.9%	1.5%
Kuwait	4.8%	–	9.5%	14.9%
Malaysia	–	4.3%	25.4%	10.0%
Mexico	0.9%	3.8%	7.0%	4.5%
Netherlands	2.9%	2.0%	2.1%	2.2%
Norway	–	–	–	0.7%
Peru	–	–	1.8%	–
Philippines	–	2.3%	28.2%	6.9%
Portugal	–	–	–	1.3%
Republic of Korea	2.1%	2.7%	4.0%	0.8%
Russia	–	–	–	4.3%
Saudi Arabia	8.2%	10.6%	12.0%	24.6%
Singapore	6.1%	4.8%	18.6%	13.5%
South Africa	–	–	2.9%	4.0%
Spain	0.4%	0.7%	0.7%	2.5%
Sweden	3.5%	3.7%	4.4%	16.0%
Switzerland	3.1%	4.0%	11.9%	15.6%
Taiwan	6.7%	4.7%	8.6%	4.7%
Thailand	–	3.7%	11.6%	1.8%
Turkey	–	2.4%	3.6%	6.2%
United Arab Emirates	–	–	–	2.4%
United Kingdom	1.8%	1.2%	1.3%	2.0%
United States	3.2%	3.7%	5.7%	8.3%
Venezuela	–	1.7%	3.4%	10.1%

5A.3 Classifying billionaires as politically connected or not

The following are three examples of brief news reports that resulted in classification of billionaires as "politically connected."

1. The first example is of an Indonesian magnate, Prajogo Pangestu.

   In any case, there's no denying that Indonesian government agencies have helped Mr. Prajogo make the leap from a successful timber merchant to a major corporate force. His Barito Group of companies, for example, is the state banking system's largest borrower, with loans of more than $1 billion outstanding, and benefits from an *unusually attractive 1992 debt rescheduling* [Emphasis added] that stretched repayment periods on about $460 million in timber industry borrowings into the next century. Mr. Prajogo, Mr. Bambang and their partners also stand to gain from a change of government policy last year that allowed them to proceed with their postponed $1.6 billion PT Chandra Asri petrochemical project, the products of which will be protected by *steep new tariffs* [Emphasis added] on imports. (*The Wall Street Journal Asia*, 1993)
2. We next provide *Forbes* magazine's description of the Birla family, India's only billionaire entry until 1996:

   The nationalists who later became free India's power elite rewarded the Birla family with lucrative contracts. After independence, the Birlas continued their lavish contributions to the ruling Congress Party. So accomplished are they in manipulating the bureaucracy, and so vast their network of intelligence, that they frequently obtain preemptive licenses, *enabling them to lock up exclusive rights for businesses as yet unborn* [Emphasis added] (Forbes, 1987).
3. Lastly, the following description pertains to Russian billionaire, Mikhail Fridman who shows up on the Forbes' list in 2002:

   Mikhail Fridman founded OAO Alfa Bank in 1991 and soon after recruited Pyotr Aven, former minister of foreign economic relations, to raise Alfa's political profile. The partners were among a handful of businessmen who helped to finance Boris Yeltsin's re-election campaign in 1996. The Kremlin *rewarded* these men by selling them state-owned oil and metals companies at *bargain-basement prices* [Emphasis added] (The Wall Street Journal, 2001).

A possible concern regarding the use of newspaper reports to construct the measure of politically connected wealth is that it may be biased by the level of press freedom. This concern can be allayed by the fact that our classification of billionaires as politically connected or politically unconnected is largely based on press reports from the international rather than the local press. To formalize this claim, we analyzed a subsample of twenty billionaires that we classified as politically connected in order to note the sources of the stories

which led us to classify these billionaires as politically connected in the first place. Of the 31 articles that were used in the classification process, about half were articles published in various issues of the *Forbes* magazine, with *The New York Times*, *The Guardian*, and the *Financial Times* being the other sources that were most often referenced. Only two of the 31 articles referenced can be classified as local sources and in each of these cases when we relied on local sources, there was information available from other international sources to substantiate our reasoning that these individuals were politically connected. This suggests that, although the use of accounts in the press to classify individuals as politically connected may have its shortcomings, the corresponding measures of politically connected wealth inequality are unlikely to be biased because of variations in the level of press freedom across countries.

Notes

1. There are only two studies that directly use wealth inequality data and looks at the effect of wealth inequality on growth. Ravallion (1998) studies the effect of geographic differences in the distribution of wealth on growth in China and finds evidence that high wealth inequality impedes growth. In related work, we (Bagchi and Svejnar, 2015) examine the effects of wealth inequality, income inequality, and headcount poverty on economic growth and find that wealth inequality is negatively associated with growth whereas income inequality and headcount poverty do not bear a statistically significant relationship.
2. Easterly (2007) is a notable exception in that he distinguishes between structural and market-based inequality. Moreover, as we discuss below, Morck, Stangeland, and Yeung (2000) note that when they divide billionaires into those who were self-made versus those who inherited their wealth, a country's per capita GDP grows faster if its self-made billionaire wealth is larger as a fraction of GDP and slower if inherited billionaire wealth is larger as a fraction of GDP.
3. As we discuss below, a pioneering study by Alesina and Rodrik (1994) and an important later study by Deininger and Olinto (2000) use land inequality as a proxy for wealth inequality, but this measure is more appropriate for low income agrarian societies than the world as a whole. In recent work (Bagchi and Svejnar, 2015) we have examined the effects of wealth inequality on economic growth and compared its effects to the effects of income inequality and headcount poverty.
4. A review of this literature may be found in Aghion, Caroli, and García-Peñalosa (1999), Ehrhart (2009), and Galor (2009).
5. As a study of income tax returns by Bakija et al. (2012) suggests, professionals account for an overwhelming share of the top 1 percent of income earners in the U.S.: 31 percent started or manage nonfinancial businesses, about 16 percent are doctors, 14 percent are a part of the financial services industry, 8 percent are lawyers, 5 percent are scientists and engineers, and about 2 percent are a part of the sports, entertainment or media industries. It would be hard to argue that for such individuals, their holdings of land capture, to any reasonable degree, their asset holdings.
6. Both measures of wealth inequality are sourced from Davies et al. (2008).
7. These results are reported in our paper, Bagchi and Svejnar (2015) and are available from the authors on request.

8. Another strand of the literature examines the relationship between growth spells and inequality and finds that high levels of inequality increase the likelihood that a growth spell will end (Berg, Ostry and Zettelmeyer, 2012 and Ostry, Berg, and Tsangarides, 2014).
9. The list of countries that appear on the Forbes' billionaire list in each year is provided in the Data Appendix A.2.
10. As billionaire wealth, GDP, and physical capital stock are expressed in nominal terms, the ratio of billionaire wealth to GDP or billionaire wealth to physical capital stock should not exhibit any secular trends because of inflation.
11. By this measure, the countries with the highest level of politically connected wealth inequality are Malaysia, Colombia, Indonesia, Thailand, and Mexico.
12. We lose eight of the 134 country-period observations which have billionaires in the estimation because data on schooling is not available for these observations. These correspond to Saudi Arabia (all four years: 1987, 1992, 1996, and 2002), Liechtenstein (1996 and 2002), Russia (2002), and the United Arab Emirates (2002).
13. Morck, Stangeland, and Yeung (2000) also use a similar measure in their paper and mention the lack of wealth-based Gini coefficients as an obstacle to estimating the effect of inequality in wealth distribution on economic growth.
14. We use the Stata module, Stockcapit (Amadou, 2011) for this exercise.
15. Sourced from:http://www.imf.org/external/pubs/ft/weo/2009/01/weodata/index.aspx.
16. Initial income and PPPI are obtained from the Penn World Tables (http://pwt.econ.upenn.edu/php_site/pwt62/pwt62_form.php). PPPI is frequently used in the macroeconomic and international literature and measures how the cost of investment varies between each country and the United States.
17. E.g., for column (1), $\chi2=135.80$, and Probability > $\chi2=0.0000$.
18. This is how *Forbes* described its change in editorial policy in 1997: "Ten years ago Forbes started counting billionaires outside the U.S. We found 96. Last year, 298–plus 149 American billionaires. With stock markets around the world up an average 23 percent in the last year, the billionaire population, like the deer population, is sure to have increased. Bowing to economic reality, we have revised our selection process this year. A billion bucks no longer gets you in. You've got to have made it yourself, or you've got to be actively managing it. This eliminates a fair number of jet-setters and Palm Beach residents. We have culled the roster of billionaires down to 200 people around the globe, the Global Superrich."

References

Aghion, Philippe, Eve Caroli, and Cecilia García-Peñalosa (1999) "Inequality and Economic Growth: The Perspective of the New Growth Theories," *Journal of Economic Literature*, vol. 37, no. 4, pp. 1615–60.

Alesina, Alberto and Dani Rodrik (1994) "Distributive Politics and Economic Growth," *Quarterly Journal of Economics*, vol. 109, no. 2, pp. 465–90.

Attanasio, Orazio and Chiara Binelli (2003) "Inequality, Growth and Redistributive Policies," in *Conference on Poverty, Inequalities and Growth: What's at Stake for Development Aid?* Paris: Afd/EUDN.

Bagchi, Sutirtha and Jan Svejnar (2015) "Does Wealth Inequality Matter for Growth? The Effect of Billionaire Wealth, Income Distribution, and Poverty," *Journal of Comparative Economics*, vol. 43, no. 3, pp. 505–530.

Bakija, Jon, Adam Cole and Bradley Heim (2012) "Jobs and Income Growth of Top Earners and the Causes of Changing Income Inequality: Evidence from US Tax Return Data," Working Paper.

Barro, Robert J. (1999) "Inequality, Growth, and Investment," NBER Working Paper No. 7038.

Barro, Robert J. (2000) "Inequality and Growth in a Panel of Countries," *Journal of Economic Growth*, vol. 5, no. 1, pp. 5–32.

Barro, Robert J. and Jong-Wha Lee (2001) "International Data on Educational Attainment: Updates and Implications," *Oxford Economic Papers*, vol. 53, no. 3, pp. 541–63.

Bénabou, Roland (1996) "Inequality and Growth," NBER Chapters, in *NBER Macroeconomics Annual 11*. Cambridge, MA: National Bureau of Economic Research, Inc.

Berg, Andrew, Jonathan D. Ostry, and Jeromin Zettelmeyer (2012) "What Makes Growth Sustained?," *Journal of Development Economics*, vol. 98, no. 2, pp. 149–66.

Bertrand, Marianne, Esther Duflo, and Sendhil Mullainathan (2004) "How Much Should We Trust Differences-in-Differences Estimates?," *Quarterly Journal of Economics*, vol. 119, no. 1, pp. 249–75.

Bourguignon, François (1981) "Pareto-Superiority of Unegalitarian Equilibria in Stiglitz' Model of Wealth Distribution with Convex Savings Function," *Econometrica*, vol. 49, no. 6, pp. 1469–75.

Caselli, Francesco, Gerardo Esquivel, and Fernando Lefort (1996) "Reopening the Convergence Debate: A New Look at Cross-Country Growth Empirics," *Journal of Economic Growth*, vol. 1, no. 3, pp. 363–89.

Davies, James B., Susanna Sandström, Anthony Shorrocks, and Edward N. Wolff (2008) "The World Distribution of Household Wealth," World Institute for Development Economic Research (UNU–WIDER) Working Paper No. DP2008/03.

Deininger, Klaus W. and Pedro Olinto (2000) "Asset Distribution, Inequality, and Growth," World Bank Policy Research Working Paper Series, No. 2375.

Deininger, Klaus W. and Lyn Squire (1998) "New Ways of Looking at Old Issues: Inequality and Growth," *Journal of Development Economics*, vol. 57, no. 2, pp. 259–87.

De La Croix, David, and Matthias Doepke (2003) "Inequality and Growth: Why Differential Fertility Matters," *American Economic Review*, vol. 93, no. 4, pp. 1091–113.

Diallo Ibrahima Amadou (2011) "STOCKCAPIT: Stata Module to Calculate Physical Capital Stock by the Perpetual-Inventory Method," Statistical Software Components S457270, Boston College Department of Economics, revised 17 June 2011.

Easterly, William (2007) "Inequality Does Cause Underdevelopment: Insights from a New Instrument," *Journal of Development Economics*, vol. 84, no. 2, pp. 755–76.

Ehrhart, Christophe (2009) "The Effects of Inequality on Growth: a Survey of the Theoretical and Empirical Literature," ECINEQ Working Paper No. 2009-107.

Fields, Gary S. (2001) *Distribution and Development: A New Look at the Developing World* (Russell Sage Foundation). New York: The MIT Press.

Forbes, Kristin J (2000) "A Reassessment of the Relationship between Inequality and Growth," *American Economic Review*, vol. 90, no. 4, pp. 869–87.

Forbes magazine, List of Billionaires, 1987, 1992, 1996, 1997, and 2002 issues.

Galor, Oded, and Joseph Zeira (1993) "Income Distribution and Macroeconomics," *Review of Economic Studies*, vol. 60, no. 1, pp. 35–52.

Galor, Oded (2009) *Inequality and Economic Development: The Modern Perspective*. Northampton, MA: Edward Elgar Publishing Ltd.

Griliches, Zvi, and J.A. Hausman (1986) "Errors in Variables in Panel Data," *Journal of Econometrics*, vol. 31, no. 1, pp. 93–118.

Gupta, Dipak (1990) *The Economics of Political Violence*. New York: Praeger.

Gwartney, James, Joshua Hall, and Robert Lawson (2011) "2011 Economic Freedom Dataset," published in *Economic Freedom of the World: 2010 Annual Report*, Economic Freedom Network. Data retrieved from http://www.freetheworld.com/2011/2011/Dataset.xls.

Heston, Alan, Robert Summers, and Bettina Aten (2006) "Penn World Table Version 6.2," Center for International Comparisons of Production, Income and Prices at the University of Pennsylvania, (Sep. 2006).

Kaldor, Nicholas (1956) "Alternative Theories of Distribution," *Review of Economic Studies*, vol. 23, no. 2, pp. 83–100.

Kaldor, Nicholas (1961) "Capital Accumulation and Economic Growth," in F.A. Lutz and D.C. Hague (eds), *The Theory of Capital*. New York: St. Martin's Press.

Kopczuk, Wojciech, and Emmanuel Saez (2004) "Top Wealth Shares in the United States, 1916–2000: Evidence from Estate Tax Returns," *National Tax Journal*, vol. 57, no. 2, pp. 445–88.

Kuznets, Simon (1955) "Economic Growth and Income Inequality," *American Economic Review*, vol. 45, no. 1, pp. 1–28.

Levine, Ross, and David Renelt (1992) "A Sensitivity Analysis of Cross-Country Growth Regressions," *American Economic* Review, vol. 82, no. 4, pp. 942–63.

Meltzer, Allen, and Scott Richard (1981) "A Rational Theory of the Size of Government," *Journal of Political Economy*, vol. 89, no. 5, pp. 914–27.

Morck, Randall, David Stangeland, and Bernard Yeung (2000) "Inherited Wealth, Corporate Control, and Economic Growth: The Canadian Disease," in Randall Morck (ed.), *Concentrated Corporate Ownership*. Chicago: University of Chicago Press, pp. 319–69.

Morck, Randall, Daniel Wolfenzon, and Bernard Yeung (2005) "Corporate Governance, Economic Entrenchment, and Growth," *Journal of Economic Literature*, vol. 43, no. 3, pp. 655–720.

Nehru, Vikram, and Ashok Dhareshwar (1993) "A New Database on Physical Capital Stock: Sources, Methodology and Results," *Revista de Analisis Economica*, vol. 8, no. 1, pp. 37–59.

Ostry, Jonathan D., Andrew Berg, and Charalambos G. Tsangarides (2014) "Redistribution, Inequality, and Growth," IMF Staff Discussion Note 14/02.

Perotti Roberto (1996) "Growth, Income Distribution and Democracy: What the Data Say," *Journal of Economic Growth*, vol. 1, no. 2, pp. 149–87.

Persson, Torsten and Tabellini, Guido (1994) "Is Inequality Harmful for Growth?," *American Economic Review*, vol. 84, no. 3, pp. 600–21.

Piketty, Thomas and Emmanuel Saez (2003) "Income Inequality in the United States, 1913–1998," *Quarterly Journal of Economics*, vol. 118, no. 1, pp. 1–39.

Ravallion, Martin (1998) "Does Aggregation Hide the Harmful Effects of Inequality on Growth?," *Economics Letters*, vol. 61, no. 1, pp 73–7.

Ravallion, Martin (2012) "Why Don't We See Poverty Convergence?," *American Economic Review*, vol. 102, no. 1, pp. 504–23.

Rodrik, Dani, Arvind Subramanian, and Francesco Trebbi (2004) "Institutions Rule: The Primacy of Institutions Over Geography and Integration in Economic Development," *Journal of Economic Growth*, vol. 9, no. 2, pp. 131–65.

Stiglitz, Joseph E. (2012) *The Price of Inequality*. New York: W.W. Norton & Company.

The Economist, "For Richer, For Poorer" (2012). http://www.economist.com/node/21564414.

Voitchovsky, Sarah (2005) "Does the Profile of Income Inequality Matter for Economic Growth? Distinguishing between the Effects of Inequality in Different Parts of the Income Distribution," *Journal of Economic Growth*, vol. 10, no. 3, pp. 273–96.

Wolff, Edward N.(2006) *International Perspectives on Household Wealth*. Northampton, MA: Edward Elgar Publishing Ltd.

World Bank, Development Research Group (2013) *PovcalNet: The Online Tool for Poverty Measurement*. Washington DC: World Bank. Available: http://iresearch.worldbank.org/PovcalNet/index.htm?0.

World Institute for Development Economics Research (2004) *World Income Inequality Database*. Helsinki: WIDER. Available: http://www.wider.unu.edu/research/Database/en_GB/wiid/.

A Sociological Perspective on Wealth Inequality and Opportunity: Comments on "Does Wealth Distribution and the Source of Wealth Matter for Economic Growth? Inherited v. Uninherited Billionaire Wealth and Billionaires' Political Connections" by Sutirtha Bagchi and Jan Svejnar

Kendra Bischoff

A Sociological Perspective on Wealth Inequality and Opportunity

In light of the theme of the roundtable – Shared Prosperity and Growth – as well as the topic of this paper's panel – Inequality and Opportunity – I use Bagchi and Svejnar's paper "Does Wealth Distribution and the Source of Wealth Matter for Economic Growth? Inherited v. Uninherited Billionaire Wealth and Billionaires' Political Connections" as a springboard to focus my comments on the relationship between wealth inequality and opportunity. In this paper, the authors use cross-national panel data to investigate the much-debated and methodologically thorny relationship between inequality and economic growth. They operationalize the theoretical concept of inequality using a measure of wealth inequality instead of income inequality. Wealth is a more appropriate measure of resources than income, but data limitations have largely prevented scholars from analyzing the extent, causes, and consequences of wealth inequality in previous research. Using a measure of billionaire wealth, the authors find that upper-tail wealth inequality reduces economic growth, but only if that wealth inequality is generated by political connections or inheritance. Self-made politically unconnected wealth inequality, as well as income inequality and initial poverty levels, have no effect on economic growth.

Bagchi and Svejnar note that studies of resource inequality are generally theoretically linked to wealth, even if data limitations often prohibit its measurement. Put simply, wealth is equivalent to one's assets minus one's debt.

Wealth provides financial security during shocks in individual and family life, such as temporary unemployment or natural disasters (Keister and Moller 2000; Wolff 2002). This may allow families to stay in their homes during unstable times, providing continuity in children's schooling and social networks. If a family member becomes ill or disabled, wealth may provide the means to obtain medical assistance that allows other family members to continue working. Wealth can also help families weather even predictable peaks in expenses, such as the cost of a child attending college or the purchase of a home. Wealth is a durable resource that eases uncertainties and allows for investments that reap dividends over a lifetime. In addition, wealth inequality is more extreme than income inequality. In 2010, the top 10 percent of earners commanded 44 percent of all income in the United States, whereas the top 10 percent of wealth holders commanded 74 percent of all wealth. In the same year the Gini coefficient for wealth was 0.87, compared to 0.55 for income (Keister 2014). Thus, wealth inequality is arguably more consequential than income inequality for disparities in short- and long-term wellbeing, not only because of its differential effects, but also due to its magnitude.

Despite the paper's many strengths, the use of GDP as a measure of growth is questionable, especially in light of the roundtable's theme of shared prosperity. Instead, one might consider a measure that better captures the distribution of the rewards of growth across race/ethnicity, class, and gender groups. And if national economic growth is realized unequally across groups within a society, then the relationship between growth and opportunity must also be questioned. In addition, the authors focus on billionaire wealth inequality, however, from a within-country, structural perspective, wealth inequality even at a much lower level – for instance, the wealth of the top 5–10 percent of the resource distribution – is highly consequential. Nevertheless, this paper takes on a large and important question, and does so in an innovative way. Importantly, the authors ask not simply if inequality affects growth, but also whether the source of inequality matters.

Deviating from a macroeconomic perspective, I take a sociological perspective, focusing on structural processes that manifest through social institutions such as families, schools, and neighborhoods. In the remainder of my comments, I focus on social inequality by outlining three dimensions of the link between "everyday" wealth inequality and individual opportunities. These dimensions are not mutually exclusive, but highlighting them separately is worthwhile for conceptual clarity.

Intergenerational mobility

Intergenerational mobility, or the movement between social classes from one generation to the next, has long been of interest to sociologists and economists.

The rate of upward intergenerational mobility is considered a marker of a nation's commitment to equality of life chances regardless of circumstances at birth. From a meritocratic perspective, it is unfair that circumstances at birth should dictate a child's fate. Nonetheless, even in the United States, where the rhetoric of equal opportunity is ubiquitous, the education, occupation, and income of one's parents are highly predictive of their child's position in the class structure as an adult (Groves, 2008; Hout and Janus, 2011). Wealth inequality matters for intergenerational mobility because it creates disparate opportunity structures, especially during childhood when many of the building blocks of social mobility are set. Income can have the same effect, but wealth allows people to live "beyond their means" by enabling consumption that their incomes alone would prohibit. While some of this spending might be inconsequential to persistent intergenerational inequality, such as purchasing expensive clothing, other types of consumption may have significant consequences for the transmission of privilege, such as buying a residence in certain neighborhoods, providing high-quality schooling (public or private), and obtaining superior healthcare. In addition to advantages conferred during childhood, wealth can be gifted to young adults. This may provide the means to start small businesses, make investments, or pursue personal interests that are not financially lucrative. These pathways facilitate the maintenance and generation of wealth, as well as provide the freedom to explore various life trajectories.

Wealth can therefore bolster life outcomes throughout the life course, but, perhaps more importantly, the intergenerational transmission of wealth facilitates the accumulation of physical, financial, and human capital, as well as the maintenance of health and the advantage of physical safety. The inability to partake in this intergenerational process disadvantages those with little wealth, especially in highly consequential and competitive arenas, such as elite college admissions. Thus, individuals and families with similar incomes but differential wealth may experience very different opportunities and outcomes, which in turn affects the likelihood of intergenerational mobility.

Spatial manifestation

One way in which wealth inequality directly affects opportunities is through the spatial patterning of residential choice. The segregation of families by income, or by their ability-to-pay, has always been a feature of residential life, but it has grown more severe in recent decades in the United States in large part because of the rise in income inequality (Reardon and Bischoff 2011). Research has shown that income segregation increased by nearly 30 percent in US cities between 1970 and 2009, with large increases occurring in the 1980s and 2000s. By another metric, 65 percent of families in large US cities lived in middle class neighborhoods in 1970, but only 42 percent of families lived in

such neighborhoods by 2009. And although the segregation of poverty (separation of the bottom 10 percent of earners from all others) increased more over this 40 year period than the segregation of affluence (separation of the top 10 percent of earners from all others), the level of the segregation of affluence is considerably higher in all years than the segregation of poverty (Bischoff and Reardon 2014).

The uneven distribution of income and wealth across neighborhoods matters because the neighborhood environment may be consequential for individual outcomes, especially those of children. Theoretically, the effect of neighborhood context operates through the demographic composition of a local environment as well as the quality of available resources. For instance, there is great variation in the percentage of college graduates and unemployment rates across local environments, which may affect the outcomes of individuals who live there. In addition, the quality of public schools and the quantity of green space varies considerably across neighborhoods, as does the density of hazards, such as crime and pollution. Thus, not only might there be direct effects of lower-quality public goods, but there may also be fewer spillovers across proximate local environments as the rich and poor grow more geographically disparate. Spillovers would not only distribute some portion of the higher quality goods from affluent to low-income families, but it would also perhaps encourage more interaction between socially distant individuals. And given what is known about the substantial effect of income on political influence (Bartels 2008), increasing income segregation also means increasing polarization of political power across jurisdictions. As Durlauf (1996) has shown theoretically, resource deprivation in neighborhoods may contribute to the intergenerational transfer of social class through investments in local institutions that serve children, such as schools. In areas of concentrated wealth (poverty), households are not only advantaged (disadvantaged) by their own assets, but also by the assets of their neighbors. Wealth segregation may be even more severe than income segregation due to the extreme level of wealth inequality in the US, but less is known about the degree to which families are spatially separated by wealth.

It is also possible that wealth segregation itself – a characteristic not of individual neighborhoods, but of the arrangement of neighborhoods in a region or metropolitan area – affects individual opportunities and outcomes. This would imply that the abundance of resources in some neighborhoods is not independent of the dearth of resources in others. Although theories of how segregation distinctly affects individual outcomes are not particularly well developed, research has demonstrated the negative effect of metropolitan- and state-level segregation on inequality of educational attainment, infant health outcomes, and labor market outcomes (Mayer 2002; Mayer and Sarin 2005; Cutler and Glaeser 1997). More recently, Chetty et al. (2014) show that in metropolitan areas, income segregation is negatively correlated with social mobility in the

United States. It may be the case that segregation is simply an indicator of more pervasive structural inequality that negatively affects egalitarianism in a local environment. Alternatively, more direct mechanisms may be at work. Both Durlauf and Chetty provide a link between the spatial patterning of resource inequality and intergenerational mobility.

Racial/ethnic stratification

The final dimension of wealth inequality I emphasize is that of stratification by race/ethnicity. In 2011, the median net worth of the average white household was an astonishing 14 times greater than the median net worth of the average African-American household ($91,405 versus $6,446). The typical Hispanic household faired only slightly better than the typical African-American household, having a median net worth of $7,843. Put a different way, the median net worth of African-American households was 7 percent of that of white households in 2011. Although also cause for great concern, income gaps are far smaller than wealth gaps – in 2011, the median African-American household earned 59 percent of the income of the median white household (Pew Social Trends 2013).

The difference in racial/ethnic disparities between income and wealth highlights the fact that wealth inequality is stubborn and difficult to remedy in the short term. This is, in part, because of its entrenched, structural roots in discriminatory practices in the housing market, the education system, and the labor market. Even in the case of a first-generation college graduate who experiences upward intergenerational mobility and a relatively high salary, the resources at her disposal, especially in young adulthood, will most likely be of her own making. It may take several generations for families and individuals to build wealth and achieve true equity in opportunity, despite the façade of equity provided by income alone.

Subnational inequality is not captured by blunt measures such as GDP. National economic growth is likely not distributed equally among all members of a society, and, likewise, the perils of economic downturns affect some groups more than others. During the Great Recession, Hispanic and African-American families' median wealth declined by 66 and 53 percent, respectively, while white families' median wealth fell by only 16 percent (Kochhar, Fry, and Taylor 2011). As we move toward a more multi-ethnic and global society, inequality that cuts along ascribed characteristics is not only contrary to the norms and values that most societies claim to embrace, but it also causes special injury to the social and economic fabric of our societies, the effects of which are experienced over generations.

As highlighted by Bagchi and Svejnar, wealth inequality is rarely studied despite the theoretical interest in linking national resource inequality to growth. Although data limitations prevent the authors from including a comprehensive

measure of wealth inequality, their approach highlights the overreliance on income inequality as the standard measure of resource inequality. My comments have taken the issue of wealth inequality from a macroeconomic to a sociological perspective, highlighting social structural dimensions of the link between wealth inequality and opportunities for social and economic advancement.

References

Bartels, Larry M. (2008) *Unequal Democracy: The Political Economy of the New Gilded Age*. Princeton, NJ: Princeton University Press.

Bischoff, Kendra and Sean Reardon (2014) "Residential Segregation by Income, 1970–2009," in J. Logan (ed.), *Diversity and Disparities: America Enters a New Century*. New York, NY: Russell Sage Foundation.

Chetty, Raj, Nathaniel Hendren, Patrick Kline, and Emmanuel Saez (2014) "Where is the Land of Opportunity? The Geography of Intergenerational Mobility in the United States," *Quarterly Journal of Economics*, vol. 129, pp. 1553–1623.

Cutler, David M., and Edward L. Glaeser (1997) "Are Ghettos Good or Bad?," *Quarterly Journal of Economics*, vol.112, pp. 827–71.

Durlauf, Steven (1996) "A Theory of Persistent Income Inequality," *Journal of Economic Growth*, vol. 1, pp. 75–93.

Groves, M.O. (2008) "Personality and the Intergenerational Transmission of Economic Status," in S. Bowles, H. Gintis, and M.O. Groves (eds), *Unequal Chances: Family Background and Economic Success*. Princeton, NJ: Princeton University Press.

Hout, Michael and Alexander Janus (2011) "Educational Mobility in the United States Since the 1930s," in Greg Duncan and Richard Murnane (eds), *Whither Opportunity? Rising Inequality, Schools, and Children's Life Chances*. New York: Russell Sage Foundation and Chicago: Spencer Foundation, pp. 165–85.

Keister, Lisa (2014) "The One Percent," *Annual Review of Sociology*, vol. 40, pp. 347–67.

Keister, Lisa and Stephanie Moller (2000) "Wealth Inequality in the United States," *Annual Review of Sociology*, vol. 26, pp. 63–81.

Kochhar, Rakesh, Richard Fry, and Paul Taylor (2011) "Twenty-to-One: Wealth Gaps Rise to Record Highs Between Whites, Blacks, and Hispanics." Pew Research Center, Washington, DC. http://www.pewsocialtrends.org/2011/07/26/wealth-gaps-rise-to-record-highs-between-whites-blacks-hispanics/.

Mayer, Susan E. (2002) "How Economic Segregation Affects Children's Educational Attainment," *Social Forces*, vol.81, pp. 153–76.

Mayer, Susan E., and Ankur Sarin (2005) "An Assessment of Some Mechanisms Linking Economic Inequality and Infant Mortality," *Social Science and Medicine*, vol. 60, pp. 439–55.

Pew Social Trends (2013) "King's Dream Remains an Elusive Goal; Many Americans See Racial Disparities," Pew Research Center, Washington, DC. http://www.pewsocialtrends.org/2013/08/22/kings-dream-remains-an-elusive-goal-many-americans-see-racial-disparities/.

Reardon, Sean F. and Kendra Bischoff (2011) "Income Inequality and Income Segregation," *American Journal of Sociology*, vol. 116, no. 4, pp. 1092–1153.

Wolff, Edward (2002) *Top Heavy: A Study of the Increasing Inequality of Wealth in America*. New York: New Press.