



“CREATIVE DESTRUCTION” FROM A WORLD-SYSTEMS PERSPECTIVE

BILLIONAIRES AND THE GREAT RECESSION OF 2008

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This paper explores how to effectively use Joseph Schumpeter’s notion of “Creative Destruction” within a world-systems perspective—that is, a perspective that calls for focusing on the world-economy as a whole as the relevant unit of analysis for understanding the relationship between economic growth and social inequality. This article both draws upon and further operationalizes the concept of Creative Destruction to track recent changes in the epicenters of wealth accumulation across the world. More specifically, we draw on an original source of data to argue that the rise and fall of billionaires allows us

to identify and map key changes in the accumulation (and redistribution) of income and wealth across the world-economy, changes that have substantive implications for existing patterns of social stratification. Focusing on what Fernand Braudel (1979, 1984) called the “top layers” of production, trade and exchange, data on billionaires provide a unique empirical basis for mapping sites of accumulation and for providing greater historical specificity to Joseph Schumpeter’s (1942) concept of Creative Destruction.

Background and Theoretical Framework

In their popular recent contribution, *Why Nations Fail: The Origins of Power, Prosperity, and Poverty*, Acemoglu and Robinson (2012) argue that differences in the long-term sustained growth of nations, and thereby inequality between nations, are a consequence of whether institutions within these nations promote or hamper what Joseph Schumpeter called “Creative Destruction.” We argue that while such arguments are productive in bringing concerns about politics and inequality to the forefront of debates about development, they nonetheless reproduce the less useful assumption that all the relevant phenomena, and most importantly “Creative Destruction” itself, are shaped primarily by social and political processes that are largely internal to nations.

For Schumpeter (1942: 82–83), indeed, the constant churn of Creative Destruction is central to capitalism:

[c]apitalism . . . is by nature a form or method of economic change and not only never is but never can be stationary . . . The opening up of new markets, foreign or domestic, and the organizational development from the craft shop and factory to such concerns as U.S. Steel illustrate the same process of industrial mutation—if I may use that biological term—that incessantly revolutionizes the economic structure from within, incessantly destroying the old one, incessantly creating a new one. This process of Creative Destruction is the essential fact about capitalism.

Moreover, Schumpeter was careful to differentiate his notion of Creative Destruction from “textbook picture” competition, “competition within a rigid pattern of invariant conditions, methods of production and forms of industrial organization in particular” (1942/1950: 84–85). Instead, Creative Destruction entails:

[c]ompetition from the new commodity, the new technology, the new source of supply, the new type of organization (the largest-scale unit of control for instance)—competition which commands a decisive cost or quality advantage and which strikes not at the margins of the profits and

the outputs of the existing firms but at their foundations and their very lives. This kind of competition is as much more effective than the other as a bombardment is in comparison with forcing a door, and so much more important that it becomes a matter of comparative indifference whether competition in the ordinary sense functions more or less promptly; the powerful lever that in the long run expands output and brings down prices is in any case made of other stuff.

Framing Creative Destruction within a nation-centered analysis, Acemoglu and Robinson argue that inclusive institutions—centralized but pluralist government, secure but broadly distributed property and political rights, the unbiased application of law and competitive markets—allow in some nations (but not in others) for economic incentives that give free reign to Creative Destruction and, hence, to constant, wealth-augmenting innovation. Robust inclusive institutions prevent any specific social force (like entrenched elites) from trying to limit competitive pressures or controlling the impact of innovations, and in doing so preserve and foster the creative force of the market. In nations that move towards the adoption of inclusive institutions, Creative Destruction—the constant destruction of existing ideas, institutions, organizational strategies, and firms, and the simultaneous creation of new ones—becomes the norm, and constant, long-term growth becomes pervasive.

This institutional approach has marked similarities with the modernization arguments that decades ago tended to focus on development as a universal path of growth followed autonomously and independently by all “societies” (e.g., Hoselitz 1960; Rostow 1963; Eisenstadt 1974; Inkeles and Smith 1974; but see Firebaugh (2003) for a more recent version). In the modernization approach, economic development is linear, from agriculture to industry to service, and innovation is sequential. Those regions of the world that are most innovative are the wealthiest; those innovations then diffuse to the rest of the world, encouraging technological and economic convergence. In the modernization perspective, some cultural and social characteristics (modernity and/or universalism) were more likely to promote rationality and merit-based hierarchies, while other cultural and social characteristics (such as traditional attitudes and/or fatalism) were more likely to impede growth and entrench inequalities based on ascribed characteristics. While Acemoglu and Robinson’s perspective shifts attention to political processes and power relations as key to the prevalence of growth or stagnation among nations, their analysis shares with modernization perspectives a nation-centered analysis of the processes at hand.

A world-systems perspective leads us in a different direction. As framed by the Schumpeterian notion of Creative Destruction, innovation is not a sequential and progressive linear development from raw material production to industry. Schumpeter was explicit in not restricting his notion of innovation

to technological change or manufacturing. New forms of raw material production, the capacity to engage in innovative forms of deploying territorial or political power, or even rent-seeking behaviors, are just as likely to be a source of creation and destruction as any other innovation labeled by some as more “productive.” As noted by Arrighi (1994), periodical reconfigurations of the world-economy are just as likely to be driven by processes of Creative Destruction centered around finance—or even corrupted, rent-seeking behaviors—as they are by purportedly more “virtuous” forms of innovation (such as technological changes centered around manufacturing).

Moreover, innovation and Creative Destruction are embedded not only temporally, but spatially. Successful innovation requires a co-location of technologies, organizations, skills, resources, institutions, etc. There are major hurdles to diffusion, innovations must be adapted to local conditions, and diffusion will not drive new wealth accumulation (Arrighi and Drangel 1986). For a long time, more critical perspectives have sought to emphasize how the existence of wealth in some countries is associated with the prevalence of poverty in others (Prebisch 1950; Myrdal 1964; Frank 1966; Emmanuel 1972; Wallerstein 1974, 1979, 1983). In this strand of analysis, some authors have explicitly drawn on Schumpeter’s notion of Creative Destruction to explain global patterns of wealth accumulation (e.g., see Arrighi 1991; Arrighi and Drangel 1986; Korzeniewicz and Moran 2005, 2009).

But although Schumpeter’s notion of “Creative Destruction” can be of critical assistance to constructing an effective world-systems perspective on the relationship between growth and inequality, the social sciences have lacked the longitudinal and global data to trace how processes of innovation have shifted the frontiers of wealth accumulation over time so as to arrive to a more precise, historically grounded theoretical understanding of Creative Destruction and its implications for economic inequality, social stratification and social mobility. Instead, researchers tend to rely on *a priori* assumptions to trace what they already presuppose to be true epicenters or trajectories of wealth accumulation (e.g., from raw material production to manufacturing, or from the local to the global).

We propose that available data on very wealthy individuals (that is, billionaires) can help us advance a better understanding of where, when and how the epicenters of wealth accumulation have shifted in recent decades. To map these processes, we repurpose data on the world billionaires to identify the spatial and temporal patterns of creative destruction over the 1987–2012 period. Such a dataset can offer important correctives to current understandings of global social stratification. For example, whereas Schumpeter emphasized that epicenters of wealth shifted constantly and are not associated with any single particular array of products, market networks or institutional arrangements, even the most critical perspectives on development have tended to assume (rather than empirically assess) the character of such epicenters. Thus, critical

studies often end up sharing with modernization perspectives the assumption that high levels of wealth accumulation are secured to a much greater extent by manufacturing production rather than raw material production, or by production for domestic consumption rather than by production for export. On the other hand, finance is viewed as the antithesis of real wealth accumulation, an appropriation by elites that tends to work against truly productive investments.

To anticipate some of our findings, our study of billionaires indeed provides considerable evidence that we are in the midst of a new temporal-spatial configuration of wealth accumulation. In the last decade, the number of billionaires globally has increased 250% and their net worth has tripled. We also find that billionaires as a class were hit hard by the Great Recession, but most recovered fairly quickly. Consequently, the period was not associated with an exceptional rate of change in the overall wealth commanded by the world's billionaires. On the other hand, we find that the Great Recession marked a turning point after which new billionaires increasingly originate in non-core countries. This suggests that there continues to be considerable elite circulation, not necessarily within countries, but linked to broader transitions in the distribution of income and wealth between nations.

Data and Methods

To track the impact of the Great Recession on the world's wealthiest we draw on *Forbes* annual list of billionaires.¹ Since 1987, the magazine has tracked the financial activities of the world's richest individuals: "the deals they negotiate, the land they're selling, the paintings they're buying, the causes they give to" (Dolan 2012: 1). Dozens of reporters in countries around the world interview "employees, rivals, attorneys and securities analysts" (p. 1) and the billionaires themselves—some are cooperative, others are not—to estimate the value of an individual's assets minus debt. Net worth is reported in US dollars and, to control for market fluctuations, reflects a snapshot from a single day.

The very wealthy often have strong incentives to obscure their private holdings, and some assets are difficult to appraise. Because their holdings are often diversified and extensive, billionaires and the not-quite billionaires might not always have a solid estimate of their own net worth. In other words, the *Forbes* reporters face the challenges that come with any economic survey and a few additional hurdles when generating their annual list of the world's billionaires. But 25 years of experience and a reputation built on generating lists of the world's richest makes the *Forbes* list the best available source for this information. In looking at the impact of the Great Recession, we use the lists published by *Forbes'* lists between 2006 and 2012, but we also draw on a larger selection at times to offer some historical context.

Table 7.1 Number and Characteristics of Billionaires, 2006–2012

	1987	2002	2006	2007	2008	2009	2010	2011	2012
N	151	497	793	946	1125	793	1011	1210	1226
Net worth (\$b)	311	1,539	2,646	3,452	4,381	2,415	3,568	4,496	4,575
Average (\$b)	2.1	3.1	3.3	3.6	3.9	3.0	3.5	3.7	3.7
Top 100 (\$b)	262	847	1,150	1,430	1,720	1,050	1,440	1,700	1,720
Countries	24	43	51	55	56	54	56	56	59
N ('87 \$b)	151	313	479	601	701	419	568	687	701
Net worth ('87 \$b)	311	888	1,347	1,755	2,147	1,095	1,645	2,036	2,035
N ('06 \$b)			793	907	1,056	692	914	1,084	1,086
Net worth ('06 \$b)			2,646	3,321	4,035	2,173	3,185	3,903	3,888

Source: **Forbes 2012**

Note: Adjustments using CPI-U-RS from the month Forbes reported their list of billionaires. Reported net worth is rounded and does not represent the true distribution of wealth among billionaires, and the cut-off point after adjusting for inflation is artificial. To accommodate, we use locally weighted scatterplot smoothing on the curvilinear relationship between worth and billionaire rank (with randomly allotted unique ranks in the case of a tie), to simulate a more realistic distribution.

As indicated in Table 7.1 below, the total number of billionaires listed increased from 793 in 2006 to 1,125 in 2008, dropped back to 793 in 2009 and rose again to 1,226 in 2012.² In the seven lists from 2006 to 2012, 1,724 different individuals³ make an appearance, and 518 names appear on all seven. Likewise, the net worth of billionaires grew from \$2.65 trillion in 2006 to \$4.38 in 2008 before falling to \$2.41 trillion in 2009. As of 2012, the net worth of the world’s billionaires was approximately \$4.57 trillion.⁴

Some of the increase in billionaires and billionaire net worth over time is a product of a declining standard of billionaire standing. Inflation means that a billion dollars today is not worth as much as it used to be. When we adjust for inflation, we raise the standard for billionaire status for later periods; the earlier the benchmark year, the higher the standard and the more current billionaires that are demoted. As a result, the trend in the number of billionaires will depend not only on whether or not we adjust for inflation, but what year we use for the benchmark. Also, the net worth of the remaining billionaires is reduced to reflect the lower purchasing power of their dollars.

In the bottom half of Table 7.1, we report billionaire counts and net worth using 1987 and 2006 US\$. From this we can conclude that the growing number of billionaires is not an artifact of inflation; the number of billionaires and the net worth of those billionaires in 1987 US\$ more than doubled between 2002 and 2012. But the adjusted results demonstrate that the raw results overstate the strength of the recovery.

In addition to net worth, *Forbes* lists billionaires by age, residence, citizenship, and industry. We use citizenship to represent an individual’s country

of origin. Just fewer than 8% of the world's billionaires reside in a country other than the one in which they claim citizenship, and European countries (Germany, United Kingdom, France, Sweden, and Italy in particular) have a relatively high number of billionaire expatriates.

To assess empirical patterns by sector we divided billionaires into 21 “industries” or sectors (see Appendix A for definitions). These categories are meant to be representative, not definitive. Some individuals change industries over time, some are diversified, and some activities reflect more than one industry. In general, we sought to categorize individuals in that industry in which they (or their benefactor) gained most of their wealth to date. In those cases where no particular industry reflected a plurality we categorized those individuals as “diversified,” and an individual receives a designation of “inherited” if the wealth was inherited and the individual has been and is largely economically inactive.

We use Gross National Income and Gross Domestic Product as reported by the World Bank (2013) as measures of national and global income and production for the broader population. The values are reported in current dollars to be consistent with the reporting of billionaire net worth.

Our analysis details the impact of the Great Recession on production and wealth broadly, and then compares these trends to the experience of the world's billionaires. We break the story down geographically and compare the experience of billionaires across high, middle and low-income countries and across regions. We compare the between-country convergence of billionaires per capita and of gross domestic product per capita. Finally, we look at the breakdown of billionaires by industry and evaluate the performance of industries globally and within specific countries. Ultimately, these steps combine to paint a broad picture of processes of “Creative Destruction” in the accumulation of wealth globally against the backdrop of broader global economic trends.

Findings

The Global Financial Crisis

The global economic crisis that took hold in 2007 was no minor hiccup. After four years of global growth between 3.5% and 4% per annum, the world's Gross Domestic Product (GDP) grew only 1.3% in 2008 and then contracted by 2.2% the following year (see Table 7.1). The impact of the financial crisis and subsequent economic crisis of 2007–2009 was concentrated in, but not isolated to, the rich world. GDP in high-income nations, as defined by the World Bank,⁵ fell by 3.7% in 2009, while production increased but at a slower rate in the rest of the world (World Bank 2013).

Global GDP growth resumed in 2010, but the world economy fell behind its previous schedule. Using global GDP growth from 2003–2007 to project future growth, we estimate that the recession reduced total production by \$10.1 trillion between 2008–2011 (2000 US\$). Using a similar method, Better Markets (2012) estimates that the United States alone lost \$7.6 trillion worth of production between 2008–2012.

The Great Recession rocked financial markets. For example, between the price peak of October 2007 and the trough of February 2009, the market value of publicly traded companies fell \$34.9 trillion dollars, from \$64.7 to \$29.8 trillion. Stock markets rebounded (or reflat) relatively quickly between early 2009 and early 2011, but stock prices were still 13.5% lower at the end of 2012 than before the crash. The cost of falling prices was not limited to financial assets held disproportionately by the rich. In the United States, the Federal Reserve estimates that median family net worth fell 38.8% and mean net worth 14.4% between 2007 and 2010, and that falling wealth was driven by collapsing house prices (Bricker, et al. 2012).

Billionaires During the Great Recession

The world’s wealthiest did not escape the economic carnage. The net worth of the *Forbes* billionaires fell from \$4.4 trillion in 2008 to \$2.4 trillion in 2009. The ranks of billionaires also fell by 342. If we assume an average net worth of \$750 million for those former billionaires, the net worth of 2008’s billionaires in 2009 comes out to \$2.7 trillion. In other words, the world’s wealthiest 1,125 individuals lost \$1.7 trillion dollars, 40% of their wealth, or \$1.5 billion per person, in that year. Looking further up the distribution, the world’s wealthiest 100 lost \$670 billion, again around 40% of their net worth, between 2008 and 2009.

Billionaires rebounded well from the recession, but like the rest of the world their net worth still fell well short of where it *could* have been without the Great Recession. The total net worth of the world’s billionaires surpassed their 2008 value in 2011, and the average wealth of billionaires was greater in 2012 than it had been in 2008 (\$3.7 billion versus \$3.6 billion)⁶ Adjusted for inflation since 2006, the number of billionaires in 2011 exceeds the number in 2008, but their net worth is still lower in 2012 than in 2008. In current dollars, the net worth of the world’s wealthiest 100 climbed back over \$1.7 trillion in 2011, from a low just over \$1.0 trillion two years earlier; only in 2012 did the net worth of the wealthiest 100 again reach the \$1.72 trillion amassed in 2008.

The recession was a serious setback for almost all billionaires, and most have not yet recovered. More than 90% saw their net worth fall between 2008–2009. Of the 342 individuals whose wealth fell below \$1 billion in

2009, 40% of them rejoined the billionaire club in 2010, and more than half were billionaires again at some point between 2010–2012. On the other hand, 730 of the 1,125 billionaires in 2008 (64.9%) had a lower net worth in 2012 (see Table 7.3), and the average net worth of 2008's billionaires was down 8.7% in 2012, and that number grows to 14.4% if we adjust for inflation. In short, the number and average wealth of billionaires bounced back to where they were before the recession, but those who were billionaires before the recession are still worse off on average.

Freeland (2012: 145) notes, “moments of revolutionary change are also usually moments when it is possible to make an instant fortune.” *Forbes* added 262 billionaires to the list in 2010 but 161 of the new billionaires had been on the list at some point between 2006 and 2008. The ratio of new to old faces jumped after 2010; of the 252 new billionaires between 2010 and 2011, 218 were making their first appearance since at least 2006.

The period just before the Great Recession was also fertile soil for those looking to make a quick fortune. Looking at the world's wealthiest in 2012, 15% of the top 100, with a net worth of \$9 billion or more, had not been billionaires in 2006, 34% of the top 500 (\$2.5+ billion) and just over half of all billionaires in 2012 were not billionaires in 2006. Going back further, 60% on the list in 2007 were not listed in 2001, and 54% in 2002 were new from 1996.

On the other hand, “billionaire” is not a tenured position. Of the billionaires in 2006, 27% did not make the list in 2012, and 19% of those with a net worth of \$2.5 billion or more fell below the \$1 billion threshold six years later. By way of comparison, 30% of the list in 2001 was absent in 2007 and 47% dropped out between 1996 and 2002.

Non-billionaires had more success breaking into the upper echelons of global wealth between 2006–2008 than after the recession. For example, 100 or 20% of the wealthiest 500 individuals in 2008 were not billionaires in 2006. Just over half as many of the top 500 by wealth in 2012 were not billionaires in 2010, and around 5% of the top 500 in 2010 were new to the billionaire club since 2008. In short, the world's wealthy elite at each stratum—top 50, top 100, top 500, etc.—were more likely to be relative newcomers in 2008 than in 2010 or 2012.

In essence, there is substantial turnover in identity of the world's billionaires, and this was no truer through the Great Recession than at other recent points in the past. Crises favor the more established elites with the deepest pockets; the rank of the world's wealthiest is more stable as you move up the distribution.

The Geography of the Great Recession

The impact of the Great Recession was not uniform across countries. Specifically, lost production was centered in higher-income countries; low- and

middle-income countries increased production by 40% between 2006 and 2011 while high-income countries managed only 6.7% GDP growth (World Bank 2013).

The same is true of the world's billionaires. In 2006, 793 billionaires represented 51 countries by citizenship. Almost half came from the United States; Germany had the second most with 55 representatives, followed by Russia (33), Japan (27), the United Kingdom (24), India (23), Canada (22), and Turkey (21). The percentage of billionaires from the United States fell from 46.8% to 34.6% in 2012 even as the number of billionaires from that country increased from 371 to 424. The number of billionaires from Brazil (37), Hong Kong (38) and India (48) doubled from 2006 to 2012. The number from Russia almost tripled, from 33 to 96, and the number of Chinese billionaires increased twelve-fold from 8 to 95. In 2006, five of the top seven countries by the number of billionaires were members of the OECD (US, Germany, Japan, United Kingdom, and Canada), but in 2012 only two OECD countries remained in the top seven (US and Germany).

This is a dramatic shift from the historical trend. Between 1987 and 2002, the number of billionaires from China, Russia, India, Hong Kong, Brazil, South Korea, Indonesia and Turkey combined increased from 13 to 41; their share of the world total fell from 8.4% to 8.2%. These figures rose to 124 and 15.6% in 2006 and then 385 and 31.4% in 2012. China, India, Indonesia and Brazil, the world's four most populous countries excluding the United States, represented 43.6% of the world's population in 2006 but contained only 6.2% of its billionaires. By 2012 the number of billionaires in those countries quadrupled (from 49 to 197) and their share of billionaires jumped to 16.1%. In all, middle-income countries (with GNI per capita between \$1,000 and \$10,000) added 237 new billionaires between 2006 and 2012, and the percentage of the world's billionaires from these countries increased from 16.1% to 30.2%.

Another way to look at the uneven and evolving distribution of billionaires across countries is to look at the billionaires per capita. In 2006, low-income countries had 10 billionaires for every billion people, middle-income countries 42 and high-income countries 570 billionaires per billion. By 2012, there were 21 (+11 versus 2006) billionaires per billion population in low-income countries, 119 in middle-income countries (+77.6), and 704 in high-income countries (+134.0 versus 2006). Citizens of the rich world are still more likely to become billionaires, but the number of billionaires in middle-income countries tripled in just six years despite the Great Recession.

The increase in billionaires and billionaire net worth correlates with national economic growth. Low and middle-income countries saw Gross National Income increase more than 80% between 2006 and 2011 and billionaire net worth increase 166% and 222%, respectively (see Table 7.2).

Table 7.2 A Comparison of Billionaire Net Worth and GNI by Region

<i>Income group</i>	<i>% Change, '07-'11</i>		<i>Net worth/GNI^a</i>	
	<i>GNI</i>	<i>Net worth</i>	<i>2006</i>	<i>2011</i>
Low income	81.5%	165.5%	6.12	8.96
Middle income	89.7%	222.1%	4.18	7.10
High Income	14.3%	37.6%	5.62	6.77
<i>Region</i>				
East Asia & Pacific	57.8%	182.6%	2.47	4.43
Europe & Central Asia	20.8%	64.8%	4.77	6.50
Latin America & Caribbean	70.6%	196.4%	3.89	6.76
Middle East & North Africa	23.9%	19.4%	8.49	8.18
North America	11.4%	34.5%	8.00	9.66
South Asia	82.0%	149.5%	8.35	11.45
Sub-Saharan Africa	61.5%	242.1%	1.39	2.94
Total	30.9%	69.9%	5.36	6.96

^aValues multiplied by 100

Source: World Bank 2013; Forbes 2012

Breaking it down by geographic region, East Asia, Latin America, South Asia and Sub-Saharan Africa led the way in GNI growth and added net worth. South Asia and Latin America outgained Sub-Saharan Africa in income growth in percentage terms, but Sub-Saharan African billionaires experienced the most growth in percentage terms of any regional group of billionaires.

Different Rates of Convergence

In the last two columns of Table 7.2 we list the ratio of billionaire net worth to Gross National Income by income level and region for 2006 and 2011. The ratio of billionaire net worth to GNI increased in every income group and region, but not uniformly. Billionaires were especially successful in middle-income countries, increasing their holdings to \$7.10 for every \$100 of income in 2011 from \$4.18 in 2006.

Focusing on the breakdown of GNI and billionaire net worth by income group, the implication is that faster economic growth in middle and low-income countries was potentially outpaced by the even faster accumulation of billionaire net worth. Convergence between high and low-income countries was faster for the very wealthy than for the general population during this period.

In the years before 2006 the opposite was true; convergence in billionaires per capita lagged broader convergence in production between countries.

Roles reversed after 2006 and especially after 2009. While convergence in GDPPC between countries outpaced the same in billionaires per capita from 2000–2006, inequality in billionaires per capita made up that ground by 2011. This is consistent with the findings in Table 7.2, that while income growth has been faster in middle-income countries since 2006, the rise of new billionaires in these countries has been even greater.

Despite evidence of convergence between countries and regions, we should not lose sight of the powerful role nationality continues to play. Citizens of high-income countries were twice as likely as citizens of middle-income countries to become billionaires between 2006 and 2012, and they were many times more likely than those in poor countries. Also, as we detail in the next section, the activities that are generating new billionaires vary meaningfully across countries. In short, supranationality is not new, and nationality continues to play an important role.

The Impact of the Great Recession by Economic Activity

Processes of Creative Destruction are manifested as well in the changing importance of different types of economic activity as epicenters of wealth accumulation. In 2006 and 2012, the industry generating the most billionaires and the billionaires with the most net worth was finance (venture capital, wealth management, “investments”, etc.). In 2006, there were 142 billionaires that derived wealth through financial deals; six years later that number had increased by 50%. Finance billionaires also added \$277 billion to their net worth. Only media saw declining numbers over the period. The average billionaire media mogul was actually slightly richer in 2012 than in 2006, but there were eight fewer of them.

The biggest winners of the period were those involved in extracting natural resources (oil, gas, coal, metals, lumber, etc.). These individuals added \$364.4 billion to their net worth. Extraction was relatively successful from 2006 to 2012 despite the Great Recession, not because of it. These billionaires lost more than half their net worth and more than \$250 billion in one year from 2008–2009, but then \$373 billion over the next three years.

Billionaires by Economic Activity and Country

Hence, we now turn our attention to the intersection of economic activity and country of residence. Just as the rise in billionaires was not uniform by country or by industry, the distribution of billionaires is not uniform by industry within countries or by country within industries. Some distributional unevenness is random, but in other cases, the intersection of industry and country

Table 7.3 Billionaires by Industry, 1987–2012

Industry	Wealth						Count						Δ	$\Delta\%$
	1987	2001	2006	2009	2012	2006–2012	1987	2001	2006	2009	2012	2006–2012		
						Δ						Δ		
Agriculture	8.0	13.3	36.4	50.6	93.4	57	157%	4	6	21	22	27	6	29%
Art	0	0	1	1	8.5	7.5	750%	0	0	1	1	4	3	300%
Chemicals	7.3	4.2	21.8	31.2	84.5	62.7	288%	3	2	6	8	25	19	317%
Communications	3.6	101.1	112.6	108.5	212.2	99.6	88%	2	36	30	32	42	12	40%
Construction	5.7	33.9	72.3	59	93.6	21.3	29%	4	17	22	27	37	15	68%
Consumer	22	180.9	250.4	220.7	425.9	175.5	70%	15	55	72	72	99	27	38%
Diversified	23.8	66.8	122.5	108.8	205.7	83.2	68%	14	25	40	31	63	23	58%
Energy	0	5.7	6.4	6.8	14.2	7.8	122%	0	4	4	4	10	6	150%
Entertainment	4.8	32.4	86.3	57.2	102.6	16.3	19%	2	15	29	26	34	5	17%
Extraction	13.2	71.1	219.5	211.1	583.9	364.4	166%	10	33	62	73	121	59	95%
Finance	34.0	270.8	417.8	398.6	694.4	276.6	66%	18	87	142	142	212	70	49%
Health care	15.0	51.0	88.7	85.6	149.4	60.7	68%	9	22	31	30	55	24	77%
High tech	4.5	82.6	88.4	78.3	147.5	59.1	67%	3	25	25	25	42	17	68%
Inherited	1.0	3.7	5.3	2.1	17.7	12.4	234%	1	3	4	2	6	2	50%
Manufacturing	19.3	83.2	144.4	121.7	257.7	113.3	78%	12	26	33	36	65	32	97%
Media	23.2	150.1	153.4	113.1	152.2	-1.2	-1%	11	39	49	40	41	-8	-16%
Real estate	89.2	98.5	186.9	206.8	353.9	167	89%	24	36	75	83	119	44	59%
Retail	30.2	248.7	332.9	327.8	535	202.1	61%	14	49	74	74	115	41	55%
Service	0	45.5	59.1	43.9	68.6	9.5	16%	0	24	25	19	29	4	16%
Software	1.25	182	200.2	149.4	300.9	100.7	50%	1	26	32	30	54	22	69%
Transportation	5.4	12.8	39.2	32.5	72.8	33.6	86%	4	8	16	16	26	10	63%

Source: Forbes 2012; Industries based on authors' designation, see Appendix A.

creates unique and exceptional opportunities to create and control massive amounts of wealth. Mapping changes in the composition of billionaires provides a partial window into the types of activities that made up “Creative Destruction” in recent years.

For analytical purposes, we assume that the distribution of billionaires reflects a latent propensity for concentrated wealth creation that varies by industry and country. Certain countries, due to high levels of economic development, rapid growth, and conducive institutional environments, are able to produce more billionaires. Some industries, due to the scale of demand, innovation creating new growth opportunities, and an inherent tendency for accumulation, allow for more billionaires. Finally, the combination of particular industries in particular countries offers unique opportunities for the creation and accumulation of wealth; the population is better prepared to adopt a new technology, the region is endowed with a particular resource (e.g., oil), etc. The observed distribution of billionaires reflects a latent potential that is the sum of national characteristics, industry characteristics, and unique properties that result from the intersection of the two.

We decompose the count of billionaires by national industry into an expected count by country and industry and an error (the unique contribution of national industry):

$$N_{ic} = E_{ic} + e, \quad E_{ic} = P_i P_c N \tag{1}$$

where N_{ic} is the observed billionaires by country and industry, N the total number of billionaires, and P_i and P_c the share of billionaires in that industry (N_i/N) or country (N_c/N), respectively. In words, if there were no unique national industry effects, we would expect the count of billionaires in a national industry to be equal to the global share of billionaires in that industry multiplied by the share of billionaires in that country multiplied by the number of billionaires. The residual (e) is a combination of a unique national industry effect and luck.

Moving this to change over time, the change in billionaires by national industry over time can be represented as:

$$N_{ic,t} - N_{ic,t-1} = P_{i,t} P_{c,t} N_t - P_{i,t-1} P_{c,t-1} N_{t-1} + e_t - e_{t-1} \tag{2}$$

or

$$\begin{aligned} \Delta N_{ic} &= \Delta N P_{i,t} P_{c,t} \mathbf{(A)} + \Delta P_i N_{t-1} \left(P_{c,t} + \frac{\Delta P_c}{2} \right) \mathbf{(B)} \\ &+ \Delta P_c N_{t-1} \left(P_{i,t} + \frac{\Delta P_i}{2} \right) \mathbf{(C)} + \Delta e \mathbf{(D)} \end{aligned} \tag{3}$$

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such that expression **A** is the contribution of a changing global propensity for billionaires, **B** is the unique contribution by industry, **C** is the unique contribution by country, and **D** is the contribution of national industry to the rising or falling number of billionaires. We estimate standard errors for **A**, **B**, **C** and **D** using random sampling with replacement from the original set of data.

Plugging in values for 2006 and 2012, we decompose the changing distribution of billionaires between these years. The effect of **A** across countries and industries is proportional and only shows that it was easier to be a billionaire in 2012 than in 2006 (a third of which was due to inflation lowering the billion-dollar bar). The results from expressions **B** and **C** are consistent with our earlier discussions. China and Russia increased their national propensity by 54.5 and 30.1 billionaires, respectively. Taiwan (+10.5), Indonesia (+9.0), and South Korea (+8.9) also made statistically significant gains. The biggest losers were Germany (-20.4), Japan (-11.5), and the United States (-97.8)—despite adding 52 billionaires between 2006 and 2012 the United States failed to keep pace with the growing number of billionaires globally. In other words, it became easier to be a billionaire globally, but much less so in the United States.

Changes by industry tended to be proportional. Only in two industries was there a statistically significant change: Chemicals (+10.2) and Media (-22.4). In other industries the number of billionaires increased substantially but this change was not significantly different from what we would have expected based on the 54% increase in billionaires globally. Extraction and Manufacturing, for example, added 59 and 32 billionaires, respectively, but only about a quarter of that increase can be attributed to new opportunities in those industries above new opportunities available globally.

Turning to national industries, Table 7.4 lists the 33 national industries that varied substantially (+/-5) from their expected totals in either 2006 or 2012. By focusing on the change in billionaires versus expected (Δe), we can easily identify those areas that are accumulating wealth faster (exceptional creation) and slower (stagnation) than trends among related groups would suggest.

Between 2006 and 2012 the number of Chinese manufacturing billionaires increased from 0 to 14. While some of this increase is a product of new opportunities for billionaires globally, in China and in manufacturing, the decomposition suggests almost two-thirds of the increase was a result of unique opportunities in Chinese manufacturing. Simultaneously, the number of US manufacturing billionaires held steady at 9, a clear case of stagnation, which suggests that the national industry contribution fell from -6.5 (US manufacturing was already underperforming in terms of expected billionaires) to -13.5.

A similar transition took place in real estate. In 2006, the 42 real estate billionaires in the United States was 16.2% more than expected—US real

Table 7.4 Change in Billionaires by National Industry vs. Expected

<i>Destruction</i>		2006		2012		Δe
		<i>N</i>	<i>e</i>	<i>N</i>	<i>e</i>	
China	Finance	0	-1.3***	3	-13.4***	-12.2***
United States	Manufacturing	9	-6.5**	9	-13.4***	-7.0*
United States	Real estate	42	6.8*	43	1.8	-5.0
Germany	Retail	18	12.8***	14	8.9***	-3.9
United States	Chemicals	0	-2.8**	2	-6.7***	-3.8*
Russia	Consumer	0	-2.9***	1	-6.7***	-3.8***
India	Finance	1	-2.9**	2	-6.3***	-3.4*
Hong Kong	Finance	0	-3.2***	0	-6.6***	-3.3**
Russia	Real estate	0	-3.0***	3	-6.3***	-3.3*
United States	Diversified	2	-16.7***	2	-19.8***	-3.0
United States	High tech	18	6.3**	18	3.5	-2.8
Russia	Retail	0	-3.0***	4	-5.0**	-2.0
Saudi Arabia	Finance	7	5.4**	5	3.6*	-1.8
United States	Transportation	4	-3.5*	4	-5.0**	-1.5
United States	Construction	5	-5.3**	6	-6.8***	-1.5
Germany	Finance	3	-7.0***	2	-7.5***	-0.5
United States	Service	19	7.3***	17	7.0**	-0.4
<i>Creation</i>						
United States	Finance	82	15.3***	105	31.6***	16.3*
United States	Software	17	1.9	31	12.3***	10.4**
China	Manufacturing	0	-0.3**	14	8.9***	9.2***
Brazil	Finance	4	1.1	16	9.6***	8.5**
China	Real estate	1	0.3	15	5.8*	5.5
China	Diversified	2	1.6	12	7.1**	5.5
South Korea	High tech	1	0.9	7	6.3**	5.4**
Russia	Extraction	19	16.4***	31	21.5***	5.0
Russia	Construction	1	0.1	8	5.1**	5.0*
Hong Kong	Real estate	9	7.3***	16	12.3***	5.0
India	Health care	2	1.1	8	5.9**	4.7*
Russia	Chemicals	2	1.8	8	6.1**	4.3
Taiwan	High tech	3	2.8*	6	5.1**	2.3
Italy	Consumer	9	7.7***	11	9.7***	2.0
United States	Retail	28	-6.7*	35	-4.8	1.9
Turkey	Diversified	10	8.9***	12	10.2***	1.3

*** $p < .01$

** $p < .05$

* $p < .1$, two tailed

Source: Forbes 2012; Industry based on authors' designations (see Appendix A)

estate was a hot spot of wealth accumulation. By 2012, that was no longer the case. The number of billionaires versus expected fell by 5, a matter of little surprise considering the ties between the recession and US housing market. On the other hand, the number of real estate billionaires increased from 1 to 15, almost 6 more than expected. Hong Kong added another 5 more than expected.

But Chinese finance fell well behind its expected total (adding only 3 when an additional 15.2 were expected based on the growing number of billionaires globally and particularly in China and the high proportion of billionaires in finance), but US finance added 16.3 more billionaires than expected. In short, the accumulation of wealth and creation of billionaires in the United States and China were mirror images of each other through this period; stagnation in one was matched by creation in the other, and often with a similar magnitude.

We find many of the most dynamic areas of economic activity are located exactly where we would expect: finance and software in the US, manufacturing and real estate in China, consumer goods from Italy, technology in Taiwan and South Korea, extraction and construction in Russia. Others are more surprising considering the common sense of the division of labor in the global economy. For example, only Brazil joins the United States in adding significantly more finance billionaires than expected. The number of health care billionaires in India quadrupled and their net worth increased more than six-fold. At the other end, the number of high tech billionaires in the United States held at 18 versus an expected growth of 2.8, and the number of service billionaires in the United States fell from 19 to 17.

Dramatic examples of creation and destruction of billionaire wealth are not unique to the last half decade. For example, Japan real estate moguls were the most numerous billionaire group in 1987 and they controlled an absurd 21% of billionaire wealth in that year. That figure tumbled to 3% over the next five years and under 1% by 2002. Meanwhile, finance billionaires in the United States increased in number from 8 to 50, and their net worth grew from \$12 billion to \$144 billion, or 3.9% to 9.4% of total billionaire net worth, between 1987 and 2002.

While the wealth from manufacturing is rapidly accumulating in the hands of a few in poorer countries, particularly China, this was not always the case; as late as 2002, most billionaire net worth from manufacturing was located in countries that were richer than average. The same is true for the extraction of raw materials. Those billionaires that made their wealth by mining, logging, drilling, were concentrated in the US, but that changed dramatically with the non-competitive privatization of Russian state-owned firms. These transitions highlight that the geography of wealth accumulation cannot be reduced to simple formula based on rich and poor, core and periphery.

Instead, it is also dependent on the historical and political idiosyncrasies of Creative Destruction.

The Great Recession adversely affected billionaires, and some billionaires have not yet and will not fully recover. New billionaires, particularly from China and Russia, emerged to take their place, and billionaires as a group are slightly wealthier in 2012 than in 2008. Billionaires increased the share of net worth as a percentage of global income, particularly in low- and middle-income countries. As a result, international convergence in billionaires per capita has outpaced convergence in GDP per capita, especially since 2009.

Likewise, the distribution of billionaires has shifted by industry, but particularly in the distribution of billionaires by national industry—the intersection of space and economic activity underpinning processes of “Creative Destruction.” From this point of view, changes in the United States and China have mirrored one another: Chinese manufacturing and real estate have added more billionaires than expected, while US manufacturing and real estate have underperformed, but US finance added more billionaires than expected (while finance in China has underperformed). This lends support to Arrighi’s argument (1994) regarding the privileged role of finance at the end of a cycle of accumulation.

Discussion

We hope that the brief exercise presented in this chapter serves to illustrate what observers might gain from focusing on billionaires as an indicator of patterns, trends and changes in world-economic accumulation. In the future, our research will turn towards collecting historical data that will allow us to extend back in time the exercise we have presented.

But a few conclusions are warranted. Billionaires proliferated despite the “Great Recession” of 2008. Their number increased 54% over six years from 2006 to 2012, and their net worth increased absolutely and relative to global income. In some cases, the growth of billionaires reflects and/or highlights underlying economic trends; in others, they deviate from these trends. Media moguls performed relatively poorly and producers of industrial chemicals have been very successful. Extraction and Finance continue to generate massive amounts of wealth. Especially in these two areas, the relationship between productive innovation and wealth accumulation deserves scrutiny, as how and where wealth it is being created is not always the same as how and where this wealth is accumulating. Clearly the efficient allocation of capital and extraction of raw materials are critical activities in the global economy, and individuals that increase productivity in these industries can generate large amounts of wealth. But the connection between financial deregulation and rising profits

in finance in the United States (Tomaskovic-Devey and Lin 2011), as well as the complex politics of the super-rich in Russia, are two examples where the innovations from which billionaires draw their wealth arguably revolves more around rent-seeking behaviors than “productive” investments. But Schumpeter tells us that innovation is not limited to technological advance: we can expand his notion of innovative practices to include new ways of connecting to political networks of patronage, organizing access to opportunities through corruption, and other forms of rent-seeking behavior (and as such, the strategies deployed by new billionaires might provide a more complete window into the empirical origins of capitalist accumulation). This is one important reason why, while billionaires may be globetrotters, they remain tied to the country in which they take their initial steps.

Most billionaires continue to come from a handful of rich countries, led by the US, but that might soon change. Many of the world’s new billionaires are hailing from a handful of populous countries, led by China and Russia. The explosion in billionaires in China, from 8 in 2006 to 95 in 2012, is historic, and even more so if we add the 21 new billionaires from Hong Kong and 19 from Taiwan. Indonesia, Brazil and India were also billionaire hotspots. As a group, low and middle-income countries added more new billionaires than the rest of the world.

Notably, the rate of change in the composition of the world’s billionaires was a significant deviation from the historical trend, but the overall “churn” of billionaires was not. The Billionaire ranks experienced as much or more turnover before 2006 as after. But before 2006, new billionaires were more likely to come from the same country as the departing billionaires or from other rich countries. Then again, a billionaire half-life of 13.2 years between 2006 and 2012 (or 6.6 years between 1996 and 2002) may represent a significant threat to patrimonial capitalism.

The reconfiguration in the geographical distribution of billionaires might manifest a substantive relocation of some of the epicenters of “creative” wealth accumulation from high to low and middle-income nations of the world. For example, where billionaires by industry in the United States underperformed, they were generally matched by overperforming Chinese billionaires, and vice-versa. This does not mean that “creative” wealth accumulation no longer takes place in high-income nations. Finance in the United States was anything but crippled by the financial crisis of 2008, and there are more billionaires in US finance than in any country besides the United States in the world. But finance is not the sole epicenter of “creative” wealth accumulation, as this varies from country to country. In the former other-superpower, Russia, billionaires are amassing wealth, and these few, often politically connected individuals, are doing so by extracting it out of the ground. In China, the number of new billionaires is growing in industries where the United States is not, and vice versa, and, unlike in Russia, these billionaires are amassing their

wealth by making things (manufacturing) and exploiting things built on top of the ground (real estate).

Thus, the character of “creation” and “destruction” should be explored as it evolves in time and space, rather than assuming that one particular set of activities (e.g., manufacturing) represents a more “virtuous” or true source of income and wealth. From a historical perspective, this point is fairly obvious. In their time the transportation of spices, sugar and cotton plantations, and pumping oil from the ground have generated massive amounts of wealth. More recently, we demonstrated that the sites of wealth accumulation from different industries have shifted in the last 25 years. The new billionaires in low and middle-income countries are generating wealth in industries that were previously dominated by high-income countries.

Further, the growing number of US finance billionaires is potentially indicative of a more fundamental change in the global economy. Schumpeter argued that the capitalism entails a constant process of Creative Destruction. These changes historically have entailed spatial reconfigurations within the world-economy and new patterns of social stratification and mobility. The introduction and clustering of innovations constantly transform existing economic and social arrangements, and drive cycles of prosperity (characterized by intense investment in new productive opportunities) and depression (characterized by the broader absorption of innovative practices and the elimination of older activities). The accumulation of financial wealth in the United States and the global shift in the geographic distribution of billionaires in the world-economy suggest that we are undergoing one such period of reconfiguration. One may speculate that it was the misallocation of financial resources as we adjust politically and institutionally to this new reality that ultimately caused the global economy to shudder. In fact, with the massive shift in the national origin of billionaires over the 2000s, one may argue that the 2008 global economic crisis has revealed further the likely shape of things to come.

Notes

- 1 Others have used this source (e.g., Neumayer 2004).
- 2 Net worth is measured in current US\$, so the real value required to make the *Forbes* list has trended downward over the last 25 years. Using the consumer price index, we estimate that it would require \$872 million in 2006 dollars to make the 2012 list.
- 3 If wealth is distributed among members of a family but can be linked to a single individual as the source of that wealth, the net wealth of the family will be list as a single entry: “Lester Crown & Family”. Otherwise, the family members are listed independently.
- 4 The net worth of the world’s three wealthiest individuals at the end of 2010 was roughly equal to the Gross National Income of Pakistan and its 174 million inhabitants (World Bank 2013a; Forbes 2011; UN 2011). The wealth of one individual, Carlos Slim Helú (\$73 billion dollars), can buy 14.6 billion hours of labor, or 3 1/3 million years of 12 hour days at \$5.00/hour.

5 “Economies are divided according to 2012 GNI per capita, calculated using the World Bank Atlas method. The groups are: low income, \$1,035 or less; lower middle income, \$1,036—\$4,085; upper middle income, \$4,086—\$12,615; and high income, \$12,616 or more” (World Bank 2013b).

6 Piketty and Saez (2012) note a similar pattern for the United States using tax data.

References

- Acemoglu, Daron and James Robinson. 2012. *Why Nations Fail: The Origins of Power, Prosperity, and Poverty*. New York: Crown Publishing Group.
- Arrighi, Giovanni. 1991. “World Income Inequalities and the Future of Socialism.” *New Left Review* 189: 39–65.
- Arrighi, Giovanni. 1994. *The Long Twentieth Century: Money, Power, and the Origins of Our Times*. London: Verso.
- Arrighi, Giovanni and Jessica Drangel. 1986. “The Stratification of the World-Economy: An Exploration of the Semiperipheral Zone.” *Review* 10: 9–74.
- Better Markets. 2012. “The Cost of The Wall Street-Caused Financial Collapse and Ongoing Economic Crisis Is More Than \$12.8 Trillion” (September 15). Washington, DC: Better Markets. Retrieved January 15, 2013 (<http://bettermarkets.com/sites/default/files/Cost%20Of%20The%20Crisis.pdf>).
- Braudel, Fernand. 1979. *The Wheels of Commerce*. New York: Harper & Row, Publishers.
- Braudel, Fernand. 1984. *The Perspective of the World*. New York: Harper & Row, Publishers.
- Bricker, Jesse, Arthur B. Kennickell, Kevin B. Moore and John Sabelhaus. 2012. “Changes in U.S. Family Finances from 2007 to 2010: Evidence from the Survey of Consumer Finances” (Federal Reserve Bulletin, June 2012). Washington, DC: Federal Reserve. Retrieved January 15, 2013 (www.federalreserve.gov/pubs/bulletin/2012/pdf/scf12.pdf).
- Dolan, Kerry A. 2012. “Methodology: How We Crunch the Numbers” (March 7, 2012). *Forbes*. Retrieved January 7, 2013 (www.forbes.com/sites/kerryadolan/2012/03/07/methodology-how-we-crunch-the-numbers/).
- Eisenstadt, Stuart N. 1974. “Studies in Modernization and Sociological Theory.” *History and Theory* 13: 225–52.
- Emmanuel, Arghiri. 1972. *Unequal Exchange: A Study of the Imperialism of Trade*. New York: Monthly Review Press.
- Firebaugh, Glenn. 2003. *The New Geography of Global Income Inequality*. Cambridge, MA: Harvard University Press.
- Forbes. “The World’s Billionaires 2011”. 2017. *Forbes.Com*. https://www.forbes.com/lists/2011/10/billionaires_2011.html.
- Forbes. “Forbes World’s Billionaires 2012”. 2017. *Forbes.Com*. <https://www.forbes.com/sites/luisakroll/2012/03/07/forbes-worlds-billionaires-2012/#63c53bc92c9d>.
- Frank, Andre Gunder. 1966. “The Development of Underdevelopment.” *Monthly Review* 18 (September): 17–31.
- Freeland, Chrystia. 2012. *Plutocrats: The Rise of the New Global Super Rich and the Fall of Everyone Else*. New York: The Penguin Press.

- Hoselitz, Bert F. 1960. *Sociological Factors in Economic Development*. New York: Free Press.
- Inkeles, Alex and David H. Smith. 1974. *Becoming Modern: Individual Change in Six Developing Countries*. Cambridge, MA: Harvard University Press.
- Korzeniewicz, Roberto Patricio and Timothy Patrick Moran. 2005. “Theorizing the Relationship between Inequality and Economic Growth.” *Theory and Society* 34: 277–316.
- Korzeniewicz, Roberto Patricio and Timothy Patrick Moran. 2009. *Unveiling Inequality*. New York: The Russell Sage Foundation.
- Myrdal, Gunnar. 1964 [1957]. *Economic Theory and Under-Developed Regions*. London: Gerald Duckworth & Co., Ltd.
- Neumayer, Eric. 2004. “The Super-Rich in Global Perspective: A Quantitative Analysis of the Forbes List of Billionaires.” *Applied Economic Letters* 11 (13): 793–796.
- Piketty, Thomas and Emmanuel Saez. 2012. “Top Incomes and the Great Recession: Recent Evolutions and Policy Implications.” Paper presented at the 13th Jacques Polak Annual Research Conference Hosted by the International Monetary Fund, Washington, DC (November 8–9).
- Prebisch, Raul. 1950. *The Economic Development of Latin America and Its Principal Problems*. New York: United Nations.
- Rostow, Walt W. 1963. *The Stages of Economic Growth: A Non-Communist Manifesto*. Cambridge: Cambridge University Press.
- Schumpeter, Joseph A. 1942. *Capitalism, Socialism and Democracy*. New York: Harper and Row.
- Tomaskovic-Devey, Donald and Ken Hou Lin. 2011. “Income Dynamics, Economic Rents, and the Financialization of the US Economy.” *American Sociological Review* 76 (4): 539–559.
- Wallerstein, Immanuel. 1974. *The Modern World-System, Vol. 1*. New York: Academic Press.
- Wallerstein, Immanuel. 1979. *The Capitalist World-Economy*. New York: Cambridge University Press.
- Wallerstein, Immanuel. 1983. *Historical Capitalism*. London: Verso.
- World Bank. 2013. “How We Classify Countries.” Retrieved September 16, 2013 from <http://data.worldbank.org/about/country-classification>

Appendix A Industry Designations

Agriculture	Food crops or livestock; includes tobacco
Art	Art collecting/dealing
Chemicals	Production of industrial chemicals; includes fertilizers
Communication	Installation and maintenance of communications infrastructure
Construction	Construction and construction-related engineering
Consumer	Branding-centric design and production of mostly non-durable consumer goods (e.g., apparel)
Diversified	The individual's activities are sufficiently diverse as to not warrant a single designation
Energy	Production and distribution of electricity
Entertainment	Includes a broad range of products/services oriented towards entertaining the consumer—e.g., sports, gambling.
Extraction	Extraction and distribution of natural resources—oil, metals, lumber, etc. Does not include food stuffs (e.g., agriculture, fishing)
Finance	Allocation of financial resources, either on one's own behalf (e.g., investments, capital gains) or of others (e.g., hedge fund, service fees)
Health Care	Medical technologies and services; includes pharmaceuticals and medical insurance providers
High Tech	Design/production of devices using new technologies (e.g., computers)
Inherited	Wealth is inherited and relatively dormant
Manufacturing	Mass production of undifferentiated goods or on a contractual basis with the brand owner; production of heavy manufactures (e.g., cars)
Media	Information dissemination, principally through 'traditional' technologies, e.g., television, radio, newspaper.
Real Estate	Collecting rents from owned properties or purchasing and reselling properties for a profit
Retail	Intermediaries between producers and consumers
Service	All other services
Software	Services provided electronically/digitally through the execution of computer code; includes internet services
Transportation	Transportation-related infrastructure (e.g., airport) and transportation services (e.g., trucking)
