Online Appendix to "How Wealthy Are the Rich?"*

Jan Schulz and Mishael Milaković

Department of Economics

University of Bamberg

October 24, 2021

G Top Tail Wealth Indices in the Literature

The tabular summary below illustrates that German wealth inequality, measured by the tail index, appears higher than in other Western countries, while contemporary Russia and India (Brzezinski, 2014; Sinha, 2006) and medieval Hungary (Hegyi et al., 2007) show comparable degrees of inequality. The considerable degree of German wealth inequality might trace back to intergenerational wealth transmission since casual empiricism suggests that the *manager magazin* sample mostly includes individuals from families with dynastic histories, for example the Quandt family with Susanne Klatten as its most prominent member and richest German in all sample periods. Since about 70% of large and old German corporations are still controlled by the owning families (Bergfeld and Weber, 2011), the high degree of inequality among Germany's super-rich is (at least in part) attributable to dynastic wealth accumulation.

*We thank Simone Alfarano, Anna Gebhard, Philipp Mundt, our colleagues at the Bamberg Research Group on Behavioral Macroeconomics, as well as the participants of the 1st Behavioral Macroeconomics Workshop in Bamberg, the 12th International Conference on Computational and Financial Econometrics in Pisa, the 23rd Forum for Macroeconomics and Macroeconomic Policies, the 9th Young Economists Conference, and the 77th Annual Congress of the International Institute of Public Finance for helpful comments and suggestions at crucial junctions of this investigation. Financial support by the Hans-Böckler-Foundation through grant PK045 is gratefully acknowledged.

Author(s)	**Countries**	**Data source**	α **estimate**
Abul-Magd (2002)	Egypt	Data for Ancient Egypt (14th century BC) with the area of houses as proxy for wealth (distribution from excavations)	3.76
Bach et al. (2011)	Germany	Rich list provided by *manager magazin* (300 individuals, 2007)	1.34
Brzezinski (2014)	World, US, Russia, China	Rich lists provided by *Forbes* (World Billionaires for 1996 - 2012, Richest American List for 1988 - 2012, Richest Chinese list 2006 - 2012) and the Russian magazine *Finans* (2004 - 2011)	1.2 and 2 (World), 1.4 to 1.7 (US), 1.6 to 2 (China) and 0.7 to 0.8 (Russia)
Castaldi and Milaković (2007)	US, UK	Rich lists provided by *Forbes* (400 individuals, 1996 - 2004) and *Sunday Times* (1000 individuals, 2001 - 2004)	1.25 to 1.57 (Forbes) and 1.03 to 1.19 (Sunday Times)
Coelho et al. (2005)	UK	Data by the Internal Revenue Service for 2001	1.78

Drăgulescu and Yakovenko (2001)	UK	Data by the Internal Revenue Service for 1996	1.9
Eckerstorfer et al. (2016)	Austria	Data from the *Household Finance and Consumption Survey* of 2011 (2,380 observations)	1.14 to 1.36
Hegyi et al. (2007)	Hungary	Data for the owned land for aristocratic families (1283 observations) in Hungary in the year 1550 (proxy for wealth is the number of owned serf families)	0.92
Levy (2003)	US	Rich list provied by *Forbes* (400 individuals, 1996)	1.35
Levy (1998)	US, UK, France	*Forbes* (400 individuals, 1997), *Sunday Times* (1000 individuals, 1997), Almanac *Quid* (162,370 individuals in the highest wealth region for France)	1.35 (US), 1.06 (UK) and 1.82 (France)

Levy and Solomon (1997)	UK	Data by the Internal Revenue Service for 1970	1.4
Milaković (2003)	Sweden, Belgium, Canada, Denmark, Germany, US, UK, France	Lorenz data, various sources	1.07 to 1.68
Ning and You-Gui (2007)	China	Rich list by the Chinese magazine *New Fortune* for the years 2002 - 2004 (400 observations)	2.285 (2002), 2.043 (2003) and 1.758 (2004)
Vermeulen (2018)	US, UK, France, Spain, Finland, Germany, Belgium, Austria, Portugal, Italy, Netherlands	*Wealth and Assets Survey (UK)* from 2008 to 2010, *Household Finance and Consumption Survey* for 2011 (other european Countries), *Survey of Consumer Finances* (US) for 2010, augmented by *Forbes Rich List* from 2009 to 2011	1.39 (Germany) to 1.88 (Finland)

Sinha (2006)	India	Rich list by the Indian magazine *Business Standard* for 2002 and 2003 (125 observations) and by *Forbes* for 2004 (40 observations)	0.81 (2002), 0.82 (2003) and 0.92 (2004)

Table 1. Literature review on the distributional regularities in the highest wealth regions.

H Data Description

SOEP. The SOEP study does not include a single specific item for total personal wealth, but rather items for different asset classes. The total wealth used in the construction of the dataset is therefore calculated as the sum of the value of financial assets (item *PLC0329*), the value of property (item *PLC0357*), the value of commercial enterprises (item *PLC0366*) and the value of tangible assets (item *PLC0371*) held by an individual, substracting the value of debt from private individual credit (item *PLC0422*). All values are inflation-adjusted with base year 2010 and thus comparable between the sample periods. The maximum, inflation-adjusted wealth level across all periods is about 70 million euro.

manager magazin. The rich list reports the name, net wealth and asset types an individual holds for a list of the 500 richest Germans. While the vast majority of observations are reported on an individual level, as indicated by a single reported name, the lists for some cases seem to not consistently distinguish between household, family and individual wealth. Whenever this is possible, we break down the reported wealth according to the publicly available information on the relative wealth holdings within a household or family. The data for 2012 is missing completely which proves problematic especially for investigations of growth rates that necessitate the comparison of two subsequent sample periods. Also, the *manager magazin* staff did not disclose any information on the detailed data collection procedure. In personal correspondence, they only stated that the reported wealth levels are based on data available in official archives, from lawyers and asset managers as well as the respective individuals themselves. Some unsystematic checks strengthened the impression that the reported wealth levels are equivalent to the net wealth reported in the (German) media. We neglect all of the lowest wealth observations for which there existed less than three observations to avoid any bias in the estimation by the truncation of the sample to only 500 individuals. All observations were inflation-adjusted with base year 2010 to establish comparability within and between the samples. The reported minimum wealth level across periods is about 150 million euro. The rich lists were manually digitalized and are available upon request.

I Complementary CDFs for the manager magazin samples

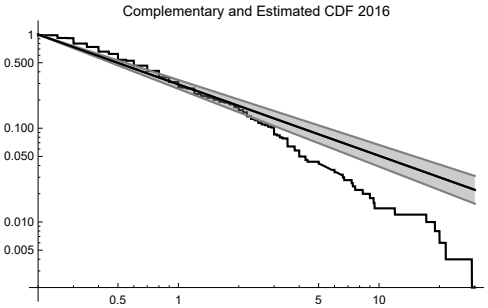

Figure 1. CCDF 2016 (mm sample).

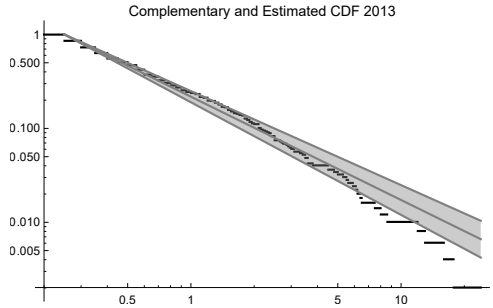

Figure 4. CCDF 2013 (mm sample).

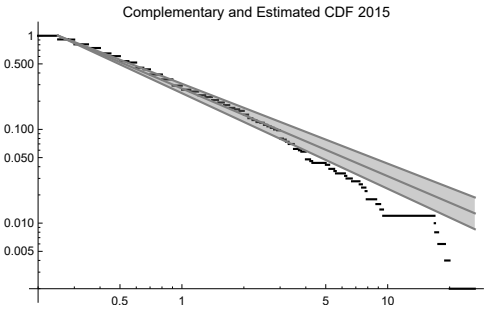

Figure 2. CCDF 2015 (mm sample).

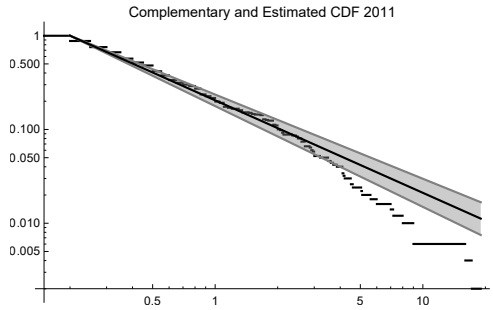

Figure 5. CCDF 2011 (mm sample).

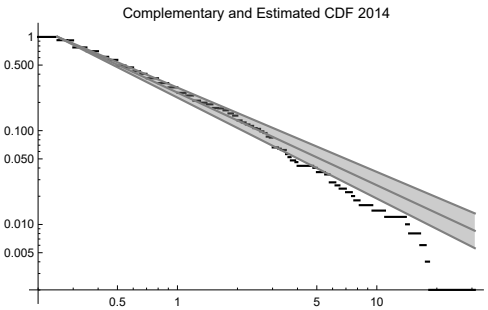

Figure 3. CCDF 2014 (mm sample).

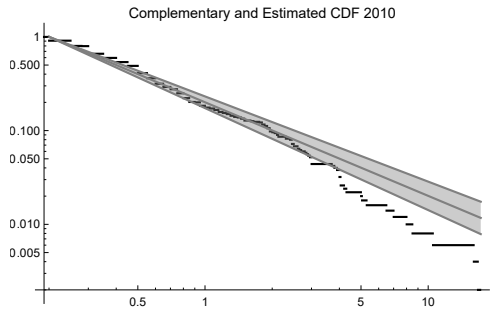

Figure 6. CCDF 2010 (mm sample).

Note: CCDFs on a double-log scale, fits by MLE. Error bands correspond to a deviation of two standard errors for the tail indices. Estimation of the standard errors by approximation from the Gaussianity of the Hill estimator (De Haan and Resnick, 1997).

J Complementary CDFs for the SOEP samples

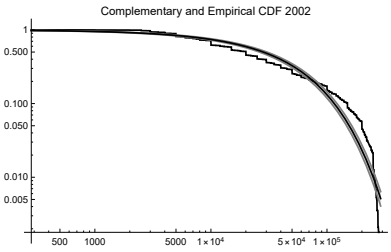

Figure 7. Complementary CDF 2002 (SOEP) for the lower tail of the distribution.

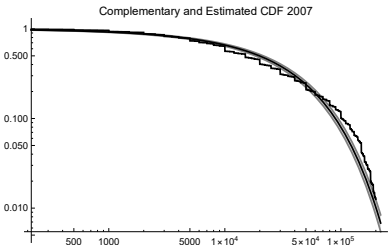

Figure 8. Complementary CDF 2007 (SOEP) for the lower tail of the distribution.

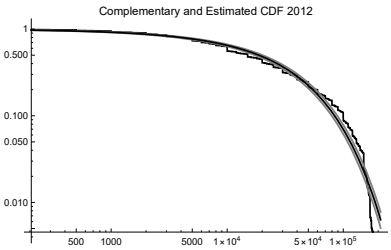

Figure 9. Complementary CDF 2012 (SOEP) for the lower tail of the distribution.

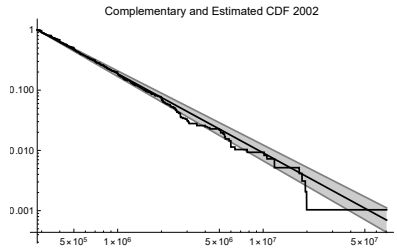

Figure 10. Complementary CDF 2002 (SOEP) for the upper tail of the distribution.

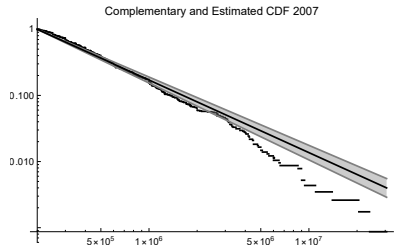

Figure 11. Complementary CDF 2007 (SOEP) for the upper tail of the distribution.

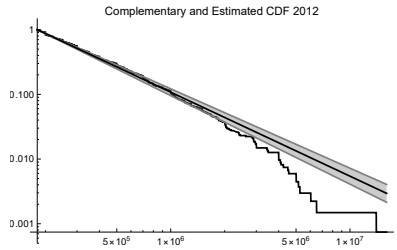

Figure 12. Complementary CDF 2012 (SOEP) for the upper tail of the distribution.

Note: Complementary CDFs on a double-logarithmic scale, fits by MLE for a Gamma distribution (lower tail) and a power law (upper tail). Error bands correspond to a deviation of two standard errors for the tail indices (in the power law case) and for both parameters simultaneously (in the Gamma case). Estimation of the standard errors in the former case by approximation from the Gaussianity of the Hill estimator (De Haan and Resnick, 1997), in the latter case by utilizing the Fisher information (Fisher, 1922). The Gamma distribution also emerges as the combinatorially most likely or entropy-maximizing distribution, when both additive and multiplicative growth is assumed simultaneously (Milaković, 2003). The minimum here can therefore be interpreted as the threshold level after which the growth process of wealth is multiplicative according to the general diffusion in Appendix B.

K Equivalence Tests for Wealth Return Distributions

Distributional Equivalence in Wealth Returns (KW)

KW Test	*manager magazin* 2010–15	*manager magazin* 2011–16	*SOEP* 2002–07	*SOEP* 2007–12
mm 2010–2015	-	0.37	45.8 ***	26.9 ***
	-	(0.543)	(0)	(0)
mm 2011–16	0.37	-	41.4 ***	22.7 ***
	(0.543)	-	(0)	(0)
SOEP 2002–07	45.8 ***	41.4 ***	-	2.16
	(0)	(0)	-	(0.133)
SOEP 2007–12	26.9 ***	22.7 ***	2.16	-
	(0)	(0)	(0.133)	-

Table 2. Test statistics and p-values for the Kruskall-Wallis test of location equivalence. Null hypothesis is location equivalence; significance indicated * at the 10 percent , ** at the 5 percent and *** at the 1 percent level, with p-values in parentheses.

Distributional Equivalence in Wealth Returns (CvM)

CvM test	*manager magazin* 2010–15	*manager magazin* 2011–16	*SOEP* 2002–07	*SOEP* 2007–12
mm 2010–2015	-	0.152	5.15***	2.98***
	-	(0.385)	(0)	(0)
mm 2011–16	0.152	-	4.73***	2.62***
	(0.385)	-	(0)	(0)
SOEP 2002–07	5.15***	4.73***	-	0.363*
	(0)	(0)	-	(0.0908)
SOEP 2007–12	2.98***	2.62***	0.363*	-
	(0)	(0)	(0.0908)	-

Table 3. Test statistics and p-values for the Cramér-von-Mises test of distributional equivalence. Null hypothesis is distributional equivalence; significance indicated * at the 10 percent, ** at the 5 percent and *** at the 1 percent level, with p-values in parentheses.

Distributional Equivalence in Wealth Returns (KS)

KS test	*manager magazin* 2010–15	*manager magazin* 2011–16	*SOEP* 2002–07	*SOEP* 2007–12
mm 2010–2015	-	0.0723	0.347***	0.274***
	-	(0.376)	(0)	(0)
mm 2011–16	0.0723	-	0.352***	0.28***
	(0.376)	-	(0)	(0)
SOEP 2002–07	0.347***	0.352***	-	0.145*
	(0)	(0)	-	(0.0604)
SOEP 2007–12	0.274***	0.28***	0.145*	-
	(0)	(0)	(0.0604)	-

Table 4. Test statistics and p-values for the Kolmogorov-Smirnov test of distributional equivalence. Null hypothesis is distributional equivalence; significance indicated * at the 10 percent, ** at the 5 percent and *** at the 1 percent level, with p-values in parentheses.

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