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Rising Mean Incomes for Whom?

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Highlights:

- The Mean-Income Population Share (MPS) captures how representative the mean income is for the mass of the population.
- Its changes over time provide an indicator of the inclusiveness of economic growth.
- We provide a formal discussion of MPS in terms of the distribution function and Lorenz curve.
- Even as mean incomes rise in many advanced economies, the middle class may not be benefiting to the same degree.

Abstract

Not everybody is benefiting equally from rising mean incomes. We discuss the mean-income population share (MPS), defined as the population share earning less than the mean income, as an indicator of how representative the mean income is for the mass of the population. This measure is both analytically tractable and simple to interpret to inform the public debate. We discuss its properties and estimation using micro-level and grouped income data. Our empirical application finds that MPS has risen in 13 out of 16 high- and middle-income countries in the last decades, indicating that growth has mostly not been inclusive. MPS shows a mixed correlation structure with the Gini coefficient.

JEL Classification: D31, C80, O40
Keywords: Mean-income population share, inclusive growth, parametric Lorenz function

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1 Introduction

Macroeconomic theory predicts increases in GDP per capita at the rate of technological progress along the balanced growth path. Despite rising mean incomes in industrialized economies, there is a growing debate on how the benefits of economic growth are distributed (Kenworthy, 2013; Foster and Wolfson, 2010). For example, the OECD has recently made inclusive growth an official goal (de Mello and Dutz, 2012; OECD, 2015).

This paper discusses the mean-income population share (MPS), defined as the percentage of people having an income less than the mean, as an indicator of how representative the mean income is for the mass of the population. If mean incomes rise over time, but the increase is more subdued for middle-class households, more of them fall below the mean point, and MPS increases. We characterize MPS formally in terms of the income distribution function and the Lorenz curve, and conduct an empirical analysis with cross-country micro-level income datasets from LIS (Luxembourg Income Study (LIS) Database, 2018). MPS and its counterpart MIS, the income share held by the people included in MPS, have largely been overlooked in the income and growth literature until now.[1]

We argue that it is a useful statistic for three reasons: (i) Its simple calculation and interpretation make it particularly meaningful for informing the public debate and policymakers. (ii) Its analytical tractability makes it a good target statistic for researchers working with Lorenz curves, because not all parametric forms are equally flexible in matching the empirical evolution of MPS. (iii) MPS provides a complementary perspective to inequality measures such as the Gini coefficient, with correlation between the two varying considerably across countries.

2 Characterization of MPS

As the percentage of the population that has an income below the mean, MPS can be defined in terms of the cumulative income distribution function (CDF), $F(x)$.

Definition 1. *The mean population share, MPS, is the percentage value that the income CDF $F(x)$ reaches at the mean μ:*

$$MPS = F(\mu) \tag{1}$$

MPS takes on values in $(0, 1]$. A positively (negatively) skewed distribution has an MPS above (below) 0.5, so that $[0.5, 1]$ is the relevant range for most empirical

[1] With the exception of Shao (2017), who provides an indirect inference procedure for MPS in the presence of sparse data, we have not found applications of this concept in the literature.

applications.[2] Higher values of MPS indicate that the rising mean income is less representative of the mass of the distribution. For instance, if the mean is lifted up by rich earners in the tail, there will be more individuals below the new mean. But MPS is not an inequality measure and does not necessarily move in line with the Gini coefficient.[3]

Table 1: Different Mean Income Growth Scenarios

Description	*Measures after the income change*			
	Mean μ_2	MPS_2	Gini g_2	Skewness sk_2
Scenario (a) Uniform relative growth				
All incomes rise by the same factor $c > 0$	$c \cdot \mu_1$	MPS_1	g_1	sk_1
Scenario (b) Uniform absolute growth				
All incomes rise by the same absolute value $a > 0$	$\mu_1 + a$	MPS_1	$< g_1$	sk_1
Scenario (c) Top income growth				
The p% highest incomes grow by a factor $c > 0$. No change for the rest. Choose p sufficiently small that the affected incomes are above μ_1.	$> \mu_1$	$\geq MPS_1$	$> g_1$	ambiguous
Scenario (d) Bottom income growth				
The p% lowest incomes grow by a factor $c > 0$. No change for the rest. Choose p sufficiently small that the affected incomes remain below μ_1.	$> \mu_1$	$\geq MPS_1$	$< g_1$	ambiguous
Scenario (e) Middle class income growth				
p% of incomes around the mean grow by a factor $c > 0$. No change for the rest. Choose c sufficiently small that unaffected richer incomes stay above the mean.	$> \mu_1$	$\leq MPS_1$	ambiguous	ambiguous

Notes: The table shows how mean, MPS, Gini coefficient $\frac{\mathbb{E}|x_i - x_j|}{2\mu}$ and skewness $\mathbb{E}\left[\left(\frac{x-\mu}{\sigma}\right)^3\right]$ react in the income growth scenarios described. The subscript 1 (2) refers to the statistic before (after) the change. These results hold for all income distributions where the growth scenarios can be conducted, for instance in (c), a distributional top of individuals with incomes above the mean must exist. A reaction is denoted ambiguous if it depends on the size of growth effect and/or the initial distribution.

2.1 MPS in various growth scenarios

Changes in MPS over time are particularly important because they can inform how inclusive the reported growth based on rising mean incomes actually is. Table 1 shows how MPS, the Gini coefficient and skewness react to various scenarios underlying a rise in mean income.

[2] $MPS = 0$ can only be reached asymptotically: If $N - 1$ individuals have an income of x, and one individual has an income of $x - a$ with $a > 0$, then $\mu < x$ and $MPS = 1/N$. As $N \to \infty$, $MPS \to 0$. $MPS = 1$ is attained in the extreme case of income equality. With income $x = \mu$ for all individuals, $F(\mu) = MPS = 1$.

[3] Consider the case where 99% of the population have an income of x and 1% of individuals have an income of $2x$. The mean $\mu = 1.01x$ is higher than x and $MPS = 0.99$. So, 99% of the population have an income below the mean but the Gini coefficient is very low at 0.0098.

MPS is invariant to uniform growth along the whole distribution, both relative and absolute (scenarios a and b). If incomes at the top or bottom grow faster than for the middle class, MPS increases (scenarios c and d): Middle-income households cannot hold up with the rising mean and some fall below it. Middle-class income growth, however, decreases MPS (scenario e). Neither the Gini coefficient nor the skewness can capture these developments in the same way. The Gini coefficient reacts differently to growth at the top and bottom and is ambiguous towards middle class growth. The reactions of skewness often depend on the underlying distributions and the precise changes. For example, if the top 10% (20%) of lognormally distributed incomes double, the skewness increases (decreases). By contrast, MPS will always (weakly) rise because mean income has increased and some individuals above the old mean fall below the new mean.

2.2 MPS in terms of parametric functions

With micro-level income data one can simply compute MPS with Definition 1. If only grouped-level percentile data are given, one can exploit the analytical tractability of MPS in terms of the Lorenz curve (LC), which links the cumulative income share L to the cumulative population share p.

Theorem 1. *For a continuously differentiable LC, $L(p)$, MPS as defined in Definition 1 is the value p at which the first derivative of the LC equals unity:*

$$L'(MPS) = 1 \tag{2}$$

Proof. The LC and the income CDF are related by the following formula (see Gastwirth, 1971; Kakwani, 1980):

$$F^{-1}(p) = L'(p) \cdot \mu. \tag{3}$$

At the value $p = MPS$, we can use Definition 1 and take its inverse

$$F^{-1}(MPS) = \mu. \tag{4}$$

By combination of (3) and (4), it follows that (2) holds. □

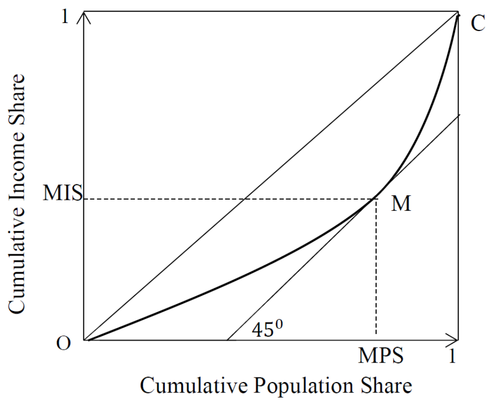
Hence, MPS is located at the point where a 45 degree line is tangential to the LC, see Figure 1. The associated value on the LC is the mean income share (MIS). While MPS is the population share below mean income, MIS captures the share of total income accruing to them: $L(MPS) = MIS$.

Table 2: MPS for widely-used Lorenz curves

LC name and parameters	$L(p)$	MPS	MPS Range	$MIS = L(MPS)$	MIS Range
Uni-parametric functions					
Lognormal ($\sigma > 0$)	$\Phi\left(\Phi^{-1}(p) - \sigma\right)$	$\Phi\left(\frac{1}{2}\sigma\right)$	(0.5,1)	$\Phi\left(-\frac{1}{2}\sigma\right)$	(0,0.5)
Pareto ($\alpha > 1$)	$1 - (1-p)^{1-\frac{1}{\alpha}}$	$1 - \left(1 - \frac{1}{\alpha}\right))^{\alpha}$	(0.625,1)	$1 - \left(1 - \frac{1}{\alpha}\right))^{\alpha-1}$	(0,0.625)
Weibull ($b > 1$)	$1 - \frac{\Gamma\left(-log(1-\pi), 1+\frac{1}{b}\right)}{\Gamma(1+\frac{1}{b})}$	$1 - e^{-\Gamma\left(1+\frac{1}{b}\right)^{b}}$	(0.43,0.64)	$1 - \frac{\Gamma\left([\Gamma(1+\frac{1}{b})]^{b}, 1+\frac{1}{b}\right)}{\Gamma(1+\frac{1}{b})}$	(0.26,0.43)
Chotikapanich (1993) ($k > 0$)	$\frac{e^{kp}-1}{e^{k}-1}$	$\frac{1}{k} log\left[\frac{e^{k}-1}{k}\right]$	(0.5,1)	$\frac{1}{k} - \frac{1}{e^{k}-1}$	(0,0.5)
Rohde (2009) ($\beta > 1$)	$p\frac{\beta-1}{\beta-p}$	$\beta - \sqrt{\beta(\beta-1)}$	(0.5,1)	$1 - \beta + \sqrt{\beta(\beta-1)}$	(0,0.5)
Multi-parametric functions					
Kakwani (1980) ($\alpha > 0, \delta, \beta \in (0,1)$	$p - \alpha p^{\delta}(1-p)^{\beta}$	$\frac{\delta}{\delta+\beta}$	(0,1)	$\frac{\delta}{\delta+\beta} - \alpha\left(\frac{\delta}{\delta+\beta}\right)^{\delta}\left(\frac{\beta}{\delta+\beta}\right)^{\beta}$	(0,1)
Wang and Smyth (2015) ($\alpha \in]0,1[, \alpha+\beta > 0$)	$\frac{1-\alpha}{1+\beta}\frac{1+\beta p}{1-\alpha p}p$	$\frac{1-\sqrt{1-\alpha}}{\alpha}$	(0.5,1)	$\frac{1+\beta(\frac{1}{\alpha} - \frac{1}{\alpha}\sqrt{1-\alpha})}{1+\beta} \cdot \left[1 - \frac{1}{\alpha} + \frac{1}{\alpha}\sqrt{1-\alpha}\right]$	(0,0.5)
Villaseñor and Arnold (1989) ($d \geq 0, a+d \geq 1, \alpha = b^2 - 4a < 0$, $\beta = 2be - 4d, e = -(a+b+d+1) < 0$	$0.5[-(bp+e)$ $-(\alpha p^2 + \beta p + e^2)^{0.5}]$	see below	(0,1)	see below	(0,1)

Notes: $\Gamma(\alpha) = \int_0^\infty t^{\alpha-1}e^{-t}dt$ is the Gamma function MPS for the Villaseñor and Arnold (1989) Elliptical function is $\frac{-\beta \pm \sqrt{\beta^2 - 4\alpha(d-be-e)}}{2\alpha}$ with $b \geq -\left(a+d+\frac{a}{a+d}\right)$, the corresponding MIS is $0.5\left(b\frac{\beta \pm \sqrt{\beta^2-4\alpha(d-be-e)}}{2\alpha} - e - \sqrt[2]{-d-e(a+d)}\right)$

Figure 1: Illustration of MPS in terms of the LC



In empirical studies with grouped data, parametric functions are fitted to the percentile points. Theorem 1 allows to derive the MPS that parametric LCs imply. In Table 2 we list the closed forms for MPS and MIS of the most-widely used functional forms. When non-uniform economic growth changes MPS, not all parametric forms have an equally wide range of MPS values to capture this development. For example, the Weibull LC, although known for its flexibility in fitting LCs associated with both unimodal and zeromodal densities (Krause, 2014), can only represent $MPS \in [0.43, 0.64]$, while *inter alia* the Lognormal distribution can also express larger values.

3 Empirical Application

We use harmonized cross-country micro-level income datasets from LIS (Luxembourg Income Study (LIS) Database, 2018). To analyze the evolution of MPS and other statistics over time, we use 16 high- and middle-income countries which report income data for all waves at least between the 2nd (around 1985) and the 9th wave (around 2013). We work with both total and disposable household income.[4]

3.1 Micro Data: MPS across countries and time

Figure 2a provides a cross-sectional perspective of MPS based on total income in the 16 countries in the latest available year (around 2014). MPS ranges from 0.53 (the Netherlands) to 0.70 (Mexico). Countries with higher income inequality tend to have a higher share of households below the mean, but this does not always hold: Some low-income-inequality countries, in particular, Norway, Denmark, Poland, and Taiwan, have comparatively high MPS. They have few relatively poor households, while their

[4]We use equivalized income, which is obtained by dividing the household income by the square root of the number of household members. We also follow the literature in weighting observations by the number of household members times household weights.

mean incomes are driven up by rich households, so that many middle-class households are below the mean. This is confirmed by their rather high MIS of 0.42-0.44. Hence, the households below the mean hold a larger share of total income than in many others countries, both egalitarian and inegalitarian Figure 2b.

How has MPS evolved over the last three decades as mean income grew substantially? Figure 2c illustrates that MPS was higher in the last (ca. 2014) than in the first observation period (ca. 1981) for most countries. The evolution of MPS over time shows increases in many countries and a sustained decreases only in the Netherlands (Figure 2d). Income inequality is known to have increased during this period in many industrialized economies for reasons ranging from globalization to skill-biased technological change (see for instance Acemoglu, 2002; Helpman et al., 2010). Income jumps at the top certainly increase MPS but other distributional movements may not, so that inequality and MPS do not always go in line. For some countries, such as the US and Australia, the development of MPS correlates strongly with both the Gini coefficient and the skewness of the distribution. But for many others, including Germany, Poland, and Canada, the evolution of MPS shows either no significantly positive or even a moderately negative correlation with Gini and skewness Figure 2e.

These figures are based on total income, but the same conclusions apply for disposable income: The disposable income MPS is only marginally lower than the one for total income (Figure 2f).[5] Policies that redistribute from the top to the bottom decrease the Gini coefficient, but they do not tend to have a large impact on households near the income mean, hardly affecting MPS.

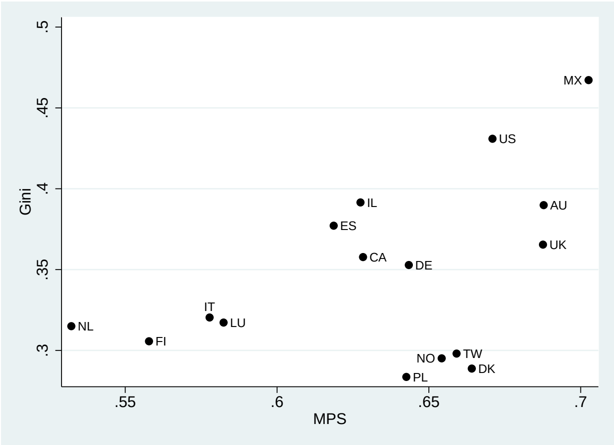
3.2 Grouped Data: Parametric functions and MPS over time

Can the parametric functions used for grouped data also capture the empirical characteristics of MPS? For all the countries and time periods analyzed above, we use 5-percentile shares and fit the eight LCs from Table 2 to these twenty data points, mimicking a setting in which only grouped data is available. Table 3 shows that the parametric forms which achieve the lowest mean squared error (MSE) at the 20 percentile points are often not the ones that best capture the empirical MPS or MIS. The Kakwani LC is the best performer for 139 out of all 175 country-year distributions, but the Rohde and Wang-Smyth LCs often imply MPS values which come closer to the empirical ones. We find mixed evidence on how accurately the empirical evolution of a country's MPS can be traced by the parametric functions. In countries where the MPS, Gini, and skewness are strongly correlated, such as the U.S., the empirical and implied MPS are very close (Figure 3a). By contrast, the rising MPS in low-inequality Norway cannot

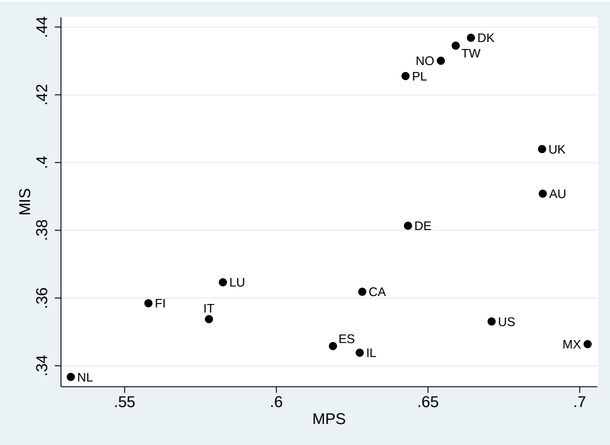
[5]This analysis omits Mexico and Italy, where the data does not distinguish between total and disposable income. MPS, MIS, and the Gini coefficient for all countries and years in terms of total and disposable income are listed in the Appendix.

Figure 2: MPS and other Statistics Across Countries and Time

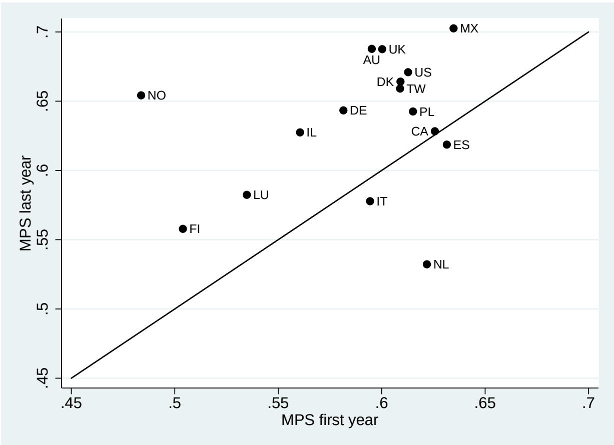
(a) MPS and Gini, latest year (ca. 2014)



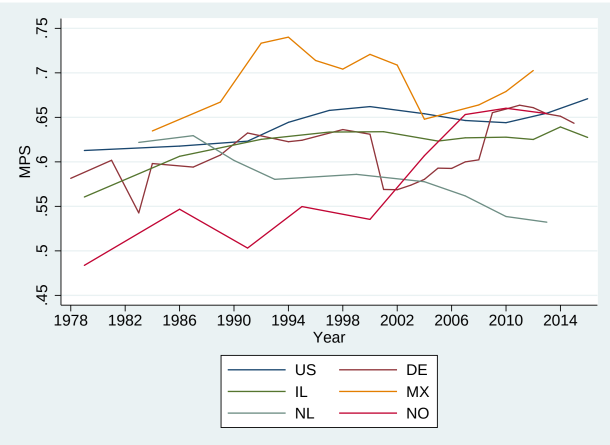
(b) MPS and MIS, latest year (ca. 2014)



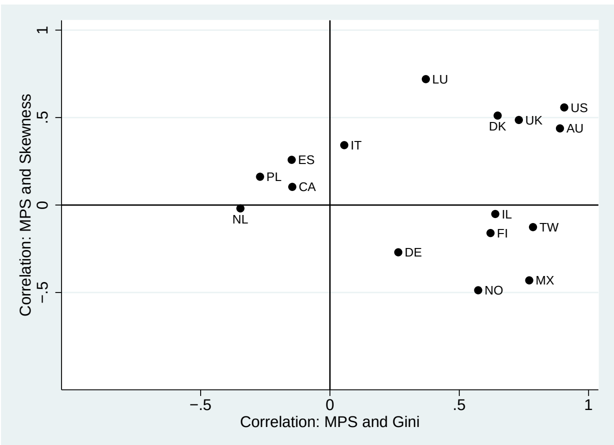
(c) MPS first (ca. 1981) and latest year (ca. 2014)



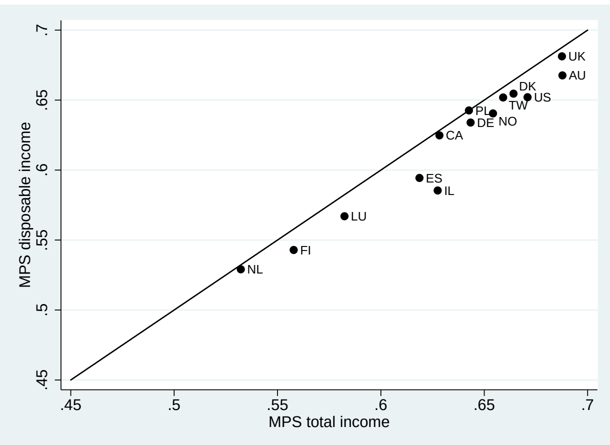
(d) MPS Time Graphs (Selected Countries)



(e) Correlations over time



(f) Total and disposable income, latest year



be captured well by the functional forms (Figure 3b). Researchers working with grouped data should hence be aware of the choice of functional forms. Only if the implied MPS comes close to the empirical one can it be an appropriate measure for the inclusiveness of economic growth.

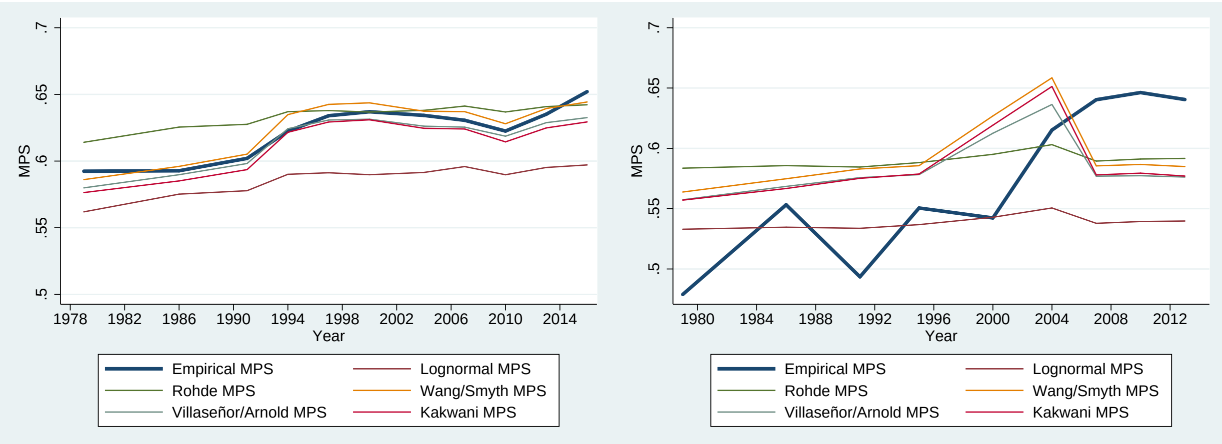
Table 3: Performance of Functional Forms

Lowest MSE for	Pareto	Weibull	Choti.	Rohde	Lognormal	Wang/S.	Vi./A	Kakwani
Percentile Points					2		34	139
Implied MPS	1	11	15	47	17	56	12	16
Implied $MPS\&MIS$	1	9	29	46	3	55	29	3

Notes: For each parametric form, the table lists the number of distributions (out of 175) for which the function has the lowest MSE, either at the 20 percentile points, MPS or $MPS\&MIS$. See Table 2 for the implied MPS and MIS as well as abbreviations.

Figure 3: Empirical and Implied MPS and MIS by Parametric Forms

(a) US **(b)** Norway



4 Conclusion

We provide a formal characterization of MPS as an indicator of how representative a rise in mean income is for the population. Showing how to compute MPS for both micro and grouped data opens the way for its wider application in research and the public debate on the inclusiveness of growth (OECD, 2015). The rise in MPS over most of our sample countries implies that economic growth of the last decades has often been not inclusive, with many middle-class households seeing their incomes rise by less than official statistics about rising mean incomes suggest.

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Appendix A Appendix: Additional Statistics of the Empirical Analysis

This Appendix provides background information on the data used in the empirical analysis. It discusses statistics and estimation results. The data used is harmonized cross-country micro-level income data from the Luxembourg Income Study (LIS). Because our focus is on changes in MPS and other statistics over time, we only use those countries that report income data for all waves at least between the 2nd (around 1985) and the 9th wave (around 2013). These are 16 high- and middle income countries.

Table A-1 shows the countries and years used in our analysis. The number of observation years ranges between 8 (Denmark, Finland) and 26 (Germany). But thanks to the wave availability restriction imposed, they all span the period from the 1980s to the 2010s, allowing us to analyze the development over these decades.

Table A-2 to Table A-17 show MPS, $MIS = L(MPS)$ and the gini coefficient computed for all available years per country. We do this both for total household income and disposable household income. In both cases, equivalized income is used, hence, we divide household income by the square root of the number of household members. Following the literature, we also weight observations by the number of household members times household weights.
There are a couple of countries which show remarked increases in both MPS and the gini coefficient, such as Germany, the US, and Australia. But in some other countries, such as Norway, Denmark, and Canada, MPS increased even though the gini coefficient stayed relatively constant. In the Netherlands, MPS even decreased, a development that is not visible based on the gini coefficient. MIS does not show pronounced changes over time in many countries. If MPS rises and MIS stays constant, such as in the US, Germany, and Finland, there are more households below the mean but their share of total income has not increased, indicating that they are relatively worse off.
The tables show that the gini coefficient based on disposable income is typically considerably lower than based on total household income, as the state redistributes from the top to the bottom. As discussed in the main text, the differences between total and disposable income are only marginal for MPS, because middle-class households around the mean are often not affected as strongly by redistribution.

Table A-18 to Table A-21 show how well the development of MPS based on disposable income can be approximated by eight different parametric forms. For each country and year, 5-percentile income shares as used (5%, 10%, 15%...), mimicking the grouped-data available in many cross-country datasets. The eight parametric LCs from Table

2 in the paper (Lognormal, Chotikapanich, Pareto, Rohde, Weibull, Wang/Smyth, Villaseñor/Arnold and Kakwani) are fitted to these 20 datapoints. Based on their mean squared error minimizing parameter(s), these forms imply a particular MPS value, which one can compute with the formulas in Table 2 in the paper. Here we present the MPS implied by all the parametric forms, together with the empirical MPS, highlighting in bold with form comes closest to the empirical value. We can see that there is a lot of heterogeneity between the parametric functions in terms of their ability to capture the empirical MPS. The Pareto LC typically implies MPS values which are too high, while the Lognormal-implied ones often lie below the empirical values. Many of the other forms come quite close and in particular the Rohde and Wang/Smyth LCs perform best in capturing the evolution of MPS in many countries. As described in the main text, the Kakwani LC clearly dominates the other forms in terms of fit at the 20 percentile points, but here we see a different picture when it comes to representing MPS. Researchers choosing parametric LCs should hence take care.

Table A-1: Available LIS Microdata Across Countries and Years

Year	AU	CA	DE	DK	ES	FI	IL	IT	LU	MX	NL	NO	PL	TW	UK	US
1978			X													
1979							X					X			X	X
1980					X											
1981	X	X	X											X		
1982																
1983			X								X					
1984			X							X						
1985	X				X				X							
1986							X	X				X	X	X	X	X
1987		X	X	X		X		X			X					
1988																
1989	X		X					X		X						
1990					X						X					
1991		X	X			X		X	X			X		X	X	X
1992				X			X			X			X			
1993								X			X					
1994		X	X						X	X					X	X
1995	X		X	X	X	X		X				X	X	X	X	
1996										X						
1997		X					X		X					X		X
1998		X	X					X		X						
1999											X		X		X	
2000		X	X	X	X	X		X	X	X		X		X		X
2001	X		X					X								
2002			X							X						
2003	X		X													
2004	X	X	X	X	X	X		X	X	X	X	X	X		X	X
2005			X				X							X		
2006			X													
2007		X	X	X	X	X	X		X		X	X	X	X	X	X
2008	X		X					X		X						
2009			X													
2010	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
2011			X													
2012			X				X			X						
2013		X	X	X	X	X			X		X	X	X	X	X	X
2014	X		X				X	X								
2015			X													
2016							X						X	X		X

Notes: The table for which years country microdata is available in the LIS database and has been used for the empirical analysis.

Table A-2: Statistics for Australia (AU)

Year	Total Income MPS	Total Income MIS	Total Income Gini	Disposable Income MPS	Disposable Income MIS	Disposable Income Gini
1981	0.5952	0.3564	0.3266	0.5835	0.3782	0.2807
1985	0.6045	0.3557	0.3464	0.5811	0.3714	0.2915
1989	0.6159	0.3560	0.3534	0.5992	0.3769	0.3025
1995	0.6342	0.3577	0.3539	0.6163	0.3768	0.3043
2001	0.6399	0.3588	0.3636	0.6241	0.3800	0.3141
2003	0.6439	0.3651	0.3592	0.6307	0.3888	0.3099
2004	0.6398	0.3711	0.3574	0.6325	0.3971	0.3131
2008	0.6649	0.3817	0.3788	0.6540	0.4052	0.3332
2010	0.7176	0.4111	0.3696	0.7100	0.4351	0.3307
2014	0.6878	0.3908	0.3899	0.6676	0.4086	0.3385

Notes: The statistics are based on LIS equivalized household income microdata. Equivalized income is obtained by dividing by the square root of household members. Observations are weighted by the number of household members times household weights.

Table A-3: Statistics for Canada (CA)

Year	Total Income MPS	Total Income MIS	Total Income Gini	Disposable Income MPS	Disposable Income MIS	Disposable Income Gini
1981	0.6257	0.3855	0.3119	0.6159	0.3996	0.2831
1987	0.6665	0.4116	0.3175	0.6571	0.4306	0.2821
1991	0.6553	0.4009	0.3218	0.6450	0.4232	0.2806
1994	0.6392	0.3870	0.3269	0.6285	0.4108	0.2836
1997	0.6468	0.3851	0.3331	0.6368	0.4085	0.2912
1998	0.6557	0.3813	0.3566	0.6418	0.4015	0.3109
2000	0.6582	0.3838	0.3593	0.6497	0.4091	0.3160
2004	0.6430	0.3745	0.3592	0.6370	0.3979	0.3191
2007	0.6438	0.3788	0.3583	0.6356	0.4012	0.3177
2010	0.6277	0.3689	0.3579	0.6184	0.3895	0.3173
2013	0.6283	0.3619	0.3577	0.6248	0.3857	0.3208

Notes: The statistics are based on LIS equivalized household income microdata. Equivalized income is obtained by dividing by the square root of household members. Observations are weighted by the number of household members times household weights.

Table A-4: Statistics for Germany (DE)

	Total Income			Disposable Income		
Year	MPS	MIS	Gini	MPS	MIS	Gini
1978	0.5815	0.3887	0.2918	0.5630	0.3926	0.2635
1981	0.6018	0.4007	0.2732	0.5985	0.4219	0.2439
1983	0.5426	0.3623	0.2855	0.5310	0.3696	0.2605
1984	0.5981	0.3795	0.3052	0.5959	0.4089	0.2540
1987	0.5941	0.3825	0.3002	0.6004	0.4200	0.2509
1989	0.6076	0.3924	0.3077	0.6089	0.4248	0.2556
1991	0.6324	0.3995	0.3106	0.6348	0.4299	0.2670
1994	0.6227	0.3932	0.3131	0.6303	0.4349	0.2621
1995	0.6243	0.3914	0.3146	0.6264	0.4326	0.2573
1998	0.6363	0.4022	0.3117	0.6262	0.4369	0.2530
2000	0.6311	0.3972	0.3181	0.6196	0.4304	0.2586
2001	0.5690	0.3565	0.3345	0.5540	0.3824	0.2723
2002	0.5687	0.3518	0.3317	0.5551	0.3812	0.2703
2003	0.5738	0.3533	0.3372	0.5550	0.3794	0.2715
2004	0.5803	0.3600	0.3361	0.5680	0.3902	0.2757
2005	0.5930	0.3593	0.3504	0.5829	0.3916	0.2930
2006	0.5926	0.3606	0.3437	0.5837	0.3933	0.2875
2007	0.6000	0.3634	0.3461	0.5906	0.3963	0.2899
2008	0.6023	0.3668	0.3441	0.5936	0.3981	0.2891
2009	0.6553	0.3979	0.3385	0.6481	0.4341	0.2848
2010	0.6593	0.3976	0.3390	0.6472	0.4269	0.2854
2011	0.6637	0.4027	0.3422	0.6517	0.4339	0.2861
2012	0.6609	0.3974	0.3455	0.6542	0.4331	0.2890
2013	0.6540	0.3923	0.3492	0.6456	0.4265	0.2916
2014	0.6513	0.3901	0.3441	0.6459	0.4251	0.2894
2015	0.6434	0.3813	0.3528	0.6340	0.4148	0.2958

Notes: The statistics are based on LIS equivalized household income microdata. Equivalized income is obtained by dividing by the square root of household members. Observations are weighted by the number of household members times household weights.

Table A-5: Statistics for Denmark (DK)

	Total Income			Disposable Income		
Year	MPS	MIS	Gini	MPS	MIS	Gini
1987	0.6091	0.3876	0.2798	0.6292	0.4261	0.2521
1992	0.6159	0.3884	0.2828	0.6290	0.4347	0.2371
1995	0.6380	0.4320	0.2621	0.6309	0.4531	0.2207
2000	0.6382	0.4260	0.2714	0.6258	0.4461	0.2248
2004	0.6391	0.4256	0.2709	0.6253	0.4421	0.2284
2007	0.6452	0.4244	0.2829	0.6315	0.4412	0.2391
2010	0.6602	0.4291	0.2925	0.6460	0.4422	0.2518
2013	0.6641	0.4368	0.2888	0.6546	0.4550	0.2505

Notes: The statistics are based on LIS equivalized household income microdata. Equivalized income is obtained by dividing by the square root of household members. Observations are weighted by the number of household members times household weights.

Table A-6: Statistics for Spain (ES)

	Total Income			Disposable Income		
Year	MPS	MIS	Gini	MPS	MIS	Gini
1980	0.6315	0.3987	0.3203	0.6315	0.3987	0.3203
1985	0.6227	0.4030	0.3149	0.6227	0.4030	0.3149
1990	0.6338	0.4091	0.3040	0.6338	0.4091	0.3040
1995	0.6376	0.3766	0.3513	0.6376	0.3766	0.3513
2000	0.6503	0.3958	0.3356	0.6503	0.3958	0.3356
2004	0.6372	0.3937	0.3177	0.6375	0.3941	0.3162
2007	0.6476	0.3920	0.3265	0.6319	0.3940	0.3036
2010	0.6315	0.3626	0.3466	0.6166	0.3649	0.3274
2013	0.6187	0.3458	0.3771	0.5944	0.3504	0.3405

Notes: The statistics are based on LIS equivalized household income microdata. Equivalized income is obtained by dividing by the square root of household members. Observations are weighted by the number of household members times household weights.

Table A-7: Statistics for Finland (FI)

Year	Total Income MPS	MIS	Gini	Disposable Income MPS	MIS	Gini
1987	0.5039	0.3432	0.2591	0.4876	0.3589	0.2069
1991	0.5421	0.3722	0.2571	0.5266	0.3875	0.2088
1995	0.5452	0.3700	0.2718	0.5386	0.3988	0.2171
2000	0.5183	0.3361	0.3034	0.5033	0.3522	0.2558
2004	0.5826	0.3769	0.3109	0.5703	0.3965	0.2658
2007	0.5608	0.3608	0.3073	0.5483	0.3770	0.2665
2010	0.5752	0.3693	0.3043	0.5620	0.3865	0.2632
2013	0.5578	0.3585	0.3057	0.5429	0.3756	0.2609

Notes: The statistics are based on LIS equivalized household income microdata. Equivalized income is obtained by dividing by the square root of household members. Observations are weighted by the number of household members times household weights.

Table A-8: Statistics for Israel (IL)

Year	Total Income MPS	MIS	Gini	Disposable Income MPS	MIS	Gini
1979	0.5605	0.3232	0.3585	0.5253	0.3320	0.3038
1986	0.6062	0.3475	0.3772	0.5629	0.3559	0.3098
1992	0.6253	0.3654	0.3631	0.5825	0.3702	0.3055
1997	0.6335	0.3511	0.3971	0.5883	0.3549	0.3371
2001	0.6339	0.3392	0.4136	0.5823	0.3404	0.3486
2005	0.6234	0.3278	0.4220	0.5832	0.3274	0.3754
2007	0.6270	0.3305	0.4170	0.5851	0.3267	0.3677
2010	0.6278	0.3284	0.4290	0.5864	0.3218	0.3836
2012	0.6251	0.3340	0.4105	0.5900	0.3306	0.3697
2014	0.6392	0.3441	0.4015	0.6027	0.3379	0.3586
2016	0.6275	0.3438	0.3915	0.5854	0.3383	0.3451

Notes: The statistics are based on LIS equivalized household income microdata. Equivalized income is obtained by dividing by the square root of household members. Observations are weighted by the number of household members times household weights.

Table A-9: Statistics for Italy (IT)

Year	MPS	MIS	Gini
1986	0.5944	0.3778	0.3093
1987	0.5533	0.3421	0.3327
1989	0.6036	0.3888	0.3033
1991	0.6172	0.4009	0.2910
1993	0.6155	0.3673	0.3406
1995	0.6125	0.3685	0.3369
1998	0.6039	0.3653	0.3422
2000	0.6024	0.3711	0.3291
2004	0.6206	0.3850	0.3339
2008	0.6162	0.3856	0.3219
2010	0.5946	0.3687	0.3196
2014	0.5778	0.3538	0.3204

Notes: The statistics are based on LIS equivalized household income microdata. Equivalized income is obtained by dividing by the square root of household members. Observations are weighted by the number of household members times household weights. The data for Italy does not differentiate between total and disposable income.

Table A-10: Statistics for Luxembourg (LU)

	Total Income			Disposable Income		
Year	MPS	MIS	Gini	MPS	MIS	Gini
1985	0.5348	0.3825	0.2357	0.5348	0.3825	0.2357
1991	0.5933	0.4214	0.2388	0.5933	0.4214	0.2388
1994	0.6045	0.4312	0.2354	0.6045	0.4312	0.2354
1997	0.5843	0.4045	0.2610	0.5843	0.4045	0.2610
2000	0.5905	0.4050	0.2621	0.5905	0.4050	0.2621
2004	0.6204	0.4029	0.3065	0.6129	0.4225	0.2696
2007	0.6434	0.4112	0.3101	0.6383	0.4321	0.2764
2010	0.6073	0.3880	0.3047	0.5917	0.3968	0.2702
2013	0.5824	0.3646	0.3172	0.5670	0.3734	0.2793

Notes: The statistics are based on LIS equivalized household income microdata. Equivalized income is obtained by dividing by the square root of household members. Observations are weighted by the number of household members times household weights.

Table A-11: Statistics for Mexico (MX)

Year	MPS	MIS	Gini
1984	0.6347	0.3350	0.4328
1989	0.6672	0.3435	0.4762
1992	0.7334	0.3608	0.5005
1994	0.7401	0.3582	0.5052
1996	0.7139	0.3528	0.4913
1998	0.7042	0.3351	0.5047
2000	0.7208	0.3473	0.4992
2002	0.7087	0.3556	0.4749
2004	0.6479	0.3276	0.4710
2008	0.6640	0.3227	0.4870
2010	0.6791	0.3408	0.4613
2012	0.7026	0.3464	0.4672

Notes: The statistics are based on LIS equivalized household income microdata. Equivalized income is obtained by dividing by the square root of household members. Observations are weighted by the number of household members times household weights. The data for Mexico does not differentiate between total and disposable income.

Table A-12: Statistics for the Netherlands (NL)

	Total Income			Disposable Income		
Year	MPS	MIS	Gini	MPS	MIS	Gini
1983	0.6219	0.4094	0.2955	0.6127	0.4292	0.2517
1987	0.6294	0.4211	0.2815	0.6070	0.4338	0.2280
1990	0.6016	0.3972	0.2869	0.5984	0.4076	0.2633
1993	0.5804	0.3698	0.2989	0.5556	0.3667	0.2558
1999	0.5860	0.3927	0.2742	0.5726	0.4117	0.2303
2004	0.5777	0.3712	0.3068	0.5615	0.3845	0.2636
2007	0.5618	0.3525	0.3254	0.5688	0.3930	0.2744
2010	0.5386	0.3444	0.3045	0.5305	0.3671	0.2544
2013	0.5322	0.3367	0.3150	0.5291	0.3653	0.2615

Notes: The statistics are based on LIS equivalized household income microdata. Equivalized income is obtained by dividing by the square root of household members. Observations are weighted by the number of household members times household weights.

Table A-13: Statistics for Norway (NO)

Year	Total Income			Disposable Income		
	MPS	MIS	Gini	MPS	MIS	Gini
1979	0.4837	0.3193	0.2738	0.4789	0.3428	0.2234
1986	0.5468	0.3680	0.2645	0.5532	0.3950	0.2337
1991	0.5032	0.3393	0.2714	0.4935	0.3558	0.2315
1995	0.5498	0.3621	0.2820	0.5505	0.3899	0.2414
2000	0.5354	0.3552	0.2975	0.5423	0.3841	0.2591
2004	0.6070	0.4016	0.3110	0.6152	0.4319	0.2816
2007	0.6532	0.4346	0.2886	0.6403	0.4531	0.2449
2010	0.6603	0.4373	0.2929	0.6462	0.4547	0.2480
2013	0.6542	0.4301	0.2951	0.6405	0.4485	0.2500

Notes: The statistics are based on LIS equivalized household income microdata. Equivalized income is obtained by dividing by the square root of household members. Observations are weighted by the number of household members times household weights.

Table A-14: Statistics for Poland (PL)

Year	Total Income			Disposable Income		
	MPS	MIS	Gini	MPS	MIS	Gini
1986	0.6151	0.4096	0.2708	0.6151	0.4096	0.2708
1992	0.6417	0.4463	0.2621	0.6417	0.4463	0.2621
1995	0.5773	0.3552	0.3113	0.5853	0.3592	0.3111
1999	0.5978	0.3909	0.2930	0.6045	0.4003	0.2873
2004	0.5970	0.3734	0.3210	0.6004	0.3803	0.3156
2007	0.6377	0.4097	0.3144	0.6387	0.4119	0.3110
2010	0.6362	0.4091	0.3110	0.6365	0.4097	0.3095
2013	0.6322	0.3992	0.3169	0.6316	0.3977	0.3159
2016	0.6426	0.4255	0.2836	0.6426	0.4247	0.2833

Notes: The statistics are based on LIS equivalized household income microdata. Equivalized income is obtained by dividing by the square root of household members. Observations are weighted by the number of household members times household weights.

Table A-15: Statistics for Taiwan (TW)

	Total Income			Disposable Income		
Year	MPS	MIS	Gini	MPS	MIS	Gini
1981	0.6089	0.4196	0.2715	0.6056	0.4193	0.2672
1986	0.6272	0.4320	0.2762	0.6232	0.4317	0.2707
1991	0.6252	0.4256	0.2777	0.6224	0.4267	0.2725
1995	0.6214	0.4156	0.2884	0.6190	0.4162	0.2844
1997	0.6170	0.4106	0.2890	0.6110	0.4062	0.2874
2000	0.6202	0.4117	0.2920	0.6155	0.4094	0.2891
2005	0.6490	0.4218	0.3087	0.6453	0.4212	0.3053
2007	0.6472	0.4229	0.3044	0.6397	0.4148	0.3070
2010	0.6420	0.4159	0.3074	0.6364	0.4054	0.3166
2013	0.6530	0.4285	0.3045	0.6443	0.4187	0.3077
2016	0.6591	0.4345	0.2981	0.6519	0.4244	0.3031

Notes: The statistics are based on LIS equivalized household income microdata. Equivalized income is obtained by dividing by the square root of household members. Observations are weighted by the number of household members times household weights.

Table A-16: Statistics for the United Kingdom (UK)

	Total Income			Disposable Income		
Year	MPS	MIS	Gini	MPS	MIS	Gini
1979	0.6002	0.3789	0.2950	0.6088	0.4075	0.2652
1986	0.6214	0.3645	0.3394	0.6110	0.3828	0.2959
1991	0.6345	0.3574	0.3705	0.6344	0.3825	0.3380
1994	0.6721	0.3819	0.3725	0.6764	0.4104	0.3415
1995	0.6319	0.3489	0.3798	0.6322	0.3756	0.3429
1999	0.6675	0.3779	0.3788	0.6656	0.3948	0.3497
2004	0.6893	0.3990	0.3747	0.6945	0.4229	0.3511
2007	0.6894	0.3958	0.3735	0.6795	0.4158	0.3399
2010	0.6905	0.4029	0.3718	0.6845	0.4286	0.3348
2013	0.6876	0.4040	0.3654	0.6813	0.4261	0.3307

Notes: The statistics are based on LIS equivalized household income microdata. Equivalized income is obtained by dividing by the square root of household members. Observations are weighted by the number of household members times household weights.

Table A-17: Statistics for the United States (US)

	Total Income			Disposable Income		
Year	MPS	MIS	Gini	MPS	MIS	Gini
1979	0.6128	0.3542	0.3538	0.5924	0.3672	0.3089
1986	0.6177	0.3395	0.3836	0.5927	0.3477	0.3391
1991	0.6232	0.3411	0.3871	0.6020	0.3519	0.3449
1994	0.6444	0.3466	0.4138	0.6225	0.3589	0.3692
1997	0.6578	0.3561	0.4174	0.6340	0.3684	0.3717
2000	0.6621	0.3577	0.4201	0.6370	0.3726	0.3693
2004	0.6541	0.3514	0.4173	0.6343	0.3656	0.3727
2007	0.6465	0.3469	0.4153	0.6306	0.3571	0.3767
2010	0.6440	0.3427	0.4159	0.6225	0.3558	0.3690
2013	0.6547	0.3466	0.4244	0.6351	0.3609	0.3791
2016	0.6709	0.3531	0.4309	0.6521	0.3735	0.3825

Notes: The statistics are based on LIS equivalized household income microdata. Equivalized income is obtained by dividing by the square root of household members. Observations are weighted by the number of household members times household weights.

Table A-18: Empirical MPS and the MPS Implied by the Parametric Forms (Part 1)

	MPS	Logn	Pareto	Chot.	Rohde	Weib.	Wang/S.	Vi./Arn.	Kakwani
					Australia (AU)				
1981	0.5835	0.5506	0.7254	0.5705	0.6033	0.5396	**0.5738**	0.5692	0.5641
1985	0.5811	0.5547	0.7291	0.5733	0.6074	0.5440	**0.5848**	0.5795	0.5744
1989	0.5992	0.5591	0.7328	0.5762	0.6116	0.5485	**0.5936**	0.5878	0.5824
1995	0.6163	0.5638	0.7363	0.5793	**0.6158**	0.5533	0.5907	0.5848	0.5798
2001	0.6241	0.5664	0.7384	0.5809	**0.6181**	0.5557	0.6014	0.5950	0.5900
2003	0.6307	0.5641	0.7366	0.5794	**0.6161**	0.5535	0.5967	0.5908	0.5853
2004	0.6325	0.5647	0.7374	0.5796	**0.6166**	0.5539	0.6110	0.6033	0.5991
2008	0.6540	0.5734	0.7441	0.5848	0.6240	0.5618	**0.6312**	0.6206	0.6183
2010	0.7100	0.5727	**0.7433**	0.5845	0.6234	0.5613	0.6228	0.6138	0.6098
2014	0.6676	0.5755	0.7455	0.5860	0.6257	0.5638	**0.6301**	0.6190	0.6178
					Canada (CA)				
1981	0.6159	0.5517	0.7265	0.5712	**0.6044**	0.5408	0.5744	0.5687	0.5653
1987	0.6571	0.5515	0.7265	0.5709	**0.6042**	0.5404	0.5846	0.5779	0.5744
1991	0.6450	0.5509	0.7261	0.5705	**0.6036**	0.5398	0.5872	0.5806	0.5770
1994	0.6285	0.5520	0.7270	0.5714	**0.6048**	0.5411	0.5861	0.5798	0.5758
1997	0.6368	0.5548	0.7293	0.5733	**0.6075**	0.5440	0.5851	0.5788	0.5751
1998	0.6418	0.5637	0.7366	0.5790	**0.6156**	0.5529	0.6016	0.5933	0.5911
2000	0.6497	0.5656	0.7383	0.5801	**0.6174**	0.5547	0.6150	0.6054	0.6034
2004	0.6370	0.5664	0.7388	0.5806	**0.6181**	0.5555	0.6139	0.6047	0.6021
2007	0.6356	0.5657	0.7384	0.5801	0.6174	0.5547	**0.6205**	0.6107	0.6082
2010	0.6184	0.5655	0.7382	0.5800	**0.6173**	0.5546	0.6160	0.6068	0.6043
2013	0.6248	0.5670	0.7389	0.5812	**0.6186**	0.5562	0.6033	0.5959	0.5915
					Germany (DE)				
1978	0.5630	0.5448	0.7215	**0.5657**	0.5973	0.5325	0.6226	0.6118	0.6100
1981	0.5985	0.5381	0.7146	0.5607	**0.5898**	0.5245	0.5958	0.5886	0.5852
1983	0.5310	0.5440	0.7206	0.5651	0.5964	**0.5315**	0.6159	0.6067	0.6031
1984	0.5959	0.5430	0.7192	0.5646	**0.5953**	0.5306	0.5857	0.5772	0.5768
1987	0.6004	0.5407	0.7171	0.5628	**0.5928**	0.5278	0.5913	0.5834	0.5813
1989	0.6089	0.5423	0.7188	0.5639	**0.5945**	0.5296	0.6029	0.5940	0.5926
1991	0.6348	0.5467	0.7227	0.5674	**0.5994**	0.5350	0.5962	0.5886	0.5846
1994	0.6303	0.5443	0.7205	0.5655	0.5967	0.5320	**0.5994**	0.5905	0.5880
1995	0.6264	0.5434	0.7198	0.5649	**0.5958**	0.5311	0.5951	0.5856	0.5844
1998	0.6262	0.5422	0.7186	0.5639	0.5945	0.5296	**0.5977**	0.5884	0.5860
2000	0.6196	0.5432	0.7197	0.5647	0.5956	0.5308	**0.6021**	0.5926	0.5912
2001	0.5540	**0.5486**	0.7249	0.5685	0.6012	0.5368	0.6223	0.6092	0.6102
2002	0.5551	**0.5473**	0.7236	0.5676	0.5999	0.5354	0.6111	0.6004	0.6001
2003	0.5550	**0.5483**	0.7245	0.5683	0.6009	0.5366	0.6121	0.6004	0.6016
2004	0.5680	0.5490	0.7252	**0.5688**	0.6016	0.5372	0.6194	0.6079	0.6075
2005	0.5829	0.5557	0.7310	**0.5734**	0.6083	0.5444	0.6317	0.6191	0.6192
2006	0.5837	0.5538	0.7293	**0.5721**	0.6064	0.5424	0.6258	0.6140	0.6132
2007	0.5906	0.5549	0.7304	0.5728	**0.6075**	0.5436	0.6301	0.6179	0.6181
2008	0.5936	0.5541	0.7296	0.5723	0.6067	0.5427	0.6264	0.6149	**0.6141**
2009	0.6481	0.5527	0.7282	0.5715	0.6054	0.5414	**0.6139**	0.6041	0.6025
2010	0.6472	0.5537	0.7290	0.5723	0.6064	0.5426	**0.6104**	0.6011	0.5991
2011	0.6517	0.5539	0.7293	0.5723	0.6066	0.5427	**0.6190**	0.6084	0.6066
2012	0.6542	0.5551	0.7302	0.5731	0.6077	0.5440	**0.6155**	0.6051	0.6035
2013	0.6456	0.5559	0.7309	0.5736	0.6084	0.5447	**0.6207**	0.6103	0.6086
2014	0.6459	0.5555	0.7304	0.5735	0.6081	0.5445	**0.6087**	0.5990	0.5969
2015	0.6340	0.5573	0.7321	0.5746	0.6098	0.5463	**0.6178**	0.6073	0.6064

Notes: The table report the empirical MPS (based on disposable income), together with the MPS implied by the eight parametric forms discussed in the paper. The Lorenz curves are fitted to the 20 percentile data points and the implied MPS are calculated based on the mean-squared-error minimizing parameter(s) for each functional form. Highlighted in bold is the functional form which, out of all uni- and multiparametric forms, has an implied MPS that comes closest to the empirical MPS.

Table A-19: Empirical MPS and the MPS Implied by the Parametric Forms (Part 2)

	MPS	Logn	Pareto	Chot.	Rohde	Weib.	Wang/S.	Vi./Arn.	Kakwani
					Denmark (DK)				
1987	0.6292	0.5415	0.7176	0.5635	**0.5936**	0.5290	0.5660	0.5610	0.5607
1992	0.6290	0.5365	0.7125	0.5595	**0.5879**	0.5228	0.5573	0.5536	0.5529
1995	0.6309	0.5314	0.7072	0.5551	**0.5816**	0.5159	0.5678	0.5632	0.5616
2000	0.6258	0.5326	0.7085	0.5561	**0.5831**	0.5175	0.5684	0.5641	0.5622
2004	0.6253	0.5339	0.7099	0.5573	**0.5848**	0.5193	0.5676	0.5632	0.5613
2007	0.6315	0.5377	0.7141	0.5604	**0.5893**	0.5242	0.5783	0.5722	0.5722
2010	0.6460	0.5429	0.7192	0.5644	**0.5951**	0.5305	0.5866	0.5789	0.5796
2013	0.6546	0.5408	0.7173	0.5628	**0.5929**	0.5279	0.5942	0.5867	0.5855
					Spain (ES)				
1980	0.6315	0.5669	0.7392	0.5809	0.6185	0.5559	**0.6213**	0.6115	0.6077
1985	0.6227	0.5650	0.7381	0.5795	0.6169	0.5539	0.6339	**0.6225**	0.6193
1990	0.6338	0.5602	0.7341	0.5766	0.6126	0.5493	**0.6172**	0.6083	0.6038
1995	0.6376	0.5833	0.7504	0.5907	0.6320	0.5708	**0.6300**	0.6199	0.6154
2000	0.6503	0.5743	0.7444	0.5855	**0.6248**	0.5628	0.6238	0.6148	0.6102
2004	0.6375	0.5648	0.7372	0.5799	**0.6167**	0.5541	0.5991	0.5924	0.5875
2007	0.6319	0.5619	0.7348	0.5780	**0.6140**	0.5513	0.5885	0.5816	0.5780
2010	0.6166	0.5728	0.7427	0.5850	**0.6235**	0.5618	0.5909	0.5837	0.5796
2013	0.5944	0.5770	0.7458	0.5874	0.6269	0.5655	0.6033	**0.5957**	0.5911
					Finland (FI)				
1987	0.4876	0.5269	0.7018	0.5510	0.5756	**0.5095**	0.5559	0.5520	0.5502
1991	0.5266	**0.5275**	0.7026	0.5516	0.5765	0.5104	0.5577	0.5529	0.5514
1995	0.5386	**0.5299**	0.7059	0.5536	0.5797	0.5135	0.5906	0.5830	0.5815
2000	0.5033	0.5418	0.7187	0.5634	0.5940	**0.5289**	0.6166	0.6072	0.6065
2004	0.5703	0.5453	0.7220	**0.5660**	0.5977	0.5330	0.6200	0.6100	0.6094
2007	0.5483	0.5454	0.7219	0.5663	0.5979	**0.5333**	0.6081	0.5994	0.5983
2010	0.5620	0.5444	0.7208	**0.5655**	0.5968	0.5322	0.6041	0.5963	0.5941
2013	0.5429	**0.5437**	0.7202	0.5649	0.5960	0.5312	0.6065	0.5982	0.5959
					Israel (IS)				
1979	0.5253	0.5604	0.7340	0.5769	0.6128	**0.5497**	0.6075	0.6019	0.5948
1986	0.5629	0.5631	0.7361	0.5786	0.6152	**0.5523**	0.6124	0.6059	0.5987
1992	0.5825	0.5612	0.7347	**0.5774**	0.6135	0.5504	0.6124	0.6058	0.5988
1997	0.5883	0.5747	0.7445	**0.5858**	0.6251	0.5633	0.6199	0.6124	0.6061
2001	0.5823	**0.5817**	0.7493	0.5899	0.6307	0.5695	0.6250	0.6171	0.6112
2005	0.5832	0.5941	0.7569	0.5969	0.6400	**0.5799**	0.6272	0.6192	0.6131
2007	0.5851	**0.5900**	0.7543	0.5948	0.6370	0.5767	0.6188	0.6122	0.6051
2010	0.5864	0.5980	0.7593	0.5989	0.6428	**0.5830**	0.6323	0.6244	0.6179
2012	0.5900	**0.5915**	0.7552	0.5956	0.6382	0.5779	0.6186	0.6112	0.6048
2014	0.6027	0.5874	0.7524	0.5935	0.6350	0.5746	**0.6030**	0.5961	0.5910
2016	0.5854	0.5787	0.7467	0.5885	0.6283	0.5671	0.5992	0.5934	**0.5872**

Notes: The table is the continuation of Table A-18.

Table A-20: Empirical MPS and the MPS Implied by the Parametric Forms (Part 3)

	MPS	Logn	Pareto	Chot.	Rohde	Weib.	Wang/S.	Vi./Arn.	Kakwani
					Italy (IT)				
1986	0.5944	0.5624	0.7358	0.5780	0.6145	0.5515	0.6182	0.6101	**0.6052**
1987	0.5533	0.5728	0.7433	0.5846	0.6236	**0.5615**	0.6238	0.6151	0.6089
1989	0.6036	0.5606	0.7344	0.5769	0.6129	0.5497	0.6178	**0.6098**	0.6043
1991	0.6172	0.5549	0.7296	0.5732	**0.6075**	0.5439	0.6010	0.5945	0.5896
1993	0.6155	0.5757	0.7452	0.5864	0.6259	0.5641	**0.6157**	0.6074	0.6030
1995	0.6125	0.5749	0.7448	0.5859	0.6252	0.5634	**0.6170**	0.6081	0.6052
1998	0.6039	0.5767	0.7462	0.5868	0.6266	0.5649	0.6242	0.6137	**0.6123**
2000	0.6024	0.5705	0.7419	0.5831	0.6216	0.5593	0.6216	0.6122	**0.6093**
2004	0.6206	0.5731	0.7439	0.5845	0.6237	0.5615	0.6343	0.6233	**0.6215**
2008	0.6162	0.5676	0.7399	0.5812	0.6191	0.5565	0.6256	0.6162	**0.6131**
2010	0.5946	0.5662	0.7385	0.5805	0.6179	0.5553	0.6110	0.6023	**0.5993**
2014	0.5778	0.5663	0.7384	**0.5807**	0.6179	0.5554	0.6032	0.5958	0.5923
					Luxembourg (LU)				
1985	0.5348	**0.5358**	0.7121	0.5588	0.5872	0.5217	0.5921	0.5857	0.5805
1991	0.5933	0.5367	0.7132	0.5595	0.5882	0.5228	0.5975	**0.5910**	0.5867
1994	0.6045	0.5358	0.7122	0.5588	0.5871	0.5215	0.5974	**0.5909**	0.5859
1997	0.5843	0.5441	0.7205	0.5653	0.5966	0.5318	0.6089	0.6007	**0.5964**
2000	0.5905	0.5447	0.7211	0.5658	0.5973	0.5325	0.6106	0.6032	**0.5975**
2004	0.6129	0.5471	0.7233	0.5675	0.5997	0.5352	**0.6124**	0.6024	0.5998
2007	0.6383	0.5498	0.7259	0.5693	0.6024	0.5381	**0.6235**	0.6129	0.6111
2010	0.5917	0.5479	0.7238	0.5682	0.6006	0.5362	0.6029	**0.5957**	0.5911
2013	0.5670	0.5529	0.7280	**0.5718**	0.6056	0.5418	0.5988	0.5904	0.5876
					Mexico (MX)				
1984	0.6347	**0.6287**	0.7766	0.6140	0.6633	0.6055	0.6765	0.6644	0.6573
1989	0.6672	**0.6590**	0.7918	0.6273	0.6812	0.6252	0.7154	0.6986	0.6971
1992	0.7334	0.6784	0.8004	0.6359	0.6919	0.6373	**0.7267**	0.7103	0.7075
1994	0.7401	0.6822	0.8019	0.6377	0.6939	0.6397	**0.7251**	0.7095	0.7055
1996	0.7139	0.6711	0.7971	0.6328	0.6879	0.6329	**0.7199**	0.7042	0.7005
1998	0.7042	0.6798	0.8006	0.6370	0.6925	0.6383	0.7121	**0.6971**	0.6924
2000	0.7208	0.6762	0.7991	0.6354	0.6906	0.6361	**0.7110**	0.6964	0.6913
2002	0.7087	0.6582	0.7911	0.6273	0.6808	0.6249	**0.7031**	0.6886	0.6832
2004	0.6479	**0.6550**	0.7897	0.6258	0.6789	0.6229	0.7035	0.6885	0.6841
2008	0.6640	**0.6692**	0.7960	0.6324	0.6868	0.6318	0.7006	0.6848	0.6820
2010	0.6791	0.6510	0.7876	0.6244	**0.6766**	0.6204	0.6859	0.6705	0.6678
2012	0.7026	0.6564	0.7902	0.6267	0.6797	0.6238	**0.6942**	0.6783	0.6757
					Netherlands (NL)				
1983	0.6127	0.5404	0.7168	0.5626	**0.5925**	0.5275	0.5900	0.5815	0.5797
1987	0.6070	0.5356	0.7119	0.5587	0.5869	0.5214	**0.5884**	0.5813	0.5778
1990	0.5984	0.5468	0.7229	0.5673	**0.5994**	0.5350	0.6001	0.5902	0.5899
1993	0.5556	0.5439	0.7193	0.5656	0.5963	0.5321	**0.5507**	0.5441	0.5429
1999	0.5726	0.5339	0.7101	0.5573	0.5848	0.5192	0.5804	**0.5740**	0.5710
2004	0.5615	0.5472	0.7235	**0.5676**	0.5998	0.5353	0.6075	0.5956	0.5973
2007	0.5688	**0.5501**	0.7265	0.5694	0.6027	0.5383	0.6377	0.6240	0.6253
2010	0.5305	0.5440	0.7205	0.5652	0.5964	**0.5317**	0.6044	0.5942	0.5931
2013	0.5291	**0.5455**	0.7219	0.5663	0.5980	0.5333	0.6094	0.5988	0.5983

Notes: The table is the continuation of Table A-18.

Table A-21: Empirical MPS and the MPS Implied by the Parametric Forms (Part 4)

	MPS	Logn	Pareto	Chot.	Rohde	Weib.	Wang/S.	Vi./Arn.	Kakwani
					Norway (NO)				
1979	0.4789	0.5330	0.7088	0.5565	0.5836	**0.5180**	0.5638	0.5574	0.5571
1986	0.5532	0.5346	0.7108	**0.5579**	0.5857	0.5202	0.5748	0.5684	0.5667
1991	0.4935	0.5337	0.7100	0.5570	0.5845	**0.5189**	0.5829	0.5757	0.5751
1995	0.5505	0.5368	0.7133	**0.5596**	0.5882	0.5229	0.5856	0.5782	0.5787
2000	0.5423	**0.5429**	0.7200	0.5640	0.5950	0.5300	0.6269	0.6125	0.6192
2004	0.6152	0.5506	0.7275	0.5694	**0.6031**	0.5385	0.6585	0.6364	0.6513
2007	0.6403	0.5378	0.7143	0.5604	**0.5894**	0.5242	0.5855	0.5769	0.5780
2010	0.6462	0.5393	0.7159	0.5616	**0.5911**	0.5261	0.5866	0.5773	0.5794
2013	0.6405	0.5398	0.7162	0.5620	0.5917	0.5267	**0.5849**	0.5762	0.5770
					Poland (PL)				
1986	0.6151	0.5471	0.7229	0.5677	**0.5998**	0.5355	0.5885	0.5827	0.5787
1992	0.6417	0.5445	0.7210	0.5655	0.5970	0.5321	**0.6166**	0.6072	0.6037
1995	0.5853	0.5670	0.7393	**0.5809**	0.6185	0.5559	0.6111	0.5983	0.6008
1999	0.6045	0.5565	0.7314	0.5740	**0.6090**	0.5454	0.6161	0.6036	0.6050
2004	0.6004	0.5694	0.7413	0.5823	0.6206	0.5580	0.6288	**0.6151**	0.6165
2007	0.6387	0.5664	0.7393	0.5803	0.6180	0.5551	**0.6381**	0.6240	0.6249
2010	0.6365	0.5658	0.7387	0.5800	0.6175	0.5546	**0.6320**	0.6190	0.6187
2013	0.6316	0.5704	0.7420	0.5829	0.6214	0.5590	0.6273	**0.6134**	0.6153
2016	0.6426	0.5567	0.7315	0.5742	0.6092	0.5457	**0.6102**	0.5974	0.5991
					Taiwan (TW)				
1981	0.6056	0.5466	0.7231	0.5671	0.5993	0.5346	0.6252	0.6156	**0.6105**
1986	0.6232	0.5478	0.7243	0.5679	0.6005	0.5358	0.6324	0.6218	**0.6176**
1991	0.6224	0.5484	0.7246	0.5684	0.6011	0.5366	**0.6209**	0.6120	0.6067
1995	0.6190	0.5523	0.7278	0.5713	0.6050	0.5410	**0.6144**	0.6046	0.6012
1997	0.6110	0.5539	0.7291	0.5723	**0.6066**	0.5427	0.6197	0.6106	0.6059
2000	0.6155	0.5545	0.7297	0.5727	0.6072	0.5433	0.6206	**0.6109**	0.6067
2005	0.6453	0.5610	0.7350	0.5771	0.6133	0.5500	**0.6279**	0.6176	0.6132
2007	0.6397	0.5618	0.7354	0.5776	0.6140	0.5508	**0.6246**	0.6148	0.6097
2010	0.6364	0.5656	0.7382	0.5801	0.6174	0.5546	**0.6209**	0.6110	0.6071
2013	0.6443	0.5619	0.7355	0.5776	0.6141	**0.5509**	0.6225	0.6117	0.6085
2016	0.6519	0.5601	0.7342	0.5765	0.6125	**0.5491**	0.6228	0.6128	0.6087
					United Kingdom (UK)				
1979	0.6088	0.5459	0.7216	0.5669	**0.5985**	0.5342	0.5826	0.5773	0.5727
1986	0.6110	0.5611	0.7344	0.5775	**0.6134**	0.5505	0.5973	0.5899	0.5858
1991	0.6344	0.5762	0.7457	0.5867	**0.6264**	0.5646	0.6227	0.6147	0.6093
1994	0.6764	0.5794	0.7483	0.5882	0.6289	0.5672	**0.6438**	0.6333	0.6289
1995	0.6322	0.5796	0.7480	0.5885	**0.6290**	0.5675	0.6281	0.6189	0.6144
1999	0.6656	0.5850	0.7517	0.5915	0.6332	0.5721	**0.6384**	0.6274	0.6242
2004	0.6945	0.5841	0.7517	0.5907	0.6325	0.5710	**0.6588**	0.6452	0.6438
2007	0.6795	0.5779	0.7473	0.5873	0.6276	**0.5658**	0.6427	0.6307	0.6285
2010	0.6845	0.5756	0.7459	0.5858	0.6258	0.5636	**0.6514**	0.6381	0.6365
2013	0.6813	0.5738	0.7446	0.5848	0.6243	0.5620	**0.6476**	0.6356	0.6326
					United States (US)				
1979	0.5924	0.5619	0.7349	0.5781	0.6141	0.5514	**0.5861**	0.5799	0.5764
1986	0.5927	0.5752	0.7445	0.5864	0.6255	0.5640	**0.5960**	0.5898	0.5851
1991	0.6020	0.5778	0.7464	0.5878	0.6276	0.5662	**0.6052**	0.5982	0.5936
1994	0.6225	0.5901	0.7549	0.5944	0.6370	0.5764	0.6348	0.6243	**0.6216**
1997	0.6340	0.5912	0.7558	0.5949	**0.6379**	0.5772	0.6425	0.6308	0.6293
2000	0.6370	0.5898	0.7550	0.5940	**0.6368**	0.5760	0.6437	0.6314	0.6309
2004	0.6343	0.5915	0.7558	0.5951	0.6380	0.5775	**0.6374**	0.6262	0.6246
2007	0.6306	0.5959	0.7584	0.5976	0.6413	0.5811	0.6371	**0.6254**	0.6241
2010	0.6225	0.5898	0.7545	0.5944	0.6368	0.5763	0.6280	**0.6187**	0.6144
2013	0.6351	0.5952	0.7580	0.5972	0.6408	0.5806	**0.6394**	0.6288	0.6249
2016	0.6521	0.5971	0.7592	0.5982	0.6422	0.5821	**0.6443**	0.6326	0.6293

Notes: The table is the continuation of Table A-18.