Answers by authors to the Reports

A. Reply to Referee 1[1]:

General Comments

The reason for excluding 1997 from the analysis:

We decided to keep the basic information concerning 1997 in the data set but to exclude it from the main polarization analysis. We give the following explanation in footnote 27:

1997 was the first year for which the Central Bureau of Statistics combined in the income survey information from two sources – the labour force survey and the household expenditure survey. Working with the yearly data one gets the impression that in year 1997 the household's income was estimated by approximated ex ante standardized income intervals, taking the middle point of the interval as the household's income. This could be the reason for observing subpopulations in each of the income intervals. From this we conclude that the data for 1997 are less adequate for determining the number of groups, compared to the data for the following years. This year is therefore dropped in most of the empirical section.

Jerusalem Arabs:

We added a full analysis of the case including Jerusalem Arabs. For that purpose we excluded the years 2000 and 2001 but repeated the analysis for the other years from 1998 to 2008 including them. This effort is summarized in the newly added section 3.2.2 on the vanishing middle class and in figures A.13 to A.21 in the appendix.

Group membership analysis:

As suggested by the referee we repeated the multinomial logit regressions for all additional years between 1998 and 2008 and summarized them in table 4.

The regression coefficients are quite stable and statistically significant, implying robust results.

LNA and MRA analyses:

In the paper we compare LNA and MRA analyses for the year 2005. According to the suggestion of the anonymous referee we have expanded our analysis to additional years. We haveestimated a mixture of log normal and a mixture of MRAfor 1998 and 2011.The parameters and coefficients for the mixtures are given in tables 1 and 2. This is quite a strong test, since 2011 is even out of the sample.As can be seen from the figures 1 and 2 the

[1] Some comments by referee 2 were similar to those of referee 1. The reply supplied to referee 1 is therefore also relevant to some of the comments of referee 2.

overlapping is smaller for the MRA, particularly for the rich group. This occurs for 1998 and 2011 showing the ability of the MRA procedure to locate homogeneous income groups.

Figure 1.a: LN subgroups for 1998

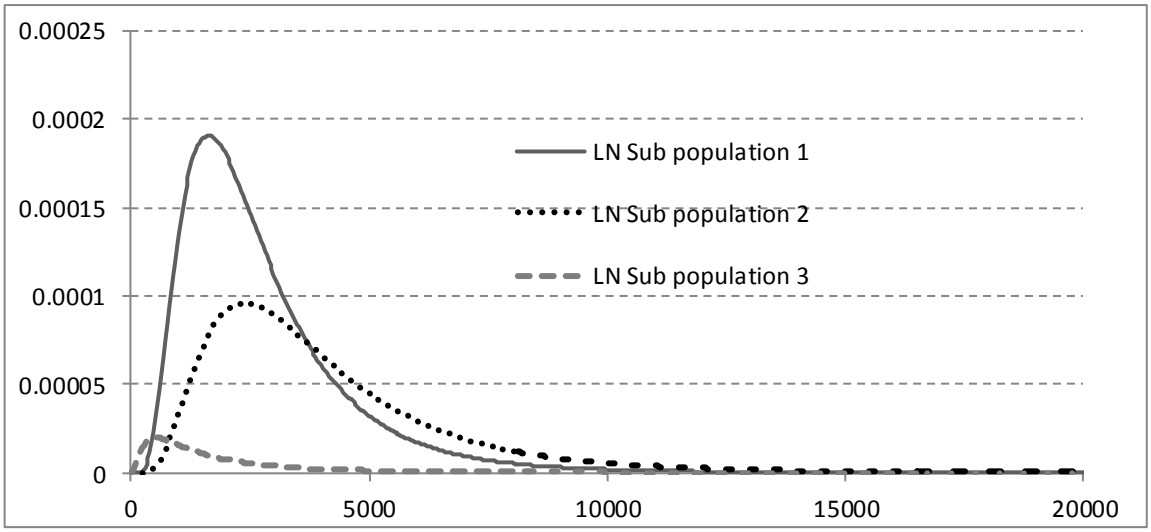

Figure 1.b MRA subgroups for 1998

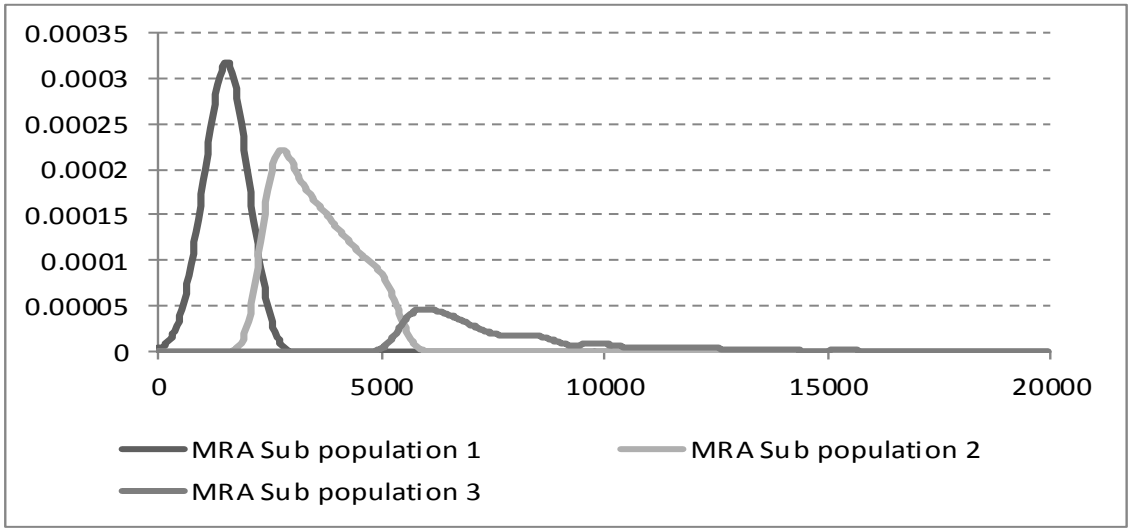

Figure 2.a: LN subgroups for 2011

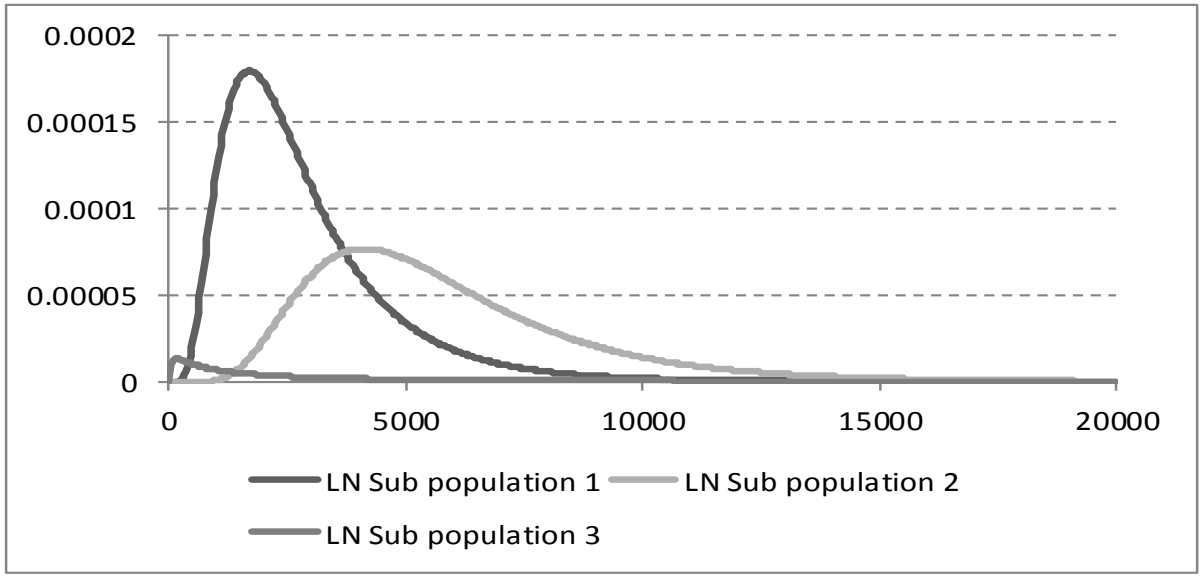

Figure 2.b: MRA subgroups for 2011

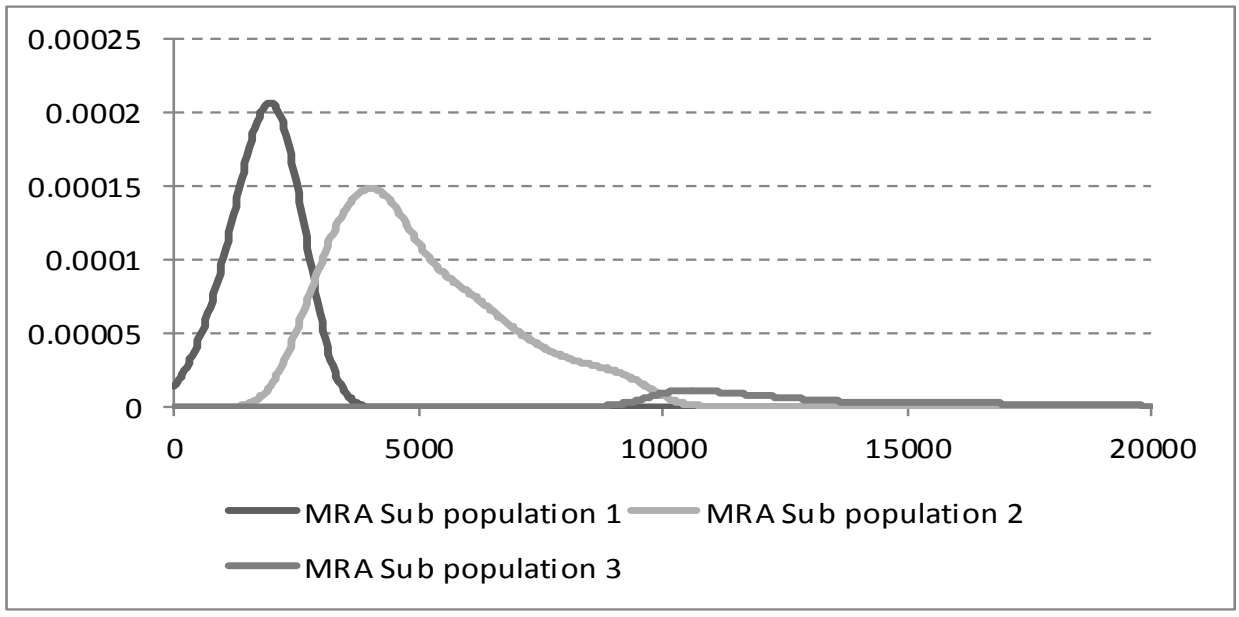

Table 1.aParameters of the mixture of log-normal pdf- 1998

			Parameters of the Log Normal Mixture		
	ExpectedValues	Expected Standard Deviation	$\hat{\mu}$	$\hat{\sigma}$	$\hat{p}$
Component 1	2765.035853	1798.62091	7.7483782	0.59402134	0.55136768
Component 2	4073.020031	2661.13778	8.13439634	0.59622761	0.40975276
Component 3	2061.152058	2508.50624	7.17665154	0.95327732	0.03888015

Table 1.bEstimation of the mixture of the MRA pdf – 1998

	ExpectedValues	Expected Standard Deviation	$\hat{p}$
Component 1	1489.1167	482.95322	0.38958084
Component 2	3517.32204	895.303932	0.47770835
Component 3	7893.92323	4471.58668	0.13271062

Table 2.a Parameters of the mixture of log-normal pdf- 2011

	Expected Values	Expected Standard Deviation	Parameters of the Log Normal Mixture		
Component 1	2388.20265	1380.90398	7.63407901	0.53706111	0.42816517
Component 2	5611.51697	2880.76981	8.51561531	0.48365495	0.54128986
Component 3	7319.51678	29816.8527	7.46451227	1.69339146	0.03054497

Table 2.b Estimation of the mixture of the MRA pdf - 2011

	Expected Values	Expected Standard Deviation	
Component 1	1811.192	732.078	0.38082053
Component 2	5040.186	1806.248	0.57034542
Component 3	13805.931	6241.811	0.04883404

SPECIFIC MINOR COMMENTS

Our reply to the comment of Referee 1 concerning standard deviations of parameter estimates and significance levels of table 4 is provided below.

We improved the explanation of table 5 and of the variable X. See p. 28.

Table 4.a Multinomial logit estimates with standard errors and significance levels of parameter estimates – 1998 to 2002

		1998				1999				2000				2001				2002			
Analysis of Parameter	**Function Number**	**Estimate**	**Standard Error**	**Chi-Square**	**Pr > ChiSq**	**Estimate**	**Standard Error**	**Chi-Square**	**Pr > ChiSq**	**Estimate**	**Standard Error**	**Chi-Square**	**Pr > ChiSq**	**Estimate**	**Standard Error**	**Chi-Square**	**Pr > ChiSq**	**Estimate**	**Standard Error**	**Chi-Square**	**Pr > ChiSq**
Intercept	**1**	0.8933	0.3374	7.01	0.0081	0.6327	0.3099	4.17	0.0412	0.74	0.3399	4.74	0.0295	0.0987	0.254	0.15	0.6977	-0.2523	0.2412	1.09	0.2955
	2	1.9113	0.3338	32.78	<.0001	1.5306	0.3069	24.87	<.0001	2.0327	0.3346	36.9	<.0001	1.2255	0.2481	24.4	<.0001	1.3067	0.2316	31.82	<.0001
Arab	**1**	2.3549	0.4199	31.45	<.0001	3.4269	0.4569	56.25	<.0001	2.4167	0.3298	53.69	<.0001	2.1263	0.2396	78.77	<.0001	3	0.3657	67.29	<.0001
	2	1.0061	0.4189	5.77	0.0163	1.8633	0.4561	16.69	<.0001	0.8628	0.3277	6.93	0.0085	0.7385	0.237	9.71	0.0018	1.3355	0.3632	13.52	0.0002
New Immigrant	**1**	3.0219	0.2447	152.5	<.0001	2.6936	0.1769	231.83	<.0001	2.3936	0.178	180.81	<.0001	2.34	0.1513	239.08	<.0001	2.4912	0.1616	237.76	<.0001
	2	2.1366	0.2394	79.63	<.0001	1.9774	0.1695	136.16	<.0001	1.6808	0.1703	97.39	<.0001	1.7357	0.1429	147.6	<.0001	1.7375	0.153	128.91	<.0001
educ_8	**1**	4.3554	0.3308	173.31	<.0001	3.4631	0.2022	293.44	<.0001	3.6848	0.285	167.14	<.0001	3.5837	0.2163	274.45	<.0001	3.0057	0.2125	200.11	<.0001
	2	2.8824	0.326	78.15	<.0001	1.9744	0.1941	103.51	<.0001	2.401	0.2788	74.18	<.0001	2.2513	0.2089	116.14	<.0001	1.79	0.2039	77.04	<.0001
educ9_12	**1**	2.0734	0.109	361.77	<.0001	2.0395	0.0951	460.06	<.0001	2.0407	0.1101	343.33	<.0001	2.055	0.0964	454.8	<.0001	2.0282	0.1031	387.03	<.0001
	2	1.2545	0.0995	159.06	<.0001	1.2521	0.0841	221.56	<.0001	1.2626	0.0998	160.04	<.0001	1.3173	0.0858	235.64	<.0001	1.2256	0.0916	179.05	<.0001
age_30	**1**	3.1276	0.1931	262.4	<.0001	3.1432	0.1705	339.9	<.0001	2.8103	0.1944	208.9	<.0001	2.7149	0.1671	264.05	<.0001	2.8953	0.1793	260.82	<.0001
	2	1.4797	0.176	70.65	<.0001	1.349	0.1513	79.52	<.0001	1.3213	0.1769	55.79	<.0001	1.3225	0.1476	80.33	<.0001	1.3996	0.161	75.53	<.0001
age_31_45	**1**	2.4628	0.1753	197.47	<.0001	2.1952	0.1561	197.89	<.0001	2.0524	0.1766	135.05	<.0001	2.3686	0.159	221.98	<.0001	2.1412	0.1655	167.34	<.0001
	2	0.9573	0.1568	37.27	<.0001	0.6432	0.135	22.69	<.0001	0.6639	0.1583	17.6	<.0001	1.0249	0.1396	53.89	<.0001	0.8536	0.1466	33.91	<.0001
age 46_Pension age	**1**	0.8754	0.15	34.07	<.0001	0.759	0.1363	31.03	<.0001	0.6309	0.1565	16.26	<.0001	0.9204	0.1375	44.82	<.0001	0.6061	0.1426	18.07	<.0001
	2	0.1253	0.1311	0.91	0.339	-0.0292	0.116	0.06	0.8014	0.0586	0.1389	0.18	0.673	0.2005	0.1189	2.84	0.0919	0.1073	0.1243	0.75	0.388
haredim	**1**	2.7582	0.5213	27.99	<.0001	3.0575	0.5217	34.35	<.0001	3.5344	0.7237	23.85	<.0001	3.4941	0.5963	34.34	<.0001	3.6606	0.7217	25.73	<.0001
	2	1.031	0.5189	3.95	0.0469	1.2566	0.5206	5.83	0.0158	1.4053	0.7226	3.78	0.0518	1.4844	0.5954	6.21	0.0127	1.846	0.7192	6.59	0.0103
binary_famsize	**1**	1.3192	0.1146	132.44	<.0001	1.4927	0.0989	227.75	<.0001	1.5231	0.1117	185.94	<.0001	1.3852	0.0988	196.52	<.0001	1.4318	0.1075	177.56	<.0001
	2	0.9898	0.1045	89.75	<.0001	1.0532	0.0868	147.36	<.0001	1.1019	0.0994	122.9	<.0001	0.9029	0.0863	109.44	<.0001	1.029	0.0939	119.99	<.0001
potential_binary	**1**	1.5454	0.1168	174.95	<.0001	1.8629	0.1045	317.54	<.0001	1.8923	0.1207	245.99	<.0001	1.8792	0.1063	312.76	<.0001	1.9909	0.1131	309.76	<.0001
	2	0.3094	0.108	8.2	0.0042	0.4617	0.0944	23.9	<.0001	0.5752	0.1107	26.98	<.0001	0.5989	0.0963	38.66	<.0001	0.6573	0.1012	42.18	<.0001
Social	**1**	-4.012	0.3191	158.11	<.0001	-4.206	0.2928	206.34	<.0001	-3.7345	0.233	256.9	<.0001	-3.3154	0.2116	245.58	<.0001	-3.6977	0.2884	164.39	<.0001
Benefits_Hnetm_real	**2**	-1.3053	0.3173	16.92	<.0001	-1.3339	0.2922	20.84	<.0001	-1.1687	0.2303	25.75	<.0001	-0.8554	0.2075	16.99	<.0001	-1.0132	0.285	12.64	0.0004

Table 4.b Multinomial logit estimates with standard errors and significance levels of parameter estimates: 2003 - 2008

		2003				2004				2005				2006				2007				2008			
Parameter	Function Number	Estimate	Standard Error	Chi-Square	Pr > ChiSq	Estimate	Standard Error	Chi-Square	Pr > ChiSq	Estimate	Standard Error	Chi-Square	Pr > ChiSq	Estimate	Standard Error	Chi-Square	Pr > ChiSq	Estimate	Standard Error	Chi-Square	Pr > ChiSq	Estimate	Standard Error	Chi-Square	Pr > ChiSq
Intercept	1	0.00498	0.3169	0	0.9875	-0.4412	0.25	3.11	0.0776	0.55	0.3368	2.67	0.1025	0.9458	0.3554	7.08	0.0078	0.5066	0.2985	2.88	0.0897	0.8182	0.3302	6.14	0.0132
	2	1.5098	0.3109	23.59	<.0001	1.1304	0.2425	21.73	<.0001	1.7548	0.3325	27.85	<.0001	2.2132	0.3511	39.73	<.0001	1.7858	0.2937	36.97	<.0001	1.9604	0.3268	35.99	<.0001
Arab	1	2.6111	0.4214	38.4	<.0001	2.3109	0.2935	62	<.0001	2.799	0.4603	36.97	<.0001	2.6499	0.3916	45.79	<.0001	2.9157	0.3019	93.28	<.0001	3.6107	0.4178	74.69	<.0001
	2	0.9653	0.4192	5.3	0.0213	0.6759	0.2906	5.41	0.02	1.0168	0.459	4.91	0.0267	0.7862	0.3901	4.06	0.0439	1.2253	0.2995	16.73	<.0001	1.7077	0.4171	16.77	<.0001
New Immigrant	1	2.8261	0.2175	168.77	<.0001	2.612	0.1538	288.59	<.0001	2.7617	0.2032	184.81	<.0001	2.3193	0.1765	172.72	<.0001	2.3232	0.13	319.3	<.0001	2.0556	0.1243	273.31	<.0001
	2	1.9915	0.2111	88.99	<.0001	1.7481	0.1447	145.97	<.0001	1.8186	0.1975	84.82	<.0001	1.5028	0.1691	78.99	<.0001	1.5166	0.1196	160.93	<.0001	1.3329	0.1144	135.79	<.0001
educ_8	1	3.57	0.3199	124.56	<.0001	3.4644	0.2613	175.78	<.0001	3.7077	0.37	100.4	<.0001	3.644	0.3694	97.31	<.0001	3.8577	0.295	171.04	<.0001	3.1754	0.2695	138.84	<.0001
	2	2.3504	0.3137	56.13	<.0001	2.2772	0.2546	79.98	<.0001	2.4555	0.3654	45.15	<.0001	2.4974	0.3641	47.05	<.0001	2.7529	0.2876	91.61	<.0001	2.0288	0.2623	59.82	<.0001
educ9_12	1	1.9176	0.1202	254.32	<.0001	1.9883	0.1015	383.82	<.0001	2.5197	0.1453	300.68	<.0001	2.2588	0.1327	289.68	<.0001	2.03	0.0957	449.98	<.0001	2.0961	0.0981	456.49	<.0001
	2	1.1758	0.1109	112.44	<.0001	1.2258	0.0909	181.66	<.0001	1.6938	0.139	148.5	<.0001	1.5555	0.1252	154.26	<.0001	1.3641	0.0846	260.21	<.0001	1.3943	0.0884	248.58	<.0001
age to 30	1	3.4291	0.2132	258.68	<.0001	3.1649	0.1807	306.78	<.0001	2.9372	0.2227	173.98	<.0001	3.0928	0.2195	198.6	<.0001	3.0187	0.1699	315.65	<.0001	3.1423	0.1781	311.27	<.0001
	2	1.8011	0.1964	84.07	<.0001	1.4793	0.1614	83.98	<.0001	1.392	0.2073	45.07	<.0001	1.3435	0.2027	43.94	<.0001	1.2471	0.1472	71.77	<.0001	1.2043	0.1579	58.17	<.0001
age 31 to 45	1	2.8996	0.1964	218.04	<.0001	2.6222	0.1682	243.07	<.0001	2.1522	0.1943	122.74	<.0001	2.456	0.193	161.95	<.0001	2.3768	0.1546	236.4	<.0001	2.2627	0.1557	211.07	<.0001
	2	1.4917	0.1787	69.72	<.0001	1.1409	0.1482	59.26	<.0001	0.7317	0.1777	16.95	<.0001	0.9283	0.1746	28.28	<.0001	0.8266	0.1305	40.13	<.0001	0.5699	0.1329	18.39	<.0001
age 46 to Pension age	1	1.215	0.1642	54.74	<.0001	0.8776	0.1423	38.05	<.0001	0.8362	0.1672	25	<.0001	0.6549	0.1611	16.53	<.0001	1.015	0.1353	56.3	<.0001	0.8658	0.1355	40.85	<.0001
	2	0.5399	0.1464	13.61	0.0002	0.2616	0.1237	4.47	0.0344	0.1663	0.1512	1.21	0.2713	-0.0799	0.143	0.31	0.5761	0.1727	0.1126	2.35	0.1253	-0.0496	0.1141	0.19	0.6636
haredim	1	3.8206	1.0066	14.41	0.0001	3.2896	0.5224	39.66	<.0001	2.768	0.5967	21.52	<.0001	3.7603	0.7201	27.27	<.0001	3.6475	0.4253	73.57	<.0001	3.3314	0.4268	60.94	<.0001
	2	2.0914	1.0046	4.33	0.0374	1.1475	0.5197	4.88	0.0272	0.6664	0.5964	1.25	0.2639	1.5557	0.719	4.68	0.0305	1.5811	0.4224	14.01	0.0002	1.12	0.4265	6.9	0.0086
binar_family size	1	1.6135	0.1289	156.73	<.0001	1.6184	0.1047	239.04	<.0001	1.7976	0.1309	188.56	<.0001	1.7079	0.1242	189.15	<.0001	1.5522	0.0966	258.02	<.0001	1.4067	0.0946	220.89	<.0001
	2	1.0483	0.118	78.98	<.0001	1.1099	0.0919	145.98	<.0001	1.1631	0.1219	91.06	<.0001	1.0717	0.114	88.33	<.0001	1.0722	0.0829	167.14	<.0001	0.9494	0.0817	135.01	<.0001
potential_binary	1	2.3206	0.1373	285.8	<.0001	2.3952	0.1109	466.29	<.0001	1.8552	0.1322	196.93	<.0001	1.8201	0.1232	218.15	<.0001	1.9197	0.1006	364.04	<.0001	2.0063	0.1011	394.08	<.0001
	2	0.8181	0.1279	40.91	<.0001	0.7831	0.0994	62.1	<.0001	0.4796	0.1239	14.99	0.0001	0.3583	0.1135	9.97	0.0016	0.4306	0.0889	23.45	<.0001	0.456	0.0902	25.54	<.0001
Social	1					-3.5035	0.2267	238.75	<.0001	-3.9293	0.3346	137.87	<.0001	-4.3816	0.2844	237.42	<.0001	-4.3111	0.3166	185.41	<.0001	-4.0153	0.2749	213.29	<.0001
Benefits_Hnetm_real_bin	2					-0.9324	0.2229	17.49	<.0001	-1.0859	0.3324	10.67	0.0011	-1.618	0.2814	33.07	<.0001	-1.515	0.3152	23.11	<.0001	-1.4812	0.2722	29.61	<.0001

B. Reply to Referee 2:

Several comments received from Referee 2 were answered in our reply to the referee 1:

We revised the abstract, the introduction the empirical section and particularly figure 3 in the spirit of the comments by referee 2. We added a note on significance levels to table 4. We extended table 4 to include all years and reported standard deviations and p values in our reply to referee 1 who provided a similar comment.

Table 4: We clarified the meaning of equations 1 and 2 of the multinomial logit equation on p. 25.

The positive versus normative aspect of polarization:

The Pigou-Dalton transfer axiom is an example of a normative concept, which is satisfied in the Gini measure of inequality since this is a measure with an inverse ranking of incomes (See Sen – On Economic Inequality). Therefore we think that polarization measures based on the Gini coefficient point to a welfarist approach of polarization.

The argument concerning the super-rich is a theoretical point which will receive further attention in our future work on polarization, which will be based on administrative wage data of the whole population. According to the suggestion of the referee the comments related to the consequences of not having the “super rich” in the sample have been removed to a footnote.