



Redistribution Policy and Inequality in Portugal

Carlos Farinha Rodrigues

ISEG / Universidade de Lisboa

carlosfr@iseg.ulisboa.pt

CONSELHO DAS FINANÇAS PÚBLICAS: WEBINAR "DESIGUALDADES ECONÓMICAS E REDISTRIBUIÇÃO EM PORTUGAL".



■ **Aims:**

- **Analyse the redistributive effect attained by social benefits and personal income tax in Portugal along the period 2009-2018.**

- **Taxes and benefits reduce inequality in disposable income relative to market income, but its redistributive impact depends of size and progressivity of each income component examined.**



■ **Methodology:**

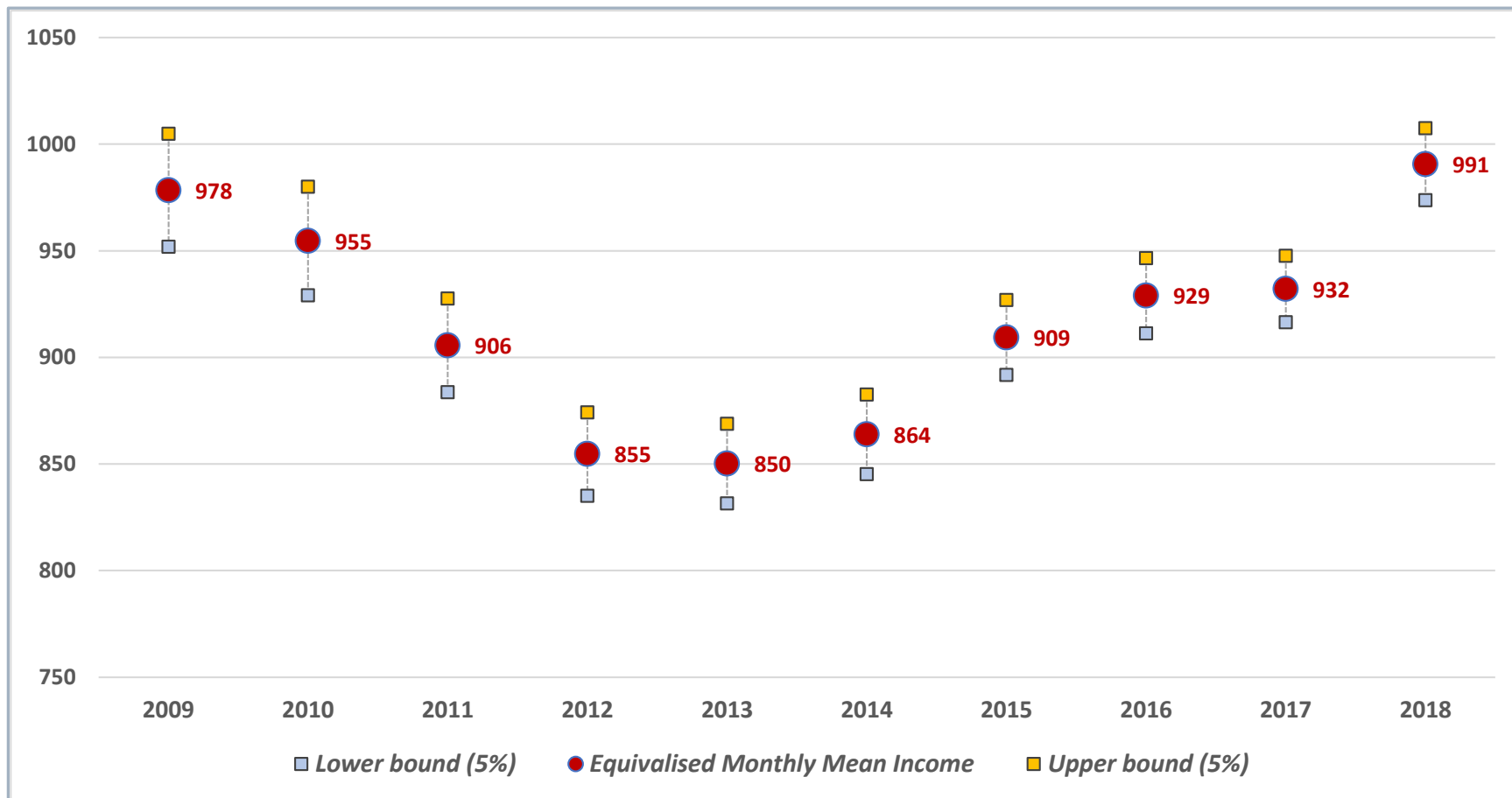
- ❑ **The relative contribution of each benefit/tax instrument to the overall income inequality is evaluated using the decomposition of the Gini index by income source proposed by Lerman & Yitzhaki.**
- ❑ **The overall redistributive effect of the tax-benefit system can be estimated as the difference between the Gini indices of pre- and post- benefit / tax income distributions (Reynolds-Smolensky redistributive effect).**
- ❑ **The overall effect of the tax-benefit system is decomposed into a vertical redistribution effect and the reranking effect.**
- ❑ **The Kakwani indicator evaluates the progressivity of the tax-benefit system in each year.**



INCOME INEQUALITY IN PORTUGAL



Equivalised disposable income

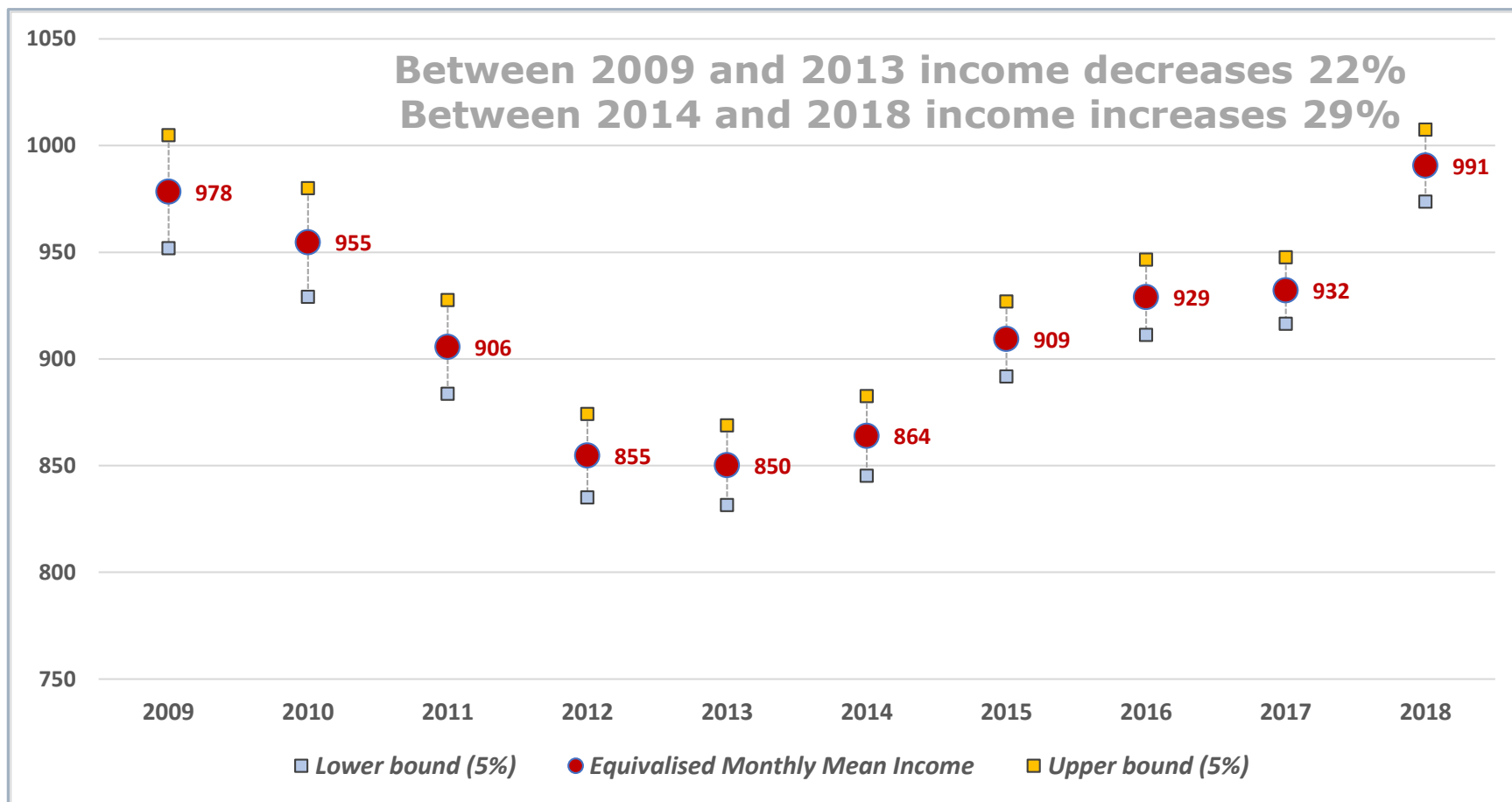


Source: INE – Statistics Portugal, EU-SILC 2010- 2019.

Note: Monthly values in euros at 2018 prices. The household disposable income concept used differs slightly from the one used by Eurostat because doesn't account for "Regular interhousehold cash transfer paid".



Equivalised disposable income – 1st Quintile

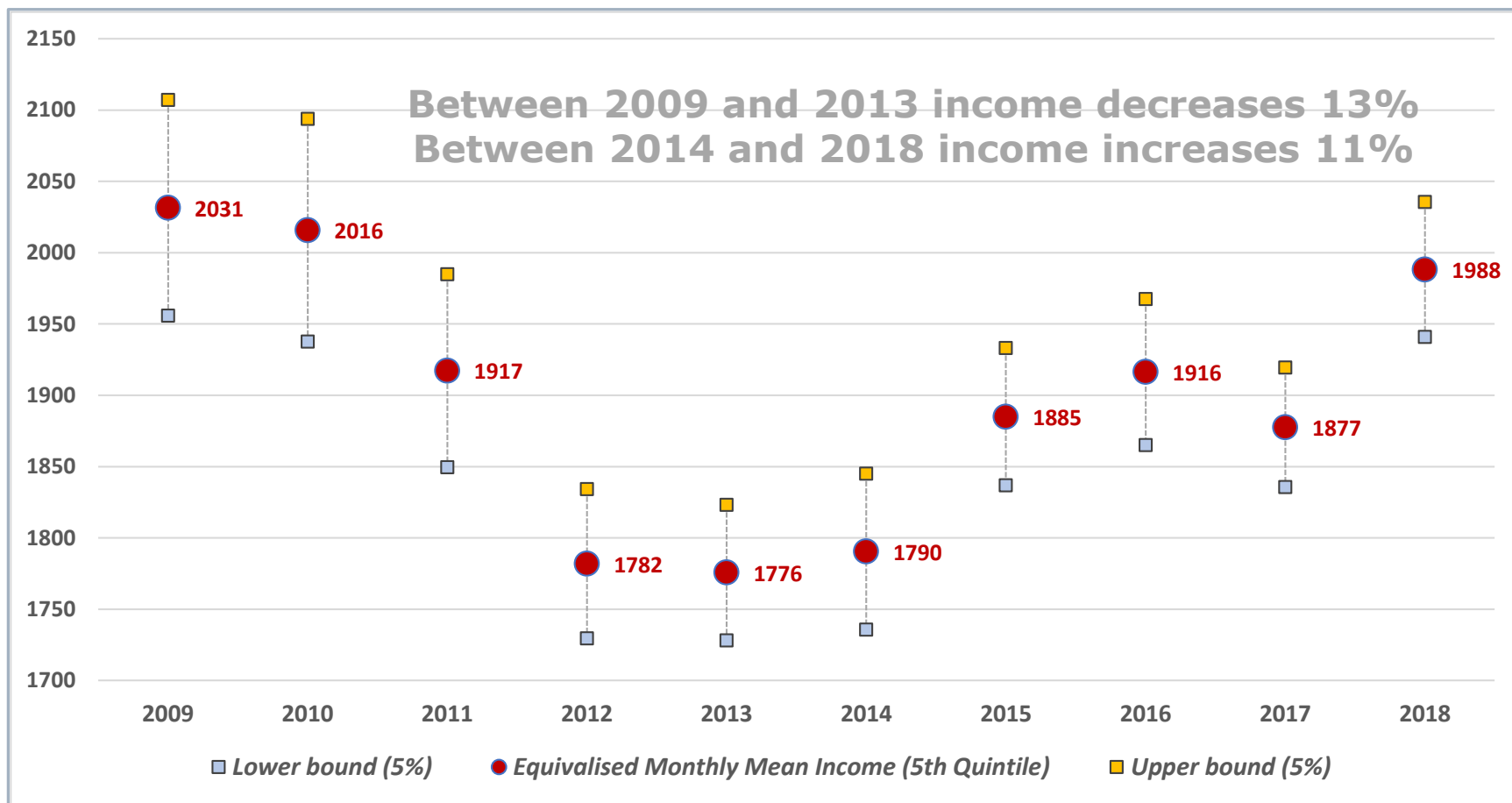


Source: INE – Statistics Portugal, EU-SILC 2010- 2019.

Note: Monthly values in euros at 2018 prices.



Equivalised disposable income – 5th Quintile

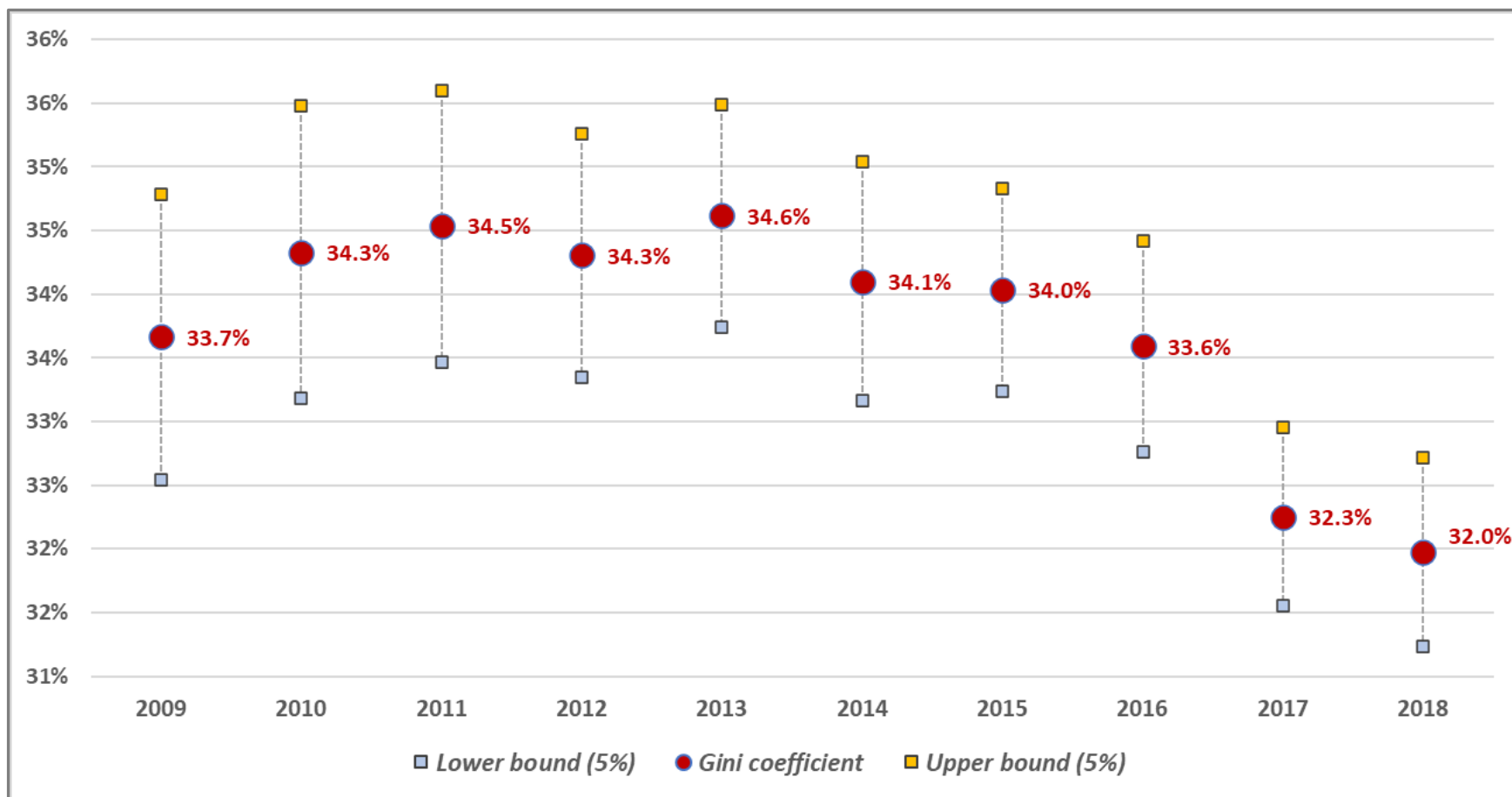


Source: INE – Statistics Portugal, EU-SILC 2010- 2019.

Note: Monthly values in euros at 2018 prices.



Gini coefficient Equivalised disposable income

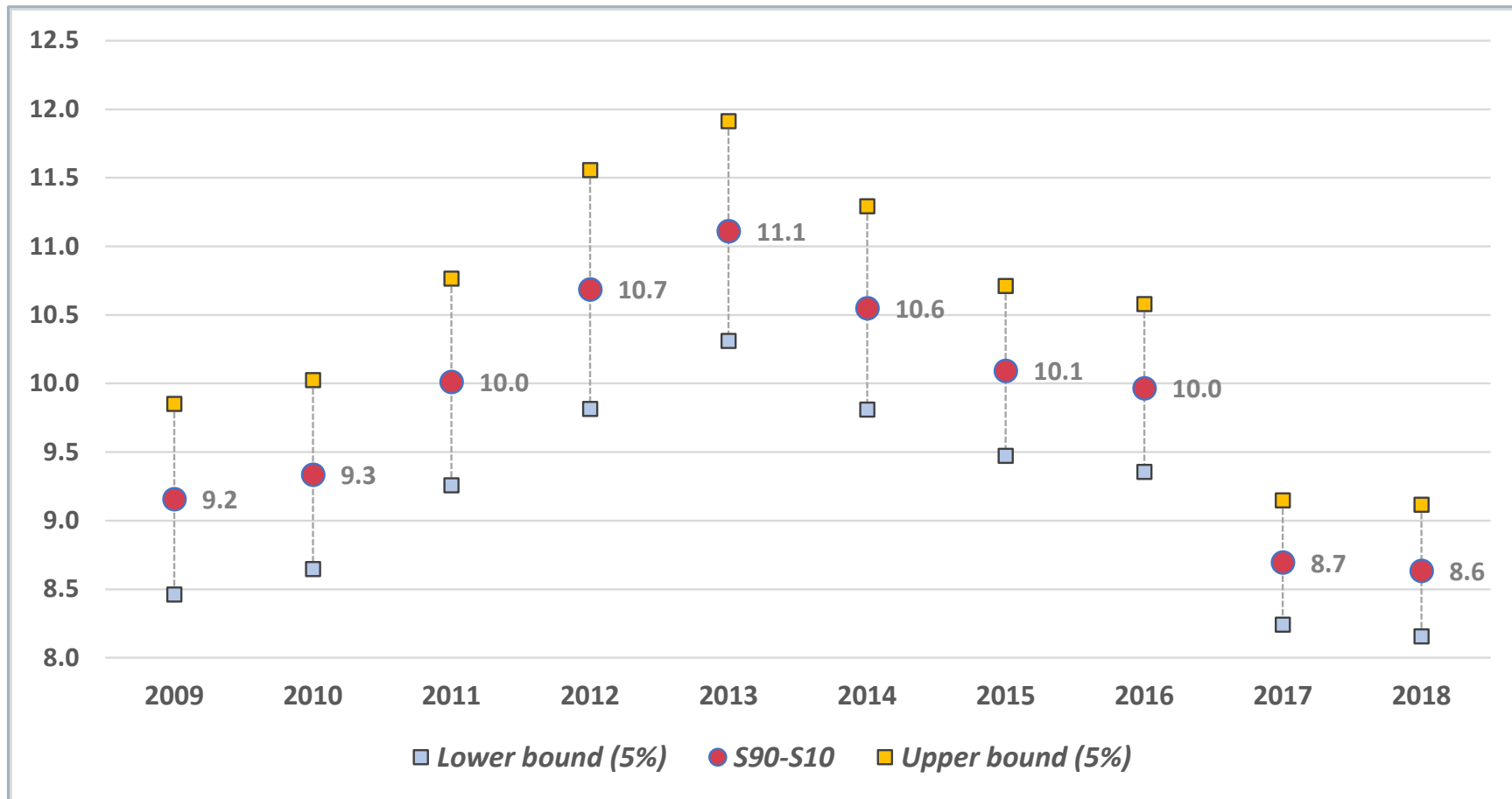


Source: INE – Statistics Portugal, EU-SILC 2009- 2017.



Share ratio index of inequality - S90/S10

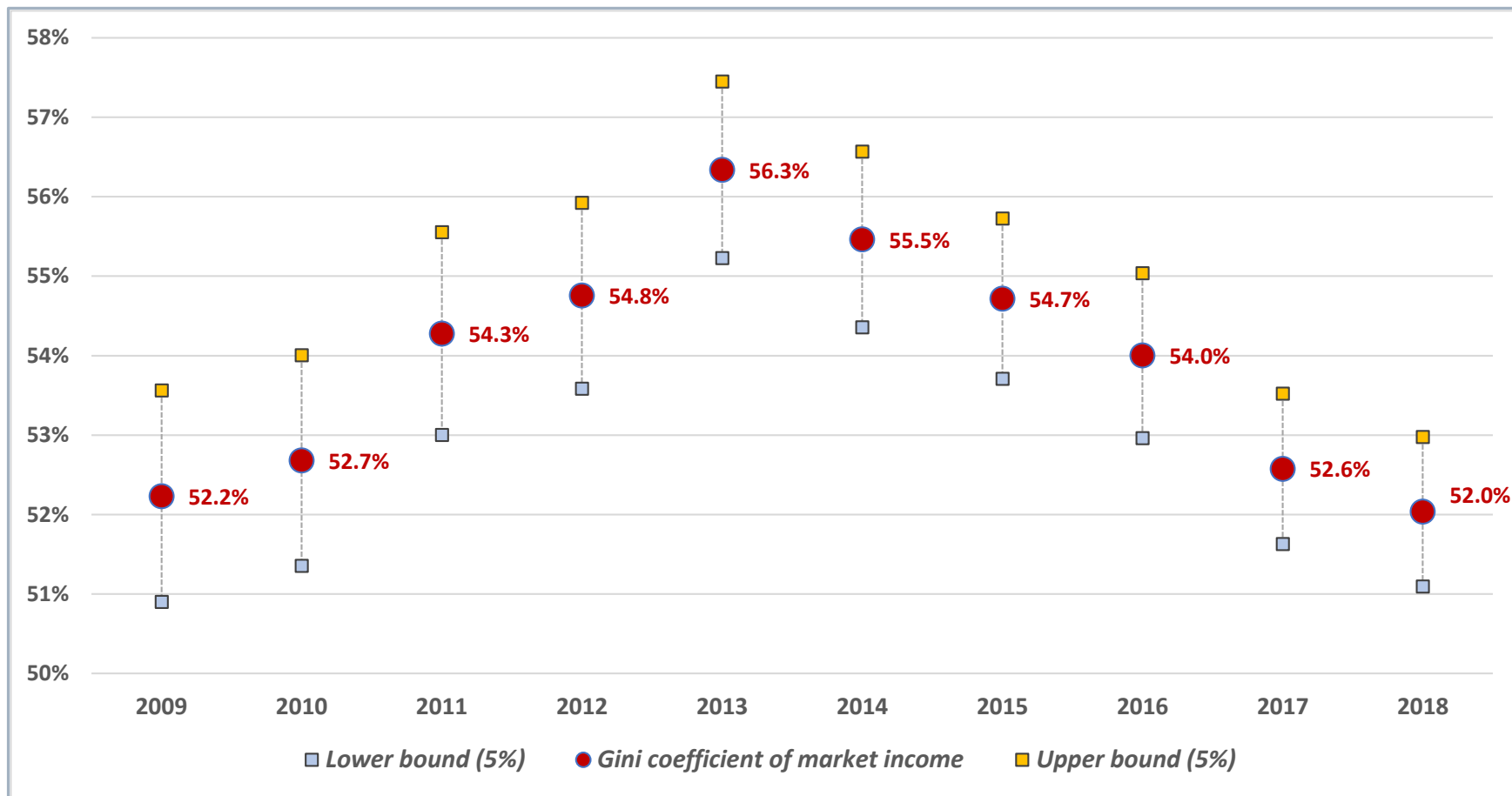
Equivalised disposable income



Source: INE – Statistics Portugal, EU-SILC 2010- 2019.



Gini coefficient Equivalised market income



Source: INE – Statistics Portugal, EU-SILC 2010- 2019.



The Income Accounting Framework

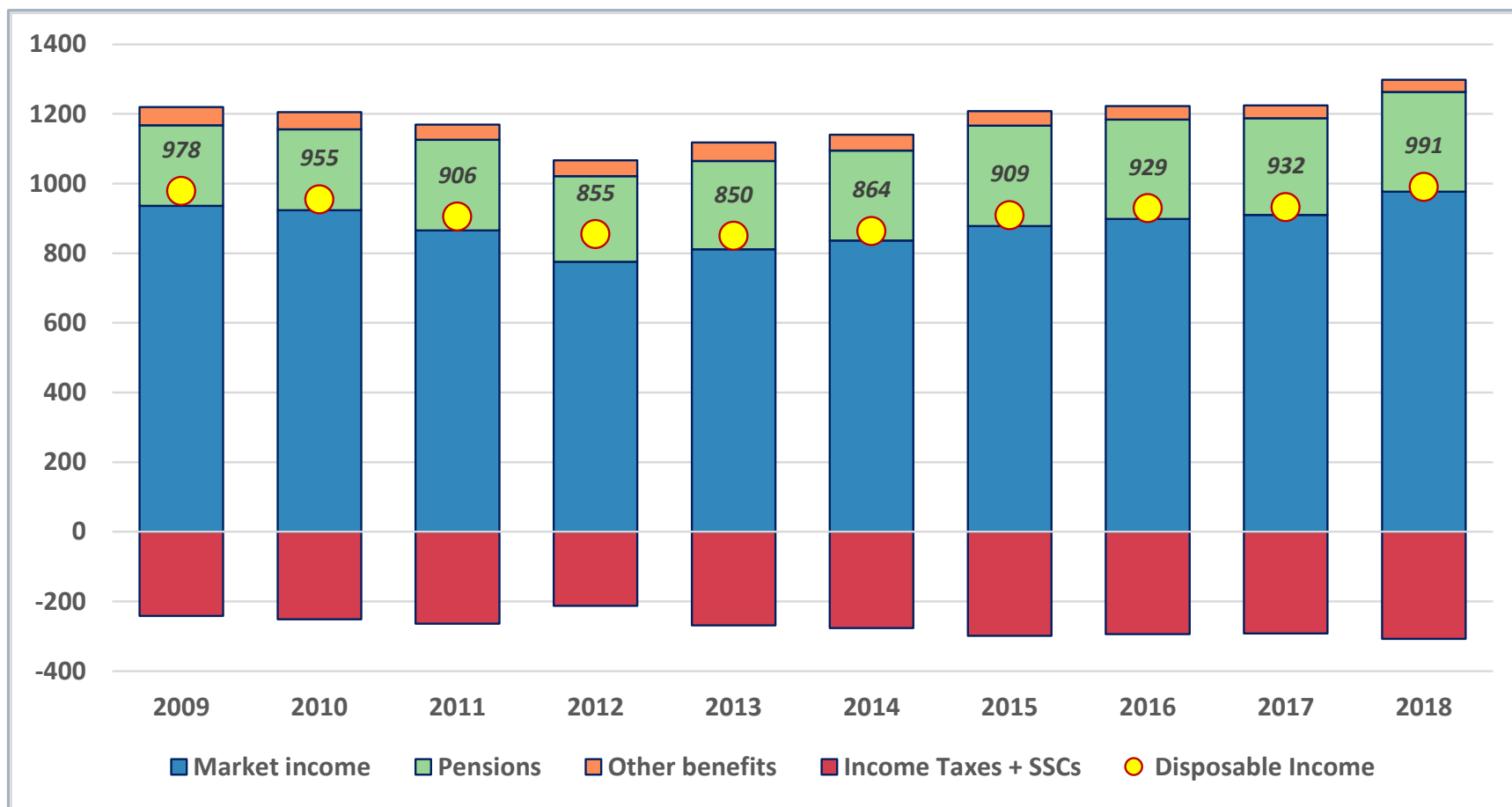
<i>Income components</i>
Wage and salaries
+ Self-employment income
+ Property Income
+ Other private incomes
1. Market Income
+ Pensions
2. Market Income + Pensions
+ Other Social Security Benefits
3. Original (Gross) Income
- Employee Social Security Contributions
- Income Taxes
4. Household Disposable Income

Source: Adapted from OECD (2008).

Note: Each income component is adjusted with the OECD (modified) equivalent scale.



Equivalent disposable income

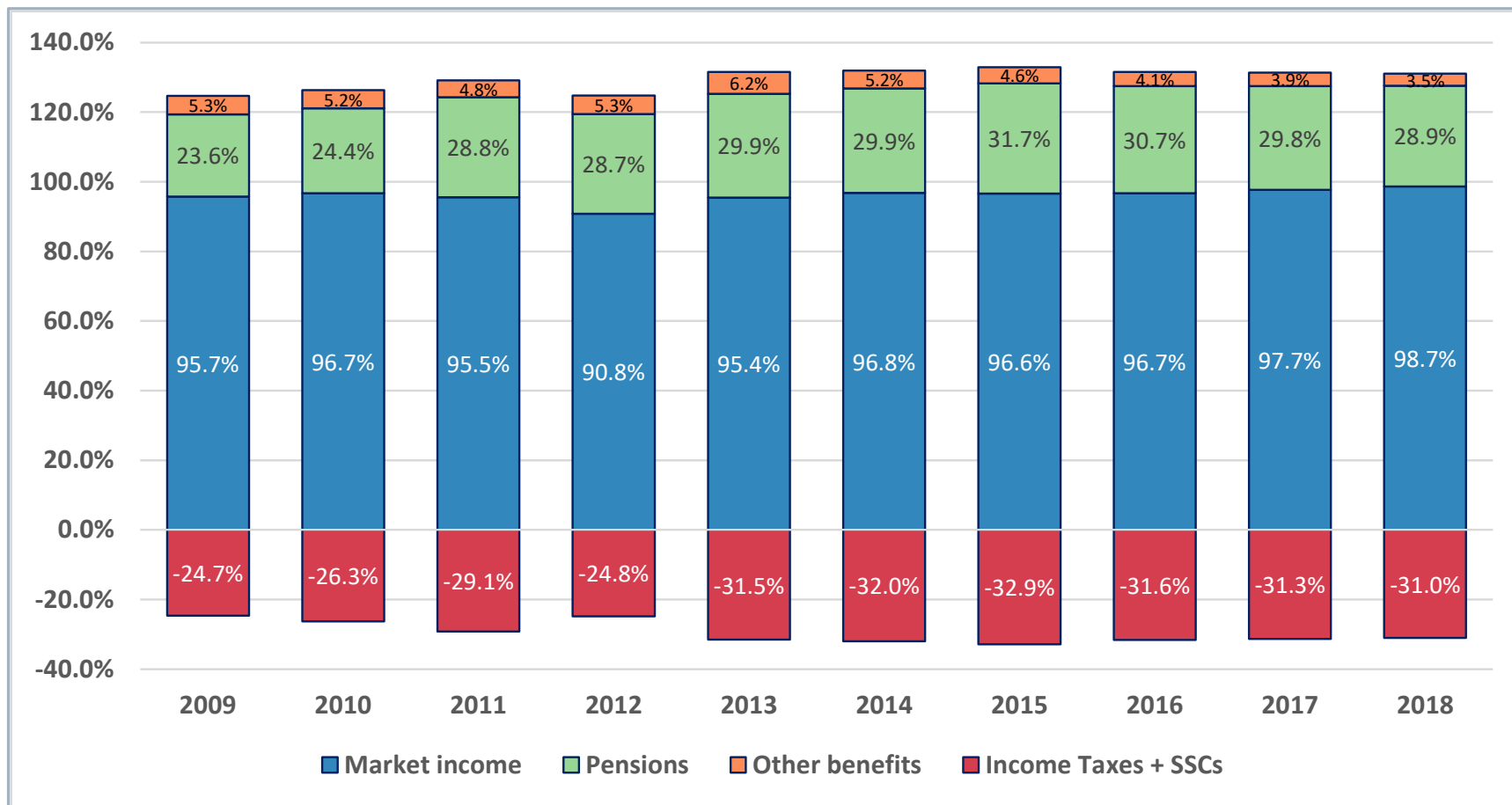


Source: INE – Statistics Portugal, EU-SILC 2010- 2019.

Note: Monthly values in euros at 2018 prices.



Structure of equivalent disposable income



Source: INE – Statistics Portugal, ICOR (EU-SILC) 2010- 2019.



WHAT DOES THE REDISTRIBUTION OF SOCIAL BENEFITS AND HOUSEHOLD TAXES ACHIEVE



Distribution of income components: Gini coefficient

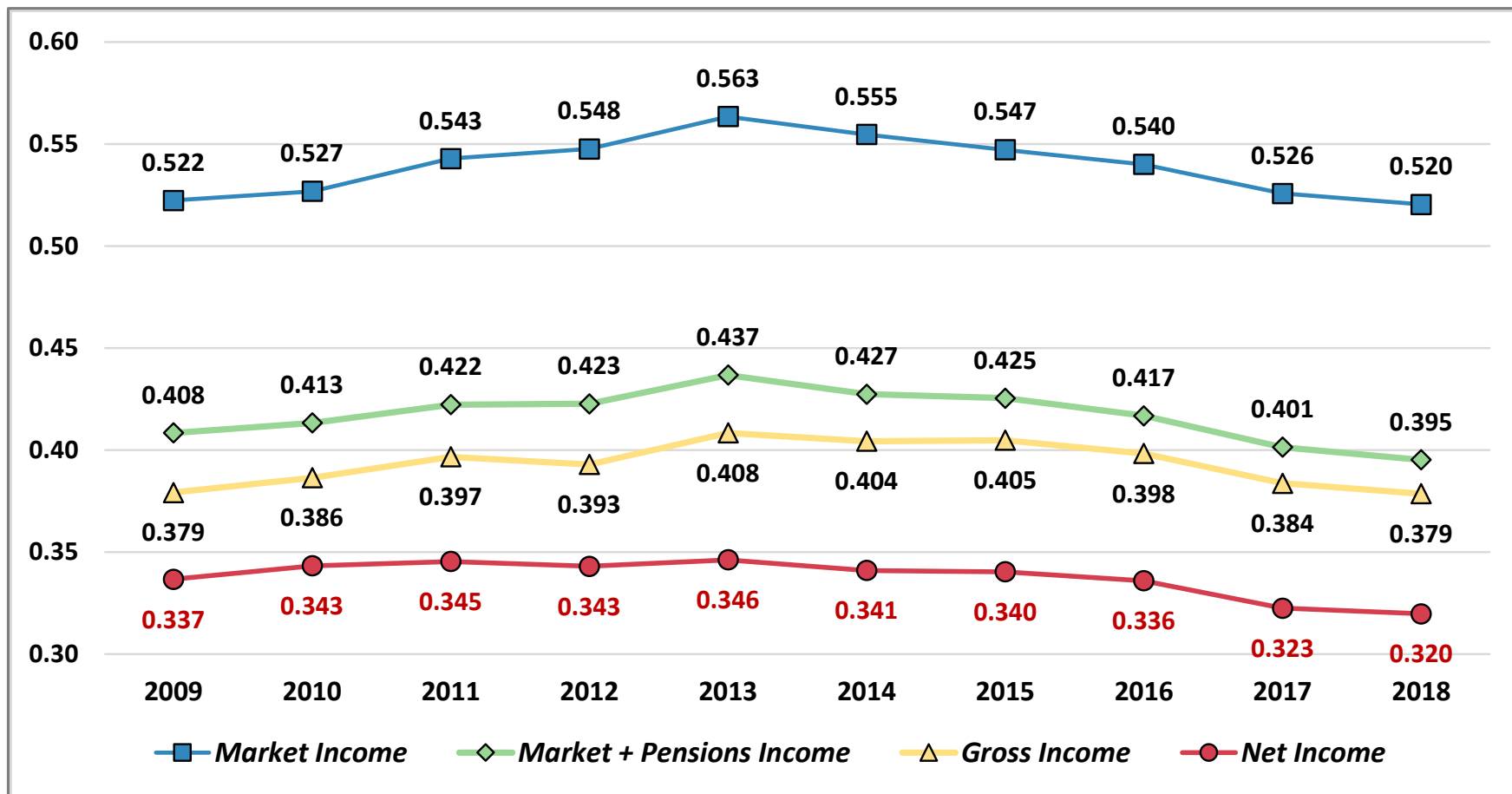
	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Market income	0.522	0.527	0.543	0.548	0.563	0.555	0.547	0.540	0.526	0.520
	<i>(0.007)</i>	<i>(0.007)</i>	<i>(0.007)</i>	<i>(0.006)</i>	<i>(0.006)</i>	<i>(0.006)</i>	<i>(0.005)</i>	<i>(0.005)</i>	<i>(0.005)</i>	<i>(0.005)</i>
Market + pensions	0.408	0.413	0.422	0.423	0.437	0.427	0.425	0.417	0.401	0.395
	<i>(0.006)</i>	<i>(0.006)</i>	<i>(0.006)</i>	<i>(0.006)</i>	<i>(0.005)</i>	<i>(0.005)</i>	<i>(0.005)</i>	<i>(0.005)</i>	<i>(0.004)</i>	<i>(0.004)</i>
Gross income	0.379	0.386	0.397	0.393	0.408	0.404	0.405	0.398	0.384	0.379
	<i>(0.006)</i>	<i>(0.006)</i>	<i>(0.006)</i>	<i>(0.006)</i>	<i>(0.005)</i>	<i>(0.005)</i>	<i>(0.005)</i>	<i>(0.005)</i>	<i>(0.004)</i>	<i>(0.004)</i>
Disposable income	0.337	0.343	0.345	0.343	0.346	0.341	0.340	0.336	0.323	0.320
	<i>(0.006)</i>	<i>(0.006)</i>	<i>(0.005)</i>	<i>(0.005)</i>	<i>(0.004)</i>	<i>(0.005)</i>	<i>(0.004)</i>	<i>(0.004)</i>	<i>(0.004)</i>	<i>(0.004)</i>

Source: INE – Statistics Portugal, ICOR (EU-SILC) 2010- 2019.

Note: Standard errors in parentheses.



Gini coefficient (2009-18)



Source: INE – Statistics Portugal, EU-SILC 2009- 2017.



Relative contribution to Disposable income inequality (%) (Lerman & Yitzhaki Approach)

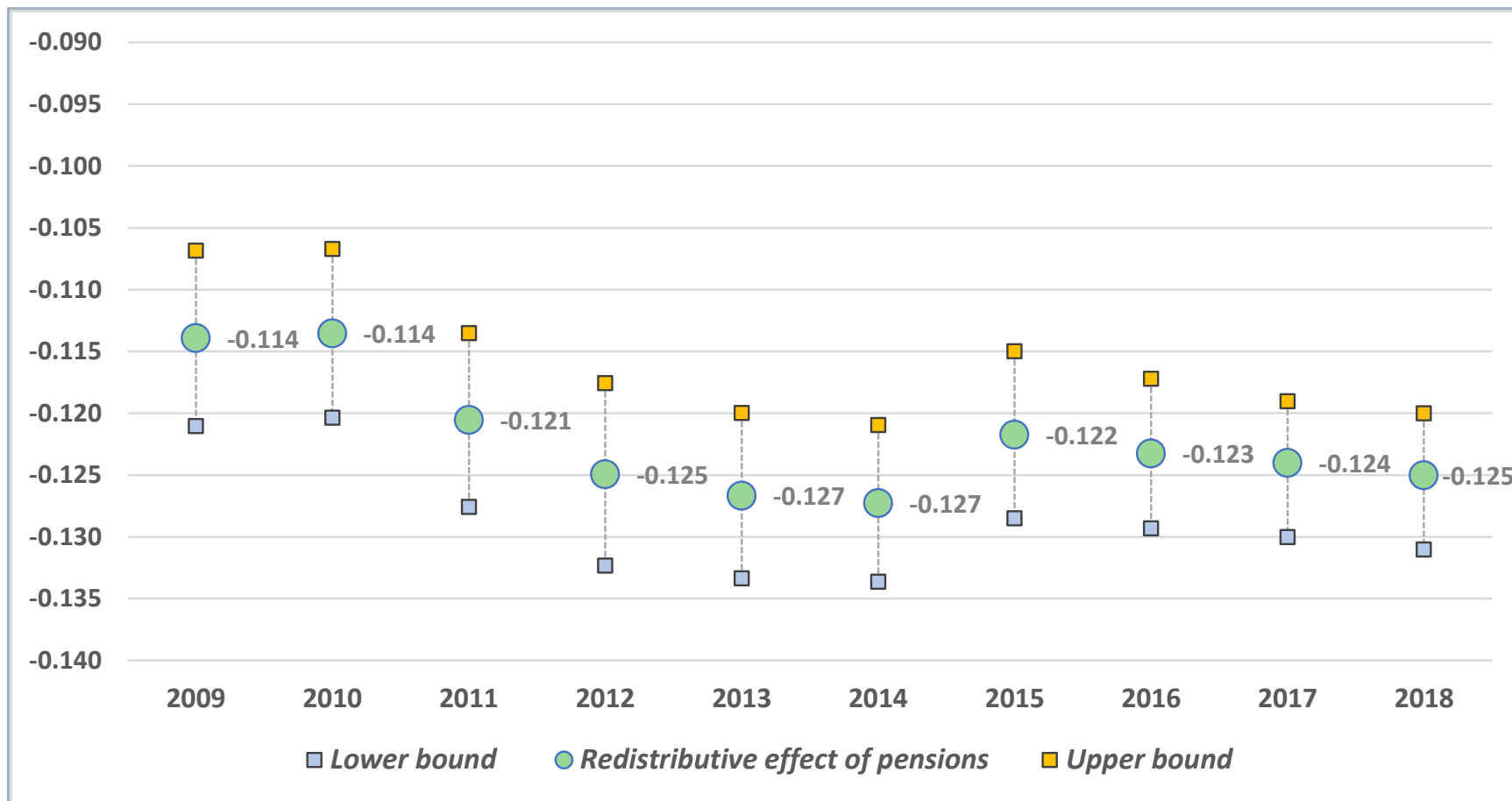
	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Market income	123.3	121.8	118.9	115.2	123.8	125.6	121.6	122.0	124.0	124.7
	(2.03)	(2.07)	(2.50)	(2.16)	(2.27)	(2.13)	(2.20)	(2.13)	(1.97)	(1.86)
Pensions	17.9	20.3	29.1	28.2	29.6	29.2	35.1	33.1	31.4	29.9
	(1.53)	(1.56)	(1.86)	(1.73)	(1.72)	(1.72)	(2.01)	(1.67)	(1.53)	(1.48)
Other Benefits	-2.1	-1.2	-1.2	-1.7	0.3	0.3	-0.1	-0.4	-0.7	-0.9
	(0.36)	(0.40)	(0.35)	(0.34)	(0.61)	(0.67)	(0.39)	(0.52)	(0.38)	(0.35)
Taxes & SSC	-39.1	-40.9	-46.7	-41.7	-53.7	-55.1	-56.6	-54.7	-54.8	-53.7
	(0.86)	(0.83)	(1.05)	(0.83)	(0.93)	(0.83)	(0.90)	(0.87)	(0.80)	(0.72)
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Source: INE – Statistics Portugal, ICOR (EU-SILC) 2010- 2019.

Note: Standard errors in parentheses.



Redistributive effect of pensions

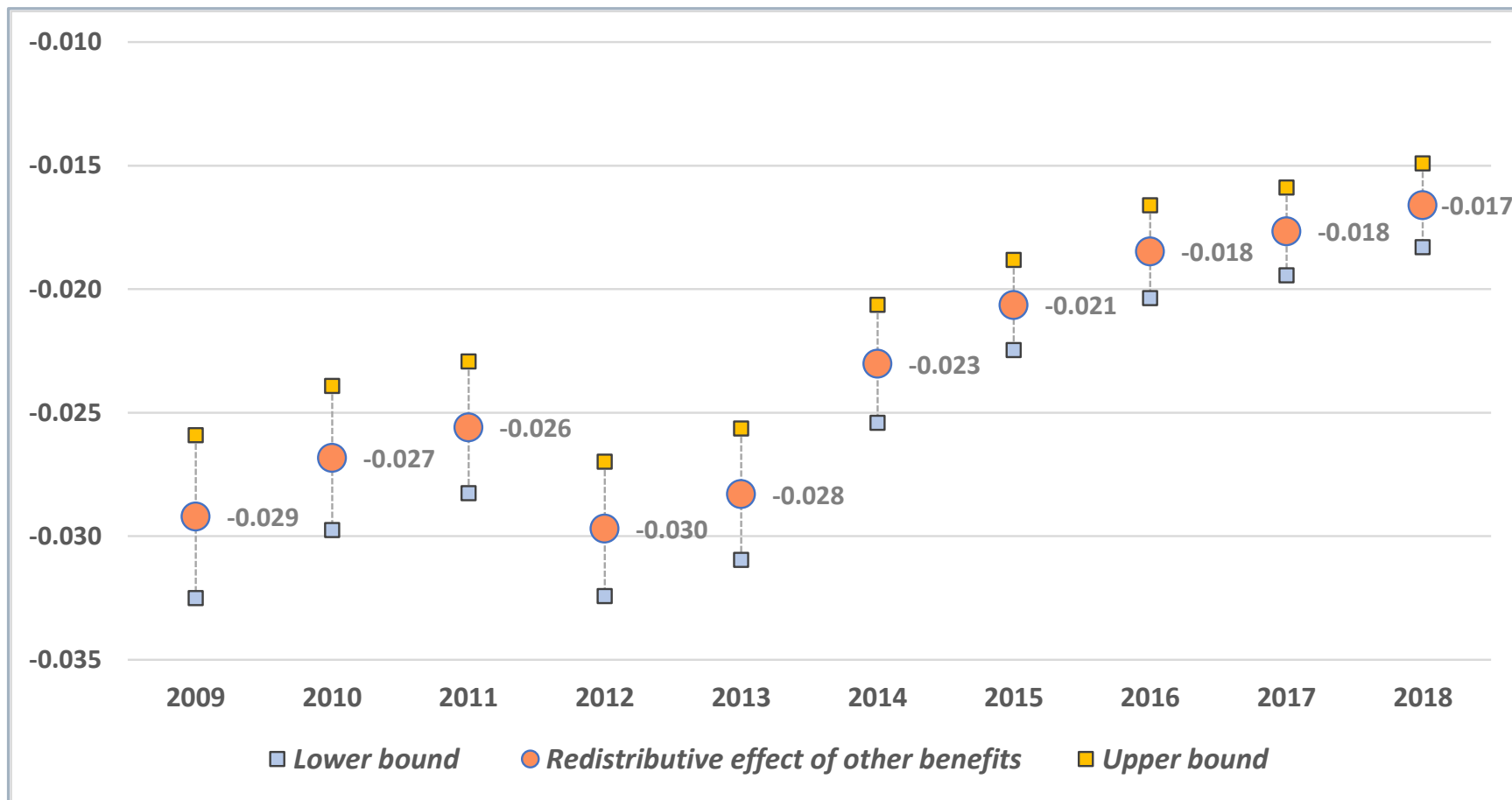


Source: INE – Statistics Portugal, EU-SILC 2010- 2019.

Note: Reynolds-Smolensky redistributive effect of pensions = $G(\text{Market}) - G(\text{Market} + \text{Pensions})$.



Redistributive effect of other benefits

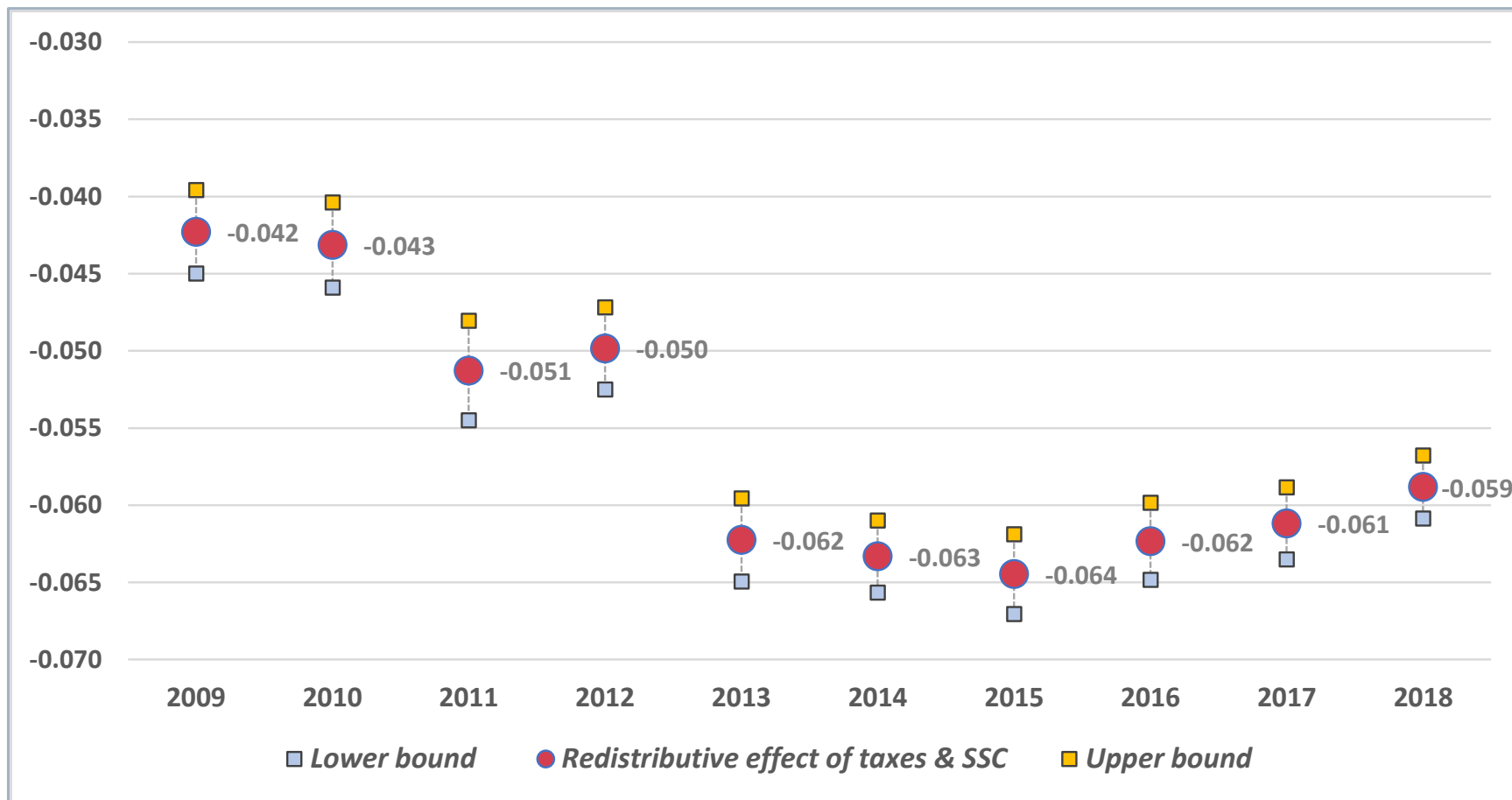


Source: INE – Statistics Portugal, EU-SILC 2010- 2019.

Note: Reynolds-Smolensky redistributive effect of other benefits = $G(\text{Market} + \text{Pensions}) - G(\text{Gross})$.



Redistributive effect of other taxes & SSC



Source: INE – Statistics Portugal, EU-SILC 2010- 2019.

Note: Reynolds-Smolensky redistributive effect of taxes= G (Gross) – G (Net).



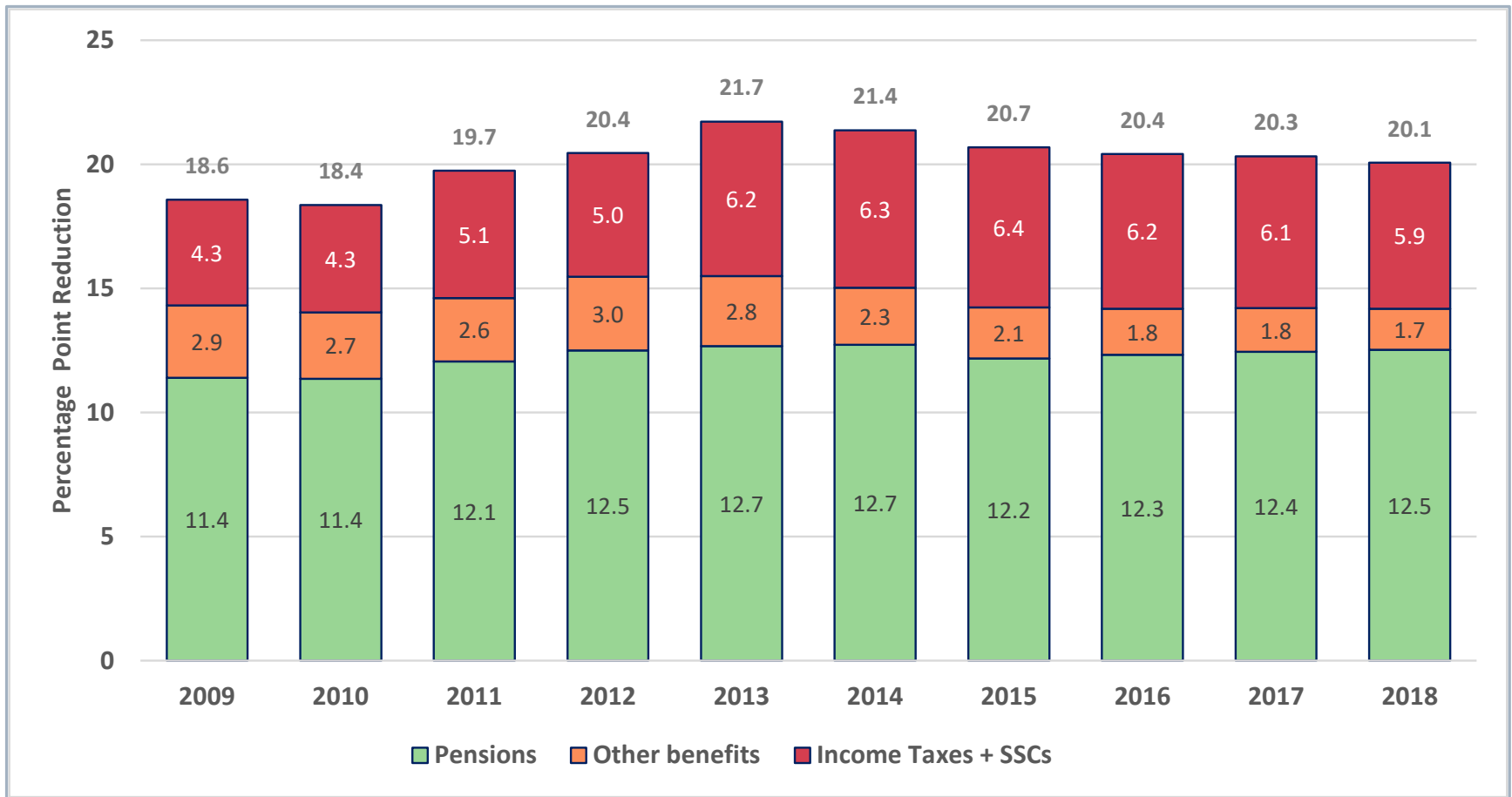
Redistributive Effects of Cash Benefits and Household Taxes

	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
<i>RE of Pensions</i>	0.114	0.114	0.121	0.125	0.127	0.127	0.122	0.123	0.124	0.125
as % of market inequality	21.8%	21.5%	22.2%	22.8%	22.5%	22.9%	22.2%	22.8%	22.8%	22.8%
<i>RE of Other Benefits</i>	0.029	0.027	0.026	0.030	0.028	0.023	0.021	0.018	0.018	0.017
as % of market + pensions inequality	7.2%	6.5%	6.1%	7.0%	6.5%	5.4%	4.9%	4.4%	4.4%	4.2%
<i>RE of Taxes</i>	0.042	0.043	0.051	0.050	0.062	0.063	0.064	0.062	0.061	0.059
as % of gross income	11.2%	11.2%	12.9%	12.7%	15.2%	15.7%	15.9%	15.7%	15.9%	15.5%

Source: INE – Statistics Portugal, EU-SILC 2010- 2019.



Summary of the effects of benefits and taxes in reducing inequality



Source: INE – Statistics Portugal, EU-SILC 2010- 2019.



Kakwani index of Benefit/Tax Progressivity

	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Pensions	-0.918	-0.929	-0.954	-0.929	-0.964	-0.970	-0.967	-0.959	-0.989	-0.994
	(0.019)	(0.020)	(0.018)	(0.020)	(0.016)	(0.015)	(0.017)	(0.016)	(0.013)	(0.013)
Other Benefits	-0.785	-0.772	-0.796	-0.812	-0.755	-0.749	-0.730	-0.709	-0.731	-0.746
	(0.025)	(0.030)	(0.030)	(0.024)	(0.030)	(0.038)	(0.028)	(0.036)	(0.032)	(0.028)
Taxes & SSC	0.184	0.177	0.189	0.213	0.209	0.208	0.206	0.207	0.205	0.199
	(0.004)	(0.004)	(0.004)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.002)	(0.002)

Source: INE – Statistics Portugal, ICOR (EU-SILC) 2009- 2017.

Note1: $K = C(T) - G(X)$

A negative value for the benefits' progressivity (measured using the Kakwani index) indicates that they lead to a reduction in the level of inequality, i.e., benefits are progressive. Conversely, a positive value for taxes indicates that taxes are progressive.

Note2: Standard errors in parentheses.



Vertical equity measure

	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Pensions	0.182	0.187	0.221	0.223	0.230	0.229	0.239	0.231	0.231	0.225
	(0.006)	(0.006)	(0.007)	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)	(0.005)	(0.005)
Other Benefits	0.033	0.032	0.030	0.035	0.036	0.030	0.025	0.022	0.021	0.020
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.001)	(0.001)	(0.001)	(0.001)
Taxes & SSC	0.045	0.047	0.055	0.053	0.066	0.067	0.068	0.065	0.064	0.062
	(0.001)	(0.001)	(0.002)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)

Source: INE – Statistics Portugal, ICOR (EU-SILC) 2010- 2019.

Note1: $VE = G(X) - C(Y)$

The vertical redistribution effect captures the extent to which incomes post tax/benefit are more equally redistributed.

Note2: Standard errors in parentheses.



Reranking effect

	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Pensions	0.068	0.074	0.100	0.098	0.103	0.102	0.117	0.108	0.107	0.100
	(0.004)	(0.004)	(0.006)	(0.005)	(0.005)	(0.005)	(0.006)	(0.004)	(0.004)	(0.004)
Other Benefits	0.004	0.005	0.004	0.005	0.008	0.007	0.005	0.004	0.004	0.003
	(0.0005)	(0.0005)	(0.0004)	(0.0004)	(0.0009)	(0.0013)	(0.0006)	(0.0005)	(0.0006)	(0.0005)
Taxes & SSC	0.003	0.003	0.004	0.003	0.004	0.003	0.003	0.003	0.003	0.003
	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0001)

Source: INE – Statistics Portugal, ICOR (EU-SILC) 2009- 2017.

Note1: $RE = G(Y) - C(Y) = VE - RS$

The re-ranking effect captures the extent to which the ranking of individuals according to income pre and post taxes and benefits differs. The degree of vertical redistribution is reduced by any changes in the ranking of individuals in the pre and after tax-benefit distribution.

Note2: Standard errors in parentheses.



REDISTRIBUTION TOWARDS THOSE AT THE BOTTOM OF THE INCOME DISTRIBUTION



Redistribution through cash transfers and taxes towards people at the bottom of the income distribution

	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Share of public transfers paid to lowest quintile	13.4%	12.2%	10.3%	10.0%	9.3%	9.7%	9.7%	10.1%	11.3 %	11.5%
Transfers to lowest quintile as & of total net income	3.9%	3.6%	3.5%	3.4%	3.4%	3.4%	3.5%	3.5%	3.8%	3.7%
Share of taxes paid by lowest quintile	4.1%	4.4%	3.5%	3.0%	2.5%	2.4%	2.5%	2.5%	2.9%	2.8%
Taxes from lowest quintile as & of total net income	1.0%	1.1%	1.0%	0.8%	0.8%	0.8%	0.8%	0.8%	0.9%	0.9%
Net transfers to lowest quintile	2.9%	2.5%	2.4%	2.6%	2.6%	2.6%	2.7%	2.7%	2.9%	2.9%

Source: INE – Statistics Portugal, ICOR (EU-SILC) 2010- 2019.



Redistribution through cash transfers and taxes

2009	1st quintile	2nd quintile	3rd quintile	4rd quintile	5th quintile
Share of public transfers paid to	13.4%	17.8%	16.2%	19.9%	32.7%
Transfers to as % of total net income	3.9%	5.2%	4.7%	5.8%	9.5%
Share of taxes paid to	4.1%	6.3%	11.3%	19.2%	59.1%
Taxes from as % of total net income	1.0%	1.5%	2.8%	4.8%	14.6%
Net transfers to	2.9%	3.6%	1.9%	1.0%	-5.1%

2018	1st quintile	2nd quintile	3rd quintile	4rd quintile	5th quintile
Share of public transfers paid to	11.5%	14.8%	14.7%	16.5%	42.6%
Transfers to as % of total net income	3.7%	4.8%	4.8%	5.3%	13.8%
Share of taxes paid to	2.8%	6.0%	11.3%	20.8%	59.2%
Taxes from as % of total net income	0.9%	1.9%	3.5%	6.5%	18.4%
Net transfers to	2.9%	2.9%	1.3%	-1.1%	-4.6%

Source: INE – Statistics Portugal, ICOR (EU-SILC) 2010- 2019.



Thank you for your attention!

