Trends in Mediterranean Inequalities 1950-2015

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Abstract. The purpose of this paper is to analyse the trends of economic, social and political inequality among the Mediterranean countries in the period 1950-2015. After the examination of the inequalities in GDP per capita among and within nations, we present a human development index (HDI) that includes a measure of democratic achievements. The main result is that inequalities in income, after the rise from the 1950s onwards, declined from the start of the twenty-first century. Inequalities in HDI, instead, constantly diminished in the period under examination, while a process of democratization occurred. On the whole, despite the convergence among Mediterranean countries, economic inequalities are much deeper than those in social and political indicators.

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Divided among the three continents of Europe, Asia and Africa, for a long time the Mediterranean formed an interrelated set or a "world economy": an area of the globe where economies, cultures and societies interacted with one another (Braudel, 1979). Even today, within the global economy, the Mediterranean countries are joined together both by flows of production factors and trade of goods (Tirkides and Theophanous, 2011). Massive legal and illegal flows of people daily move from the less developed southern and eastern economies towards the North of the Mediterranean. The trade of goods between the EU and the MEDA (Mediterranean countries in the Euro-Mediterranean Partnership) represents in 2015 around 9 percent of the total EU external trade (European Commission, 2015). Energy sources play a central role in these exchanges. The EU nations are the main investors in the countries of southern Mediterranean (Ferragina, 2010).

This paper's aim is to contribute to the debate in progress on global inequalities through the analysis of economic, social and political disparities in the Mediterranean and their changes from 1950 onward. In section 1 we focus on income inequalities (both between and within the Mediterranean countries); in section 2, we discuss the method for the calculation of a Mediterranean Human Development Index (HDI) and present our results. We will see that, although declining from about 2000, Mediterranean economic disparities are still remarkable, while those in social and political indicators are much less profound.

1. Economic inequalities

1.1. Related literature

On the World scale, increasing international divergence *among* nations in living standards was a main feature of economic development from the start of modern growth up to the 1950s or 1960s (Bourguignon and Morrisson, 2002). From then on, divergence and inequality stabilised on a high level or slowed down until about 2000 (Schultz, 1998; Xavier Sala-i-Martin, 2006; Milanovic, 2006, 2011, 2012; Berry and Serieux, 2006; Ricolfi et al. 2015). However, only from the beginning of the 21st century, the trend of inequality in income levels across countries seems to have clearly inverted (Milanovic 2013a). The decline in inequality from 2000 onwards has been largely caused by the sustained growth of populous countries, mainly China and India and other emerging economies such as Indonesia and Brazil (Clark, 2011; Milanovic, 2013a). Yet, rising inequality *within* states in income distribution from the 1970s appears to limit, at least in part, the effects of between states increasing equality in average incomes. Some economists share the opinion that, in the last two centuries, international inequality described an inverted U curve, similar to that suggested by Simon Kuznets (1995) in personal income distribution during the first

wave of modern growth, and by Jeffrey Williamson (1965) in regional inequality among regions within the modernising nations. Not all scholars, however, subscribe to the downward global decline of inequality among nations (Heshmati, 2006, 84; Korzeniewicz and Moran, 1997; Anand and Segal, 2008).

The trend of inequality among the Mediterranean countries has been investigated by relatively few studies. The main results indicate how disparities in per capita GDP levels among the Mediterranean economies increased until 1970, stabilised until the mid-80s, and then increased (Daniele and Malanima, 2013). Only in the first decade of 2000s, the slowing down of growth rates of more developed economies fostered a sort of convergence among the Mediterranean nations (Daniele and Ansani, 2014). The partial failure of the Euro Mediterranean Partnership, that is the absence of a process of trade and economic integration in the Mediterranean region, was one of the causes of the divergence between the northern Mediterranean countries and the Middle East and North African nations (Amendola, 2011). A review of the changes in inequality in income distribution has been offered by Capasso and Astarita (2011), that assembled Gini index data, from the mid 1960s to mid 2000s, for some Mediterranean nations. Results show how, from 1960s onward, inequality slightly declined in the high-income Mediterranean countries and, also, in Turkey and Morocco. After the break-up of Yugoslavia, in the nations of the Adriatic region, inequality in income distribution sharply increased during the 1990s; then, in the 2000s, inequality declined, albeit with remarkable national differences. The nexus between income distribution and economic growth has been analysed, in a panel of 18 Mediterranean countries for the period 1995−2012, by Amendola and Dell'Anno (2014), which found a statistically significant non-linear relationship (an inverted U-shaped curve) between inequality and growth. Mediterranean countries characterised by medium income inequality (a pre-redistribution Gini index of approximately 40-45) had the highest growth rates in the considered period.
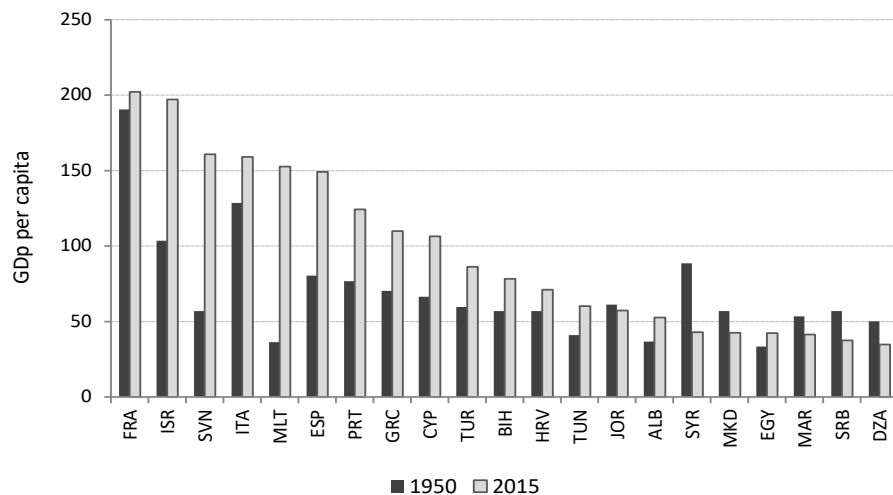
1.2. Inequalities among nations

In 2015, with 510 million inhabitants on the whole, the Mediterranean countries represented 7 percent of the World population and produced 10 percent of World product. In the first decade of the third millennium, 37 percent of the entire Mediterranean population lived in the four richest countries of the Latin region: Portugal, Spain, France and Italy (Figure 1). This 37 percent produced 70 percent of the whole gross product and consumed 60 percent of the total commercial energy (Bartoletto and Malanima, 2014).

Although remarkable, the economic disparities on the Mediterranean scale are, however, much lower than on the World scale. The World's richest countries enjoy a per capita GDP sixty
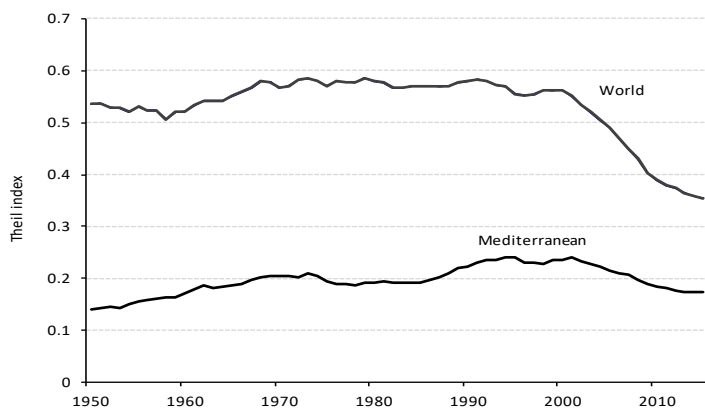
times as great as that of the poorest. In the Mediterranean, the average GDP in France is six times that of Algeria.

Fig. 1. GDP per capita in 1950 and 2015 (Mediterranean = 100)

Fig. 2. Theil Index of disparities on the World and Mediterranean scale 1950-2015

Not only is inequality higher on the World than on the Mediterranean scale, but global and Mediterranean trends are also different. While weighted economic inequality in the World was relatively stable from 1950 (and particularly from 1960-70 until 2000), the Theil index being 54 in 1950 and 56 in 2000, in the Mediterranean it increased by about 70 percent in the same half century (Figure 2). After 2000, inequality diminished both in the World and the Mediterranean

(Milanovic 2013a; Daniele and Malanima, 2013). Figure 3 outlines the trends of the Mediterranean disparities in per capita GDP through the Theil index and the coefficient of variation. Although declining in the 1970s and 1980s as the consequence of slower growth of some advanced economies, the disparities among the Mediterranean countries rose again in the 1990s, until 2000. Inequality rapidly fell thereafter and stabilised in 2014-15 on a level higher than at the beginning of the curve. The main Mediterranean inequality, in the last two centuries, consisted in the disparity between the rich economies in the North (France, Italy, Spain, Portugal) and the other southern and eastern countries. Although the economies of these countries are far from homogeneous, the average level of development is sensibly lower than that of the northern Mediterranean. Among these two groups of countries, disparities grew until 2000, since the rates of per capita GDP growth were in the North higher than in the South-East, while the increase in population was lower (Table 1).

Fig. 3. Inequalities among countries in the Mediterranean: Theil index and coefficient of variation 1950-2015

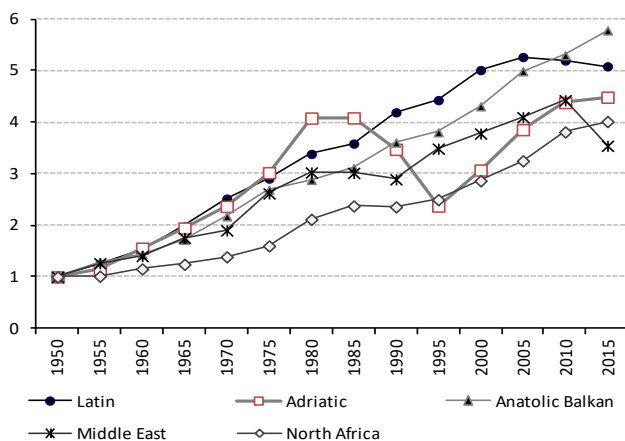**Sources:** our calculations on data from The Conference Board Total Economy Database.

Table 1. Population (A) and per capita GDP (B) in the North and the rest of the Mediterranean countries in 1950-2015

A) Population (000)	1950	1960	1970	1980	1990	2000	2015
FRA, ESP, ITA, PRT	126,129	136,459	148,500	158,827	164,184	169,875	183,934
East and South	95,312	119,053	146,666	181,996	228,891	268,310	325,977
Mediterranean	221,440	255,512	295,166	340,824	393,075	438,185	509,911
Growth rates (%)		1950-60	1960-70	1970-80	1980-90	1990-00	2010-15
FRA, ESP, ITA, PRT		0.79	0.85	0.67	0.33	0.34	0.12
East and South		2.22	2.09	2.16	2.29	1.59	0.84
Mediterranean		1.43	1.44	1.44	1.43	1.09	0.58
B) Per capita GDP	1950	1960	1970	1980	1990	2000	2015
FRA, ESP, ITA, PRT	3,683	5,587	9,276	12,464	15,433	18,445	18,704
East and South	1,452	1,974	2,758	4,076	4,390	5,214	6,690
Mediterranean	2,723	3,904	6,037	7,985	9,003	10,343	11,024
Growth rates (%)		1950-60	1960-70	1970-80	1980-90	1990-00	2010-15
FRA, ESP, ITA, PRT		4.17	5.07	2.95	2.14	1.78	-0.45
East and South		3.07	3.34	3.91	0.74	1.72	0.25
Mediterranean		*3.60*	*4.36*	*2.80*	*1.20*	*1.39*	*-0.36*

Note: Population in thousands; GDP in 1990 Geary-Khamis $ PPP and yearly rates of growth of population and GDP per capita.
Source: elaboration of data from *The Conference Board Total Economy Database.*

We see, however, that from 2000 the balance began to change as the consequence of much lower rates of economic growth in northern per capita GDP not only from the crisis started in 2008, but even earlier. In aggregate terms, the four northern countries produced in 1950-2000 about 70-80 percent of total Mediterranean GDP. In 2015, their percentage had fallen to 61. Figure 4 shows how in the countries of the South and East the average rate of growth from the 2000s onwards was higher than that the Latin countries; although the performance of North Africa has been relatively modest and that of the Middle East negative in 2010-15 because of the downward trend of Syria.

Fig. 4. Per capita GDP in the Mediterranean in 1950-2015 (indices for five areas; 1950=1)
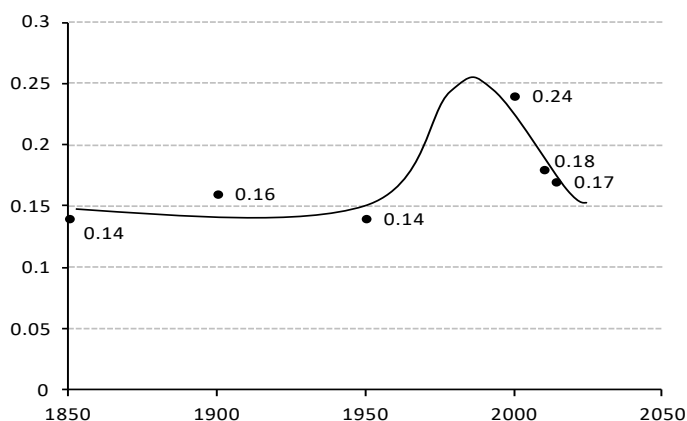

Note: the five areas into which the Mediterranean is here divided are defined by geographic proximity. *Latin*: Portugal, Spain, France, Italy, Malta; *Adriatic*: Slovenia, Croatia, Bosnia-Erzegovina, Serbia, Montenegro, Macedonia, Albania; *Anatolic-Balkan*: Greece, Turkey, Cyprus; *Middle East*: Syria, Israel, Jordan; *North African*: Egypt, Tunisia, Algeria, Morocco. **Sources:** see text.

Despite the convergence, inequalities in living standards – those regarding material condition – are still profound and continue to represent, together with conflicts, the fundamental cause of the massive northwards migratory movements from the South-East. The relative economic progress in the South and East, does not depend, however, on the industrial success or innovation, but on energy exports (Algeria, Libya and, to a lesser degree, Tunisia, Egypt and Syria) and exports of other raw materials, such as cotton or phosphate (Syria, Egypt, Tunisia, Morocco), together with the rise of tourism (Corm, 2011: 129).

In order to set this change in Mediterranean disparities in a long-term perspective, we lack data on GDP before 1950 for most Mediterranean countries. We can avail, however, of information on real wages for ten countries, dating back as far as the middle of the nineteenth century for any fifty years (Caruana Galizia, 2015). The results we reach are synthesized through the values of the Theil index in Figure 5. We see that, until about 1950, inequalities among

Mediterranean countries were relatively low. They increased fast after the Second World War, when the countries of the Latin area or North Mediterranean experienced high rates of growth. After that period, Mediterranean inequalities diminished. On the whole, the Mediterranean economies described a clear turned U curve in terms of per capita GDP.

Fig. 5. Inequalities among Mediterranean countries: Theil index 1850-2014 (data for half century and 2015)

Note: the countries included until 1950 are: France, Spain, Italy, Cyprus, Malta, Serbia, Turkey, Syria, Algeria, Egypt. **Sources**: our elaboration of data from Caruana Galizia (2015) for the years 1850 and 1900 and *The Conference Board Total Economy Database* (from 1950).

1.3. Inequalities within nations

So far we calculated Mediterranean inequality as if, in each country, everybody enjoyed the same average income. This concept of inequality does not take into account inequality in personal income distribution (Toniolo and Walker, 2000; Milanovic, 2005). While World inequality among nations is diminishing, the fast increase of inequality within some populous countries, such as China (Lin and Xu, 2008), might neutralise, at least in part, the process of convergence (Atkinson, Piketty and Saez, 2011; Liberati, 2015; Morrisson and Murtin, 2011; IMF 2013; Stiglitz, 2012). On the World scale, convergence seems to be much weaker or inexistent at all whenever personal income distribution is included (Clark, 2011; Milanovic, 2013a). A widespread opinion is that a "sustained increase in income inequality started in the late 1970s in practically all developed nations" (Milanovic, 2016); although the trend and chronology is still controversial (Atkinson, 2015; Dabla-Norris et al., 2015; Ricolfi et al., 2015).

Data on personal income distribution within the Mediterranean nations is, in some cases, lacking and is not always homogenous (Atkinson and Brandolini, 2001). We can draw, however, the overall trend of inequality among individuals. In Table 2 inequality within each Mediterranean country, for 1980-2014, is measured by the Gini coefficient. Some caveats should be kept in mind.

Firstly, the number of data notably varies according to the available surveys. Typically, the number of observations is higher for developed countries. Data are reported for five-years periods: in the case of countries with more available Gini coefficients the average is taken. Secondly, the sources of data are different.

Table 2. Gini indices of personal income distribution 1980-2014

	1980-85	1985-90	1990-95	1995-00	2000-05	2005-10	2010-14	Sources
Portugal	34.9	32.7	34.9	38.4	38.8	35.9	34.4	WYD e SILC - Eurostat 2008-2014
Spain	33.7	32.7	34.7	34.9	33.6	32.5	34.2	LIS-SILC - Eurostat 2010-2014
France	31.6	31.8	32.1	31.5	31.1	28.7	30.2	LIS - SILC Income
Italy	29.1		27.9	32.5	32.7	31.8	32.5	OECD - Eurostat
Malta					27.0	27.5	27.5	Eurostat
Slovenia		22.6	23.4	26.3	25.4	23.4	24.2	WIID -Eurostat
Croatia		35.8	34.8	32.1	31.0	31.6	30.8	ECA – Eurostat 2005-2014
Bosnia			33.1	34.1	35.2	35.7		WID, Ortiz and Cummins (2011) for 2000 and 2005
Serbia				32.2	33.0	29.8	29.7	World Bank
Montenegro					30.1	29.9	31.1	World Bank
Macedonia				31.0	38.6	39.9	37	POVCAL
Albania				27	32.5	30	29	World Bank
Greece	39.2	37.1	35.8	34.6	33.1	33.6	34.2	WIID; Eurostat 2003-12
Turkey		43.5	41.3	41.6	41.6	40	40	World Bank - OECD
Cyprus		34.0	30.0	29.8	31.0	29.4	31.9	WYD - Eurostat from 2003
Israel	32.6	32.9	33.4	34.3	36.3	37.1	36	OECD
Jordan	38.4	38.4	40.0	38.6	37.3	36.0		WYD - POVCAL
Egypt	35.1	33.0	34.1	36.0	32.6	32.5		POVCAL - WYD income gross
Tunisia	35.9	33.9	36.6	48.0	43.0	39.8		POVCAL-WYD
Algeria		37.9	35.6	35.6	35.9	35.6		WIID and Ortiz & Cummins (2011) for 2000 and 2005
Morocco	39.2	39.2	39.2	39.6	45.0	47.0		WYD POVCAL – Income gross

Note: averages of available data for five years. **Sources**: INDIE, LIS, SILC, WYD and WIID surveys are the primary sources of data used by B. Milanovic, All the Ginis Dataset, World Bank Research Department, version June 2013, http://go.worldbank.org/9VCQW66LA0; Ortiz and Cummins (2011); OECD, Income distribution and poverty dataset, online, OECD.Stat. Eurostat, Gini index of equivalised disposable income, online dataset. World Bank, World Development Indicators (WDI) 2015 online database.

The main source we used is the dataset compiled by Milanovic (2013b), which presents "standardized" Gini values for a large sample of countries on the basis of eight primary household surveys. For some years and countries (as specified in the sources of Table 2), we supplemented these data with Gini coefficients of disposable income from other sources (World Bank, Eurostat and OECD datasets). Finally, we used Gini coefficients based on net income, with the exceptions of Egypt and Morocco, for whom they refer to gross income. The heterogeneity of data sources and their low reliability for some countries are an obvious limit to the analysis.

For the Mediterranean, we can also avail of data on the income of the top 10 percent of the population; sometimes used as an indicator of inequality in personal income distribution (as done by Atkinson, Piketty and Saez, 2011; Piketty, 2014).

Historical data on income accruing to the top 10 percent for three Mediterranean countries

such as France, Spain and Italy, suggests diverse trends. While in Italy inequality in income rose from 1984, it was diminishing in France from 1964 and was almost stable in Spain (Atkinson, Piketty and Saez, 2011). Data provided by the World Bank (World Development Indicators, 2015) for the income held by the richest 10 percent concerns only some countries in the period 1985-2014. A comparison between this data and Gini indices reported in Table 2 shows a relatively high correlation when data becomes more plentiful, that is for the periods 2000-05 and 2005-10 (r=0.90 and r=0.85 respectively).
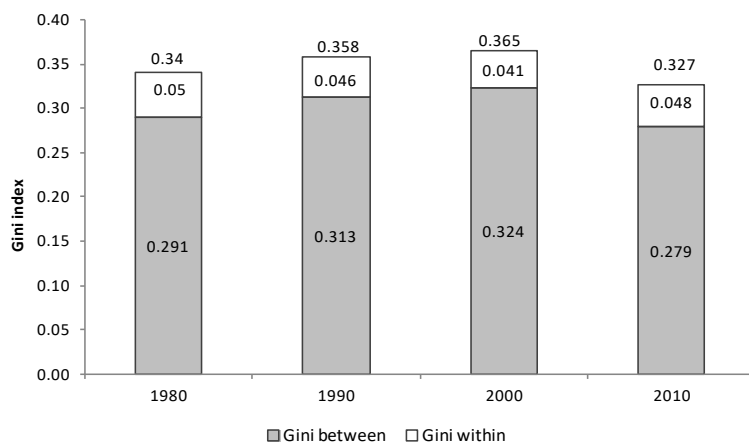
Following Milanovic (2005, 2013), we computed the Gini index of total inequality G_T for the Mediterranean region, combining *between* countries and *within* countries inequality according to the eq. (1):

$$G_T = \underbrace{\sum_{i=1}^{n} G_i p_i \pi_i}_{Within} + \underbrace{\sum_{i}^{n} \sum_{j>1}^{n} \left(\frac{y_j - y_i}{y_i} \right) \pi_i p_j}_{Between} \qquad (1)$$

where, for a country i, G is the Gini index, p the share of population and π the share of GDP on the Mediterranean area on the whole. The between component of the Gini index is, then, weighted with GDP and population shares. Available data on income distribution (for individuals or households) within each country only allow us to calculate total inequality for a few years, that is around 1980, 1990, 2000 and 2010. The Gini index of total inequality (with its components) for the Mediterranean region is reported by Fig. 6. It can be noted how in the Mediterranean, inequality is almost entirely explained by inequality *between* countries, for about 85 per cent, while, on the World scale, this component explains about 70 per cent of global inequality (Milanovic, 2005).

On the world scale, the richest 10 percent of the population owns 56 percent of the global income (Milanovic, 2011). In the Mediterranean it only receives 27.5, with Morocco at the top (32 percent) and Slovenia at the bottom (24 percent) (our elaboration from World Bank, World Development Indicators, 2015). Since, in the period 1980-2010, there have not been remarkable changes in personal income distribution within Mediterranean countries, the overall trend of inequality among nations is unaffected by the addition of the inequality within countries.

Fig. 6. Gini index of total inequality and between and within components. Mediterranean countries 1980-2010

The level of inequality, measured by Gini indices, increased by 15-20 percent over the thirty years. Whenever we include the available figures for the previous decades 1940-79 (whose reliability is, however, dubious and therefore are not presented in Table 2 and Figure 6), inequality within countries adds 20-25 percent to the Gini index of inequality among nations.

The decomposition of the Gini index of total inequality into inequality among nations, confirms how Mediterranean inequality depends primarily on the different economic conditions among the nations and especially between North and South-East.

2. Human development and institutions

2.1. Inequality in human development

Disparities in average income, both between and within countries, measure only one element of the international differences in well-being. Embodying the Amartya Sen's capabilities approach to individual well-being (Sen, 1999), the Human Development Index, elaborated since 1990 by the United Nations Development Programme (UNDP), summarises, at the international level, the achievements in three basic dimensions of human development: health, education and income (Elizabeth A. Stanton, 2007; UNDP, 2015). The health dimension is proxied by life expectancy at birth; differences in education are computed by combining the mean years of education with expected years of schooling; the income dimension is represented by GDP per capita. The procedure to calculate any dimension index consists in applying the following normalization formula:

$$\text{Dimension index} = \frac{\text{actual value - minimum value}}{\text{maximum value - minimum value}} \qquad (2)$$

The HDI is, then, obtained as the geometric mean of normalized indices for each of the three dimensions:

$$\text{HDI} = (\text{I}_{Income} \cdot \text{I}_{Health} \cdot \text{I}_{Education})^{\left(\frac{1}{3}\right)} \qquad (3)$$

HDI estimates by the UNDP are available from 1980 onward. In order to cover a longer time-span, we calculated HDI values for twenty one Mediterranean countries using the same UNDP (2015) procedure. Our estimates cover the period 1960-2014. For the health index, we used data on life expectancy at birth by the World Bank (2015): the maximum value was set to 85 and the minimum to 20. Since, in our sample of countries, data on enrolment rates is not available for the entire period, to calculate the education index we used the mean years of schooling by Barro & Lee (2010 and online updates) and, for the year 2014, provided by UNDP (2015). The maximum value for mean years of schooling was set to 15, the minimum to 0.

For the countries of former Yugoslavia, before 1990, missing data for years of schooling and GDP are the same of Yugoslavia on the whole. To calculate the index for income we take GDP per capita in 1990 constant Geary-Khamis dollars PPP. The maximum value is set to 40,000 dollars, corresponding to the upper bound for World per capita GDP during the period 1960-2014 in the dataset we used (The Conference Board, 2015) and the minimum to 100. It can be noticed how UNDP uses GNI from different sources (World Bank, Imf, Unsd, Undesa) and this leads to a slight difference in relative income level for some countries; more important, the base year for GNI per capita PPP changes over time, while, as previously noted, we used 1990 constant international PPP dollars. HDI estimates for twenty-one Mediterranean countries are reported in Table 3.

Although our sources differ from those used by UNDP (2015), the result we reach is highly correlated to that by UNDP (for the year 1980, r=0.97; for 2000 r=0.96; for 2014 r=0.93). We report also the HDI for the Mediterranean as a whole by weighting, for each index, national data by the respective population share.

The trends in the three dimensions and in the HDI for the Mediterranean are reported in Figure 7. From 1960 to 2014, the HDI increased by 58 percent. This rise was the result of the improvement in all of the three indices and especially in schooling, whose (unweighted) average for the Mediterranean increased from 3.4 to 9.3 years. Life expectancy as well rose on average from 60 to 77 years.

Table 3. HDI for twenty-one Mediterranean countries 1960-2014

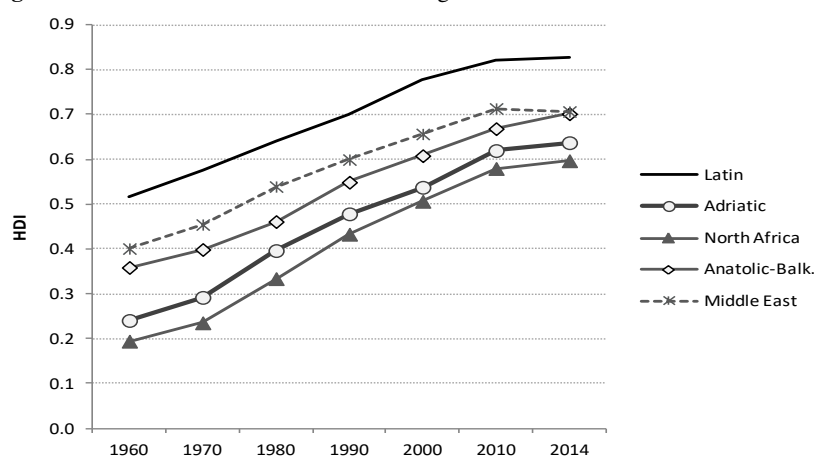|	1960	1970	1980	1990	2000	2010	2014
Portugal	0.364	0.431	0.523	0.610	0.683	0.712	0.747
Spain	0.475	0.543	0.627	0.672	0.768	0.824	0.805
France	0.532	0.592	0.651	0.716	0.801	0.846	0.861
Italy	0.541	0.593	0.653	0.713	0.772	0.809	0.822
Malta	0.441	0.525	0.615	0.695	0.766	0.817	0.819
Slovenia	0.547	0.612	0.724	0.775	0.813	0.860	0.859
Croatia	0.530	0.586	0.666	0.693	0.719	0.786	0.777
Bosnia and H.	0.464	0.532	0.619	0.616	0.709	0.772	0.708
Serbia	0.465	0.533	0.608	0.648	0.644	0.722	0.716
Macedonia	0.465	0.533	0.595	0.635	0.670	0.727	0.694
Albania	0.358	0.430	0.512	0.607	0.664	0.726	0.756
Greece	0.580	0.601	0.647	0.708	0.742	0.808	0.798
Turkey	0.272	0.337	0.413	0.515	0.583	0.645	0.687
Cyprus	0.486	0.554	0.636	0.728	0.773	0.822	0.828
Syria	0.254	0.319	0.432	0.517	0.566	0.643	0.613
Israel	0.634	0.683	0.755	0.805	0.849	0.893	0.894
Jordan	0.292	0.366	0.452	0.546	0.635	0.698	0.722
Egypt	0.197	0.243	0.345	0.442	0.519	0.600	0.603
Tunisia	0.184	0.249	0.366	0.470	0.552	0.634	0.640
Algeria	0.214	0.233	0.338	0.451	0.515	0.571	0.623
Morocco	0.162	0.207	0.286	0.375	0.447	0.512	0.524
Mediterranean	**0.433**	**0.479**	**0.541**	**0.603**	**0.666**	**0.715**	**0.725**

Source: see text.

Fig. 7. Trends in HDI and its components for the Mediterranean 1960-2014

Note: HDI and indices are weighted by countries' population. **Sources**: see text.

Figure 8 outlines the trends in the HDI for five Mediterranean regions. Regional estimates have been calculated by weighting national data by the share of respective population on regional total and, then, computing the dimension indices according to the methodology described above. Between 1960 and 2014 the HDI improved in all regions, even though remarkable differences in levels continue to exist. According to our estimates, North Africa is the region with lower HDI.

In 2014 its value was 0.60. According to the UNDP classification, it falls in the range of medium HDI countries. The relatively high HDI of Middle East – similar to that of the Anatolic-Balkan area - is mainly due to the inclusion of Israel in the region. It can be seen how, after the increase of previous decades, in the period 2010-14 the HDI of the Middle East drops (mainly for the effect of the fall of GDP in Syria). However, in 2014, the Middle-East and the Anatolic-Balkan regions are included in the range of high HDI nations. With a value of 0.83, the Latin region falls, instead, into the range of very-high HDI.
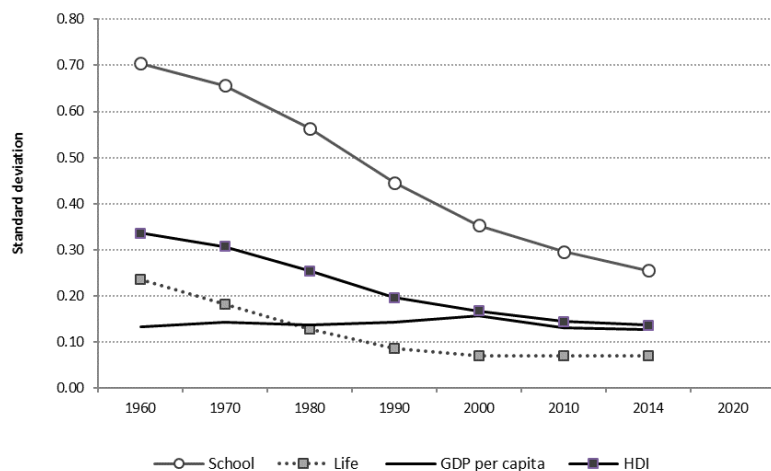
Fig. 8. Trends in HDI in five Mediterranean regions 1960-2014

Note: see in the Note to Fig. 4 the countries included in the five areas. **Sources**: see text.

Given the remarkable gains by the less developed regions, inequality in HDI notably diminished. This is summarised, according to the concept of σ-convergence, by the standard deviation (compared with the Mediterranean average) in HDI and in each of the component indices for the 21 countries (Figure 9). It is striking to observe how convergence in HDI was mainly driven by the reduction of disparities in education and, to a lesser extent, in life expectancy, while the spread of the income index increased during the decades 1960-2000 and later decreased. Overall, with respect to HDI, Mediterranean countries became more similar over time. This result depends, at least in part, on the standard procedure used in the calculation of any HDI, where a similar weight is attributed to all the indicators. We could question if the gains in life expectancy or education play the same role, in living standard, than the increase in material economic conditions as measured by income.

Fig. 9. Inequality in HDI and its components among twenty-one Mediterranean countries 1960-2014

Note: standard deviation of the indices (Mediterranean = 1). **Sources**: see text.

For the last years of our investigation we can improve our estimates of social disparity through the elaboration of an inequality-adjusted Human Development Index (I-HDI). Such as any average, in fact, the three dimensions of the HDI conceal disparities in human development across the population within the same country (Alkire and Foster, 2010). Whenever such disparities are included, on the World scale the HDI registers a loss of 23 percent. The formula used to calculate the I-HDI in the Mediterranean countries is the following one:

$$\text{IHDI} = \left[(1\text{-}A_{Health}) \cdot I_{Health} \cdot (1-A_{Education}) \cdot I_{Education} \cdot (1-A_{Income}) \cdot I_{Income}\right]^{\left(\frac{1}{3}\right)} \quad (4)$$

The inequality in each dimension is estimated through the Atkinson inequality measure *A* (Atkinson, 1970). These inequality measures have been worked out by UNDP for 2013. For life expectancy, the coefficient is computed through the current inequality in mortality patterns. Inequality in the education dimension is proxied by inequality in years of schooling of the adult population, while inequality in income is provided by Gini indices (UNDP, 2013). We can then estimate the loss due to inequalities in each dimension as:

$$Loss = 1 - \frac{IHDI}{HDI} \quad (5)$$

We see in Table 4 that, in the Mediterranean, the I-HDI is 13.5 percent lower than the HDI. In Morocco and Egypt, we register the main losses due to inequality. On the whole, countries with

less human development also have more dimensional inequality and thus larger losses in human development due to inequality, while people in developed countries experiences the least inequality in human development.

Table 4. HDI, I-HDI and loss due to inequality in 2013

	HDI	I-HDI	Loss (%)
Portugal	0.747	0.672	10.1
Spain	0.805	0.717	10.9
France	0.861	0.783	9.0
Italy	0.822	0.725	11.9
Malta	0.819	0.751	8.3
Slovenia	0.859	0.809	5.8
Croatia	0.777	0.690	11.2
Bosnia and H.	0.708	0.633	10.6
Serbia	0.716	0.645	9.9
Macedonia	0.694		
Albania	0.756	0.655	13.4
Greece	0.798	0.713	10.6
Turkey	0.687	0.579	15.8
Cyprus	0.828	0.737	11.0
Syria	0.613	0.483	21.2
Israel	0.894	0.798	10.7
Jordan	0.722	0.588	18.6
Egypt	0.603	0.459	24.0
Tunisia	0.640		
Algeria	0.623		
Morocco	0.524	0.369	29.7
Mediterranean	**0.725**	**0.627**	**13.5**

Sources: see text and United Nations Data http://data.un.org/DocumentData.aspx?id=365. Coefficients for Macedonia, Tunisia and Algeria are not reported in the previous source.

2.2. Inequality in political rights

The role of political institutions in economic development has been widely recognized by scholars, although the results on their consequences in terms of standard of living are not conclusive. Some countries' experience indicates, in fact, how economic growth can flourish under different political institutions; non-democratic regimes included (Barro, 1996). There is, however, a growing evidence that democracy fulfils a positive and sizeable effect on growth (Papaioannou and Siourounis, 2008; Acemoglu et al., 2014). The nexus between democracy and human development is, at least theoretically, less uncertain. Since democratic systems empower people, including the poor, the prevailing view is that elected governments are more concerned with people interests than the autocratic ones. Empirical studies, mainly based on cross-countries regressions, reach, however, mixed conclusions. While some of them confirm this view (Gerring et al., 2012), others find that the correlation between democracy and human development, differently measured, is weak or totally absent (Ross, 2006). In agreement with the fundamental

approach by Sen (1999), we can argue, however, that democratic achievements express human development by themselves, regardless of their possible effects on specific human indicators, such as life expectancy or education (UNDP, 2002). This concept has been clearly stated by Inglehart and Welzel (2005: 152): "human development advances with the growth of three components: (1) objective capabilities, based on socioeconomic resources, that enable people to act according to their own choices; (2) subjective motivations, based on self-expression values, that emphasize acting according to one's autonomous choices; (3) and legal entitlements, based on civil and political liberties, that allow people to act on the basis of their autonomous choices".

In order to take democracy achievements in the Mediterranean countries into ac-count, we introduce a modified HDI that includes a fourth dimension index concerning political institutions. To measure institutions, we used the Polity 2 variable drawn from the Polity IV dataset (Marshall, Gurr and Jaggers, 2014; http://www.systemicpeace.org). Polity 2 quantifies the extent to which authoritarian or democratic regimes are institutionalized in a given country, summarising some key features of executive recruitment, constraints on executive authority and political competition. Political institutions are then scored on a scale of 21-points ranging from -10 for full autocracy, to 10 for full democracy.

Compared to different databases on institutions and political regimes, Polity IV dataset covers a very long period of time (from 1800 to 2014) for a number of countries. In our case, data is available for all the Mediterranean countries except Malta. To add political regime scores in the HDI, we transformed Polity 2 values by applying the formula (Polity 2 score +11)/21, so obtaining a scale of 21 positive scores with 1 as maximum value. This transformation allows to obtain an HDI adjusted for political institutions (HDI-P) computed as the geometric average of the four indices:

$$\text{HDI-P} = (\text{I}_{Income} \cdot \text{I}_{Health} \cdot \text{I}_{Education} \cdot \text{I}_{Polity})^{\left(\frac{1}{4}\right)} \qquad (6)$$

The estimates for twenty countries and the Mediterranean as a whole are presented in Table 5. Comparing this data with the HDI, we can appreciate the gains (losses) due to different political regimes. During the period under examination, however, a process of democratization occurred in the Mediterranean. This process interested, for example, the Balkan region following the dissolution of Yugoslavia and, as regards Polity IV classifications, also some countries such as Tunisia and Jordan which progressed from autocracy to democracy.

Table 5. Polity adjusted HDI (HDI-P) 1960-2014

	1960	1970	1980	1990	2000	2010	2014
Portugal	0.261	0.296	0.608	0.690	0.751	0.775	0.804
Spain	0.378	0.418	0.696	0.743	0.821	0.865	0.850
France	0.582	0.658	0.707	0.769	0.836	0.871	0.883
Italy	0.631	0.676	0.727	0.776	0.824	0.853	0.864
Slovenia	0.420	0.457	0.574	0.604	0.856	0.893	0.892
Croatia	0.411	0.443	0.539	0.597	0.762	0.824	0.818
Bosnia	0.371	0.412	0.510	0.508			
Serbia	0.372	0.412	0.503	0.528		0.764	0.769
Macedonia	0.372	0.412	0.495	0.520	0.702	0.778	0.751
Albania	0.257	0.295	0.336	0.598	0.688	0.777	0.801
Greece	0.611	0.451	0.703	0.771	0.799	0.852	0.844
Turkey	0.363	0.431	0.376	0.601	0.642	0.693	0.745
Cyprus	0.567	0.618	0.712	0.788	0.825	0.864	0.868
Syria		0.236	0.296	0.339	0.431	0.474	0.385
Israel	0.710	0.742	0.800	0.839	0.885	0.918	0.919
Jordan	0.221	0.262	0.257	0.483	0.575	0.600	0.616
Egypt	0.195	0.229	0.314	0.379	0.427	0.535	0.520
Tunisia	0.156	0.217	0.262	0.415	0.503	0.540	0.689
Algeria	…	0.186	0.247	0.445	0.477	0.582	0.622
Morocco	0.187	0.170	0.241	0.294	0.382	0.423	0.468
Mediterranean	**0.457**	**0.494**	**0.552**	**0.624**	**0.668**	**0.716**	**0.728**

Note: in the Polity IV dataset a special value (-66) is assigned to periods of "foreign interruption". In this case, scores for the variable Polity 2 are missing. **Source**: see text.

Different political regimes continue to characterise the Mediterranean area: in 2014, Syria was classified as an autocracy (-9), Morocco and Egypt (-4) as "closed anocracies", Algeria (2) as "open anocracy", according to the definition of "anocratic systems" as neither fully democratic nor fully autocratic. On the whole, however, from 1960 to 2014, the HDI-P for the Mediterranean notably improved, increasing from 0.46 to 0.73 (+59 percent).

These results show a decreasing trend and then a kind of "institutional convergence" among the Mediterranean nations. The process of democratisation is summarized by Figure 10 that reports the trend of the unweighted average of the Polity2 index for the Mediterranean countries. This trend is similar to that for the whole World, where the number of democratic countries notably increased during the second half of twentieth century: actually, it doubled since the 1980s until now (Wejnert, 2014).

Figure 10. The diffusion of democracy in the Mediterranean 1950-2014

Note: unweighted average of the normalized Polity 2 variable in 22 Mediterranean countries (Libya and Lebanon included). **Source**: our calculations from Polity IV dataset.

The causes of the diffusion of democratic institutions are diverse. According to the modernization theory (Lipset, 1959), it is fundamentally due to socioeconomic factors: increasing income and education, formation of a middle class, transformation of social values associated with cultural and institutional changes. Independently of the proximate causes, in the Mediterranean, democratization and economic development went hand in hand. In the 1970s, democracy progressed in southern European states (Portugal, Spain, Greece); in the 1990s, a democratic transition occurred in the Balkan; more recently, on the wave of the Arab Spring, a request of more representative political systems emerged in North Africa and Middle East (Robbins, 2015). While in some countries changes toward more representative institutions have occurred, in others revolutionary waves engendered uncertain outcomes or were followed by instability and conflicts.

2.3. Economic and socio-political convergence

A comparison of our results for economic and socio-political inequality in the Mediterranean reveals that inequality is in 2014-15 deeper from an economic than socio-political viewpoint. Per capita GDP of the richest economy in the hierarchy (France) is 5.8 times that of the weakest (Algeria), while HDI in the first country of the hierarchy (Israel) is 1.71 that of the lowest (Morocco) and HDI-P in the most advanced nation (again Israel) is 2.38 times that of the lowest (Syria).

In order to specify the trend of inequality we use the ordinary procedure to test absolute *β*-convergence. On the basis of the previous analysis, we estimated the following equation:

$$gy_{T-t} = \alpha + \beta_i \ln y_t + \varepsilon_i \qquad\qquad (7)$$

where g is the yearly rate of per capita GDP growth and y is the initial level of per capita GDP, in logarithms. Since disparities increased in the Mediterranean between 1950 and 2000 and diminished from then on, we estimated the equations for the period 1950-2000 (8) and for 2000-15 (9). The results of regressions confirm previous analysis (*t-stat*. in brackets):

$$gy_{1950-2000} = 0.52 + 0.31 \ln y_{1950} + \varepsilon_i \qquad\qquad (8)$$
$$(0.532)$$
$$R^2 = 0.01; \, n = 21.$$

$$gy_{2000-15} = 14.6 - 1.49 \ln y_{2000} + \varepsilon_i \qquad\qquad (9)$$
$$(-3.53)$$
$$R^2 = 0.39. \, n = 21.$$

While in equation (8), that is in the period 1950-2000, the coefficient β is not significant and has a positive sign that indicates divergence, equation (9) confirms a process of convergence in per capita GDP among Mediterranean economies. As regards HDI and HDI-P, previous analysis shows how inequalities diminished over the entire period 1960-2014. Thus, for the period under examination, we regressed the rates of growth of HDI and HDI-P on their initial levels (*t-stat*. in brackets):

$$gHDI_{1960-2014} = -0.05 - 1.75 \ln HDI_{1960} + \varepsilon_i \qquad\qquad (10)$$
$$(-21.20)$$
$$R^2 = 0.96; \, n = 21.$$

$$gHDIP_{1960-2014} = 0.13 - 1.69 \ln HDIP_{1960} + \varepsilon_i \qquad\qquad (11)$$
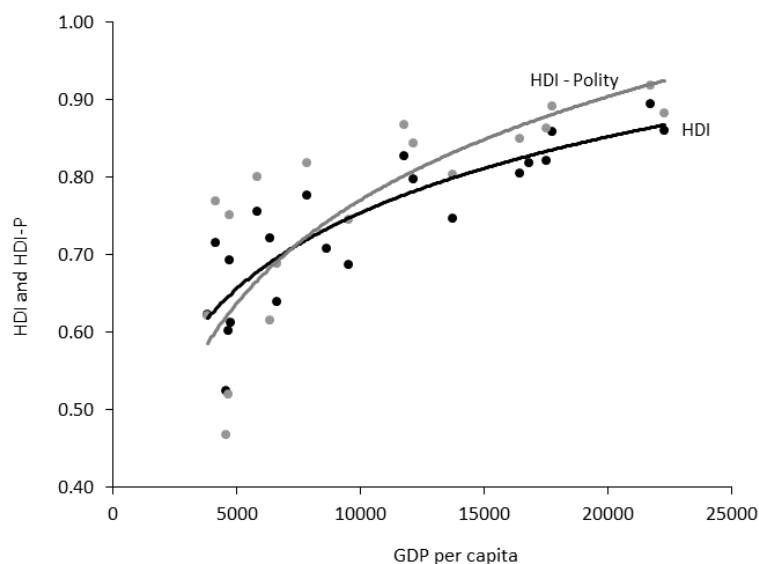$$(-10.40)$$
$$R^2 = 0.88. \, n = 17.$$

The results confirm a significant convergence process in both variables.

Figure 11 summarises the relationship between inequalities in income and in socio-political indicators. The relationship GDP per capita and HDI-HDI-P is not linear and can be proxied by a log regression curve. We see on the horizontal axis that while economic inequality is relatively remarkable, socio-political inequalities are still wide in countries with per capita GDP lower than 10,000 international 1990 dollars PPP. As soon as per capita GDP exceeds 10,000 dollars, socio-

political inequality shrinks in the range 0.80-0.90.

Fig. 11. Relationship between per capita GDP and socio-political indicators 2014

Note: GDP per capita 1990 $ PPP. **Sources:** see text.

3. Conclusion

On a global scale, inequality peaked immediately after the Second World War. From then on, according to some scholars, it diminished, while, according to others, it stabilised until about 2000, when inequality among economies started to decline fast (Sala-i-Martin, 2006; Milanovic 2012, 2013a). At a global level, decline in (population weighted) inequality among nations has been mainly the effect of growth acceleration in some populous emerging economies: especially China and, to a lesser extent, Brazil, India and Indonesia.

According to our reconstruction, the Mediterranean world followed the global trend only in part. The Mediterranean economies diverged more and more until the end of the last century and this divergence was mainly driven by the fast growth of the Latin, northern economies. Only from 2000 disparities diminished; primarily because of the slowdown of the leading Latin nations and the higher growth rate of the eastern and southern developing economies.

While GDP per capita levels diverged for a long phase, under other respects Mediterranean countries became more similar. Differences in life expectancy and in education levels notably diminished, fostering a convergence in HDI from 1960 onward. Yet disparities in education and, especially, in per capita GDP levels remain profound, particularly between the North and the Southern banks. In 2014, in the most advanced countries of the Latin area, mean years of

schooling was about 1.6 times than in North Africa; GDP per capita was 4 times higher. From 1950 onward, Mediterranean countries became more similar under another aspect: in political institutions. Similarly to what happened across the World, a process of democratization occurred in the Mediterranean as well; although inequalities in political rights between the northern and southern sides of the Mediterranean still remain remarkable.

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