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Assessing Gender Inequality among Italian Regions: The Italian Gender Gap Index

Monica Bozzano[1]

In questo lavoro si propone di esplorare e valutare la distribuzione territoriale delle disparità di genere nelle regioni italiane. L'analisi si propone di contribuire alla letteratura in due modi. Primo, si costruisce un indice di disuguaglianza di genere a livello regionale per l'Italia sulla base della metodologia sviluppata dal World Economic Forum per il Global Gender Gap Index. Secondo, si calcola l'Italian Gender Gap Index per ogni regione con l'obiettivo di misurare la disuguaglianza di genere che caratterizza l'Italia. Si completa l'analisi presentando la correlazione tra l'Italian Gender Gap Index e le variabili socio-economiche rilevanti.

This paper aims at exploring and evaluating the geographic distribution of gender inequality across Italian regions. The aim of the analysis is two-fold. First we build a composite indicator of gender inequality at the regional level for Italy by applying the methodology developed by the World Economic Forum for the Global Gender Gap Index. Second, we compute the Italian Gender Gap Index for each region in order to measure the within-country heterogeneity that characterizes Italy. We complete the analysis by presenting the correlation between the Italian Gender Gap Index and relevant socio-economic variables.

JEL Classification: J16, J21, O15, R1.

Keywords: Italian Gender Gap Index, Italian regions, socio-economic gender inequality.

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1. Introduction

Gender inequality is a complex and multidimensional phenomenon. In recent decades its measurement has become a fulcrum of interest for both researchers and policy makers and a plethora of indicators have been formulated in order to document the stylized facts, to devise specific policies, and to appraise progress over time. Indeed the degree of disparity in both opportunities and outcomes between women and men is nowadays a big concern for both developing and developed countries. Gender inequality is not only an equity matter but, more notably, it is "an important economic, business and societal issue with a significant impact on the growth of nations" (WEF, 2007 p.vii). As a matter of fact, gender inequality may be considered as hampering economic competitiveness due to the waste of women's human capital preventing societies from reaching their full potential (Lopez-Claros and Zahidi, 2005; WEF, 2006; World Bank, 2001).

While much of the research regarding gender inequality focuses on developing countries where the issue of gender inequality reaches dramatic magnitude, one cannot underestimate the role of the socio-economic gender gap in developed countries. In fact even developed countries show different levels of women's empowerment within their boundaries and this is even more relevant in a country as Italy which is characterized by very sharp regional disparities.

Hence the appraisal of the level of gender inequality among Italian regions carries theoretical and practical significance if one is interested in understanding potential sources of regional disparities regarding many social and economic phenomena. In fact it is acknowledged that the socio-economic environment affects the overall economic achievements of a country, i.e. in terms of development and growth.

It is already well known that Italy is characterized by large cross-regional differences, sometimes referred to as the "North-South divide", in terms of productivity, GDP and, more importantly for the purpose of the present study, in terms of female labour force participation, employment rates, political empowerment and the like. Notwithstanding this situation, to our knowledge no multidimensional composite measure of the Italian gender gap on a regional basis is presently available. This analysis intends to be a first attempt to create one.

Accordingly the main goal of this paper is two-fold: first, to measure and compare women's empowerment[2] across Italian regions thanks to the development of a composite indicator taking inspiration from the Global Gender Gap index as formulated by the World Economic Forum; and second, to explore the linkages between regional disparities in women's empowerment and the more general Italian context making use of various social, cultural and economic variables.

The paper is organized as follows. Section 2 begins by laying out the large literature concerning the measurement of women's empowerment and the various indicators generally employed by international organizations, and by bringing the

[2] In the following pages the terms gender equality and women's empowerment will be employed as indicating the same concept. It is worth clarifying however that with women's empowerment we do not introduce any judgment or value: in this context the term is employed to mean the phenomenon that sees women closing the gap in attainment in several dimensions of social life with respect to men.

concept to the Italian scenario in order to make it operational within Italian boundaries. The Italian Gender Gap Index (IGGI) is formulated taking into account several dimensions of gender inequality: access to economic resources, political and public power, educational attainment, and health. In Section 3 we discuss data selection and the process of building the composite measure, with details on the modifications which are needed in order to adapt the originally international index to the Italian regional context and, moreover, to the reality of a developed country. The application of the resulting index to an inter-regional comparison is presented in Section 4, where Italian regions are ranked both according to the overall index and its components. Section 5 is intended to be an exploratory analysis about the relationship between gender inequality and other socio-economic variables, focusing in particular on the relevance of cultural and social factors. Finally, Section 6 concludes by raising some points for an extension of the present work.

2. Measuring Gender Inequality: A Review of the Literature

Composite indices are precious instruments because they summarize multidimensional phenomena into simplified concepts. In recent decades both academic researchers and international organizations have progressively proposed several indicators in order to measure gender inequality around the world. In this section the large literature on social indicators is briefly reviewed.

In particular, with an eye to our investigation on Italy, we introduce those indices that are likely to be suitable to measure gender equality in a developed country and in a within-country perspective (notwithstanding the appropriate modifications as we will see soon)[3]. We briefly mention and discuss the following: the Gender-related Development Index (GDI), the Gender Empowerment Measure (GEM), the Standardized Index of Gender Equality (SIGE), the Relative Status of Women Index (RSW), the Gender Inequality Index (GII), the Women's Economic Opportunity Index (WEOI), and the Global Gender Gap Index (GGGI).

The best-known indices of gender disparities are perhaps those formulated by the United Nations Development Program (UNDP) since 1995, i.e. the GDI and the GEM (UNDP, 1995). These two measures were built within the stream of research commonly defined as "Human development approach" or "Capability approach" (Anand and Sen, 1995; Sen, 1999) in order to uncover the link between gender inequality and development or more precisely, underdevelopment. The GDI and the GEM are very different from each other: the first is a composite metric of human achievements in three of the main dimensions included in the Human Development

[3] Even if we do not cover here those indices that have been proposed with a specific focus on less developed countries, it is worth mentioning some of them: the Social Institutions and Gender Index is a composite measure of gender equality based on the OECD's Gender, Institutions and Development Database, while the African Women's Progress Scoreboard and the Africa Gender and Development Index try to adapt the UNDP measures to the African context.

Index (HDI)[4], i.e. health, education, and income, appropriately adapted to capture a gender-oriented perspective. The GEM instead assesses women's empowerment through political participation (female and male shares of parliamentary seats), economic participation (female and male shares of positions as legislators, senior officials, managers and female and male shares of professional and technical positions) and power over economic resources (female and male estimated earned income) (UNDP, 2010).

Both UNDP indices have been challenged in recent years by a number of authors (Bardhan and Klasen, 1999; Dijkstra, 2002, 2006; Dijkstra and Hanmer, 2000; Klasen, 2006; Klasen and Schuler, 2009). Some authors point out that the GDI is only a gender-discounted measure of human development and that it is useful only if analyzed in association with the HDI of a country (Klasen, 2006; Klasen and Schuler, 2009), while others focus on the fact that the overall index is dominated by the variation of the income indicator (Dijkstra, 2002, 2006). In addition, Dijkstra (2002) makes the point that neither the GDI nor the GEM is a good instrument if one is interested in measuring gender inequality because of the methodological and practical limitations of the two composite indicators. In particular, not only the choice of the dimensions is criticized but one of the relevant weaknesses is that "they do not measure gender equality *as such*, but instead some combination of absolute levels of achievement and a punishment for inequality" (Dijkstra, 2002, p.302). Consequently, the author proposes two main alternative measures: the SIGE, which is based on five variables[5] measuring gender-based inequality in the educational, health, economic, and political spheres, by adjusting some elements of the GDI and GEM (Dijkstra, 2002, p.320), and the RSW whose aim is to correct the second point introduced above: this item improves over the GDI framework thanks to a new calculation method employing female to male ratios of the same dimensions involved in GDI (Dijkstra and Hanmer, 2000).

In order to overcome some of the main criticisms and to improve the available instruments, the UNDP itself has presented in November 2010 a new index, the GII[6]. The novelty of the GII is that it highlights the loss to potential achievement in a country due to gender inequality across reproductive health, empowerment, and labour market participation (UNDP, 2011). However, it is worth acknowledging that, since reproductive health is composed of two sub-indices, i.e. maternal mortality and adolescent fertility, the GII is not the ideal candidate to be used as a basis for our index elaboration in a developed country.

The WEOI, instead, has been proposed by the Economist Intelligence Unit and focuses on five dimensions, in particular laws and regulations about women's participation in the labor market and social institutions that affect women's economic

[4] The HDI is composed of the following indicators: life expectancy at birth, mean years of schooling, expected years of schooling, gross national income (GNI) per capita (UNDP, 2010).

[5] The variables are: relative female/male access to education, relative female/male longevity (life expectancy), relative female/male labour market participation, female share in technical and professional, and administrative and management positions, and female share in parliament.

[6] The GII is composed of the following indicators: for the health dimension, maternal mortality ratio and the adolescent fertility rate; for the empowerment dimension, the share of parliamentary seats held by each sex and by secondary and higher education attainment levels; for the labour dimension, women's participation in the work force (UNDP, 2011).

participation as well as women's legal and social status (Economist Intelligence Unit, 2010).

Finally, the GGGI was devised by Lopez-Claros and Zahidi (2005) and the World Economic Forum as a "framework for capturing the magnitude and scope of gender-based disparities and tracking their progress" (WEF, 2010, p. 3). The index explicitly focuses and measures gaps in outcomes between women and men, independently on the level of development of the country, in four areas: health and survival, educational attainment, economic participation and opportunity, and political empowerment. With respect to the preceding indices, the GGGI is composed by 14 sub-indicators and is able to capture gender inequality in its multidimensionality and in a more direct way, where values approaching one mean higher gender equality while lower values indicate gender inequality. This is important because the use of multiple variables helps solving the limitation of other gender equality indices that only included single indicators for each dimension (Dijkstra, 2002).

While our focus is on the application of international indices at a country or sub-country level, and in particular to the case Italy, as anticipated in the introduction the available studies on this specific stream are rare. Moreover, they are often concerned with ecological issues, i.e. sustainable development at a local level. To our knowledge, there is only a single article that has tried to replicate international measures of gender inequalities at the Italian local level. Costantini and Monni (2008) indeed have tried to unfold the North-South regional divide adopting a gender perspective according to the "Capability approach" as a theoretical and methodological background. They compute HDI, GDI, GEM, SIGE, and RSW at the regional level with some appropriate modifications. However, their results are likely to suffer from the same limitations as UNDP's indicators for measuring gender disparities. First of all because they provide an exploration of regional differences in human development but not with a single measure of gender inequality as such. Secondly, according to our standpoint, a central concern is the issue of multidimensionality. In fact, it is true that in order to offer a comprehensive understanding Costantini and Monni compute many indices but this leads to two complications: first, the indices ought to be read contemporarily and second in some cases the indices show conflicting rankings of regions leading to an unclear picture of regional differentials.

Therefore, the lack of an appropriate multidimensional measure of gender inequality within Italy is the main motivation for our effort to develop a new gender gap index specifically designed for Italy.

3. The Italian Gender Gap Index: Data and Methods

3.1 THEORETICAL AND METHODOLOGICAL FRAMEWORK: THE GGGI AND THE IGGI

This section describes the methodological framework employed in the building process of the new index. First of all, we briefly explain the reason why we chose as a model the Global Gender Gap Index rather than the other indicators available in the literature.

The main advantages of the GGGI, as highlighted by the Global Gender Gap Report (2006), are the following: it captures gaps in achievements between women and men and not levels; it is independent on the level of development; it measures outcomes and not means or input variables, such as policies; it does not measures performance in relative terms but in absolute terms; and it is focused on countries' proximity to gender equality and not on women's empowerment (WEF, 2006).

Thanks to these desirable characteristics, the GGGI provides us with the appropriate instrument to make a portrait of the status of women with respect to men in the different countries. Obviously it does not exhaust the multiple dimensions of the concept of gender inequality but, being composed of 14 sub-indices, it succeeds in offering a more comprehensive measure of the concept than other indicators as well as single measures. Thus, in our opinion, the GGGI as formulated by the WEF is the best available measure of gender equality.

In elaborating an analogous measure for Italy, we follow as closely as possible the procedure devised by the WEF. However, it is important to keep in mind that the Global Gender Gap index was developed in order to measure gender disparities across countries and at the national level; therefore it is not meant to reflect regional differences. Consequently, some few modifications are needed to apply it at the sub-national level.

We start by describing how the GGGI is constructed: the process is made up of four stages[7]. First, all available raw data are converted to female-to-male ratios in order to capture gender gaps in the outcomes and not their levels. Second, data are truncated at "equality benchmarks", i.e. 1, which means equal number of women and men[8]. It is worth highlighting that the GGGI adopts a "one-sided" scale since it is considered more appropriate for measuring how close women are to reaching equality with men in the various dimensions being examined[9]. Third, sub-index scores are calculated as weighted averages of the variables within each sub-index. Within this stage normalization is conducted in terms of equalizing their standard deviations[10]. The weights obtained are

[7] For more precise details about the construction of the WEF's Global Gender Gap index see WEF (2006).

[8] In the GGGI the equality benchmarks of the two health variables are set to 0.944 for the sex ratio at birth and 1.06 for healthy life expectancy (WEF, 2007). However, in our case, we will treat the two health indicators as the others setting the equality benchmark to be one.

[9] In this case the choice is in favor of gender equality instead of women's empowerment as highlighted by the WEF (2006) itself in the reports: the "one-sided" scale in fact does not reward or penalize when women surpass men.

[10] We divide 0.01 by the standard deviation of each variable (see Backward Calculation in Appendix V).

used to weigh each sub-index within each dimension. Finally, the final scores are calculated as an un-weighted average of each dimension to obtain the Global Gender Index. Its value is bounded between 1 (perfect equality) and 0 (perfect inequality).

Having described the methodological framework of reference, we now introduce the issues that need to be adapted and improved in order to increase the relevance of the new index, the Italian Gender Gap Index. Table 1 presents the components of the GGGI and how each of them is measured both in the GGGI and in its Italian version we are going to propose. A detailed explanation of the data and sources follows in the next section.

TABLE 1

STRUCTURE OF THE GLOBAL GENDER GAP INDEX AND THE ITALIAN GENDER GAP INDEX

Component	GGGI	IGGI
Health and Well-being	Ratio: female healthy life expectancy over male value	Ratio: female healthy life expectancy over male value
	Sex ratio at birth (converted to female over male ratio)	Sex ratio at birth (converted to female over male ratio)
Education Attainment	Ratio: female literacy rate over male value	Ratio: level of education of women aged 15-19 over male value
	Ratio: female net primary level enrolment over male value	Ratio: female upper secondary school enrolment rate over male value
	Ratio: female net secondary level enrolment over male value	Ratio: women's share of traditionally male-dominated higher education areas such as technological and natural sciences over male value
	Ratio: female gross tertiary level enrolment over male value	Ratio: female gross tertiary level enrolment over male value Ratio: women in training and life-long learning over male value Ratio: women aged 25 with a bachelor every 100 people over male value
Economic Participation and Opportunity	Ratio: female labor force participation over male value	Ratio: female labor force participation over male value
	Wage equality between women and men for similar work (converted to female-over-male ratio)	Ratio: number of female senior officials and managers in local administration (public sector) Ratio: number of female junior officials and managers in local administration (public sector)
	Ratio: estimated female earned income over male value	Ratio: female average annual wage over male value (paid employees)
	Ratio: female legislators, senior officials, and managers over male value	Ratio: preferences for hiring a woman over preferences for a man for manager positions in the private sector
	Ratio: female professional and technical workers over male value	Ratio: preferences of hiring a woman over preferences for a man for technical and professional positions in the private sector
Political Empowerment	Ratio: women with seats in parliament over male value	Ratio: women with seats in regional councils (legislative) over male value
	Ratio: women at ministerial level over male value	Ratio: women in regional committees (executive) over male value
	Ratio: number of years of a female head of state (last 50 years) over male value	Ratio: women in the magistracy over male value (judiciary) over male value

3.2 DATA SELECTION AND SOURCES

As seen in the previous section, the methodological framework we refer to in order to develop the new index for Italy is basically the same as the GGGI while many modifications have been introduced in order to adapt the choice of indicators. In this section we discuss three main points. First, we explain which variables have been selected and why; next, we present the sources of data and the dataset we assemble, taking into account the problem of data availability; finally, we describe some of the major innovations in terms of the data employed.

We select 17 indicators on the basis of their relevance in capturing the reality of the Italian regional context[11]. We pass now to the description of the indicators for each of the four dimensions involved.

The health and survival dimension (HS): this is the only sub-index that remains completely unchanged in terms of the indicators employed in order to compute it. This is because all the relevant indicators are available at the Italian regional level, and also because these indicators, the ratio of female healthy life expectancy over male value[12] and the sex ratio at birth adequately capture the local variation of regional performances in this dimension.

The educational attainment dimension (EDU): we capture this dimension with six indicators, two more than the GGGI. Data selection in this sphere has followed the presumption that, being a developed country, Italy would have displayed uniformly high scores for the more common indicators of educational achievement such as literacy rates and primary school enrolment rates. Therefore, we have focused our attention only on variables concerning higher educational levels, that is the *ratio of the level of education of women aged 15-19 over male value*, the *ratio of female upper secondary school enrolment rate over male value*, the *ratio of female gross tertiary level enrolment over male value*, the *ratio of women in training and life-long learning over male value*, and the *ratio of women aged 25 with a bachelor every 100 people over male value*. Moreover, we introduce the *ratio of women's share of traditionally male-dominated higher education areas, such as technological and natural sciences, over male value.*

The economic participation and opportunity dimension (ECO): the evaluation of gender inequality in this dimension is based on six indicators whereas the original index employed only five. In order to preserve the spirit of original elaboration of the GGGI in 2005, we further decompose this dimension into three aspects. For the labor participation gap we maintained unchanged the *female participation rate over male value* variable. The remuneration gap is measured by the *female average annual wage over male value*. Finally the advancement gap is proxied by two sets of indicators: the

[11] See Nardo et Al (2008) for a comprehensive treatment of the process of constructing composite indicators.

[12] Healthy Life Expectancy represents individuals' life expectancy in good health at age 0. This indicator is estimated for both female and male by ISTAT according to the definition given by the World Health Organization (ISTAT, 2011a).

former are the *number of senior officials and managers* and the *number of junior officials and managers in local administration* (public sector); the latter are the *preferences of hiring a woman over the preferences for a man for manager positions* and the *preferences of hiring a woman over the preferences for a man for technical and professional positions* in the private sector. These four indicators are very different in nature from the GGGI ones but they essentially measure women's entrance in traditionally male-dominated positions. These variables indeed are able to capture two phenomena: on the one hand, the so-called "glass ceiling" effect, that is the concentration of higher responsibility positions in the hands of men and the underrepresentation of women at the top level of both public administrations and private firms; on the other hand, the "sticky floor" phenomenon, that in turn represents the condition of women who are trapped in low-wage and low-responsibility positions and also are the subjects of horizontal occupational segregation.

The political participation dimension (POL): this sub-index is the adaptation of two of the original variables to the Italian regional context, i.e. *women with seats in regional councils (legislative level)* and *women with seats in Regional Committee (executive level)*. In contrast, the third variable, which in the GGGI measured the number of years of a female head of state over male value in the last 50 years, has been substituted. We made this choice for two reasons: first, granted that a more consistent variable would have been the number of years of a female president of Region over male value, we presumed that it would have had a small explicative power due to the great prevalence of men in this position through time and this would have resulted in a too low variability across regions of such indicator; secondly, we recognized that the composition of regional governments is likely to be sensitive to prevailing ideological gender preferences of elected parties in the different regions. As a result we introduced a new indicator, *women with seats in magistracy (judiciary)*, able to account for a further important area of underrepresentation of women, that is judicial decision-making. Using these three variables gives us further inputs in order to appreciate the magnitude of women's power in local government and decision-making at legislative, executive, and judicial level, and allows overcoming the constraints of previous indices which consider only parliamentary representation[13].

Turning to data sources, our dataset merges publicly available data from ISTAT, Ragioneria Generale dello Stato, Ministero dell'Interno, MIUR, Osservatorio delle Donne nelle P.A., and Unioncamere. More details on sources are provided in Appendix II.

The analysis is based on a dataset compiled by the author. Because of data availability, the index is built for the year 2008. More recent data releases are not yet available. When data for 2008 are not accessible for some of the variables, data are of the latest year available (see Appendix II for further details).

[13] As already mentioned, Dijkstra (2002, p. 306) suggests the use of multiple indicators for each dimension of gender inequality focusing in particular on political representation which in many indices is only introduced as parliamentary representation (legislative bodies).

Our dataset also contain information at the regional level concerning several socio-demographic and economic variables: they are not gender related and measure general features of the regions such as wealth distribution, social and religious participation, family characteristics, level of competitiveness, and the like[14]. These data are employed for a brief exploratory analysis concerning the links between the IGGI and its social and economic background.

Regarding data availability, we encountered many problems in the collecting phase because of the low on-line accessibility for many surveys and studies and, most important, for the still low quality collection of disaggregated data at both gender and regional level. In fact, in many cases data available as disaggregated according to gender were not disaggregated at the territorial level and vice versa.

As third and last point, it is worth describing in more depth the combined use of hard data and qualitative data for the construction of the IGGI. Apart from the survey-based studies conducted by ISTAT, we consider as very informative the inclusion within the economic dimension of two variables (*preferences of hiring a woman over the preferences for a man for manager positions* and the *preferences of hiring a woman over the preferences for a man for technical and professional positions* in the private sector) calculated on the basis of the answers to the Excelsior Survey which is conducted each year by Unioncamere, the union of the Italian Chambers of Commerce, over a sample of approximately 100.000 Italian private firms. Our purpose is to capture the gender preferences of firms when hiring a new worker according to the position requested. We follow in fact the idea of Campa, Casarico, and Profeta (2011) who employ this survey to build a one-dimensional index of firm culture by exploiting firms' preferences about gender. In a similar way, we make use of firms' preferences and we bring them into our multi-dimensional index in order to capture the generalized attitude of the private sector towards gender equality in the labour market sphere[15]. Thanks to the Excelsior Survey in fact it is possible to identify whether firms in a given year and region prefer to hire a man, a woman, or whether they are indifferent between the two. For our purposes we focus on the answers concerning gender preferences for managers and for professional and technical positions in each region for the year 2008[16].

A last clarification is due concerning the use of the wage gap in this paper. We employ the "gross" or unadjusted wage gap[17] between women and men calculated as the simple ratio of the average annual net wages earned by female paid employees and men paid employees. We are aware that in this way we neglect to consider the determinants

[14] See Appendix III.

[15] Campa, Casarico and Profeta (2011) focus on the percentage of positions for which the firms of each province declare to prefer hiring a man in 2003, over the total number of open positions. This percentage represents their measure of firms' culture: a higher percentage of preferences for men is interpreted as a less favourable attitude towards women employment in firms.

[16] For Val d'Aosta and Piedmont a more complex procedure was needed since Unioncamere treats these two regions as a single aggregate. Since the former contains a single province, we used provincial data for the region and we subtracted them from the aggregate to obtain the net value for Piedmont alone.

[17] Even though in an alternative specification, this indicator is in line with the commonly used unadjusted Gender Pay Gap (GPG) within the European Employment Strategy of the European Commission (EUROSTAT, 2012). It measures the difference between average gross hourly earnings of male paid employees and of female paid employees as a percentage of average gross hourly earnings of male paid employees.

of the earning differences, such as individual differences in productivity or human capital (Favaro, 2009). However this indicator provides us with a simple and overall picture of the earnings gap between men and women.

4. Results

This section presents the results: first we look at the single dimensions individually and then we pass to the exploration of the IGGI final scores. The discussion is complemented by tables and graphs. In each sub-section we present the ranking of regions according to the score of the sub-index. We also present a ranking according to the single components of the sub-index.

The Health and Survival dimension (HS)

Not much has to be said about this dimension since Italian regions uniformly perform fairly well[18]. As shown in Table 2 and in Graph1, the best performer is Valle d'Aosta (0.979) and the worst performer is Basilicata (0.911). Nevertheless many regions remain under the score mean (0.945). This appears to be the case for the most part of central and Southern regions, such as Calabria, Abruzzo, Sicily, Sardinia, Emilia Romagna, Marches, Basilicata plus Liguria.

TABLE 2

RANKING AND VALUES OF HEALTH AND SURVIVAL SUB-INDEX

Region	Rank	HS
Val D'Aosta	1	0.979
Trentino AA	2	0.976
Friuli VG	3	0.964
Molise	4	0.959
Umbria	5	0.956
Veneto	6	0.952
Piedmont	7	0.952
Campania	8	0.950
Apulia	9	0.945
Lombardy	10	0.944
Lazio	11	0.941
Tuscany	12	0.939
Calabria	13	0.939
Abruzzo	14	0.934
Sicily	15	0.933
Sardinia	16	0.932
Emilia Romagna	17	0.929
Marches	18	0.928
Liguria	19	0.925
Basilicata	20	0.911

[18]In 2008, at the global level, according to the health and survival score, Italy covered the 77th rank with a score of 0.972 where the world sample average was 0.973. Among the best performers with a score of 0.9796 we notice Finland, Austria, the United States, Belgium, France, Japan(high income countries) as well as Colombia, Argentina, Brazil (upper middle income), the Philippines, Sri Lanka, Moldova (lower middle income) Madagascar, and Mauritania (low income) (WEF, 2008).

GRAPH 1

REGIONAL PERFORMANCE ON HEALTH AND SURVIVAL SUB-INDEX

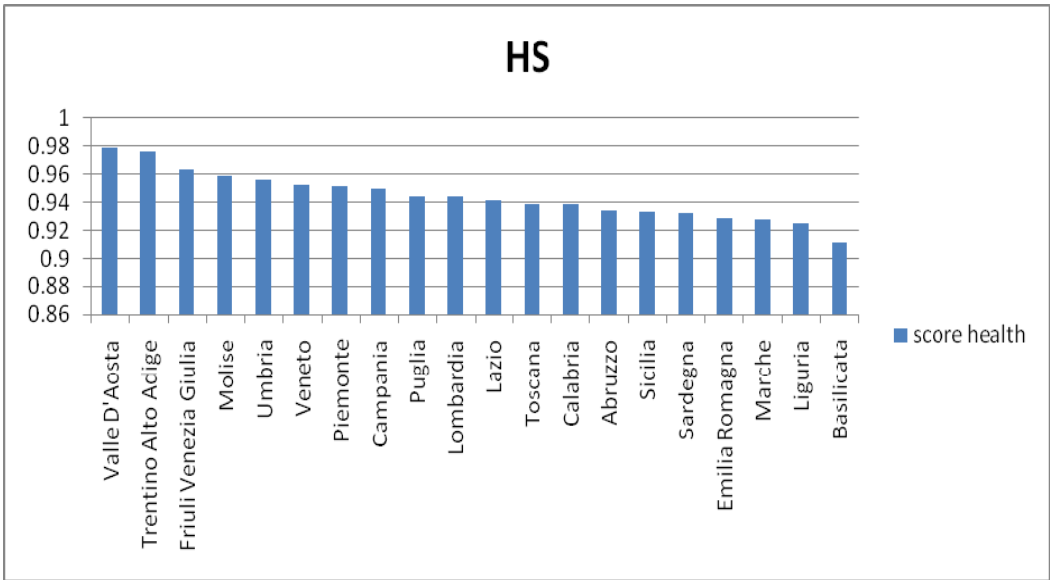


Table 3 ranks the regions according to the two health and survival sub-indices. According to the sex ratio at birth the gender gap is closing for Umbria, Valle d'Aosta, Trentino Alto Adige, and Molise whereas a considerable gap persists in Marches, Abruzzo, and Basilicata. With respect to healthy life expectancy, Trentino Alto Adige jumps to the first position followed by Valle d'Aosta, Friuli Venezia Giulia, and Piedmont. However differences between women's and man's health are still present in particular in Umbria, Basilicata, and Liguria.

TABLE 3

REGIONS RANKED BY HEALTH AND SURVIVAL INDICATORS

Region	Sex ratio at birth (female/male)	Region	Healthy life expectancy
Umbria	0.986	Trentino A.A.	0.984
Valle D'Aosta	0.975	Valle D'Aosta	0.983
Trentino AA	0.969	Friuli VG	0.978
Molise	0.967	Piedmont	0.962
Veneto	0.951	Campania	0.958
Friuli VG	0.951	Lombardy	0.955
Calabria	0.948	Veneto	0.954
Apulia	0.947	Lazio	0.953
Campania	0.943	Molise	0.949
Piedmont	0.943	Abruzzo	0.945
Sicily	0.939	Tuscany	0.942
Liguria	0.939	Apulia	0.941
Sardinia	0.938	Marches	0.929
Tuscany	0.936	Emilia Romagna	0.928
Lombardy	0.934	Calabria	0.928
Lazio	0.930	Sardinia	0.926
Emilia Romagna	0.930	Sicily	0.926
Marches	0.926	Umbria	0.923
Abruzzo	0.925	Basilicata	0.920
Basilicata	0.904	Liguria	0.908

The Educational Attainment dimension (EDU)

Also according to this dimension one may affirm that the gender gap is closing. Many regions are approaching the equality benchmark in terms of education whereas others are very close to it. The scores do not reveal any particular geographical pattern. Liguria is again the worst performer and Molise is at the top level (see Table 4 and Graph 2).

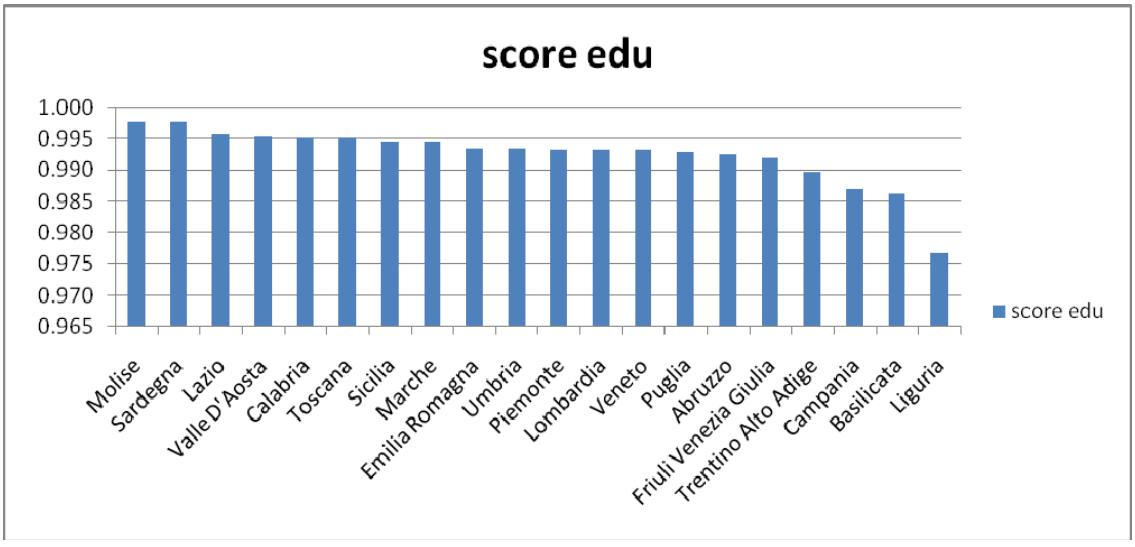
TABLE 4

RANKING AND VALUES OF EDUCATIONAL ATTAINMENT SUB-INDEX

Region	Rank	EDU
Molise	1	0.998
Sardinia	2	0.998
Lazio	3	0.996
Valle D'Aosta	4	0.995
Calabria	5	0.995
Tuscany	6	0.995
Sicily	7	0.995
Marches	8	0.995
Emilia Romagna	9	0.994
Umbria	10	0.994
Piedmont	11	0.993
Lombardy	12	0.993
Veneto	13	0.993
Apulia	14	0.993
Abruzzo	15	0.993
Friuli VG	16	0.992
Trentino AA	17	0.990
Campania	18	0.987
Basilicata	19	0.986
Liguria	20	0.977

GRAPH 2

REGIONAL PERFORMANCE ON EDUCATIONAL ATTAINMENT SUB-INDEX



If we dig a bit more, in Table 5 we may appreciate that the gender gap is already closed in many regions according to three indicators. The discriminating element is the women's share of traditionally male-dominated higher education areas, such as technological and natural sciences, over male value. In this dimension, only Molise reaches the equality benchmark. This highlights the persisting effect on educational investment decisions of Italian women in many regions but what is curious is the fact that the worst performers are mainly Northern regions.

TABLE 5

REGIONS RANKED BY EDUCATIONAL ATTAINMENT INDICATORS

Region	f-to-m ratio adults in training and life-long learning	Region	level of education of women aged 15-19 over male value	Region	women's share of traditionally male-dominated higher education areas[19]	Region	female upper secondary school enrolment rate over male value
Piedmont	1	Piedmont	1	Molise	1.000	Piedmont	1
Valle D'Aosta	1	Trentino AA	1	Sardinia	0.846	Valle D'Aosta	1
Lombardy	1	Veneto	1	Apulia	0.797	Lombardy	1
Trentino AA	1	Friuli VG	1	Calabria	0.764	Liguria	1
Veneto	1	Emilia R.	1	Valle D'Aosta	0.724	Trentino AA	1
Friuli VG	1	Tuscany	1	Campania	0.712	Veneto	1
Emilia R.	1	Umbria	1	Lazio	0.707	Friuli VG	1
Tuscany	1	Marches	1	Umbria	0.706	Emilia R.	1
Umbria	1	Lazio	1	Basilicata	0.676	Tuscany	1
Marches	1	Abruzzo	1	Tuscany	0.672	Marches	1
Lazio	1	Campania	1	Abruzzo	0.642	Lazio	1
Abruzzo	1	Apulia	1	Sicily	0.624	Apulia	1
Molise	1	Calabria	1	Marches	0.622	Sicily	1
Campania	1	Sicily	1	Liguria	0.620	Sardinia	1
Basilicata	1	Sardinia	1	Lombardy	0.572	Molise	0.994
Calabria	1	Lombardy	0.999	Emilia R.	0.556	Calabria	0.993
Sicily	1	Valle D'Aosta	0.999	Piedmont	0.546	Abruzzo	0.988
Sardinia	1	Molise	0.998	Veneto	0.545	Umbria	0.988
Apulia	0.986	Basilicata	0.991	Friuli VG	0.451	Basilicata	0.976
Liguria	0.970	Liguria	0.983	Trentino AA	0.291	Campania	0.952

The Economic Participation and Opportunity dimension (ECO)

While the previous two dimensions presented very encouraging results, the same cannot be said for the economic sphere. Here in fact the gender gap among regions begins to widen: as shown in Table 6 and Graph 3, Umbria appears to have a quite modest gender gap in the economic domain whereas regions as Sardinia, Apulia, and Val d'Aosta lag behind.

[19] Enrolled in technological and natural sciences courses over male value.

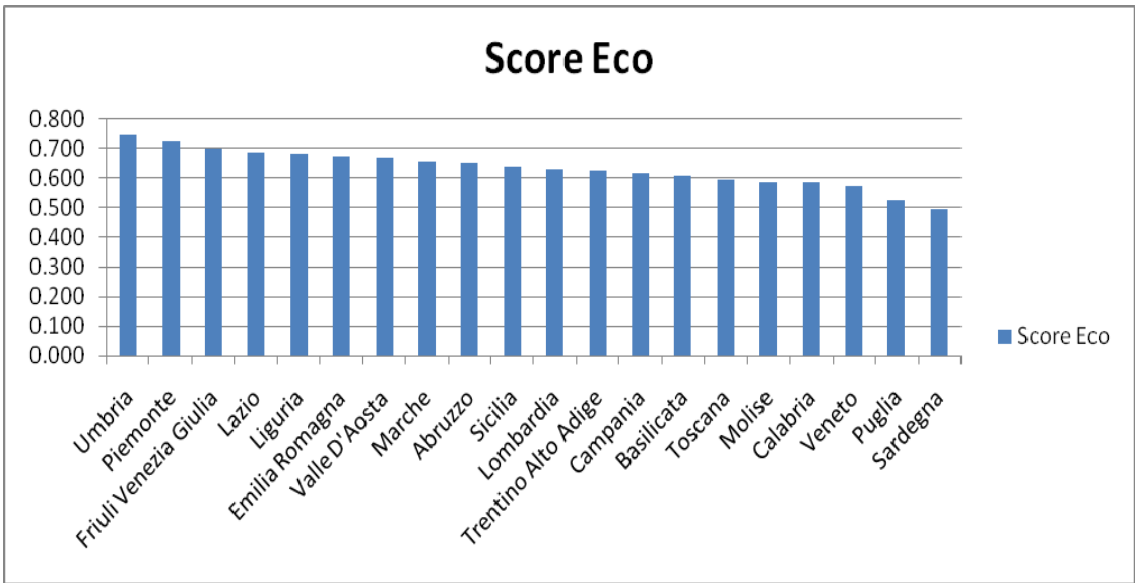
TABLE 6

RANKING AND VALUES OF ECONOMIC PARTICIPATION AND OPPORTUNITY SUB-INDEX

Region	Rank	ECO
Umbria	1	0.748
Piedmont	2	0.725
Friuli VG	3	0.698
Lazio	4	0.689
Liguria	5	0.684
Emilia Romagna	6	0.672
Valle D'Aosta	7	0.668
Marches	8	0.657
Abruzzo	9	0.654
Sicily	10	0.641
Lombardy	11	0.630
Trentino AA	12	0.625
Campania	13	0.617
Basilicata	14	0.609
Tuscany	15	0.594
Molise	16	0.589
Calabria	17	0.587
Veneto	18	0.572
Apulia	19	0.525
Sardinia	20	0.497

GRAPH 3

REGIONAL PERFORMANCE ON ECONOMIC PARTICIPATION AND OPPORTUNITY SUB-INDEX



In Table 7, we look at the components of the score in order to detect the most influential indicators. Women remain severely underrepresented in the labour force in many regions: Sicily, Apulia, and Campania are even under the 50% threshold. The wage gap appears instead to be not so problematic with a gender gap between 10% and 30%.

Considering gender preferences of firms for managerial positions we notice that equality has been reached only in Friuli Venezia Giulia, Umbria, Abruzzo, and Basilicata; Lazio, Piedmont, and Lombardy show very low levels of equality whereas the gender gap is maximum in the rest of Italy where firms prefer to hire a man for

every vacant managerial position. Things are better for the preferences for technical and professional workers where the gap is already closed in Emilia Romagna, Umbria, and Marches and approaches to zero in Piedmont, Trentino Alto Adige, Campania, Lombardy, and Veneto. Southern regions instead lag behind, especially Basilicata (0.340).

Looking at the public sector, i.e. the gender gap for senior administrators and senior managerial positions, only Umbria reaches an acceptable level of gender equality, followed by Piedmont and Lazio. The rest of the regions achieves a score around 0.3. Still the situation does not improve very much if we consider junior managerial positions. Liguria outperforms the others in this case followed by Lazio and Sardinia. Basilicata has the lowest level of gender equality (0.3).

TABLE 7

RANKING AND VALUES OF ECONOMIC PARTICIPATION AND OPPORTUNITY INDICATORS

Region	FLFP over male value	Region	Earning gap	Region	pref gap for Managers	Region	pref technical and professional workers (private sector)	Region	Senior managers (public sector)	Region	Junior managers (public sector)
Val d'Aosta	0.736	Sicily	0.895	Friuli VG	1	Emilia R.	1	Umbria	0.800	Liguria	0.972
Emilia R.	0.731	Basilicata	0.855	Umbria	1	Umbria	1	Piedmont	0.571	Lazio	0.709
Umbria	0.731	Molise	0.834	Abruzzo	1	Marches	1	Lazio	0.421	Sardinia	0.654
Piedmont	0.723	Piedmont	0.810	Basilicata	1	Piedmont	0.998	Emilia R.	0.375	Emilia R.	0.585
Trentino AA	0.716	Val D'Aosta	0.803	Lazio	0.200	Friuli VG	0.992	Liguria	0.333	Apulia	0.580
Tuscany	0.713	Marches	0.800	Piedmont	0.167	Trentino AA	0.985	Basilicata	0.333	Friuli VG	0.575
Marches	0.708	Campania	0.793	Lombardy	0.045	Campania	0.936	Sicily	0.333	Piedmont	0.550
Friuli VG	0.694	Lazio	0.779	Liguria	0	Lombardy	0.925	Sardinia	0.333	Val d'Aosta	0.548
Liguria	0.691	Calabria	0.776	Trentino AA	0	Veneto	0.903	Val d'Aosta	0.313	Campania	0.545
Lombardy	0.686	Sardinia	0.774	Veneto	0	Sardinia	0.881	Abruzzo	0.286	Sicily	0.543
Veneto	0.678	Friuli VG	0.774	Emilia R.	0	Lazio	0.876	Campania	0.278	Abruzzo	0.500
Lazio	0.661	Umbria	0.750	Tuscany	0	Tuscany	0.826	Trentino AA	0.250	Lombardy	0.485
Abruzzo	0.632	Liguria	0.747	Marches	0	Val d'Aosta	0.824	Lombardy	0.250	Calabria	0.429
Sardinia	0.625	Tuscany	0.746	Molise	0	Abruzzo	0.821	Marches	0.250	Molise	0.417
Molise	0.605	Trentino AA	0.743	Campania	0	Calabria	0.793	Calabria	0.231	Marches	0.400
Basilicata	0.545	Lombardy	0.733	Apulia	0	Liguria	0.775	Tuscany	0.143	Umbria	0.375
Calabria	0.538	Emilia R	0.732	Calabria	0	Sicily	0.732	Friuli VG	0.125	Tuscany	0.319
Sicily	0.491	Abruzzo	0.726	Sicily	0	Molise	0.722	Apulia	0.100	TrentinoAA	0.318
Apulia	0.480	Veneto	0.703	Sardinia	0	Apulia	0.615	Veneto	0.083	Veneto	0.311
Campania	0.475	Apulia	0.692	Val D'Aosta	0	Basilicata	0.340	Basilicata	0	Basilicata	0.300

The Political Participation dimension (POL)

Table 8 and Graph 4 clearly show a massive gender gap in the political empowerment of women. The indicators of political gender equality disclose higher levels of heterogeneity across regions, and larger gender gaps compared to those of previous spheres (see Appendix IV for descriptive statistics). Women seem to be better represented in the public sphere in Piedmont, Sardinia, Trentino Alto Adige, Lombardy, and Tuscany. The worst performers are Val d'Aosta, Sicily, and Molise. However it is important to highlight that the highest score is 0.435 which remains a very low score of gender equality.

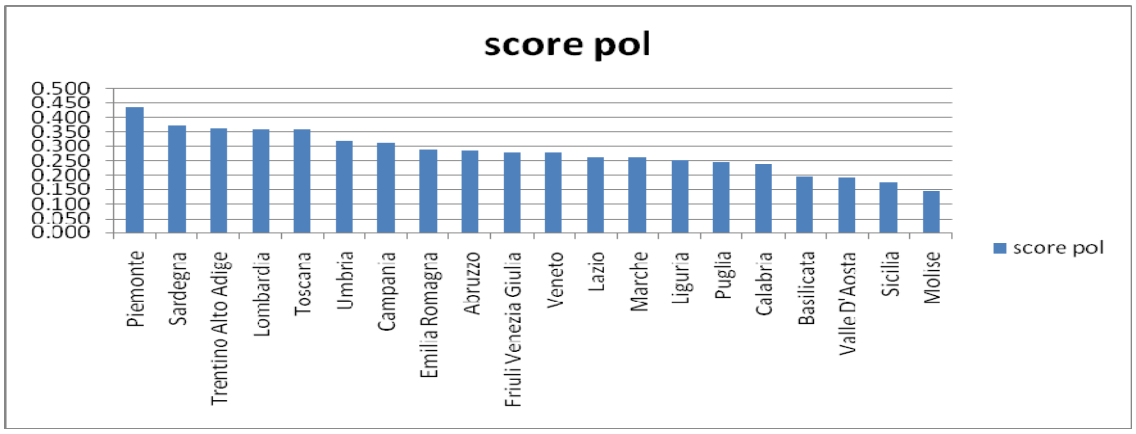
TABLE 8

RANKING AND VALUES OF POLITICAL EMPOWERMENT SUB-INDEX

Region	Rank	POL
Piedmont	1	0.436
Sardinia	2	0.371
Trentino AA	3	0.362
Lombardy	4	0.360
Tuscany	5	0.359
Umbria	6	0.320
Campania	7	0.314
Emilia Romagna	8	0.288
Abruzzo	9	0.284
Friuli VG	10	0.278
Veneto	11	0.277
Lazio	12	0.262
Marches	13	0.260
Liguria	14	0.252
Apulia	15	0.245
Calabria	16	0.237
Basilicata	17	0.196
Valle D'Aosta	18	0.193
Sicily	19	0.177
Molise	20	0.145

GRAPH 4

REGIONAL PERFORMANCE ON POLITICAL PARTICIPATION SUB-INDEX



As we decompose the sub-index in Table 9, we realize that the larger gender gap among regions in the political sphere comes from women's representation in the legislative branch: the highest score is 0.327 in Tuscany and indicates very low gender equality. The most dramatic results are in Sicily, Calabria, and Molise which have very few women or even no women in their regional councils. Regarding the women's share of seats in regional committees, the results are better for Piedmont, Trentino Alto Adige, and Sardinia while all the other regions lag far behind with the most part of Southern regions scoring between 0 and 0.125.

Conversely women are much better represented in the magistracy at the regional level. The average attainment across regions is 0.64. Lombardy outperforms the others reaching gender equality. It is followed by Piedmont (0.927), Calabria (0.819), and

Campania (0.812) which are close to reach equality. However four regions still show a low level of equality which remains below 50% (Val d'Aosta scores 0.308).
Overall the indicators in this dimension confirm a higher heterogeneity across regions and higher levels of gender inequality compared to those of the previous dimensions.

TABLE 9

RANKING AND VALUES OF POLITICAL EMPOWERMENT INDICATORS

Region	Women with seats in Regional Councils (legislative)	Region	Women in Regional Committees (executive)	Region	Women in the magistracy over male value (judiciary)
Tuscany	0.327	Piedmont	0.667	Lombardy	1
Umbria	0.200	Trentino AA	0.667	Piedmont	0.927
Abruzzo	0.200	Sardinia	0.571	Calabria	0.819
Lombardy	0.176	Friuli VG	0.375	Campania	0.812
Marches	0.176	Apulia	0.364	Sardinia	0.787
Valle D'Aosta	0.167	Lazio	0.333	Veneto	0.720
Trentino A. A.	0.162	Campania	0.300	Emilia Romagna	0.710
Lazio	0.143	Umbria	0.286	Friuli VG	0.686
Emilia Romagna	0.136	Tuscany	0.273	Sicily	0.657
Piedmont	0.123	Abruzzo	0.250	Liguria	0.620
Liguria	0.111	Liguria	0.182	Apulia	0.615
Veneto	0.111	Veneto	0.182	Umbria	0.613
Basilicata	0.111	Emilia Romagna	0.182	Marches	0.581
Sardinia	0.104	Valle D'Aosta	0.125	Basilicata	0.548
Campania	0.093	Molise	0.125	Trentino AA	0.540
Friuli VG	0.055	Marches	0.100	Tuscany	0.503
Apulia	0.030	Calabria	0.100	Abruzzo	0.496
Sicily	0.026	Lombardy	0.063	Molise	0.481
Calabria	0.026	Basilicata	0	Lazio	0.462
Molise	0.000	Sicily	0	Valle D'Aosta	0.308

After having discussed each sub-index separately, we pass now to the scrutiny of the IGGI index across regions. According to our calculations, Italian regions have attained an overall degree of gender equality between 77% and 67%[20]. As Graph 5 clearly shows, the most egalitarian region is Piedmont with a gender gap of 23% while the laggards are Apulia, Basilicata, and Molise with a gender gap of 33%[21].The final index appears to be more homogeneous among regions than its four dimensions taken separately. In fact the difference in the gender gap between the leader and the laggard is only around 10%.

[20] We adopt here the same interpretation of the final scores as percentages as in the WEF Reports. As acknowledged by the WEF itself, the percentage concept confers to the analysis an easy interpretation of results. Nonetheless it is important to notice that all sub-indices are weighted by their standard deviations and this implies that the final scores cannot be interpreted as pure measure of the gap vis-à-vis the equality benchmark (WEF, 2006).
[21] In 2008, the best performers according to the GGGI are: Norway (1st, 0.8239), Finland (2nd, 0.8195), Sweden (3rd, 0.8139), Iceland (4th, 0.7999), New Zealand (5th, 0.7859) (WEF, 2008).

GRAPH 5

REGIONAL PERFORMANCE OF THE OVERALL COMPOSITE INDEX

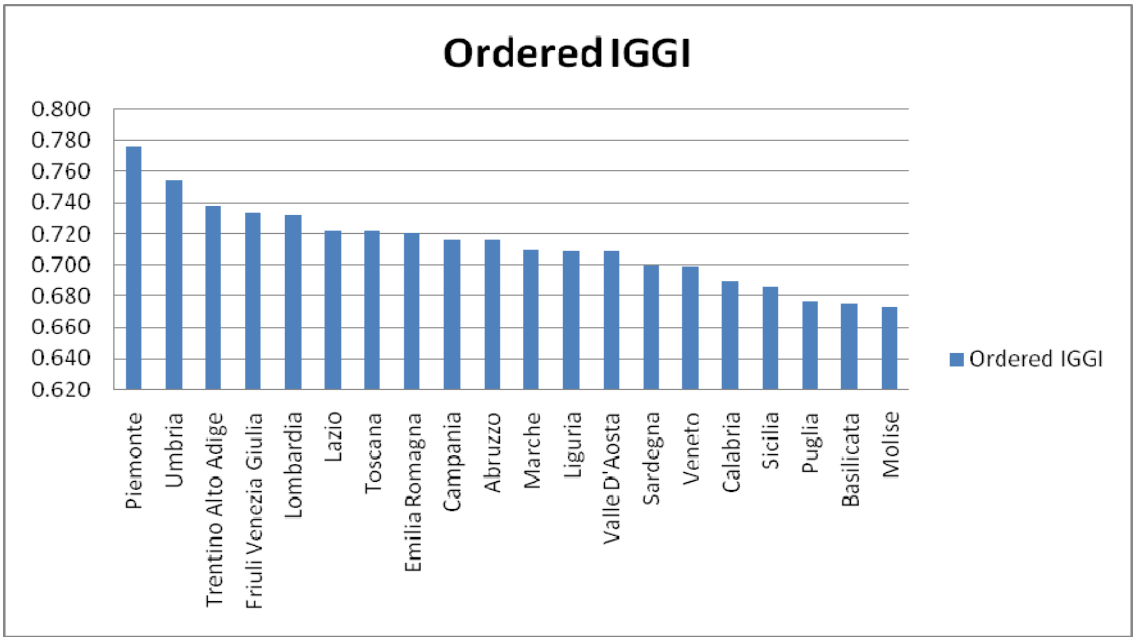


Table 10 presents the values and rankings of each region according to the IGGI. The rankings of each sub-index are also included in order to have a better understanding of the weight of each dimension on the overall score.

By looking at the individual scores we observe that, as anticipated above, all the regions perform very well in the educational and health dimensions. In both cases it can be affirmed that women are approaching to close the gap with men. Larger gender gaps emerge in the economic and political spheres. In the former the gap is around 40% and in the latter the gap is around 70%.

TABLE 10

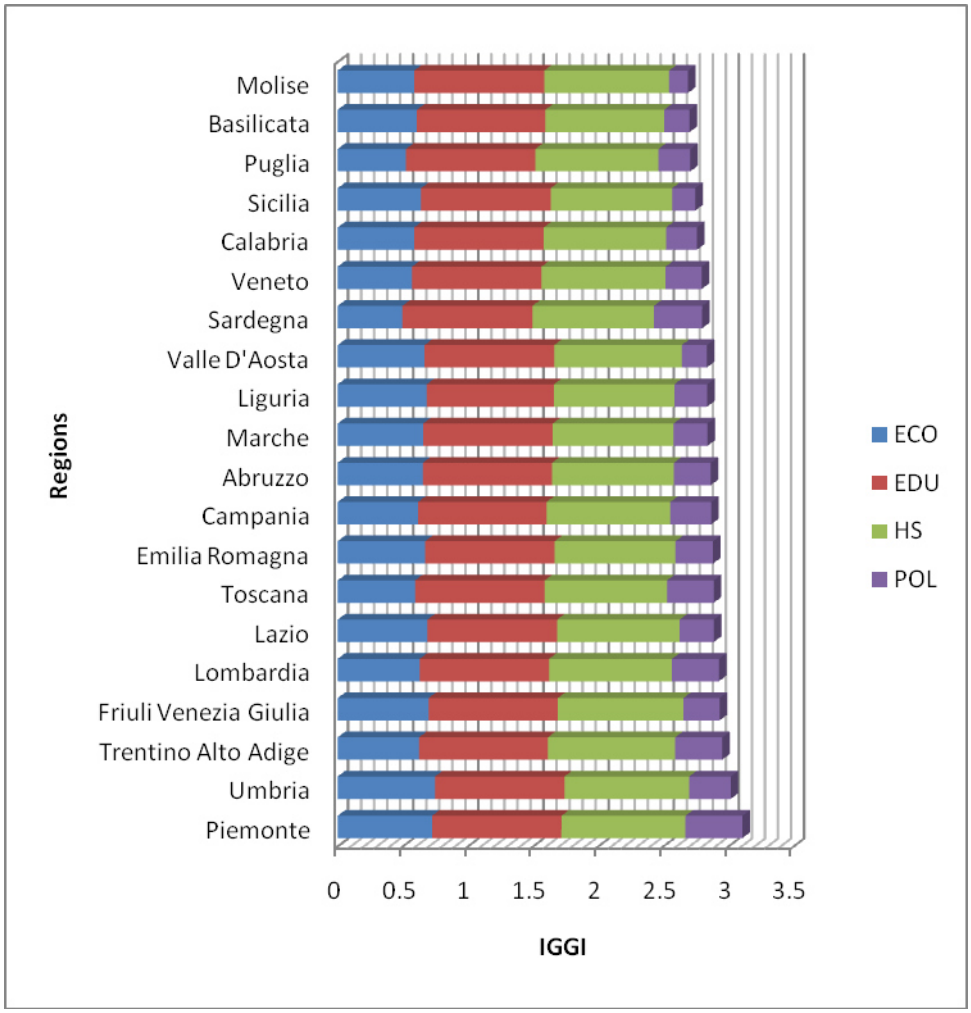
REGIONAL PERFORMANCE ON IGGI AND SUB-INDICES

	IGGI	**rank**	HS			EDU			ECO			POL
Piedmont	0.777	1	Val d'Aosta	1	0.979	Molise	1	0.998	Umbria	1	0.748	Piedmont	1	0.436
Umbria	0.754	2	Trentino AA	2	0.976	Sardinia	2	0.998	Piedmont	2	0.725	Sardinia	2	0.371
Trentino AA	0.738	3	Friuli VG	3	0.964	Lazio	3	0.996	Friuli VG	3	0.698	Trentino AA	3	0.362
Friuli VG	0.733	4	Molise	4	0.959	Val d'Aosta	4	0.995	Lazio	4	0.689	Lombardy	4	0.360
Lombardy	0.732	5	Umbria	5	0.956	Calabria	5	0.995	Liguria	5	0.684	Tuscany	5	0.359
Lazio	0.722	6	Veneto	6	0.952	Tuscany	6	0.995	Emilia R.	6	0.672	Umbria	6	0.320
Tuscany	0.722	7	Piedmont	7	0.952	Sicily	7	0.995	Val D'Aosta	7	0.668	Campania	7	0.314
Emilia R.	0.720	8	Campania	8	0.950	Marches	8	0.995	Marches	8	0.657	Emilia R.	8	0.288
Campania	0.717	9	Apulia	9	0.945	Emilia R.	9	0.994	Abruzzo	9	0.654	Abruzzo	9	0.284
Abruzzo	0.716	10	Lombardy	10	0.944	Umbria	10	0.993	Sicily	10	0.641	Friuli VG	10	0.278
Marches	0.710	11	Lazio	11	0.941	Piedmont	11	0.993	Lombardy	11	0.630	Veneto	11	0.277
Liguria	0.709	12	Tuscany	12	0.939	Lombardy	12	0.993	Trentino AA	12	0.625	Lazio	12	0.262
Val D'Aosta	0.709	13	Calabria	13	0.939	Veneto	13	0.993	Campania	13	0.617	Marches	13	0.260
Sardinia	0.700	14	Abruzzo	14	0.934	Apulia	14	0.993	Basilicata	14	0.609	Liguria	14	0.252
Veneto	0.699	15	Sicily	15	0.933	Abruzzo	15	0.993	Tuscany	15	0.594	Apulia	15	0.245
Calabria	0.690	16	Sardinia	16	0.932	Friuli VG	16	0.992	Molise	16	0.589	Calabria	16	0.237
Sicily	0.686	17	Emilia R.	17	0.929	Trentino AA	17	0.990	Calabria	17	0.587	Basilicata	17	0.196
Apulia	0.677	18	Marches	18	0.928	Campania	18	0.987	Veneto	18	0.572	Val D'Aosta	18	0.193
Basilicata	0.675	19	Liguria	19	0.925	Basilicata	19	0.986	Apulia	19	0.525	Sicily	19	0.177
Molise	0.673	20	Basilicata	20	0.911	Liguria	20	0.977	Sardinia	20	0.497	Molise	20	0.145

Graph 6 shows the IGGI as the aggregation of its single dimensions in order to grasp in a more immediate way the contribution of each sub-index to the overall score. Once again, the graph highlights the fact that the gender gap is deeper and more regionally differentiated along the economic and political dimensions.

GRAPH 6

IGGI DECOMPOSED BY SUB-INDICES' CONTRIBUTION



To conclude this section we propose to look at some spider diagrams in order to present the same decomposition of the index in a more direct fashion. Diagram 1 relates to the best performer in the IGGI, Piedmont, and Diagram 2 to the worst performer, Molise. In both diagrams the red line represents the average score. Diagram 3 compares Piedmont and Molise in order to highlight the great disparity between the best and the worst performer. As Diagram 3 clearly shows the greatest difference stands in the political empowerment sphere.

DIAGRAM 1

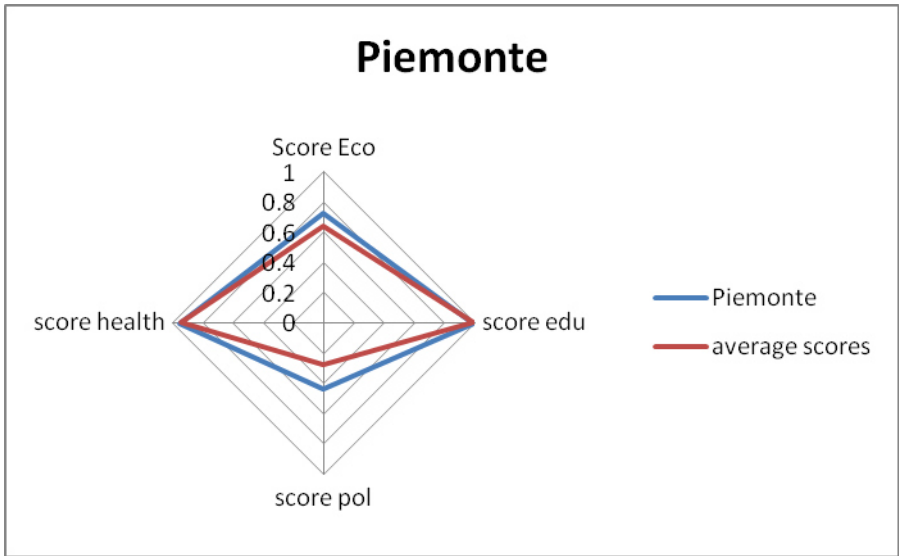


DIAGRAM 2

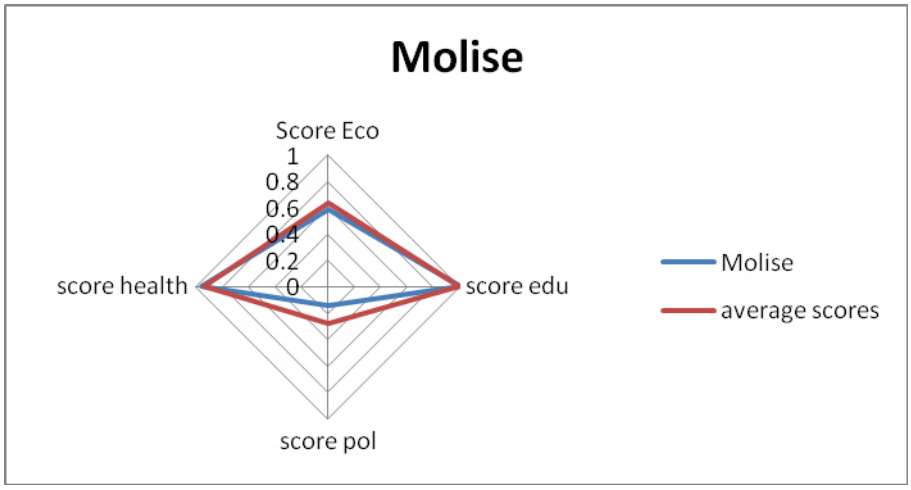
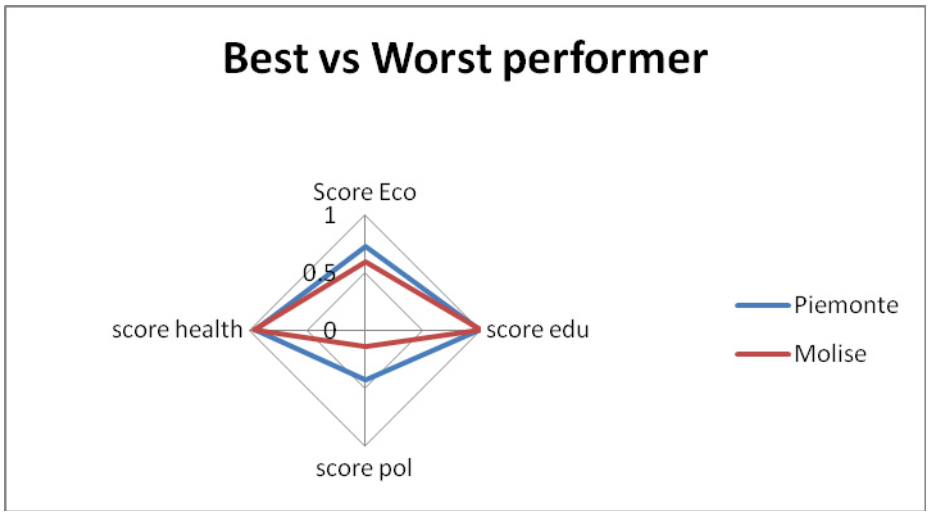


DIAGRAM 3



5. Gender Inequality and the Italian context

Composite indicators are not only instruments to quantify complex concepts but also useful tools to understand the link with other social and economic phenomena. As said in the beginning, in fact, the attention given to measuring gender inequalities is not an academic interest as such but has practical underpinnings. It is acknowledged that the existence of gender disparities relates to other socio-economic aspects which can have very important policy implications.

In this paragraph we attempt a first explorative examination of the link between the IGGI and a series of social and economic variables. It is worth highlighting that this kind of inquiry is purely explorative due to the small number of observations at our disposal: hence the analysis that follows is not intended to make any inference about causality while it attempts at giving a broader idea about basic correlations. We consider the following indicators:

- Regional Competitiveness Index (RCI): this composite index measures the competitiveness of a region and is elaborated by the Joint Research Center of the European Commission according to innovation and technological capabilities, quality of institutions, health, and education policies (Annoni and Kozovska 2010; for calculations for Italian regions see Annoni, Kozovska, and Saltelli, 2010);
- Per capita GDP;
- Total Fertility Rate (TFR): calculated as average number of children per women;
- Voluntary Abortion Rate: measured as the ratio between the number of voluntary abortions among women aged 20-24 and the mean of female population of the same class of age multiplied by 1,000[22];
- Poverty index (households): percentage of households which live under a poverty threshold over the total number of households;
- Large households: percentage of households with 3 or more children;
- Youth at home: percentage of youth aged 18-34 who live with at least one of the parents;
- Divorce rate;
- Religiousness: indicator of religious attendance calculated on the basis of the Multipurpose Survey (ISTAT, 2008) as the percentage of people (aged 6 or more) who declare to go to the church at least once a week;
- Religious marriages: percentage of religious marriages over the total in 2008.

Table 11 enables us to easily look at some correlations among the considered variables[23].

[22] In Italian, *Tasso specifico per età di abortività.*
[23] Cross plots of the pairwise correlations mentioned in Table 11 are reported in Appendix VI.

TABLE 11

CORRELATION MATRIX BETWEEN IGGI AND VARIOUS SOCIO-ECONOMIC VARIABLES

	IGGI (1)	RCI (2)	GDP pc (3)	Poverty index (4)	TFR (5)	Voluntary Abortion rate (6)	Large Households (7)	Youth at home (8)	Divorce rate (9)	Religious ness (10)	Religious marriages (11)
IGGI	1										
RCI	0.6126*	1									
GDP pc	0.5591*	0.7159*	1								
Poverty index	-0.6762*	-0.7850*	-0.8888*	1							
TFR	0.4830*	0.5448*	0.6826*	-0.5816*	1						
Voluntary Abortion rate	0.4048	0.6360*	0.4946*	-0.4686*	0.2682	1					
Large Households	-0.5609*	-0.7185*	-0.7250*	0.8476*	-0.3251	-0.2682	1				
Youth at home	-0.1214	-0.0281	0.0373	-0.0783	-0.158	-0.1527	0.0295	1			
Divorce rate	0.5185*	0.5416*	0.8614*	-0.7665*	0.5784*	0.5124	-0.7158*	0.0582	1		
Religiousness	-0.4916*	-0.4207	-0.5810*	0.5901*	-0.2253	-0.4986*	0.6929*	-0.016	-0.73*	1	
Religious marriages	-0.6072*	-0.7076*	-0.8573*	0.8825*	-0.4990*	-0.3939	0.7800*	-0.086	-0.868*	0.7564*	1

Source: see Appendix III. Asterisks mean significance at 5% level.

According to the World Economic Forum (2010), one of the most important reasons for understanding gender inequality is its positive relationship to a nation's competitiveness through the channel of human capital. As occurs at the world level, in fact, a positive cross-region correlation between the IGGI and the RCI is preserved. Smaller gender gaps are positively correlated with increased economic competitiveness. In a similar way we observe a positive correlation between the IGGI and per capita GDP. Richer regions show a higher IGGI. In both cases we notice a geographical pattern characterized by two clusters of regions: in particular Southern regions show both low RCI and IGGI in the first case and low GDP per capita and IGGI in the second (see Table 7 and 8 in the Appendix). Taking a different point of view, the third row shows that gender equality is negatively correlated with the poverty level by region and somehow reflects the same situation mentioned above.

As already mentioned, being gender also a social construct, it shapes a large amount of behaviours, some of which are worth mentioning. Gender equality is positively correlated with the total fertility rate as well as with the abortion rate. To elaborate, higher levels of gender equality at the macro level appear to favor the decision to have more children on the one hand; on the other hand, higher levels of gender equality is supposed to promote sexual emancipation which is proxied by a higher abortion rate. As far fertility is concerned, our result is in line with recent evidence in demographic studies which highlight the so called "fertility-development switch" (Billari *et al.*, 2009, 2011; Esping-Andersen, 2009; McDonald, 2000). Accordingly, Billari *et al.* (2011) shed light on the positive role of increased gender equality on fertility levels in highly developed countries.

Gender inequality is also linked to some family characteristics: in regions where the gender gap is wider there is a higher concentration of families with three or more children and a higher concentration of young people living with their parents. These two facts are consistent with the idea, already known in the literature, that stronger traditional values are linked to stronger beliefs on the importance of the family and to a gender structure characterised by the subordination of women to men and, in other words, to higher gender gaps (Alesina and Giuliano, 2010; Chiuri and Del Boca, 2007;

Giuliano, 2007). This idea is strengthened by looking at the other socio-cultural variables in the last three rows: indeed, we see a positive correlation of gender equality with the divorce rate. As long as traditional values decline, the family becomes weaker and women become more independent from men in particular in the economic sphere: as a result an increasing number of marriages is more likely to end up in a divorce. From another perspective, the just mentioned process of declining traditional roles is emphasized if looking at the correlation with religious attendance (religiousness) and the share of religious marriages over the total: gender equality increases as the degree of religiousness decreases and the same happens to religious marriages.

6. Concluding Remarks

This paper presents an assessment of the level of gender inequality among Italian regions. In fact Italy shows a high heterogeneity in gender inequality at the territorial level and measuring such heterogeneity is crucial in order to have an exhaustive picture of many social and economic phenomena such as economic growth, competitiveness, and social cohesion.

In order to quantify gender disparities across Italian regions this paper follows the methodology established by the WEF's Global Gender Gap Index in order to create a new index, the Italian Gender Gap Index (IGGI), which captures regional disparities across Italian regions. As a result, we can assess that Italian regions still show a gender gap between 20 and 30%. If we decompose the index, we see that in Italy women have caught up with men in health and education but still lag behind in the economic as well as the political dimensions.

Finally, we present a preliminary analysis of the linkages between the issue of gender inequality and a series of socioeconomic phenomena. For example, more egalitarian regions show higher income, increased competitiveness, and higher fertility rates.

Our results confirm the relevance of the issue of gender equality for Italy and the need for a better understanding of the topic at stake. While most of the current research has investigated the issue at a macro level, more analysis is needed to go deeply into the question, in particular at the micro level. It would be interesting for example to understand how macro level gender inequality influences individual level behavior and decision-making, such as women's investment in education, fertility choices or active political participation.

To conclude, this paper highlights the need for a broader assessment of gender inequality in Italy in order to formulate policy programs and initiatives aimed at exploiting in a more fruitful fashion women's potential.

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Appendix

I. Data Availability

All data are available on the web for purposes of replication. Multipurpose surveys carried out by the Italian National Institute of Statistics (ISTAT) can be downloaded from the ISTAT web site at the address www.istat.it and http://sitis.istat.it/sitis/html/index.htm.

II. Descriptive Statistics

	year	source	obs	mean	st.dev.	max	min
Labour force participation rate - total	2008	ISTAT (2011c)	20	49.029	5.439	56.895	39.688
Labour force participation rate - male	2008	ISTAT (2011c)	20	60.002	3.773	66.574	52.123
Labour force participation rate - female	2008	ISTAT (2011c)	20	38.818	7.225	47.668	26.096
Average annual wage paid employees - male	2005	ISTAT-EU-SILC (2008)	20	17332.55	1859.615	20442	14011
Average annual wage paid employees - female	2005	ISTAT-EU-SILC (2008)	20	13354.7	1243.847	15706	10929
Average annual wage paid employees - total	2005	ISTAT-EU-SILC (2008)	20	15605.3	1443.062	18300	12693
Level of education of women aged 15-19 -female	2008	ISTAT (2011c)	20	98.452	0.665	99.457	96.899
Level of education of women aged 15-19 male	2008	ISTAT (2011c)	20	97.732	1.096	99.403	95.698
Women with a bachelor in science and technology	2007	ISTAT (2011c)	20	7.871	3.672	13.529	0.323
Men with a bachelor in science and technology	2007	ISTAT (2011c)	20	12.734	6.204	22.138	0.447
Higher secondary enrolment rate male	2007-2008	ISTAT-MIUR (2011c)	20	94.462	5.963	106.011	82.693
Higher secondary enrolment rate female	2007-2008	ISTAT-MIUR (2011c)	20	96.307	4.03	103.496	89.126
Higher secondary enrolment rate total	2007-2008	ISTAT-MIUR (2011c)	20	95.356	4.743	104.79	86.85
Men with bachelor every 100 people aged 25	2007-2008	ISTAT-MIUR (2011c)	20	15.132	2.345	19.659	9.551
Women with bachelor every 100 people aged 25	2007-2008	ISTAT-MIUR (2011c)	20	22.984	4.335	31.529	14.45
People with bachelor every 100 people aged 25	2007-2008	ISTAT-MIUR (2011c)	20	19.0197	3.242	25.68	11.987
Tertiary enrolment rate male	2007-2008	ISTAT-MIUR (2011c)	20	35.243	5.984	48.51	22.207
Tertiary enrolment rate female	2007-2008	ISTAT-MIUR (2011c)	20	48.871	8.729	67.280	31.821
Tertiary enrolment rate total	2007-2008	ISTAT-MIUR (2011c)	20	41.911	7.231	57.717	26.897
Women in training and life-long learning	2008	ISTAT (2011c)	20	6.864	1.128	8.875	5.247
Men in training and life-long learning	2008	ISTAT (2011c)	20	6.218	0.954	7.782	4.488
Women's seats in the regional committees	2008	Ministero dell'Interno (2011) and regional internet sites	20	2.2	1.508	6	0
Total seats in the regional committees	2008	Ministero dell'Interno (2011) and regional	20	11.75	3.041	17	5

		internet sites					
Women's seats in the regional councils	2008	Ministero dell'Interno (2011) and regional internet sites	20	5.75	3.864	16	0
Total seats in the regional councils	2008	Ministero dell'Interno (2011) and regional internet sites	20	54.2	18.326	85	30
Total number magistracy (judiciary)	2008	Ragioneria Generale dello Stato (2011)	20	500.1	476.603	1827	17
Women in the magistracy (judiciary)	2008	Ragioneria Generale dello Stato (2011)	20	201.25	188.877	583	4
Percentage of female senior officials and managers in local administration (public sector)	2010	FORUMPA, Osservatorio Donne nelle P.A. (2010)	20	21.22	10.03	44.44	0
Percentage of female junior officials and managers in local (public sector)	2010	FORUMPA, Osservatorio Donne nelle P.A. (2010)	20	32.88	6.75	49.28	23.08
Preferences of hiring a woman over the preferences for a man for Manager positions	2008	Excelsior Survey, Unioncamere (2010)	20	5.789	9.0159	30	0
Preferences of hiring a woman over the preferences for a man for technical positions	2008	Excelsior Survey, Unioncamere (2010)	20	1395.789	1597.496	7010	70
Preferences of hiring a woman over the preferences for a man for professional workers (private sector)	2008	Excelsior Survey, Unioncamere (2010)	20	1250.526	1246.455	5040	30
Preferences of hiring a man over the preferences for a man for Manager positions	2008	Excelsior Survey, Unioncamere (2010)	20	37.368	55.06	220	0
Preferences of hiring a man over the preferences for a man for technical positions	2008	Excelsior Survey, Unioncamere (2010)	20	1488.947	1858.371	8250	90
Preferences of hiring a man over the preferences for a man for professional positions	2008	Excelsior Survey, Unioncamere (2010)	20	1366.842	1169.003	4550	60
Healthy adult life expectancy (HALE) men	2005	ISTAT (2011a)	20	54.34	2.134	59.84	50.28
Healthy adult life expectancy (HALE) women	2005	ISTAT (2011a)	20	51.353	2.785	58.90	46.66

III. Descriptive Statistics: socio-economic context

Variable	Year	Source	Obs	Mean	Std. Dev.	Min	Max
IGGI	2008	Own calculation	20	0.713	0.0265	0.672	0.776
RCI	2010	Annoni, Kozovska, Saltelli (2010)	20	44.937	10.954	27.7	65.3
TFR	2008	ISTAT (2009a,b)	20	1.38	0.127	1.1	1.6
Poverty index (families)	2008	ISTAT (2009d)	20	12.775	9.276	3.9	28.8
Religiousness	2008	ISTAT (2009d)	20	32.325	6.622	21.5	42.4
Voluntary Abortion Rates (18-24)	2008	ISTAT (2011b)	20	13.544	3.064	8.92	19.09
GDP pc	2008	ISTAT (2011c)	20	20641.25	5091.77	13510.11	28236.23
Divorce rate	2008	ISTAT (2010)	20	3.35	1.346	1.2	6.3
Religious marriages (%)	2008	ISTAT (2009c)	20	62.9	14.5	44.5	85.4
Youth 18-34 living with parents	2008	ISTAT (2009d)	20	59.9	7.09	49.3	73.9

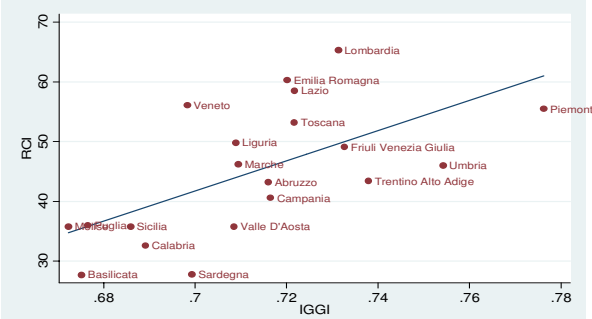
IV. Descriptive Statistics: indicators.

Sub-index	Mean	Std. Dev.	Min	Max
HS	0.944327	0.017052	0.911191	0.97888
EDU	0.992529	0.004746	0.976742	0.997796
ECO	0.633926	0.063156	0.497157	0.748075
POL	0.280741	0.073657	0.145312	0.436273

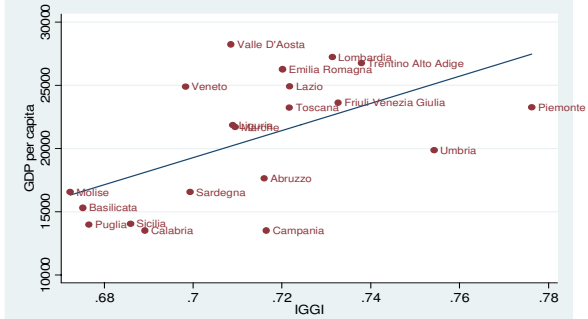
V. Backward Calculations of Weights within each Sub-index

	Standard Deviation	Standard deviation per 1% point change	Weights
Health and Survival			
sex ratio at birth (f-to-m ratio)	0.019099	0.523597	0.530942
healthy life expectancy	0.021618	0.462569	0.469058
Educational Attainment			
f-to-m ratio adults in training and life-long learning	0.007363	1.358051	0.293582
level of education of women aged 15-19 over male value	0.004255	2.350222	0.508068
women's share of traditionally male-dominated higher education areas (technological and natural sciences over male value)	0.148603	0.067293	0.014547
female upper secondary school enrolment rate over male value	0.011761	0.850238	0.183803
Economic Participation and Opportunity			
female labour force participation over male value	0.260098	0.111202	0.216396
average female annual net wage over male value (paid employees)	0.267752	0.197829	0.384969
f-to-m ratio preferences for managers of Private firms (private sector)	0.277008	0.024771	0.048203
f-to-m ratio technical workers and professional workers (private sector)	0.289335	0.061559	0.119792
f-to-m ratio senior managers Regions (public sector)	0.297258	0.056662	0.110263
f-to-m ratio junior officials Regions (public sector)	0.310113	0.162445	0.120377
Political Empowerment			
women with seats in regional councils (legislative)	0.076778	0.130246	0.542033
women in regional committees (executive)	0.197303	0.050683	0.210925
women in the magistracy over male value (judiciary)	0.168458	0.059362	0.247042

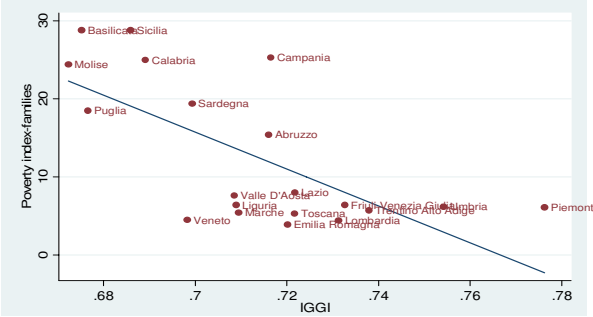
VI. Cross Plots Explorative analysis of Paragraph 5



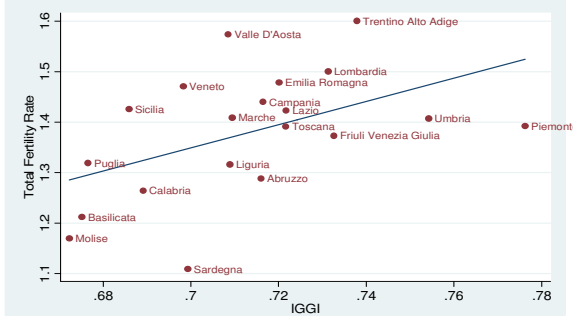
Graph 7



Graph 8



Graph 9



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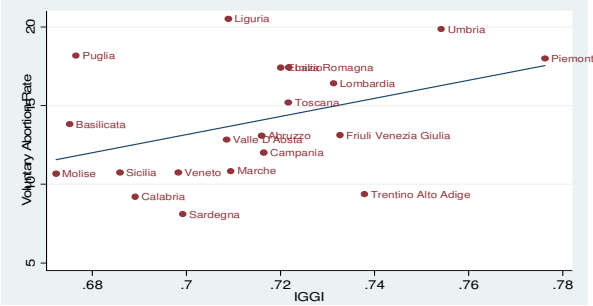

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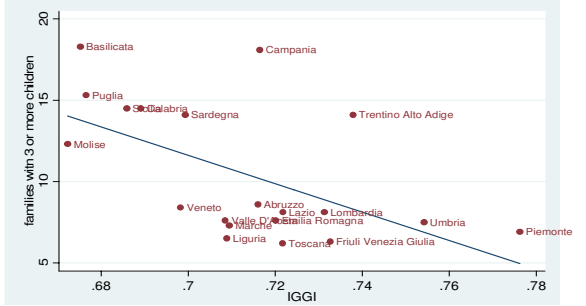
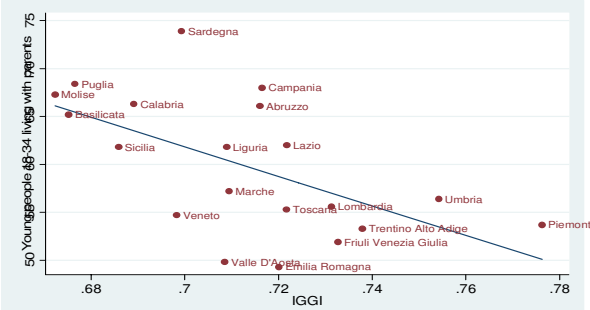


Graph 12



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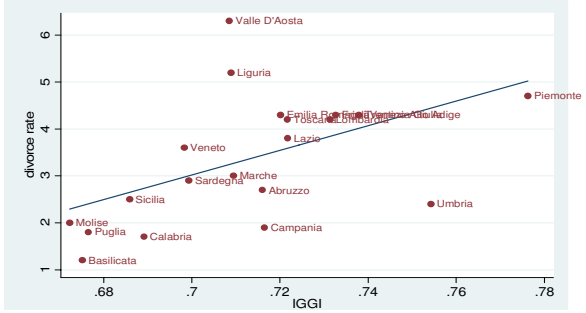
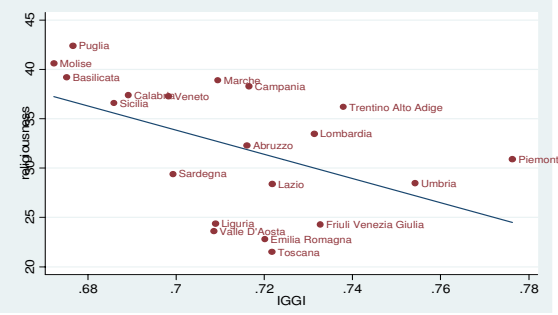
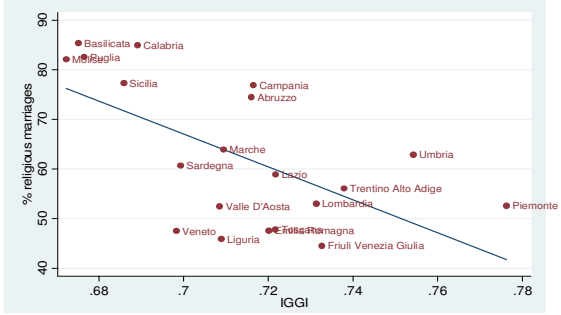


Graph 14



Graph 15



Graph 16

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