***Explaining subnational variations in early childhood education and care. A fuzzy-set analysis of the Italian case***

Barbara Da Roit, Stefania Sabatinelli, Marco Arlotti

SOCIAL POLICY & ADMINISTRATION

Volume 53, Issue 7, December 2019

First published: 14 February 2019

https://doi.org/10.1111/spol.12489

**POST PRINT/DRAFT (AAM-Author's Accepted Manuscript)**

**Explaining sub-national variations in early-childhood education and care. A fuzzy-set analysis of the Italian case**


## Abstract

While cross-country differences in the development of early child education and care (ECEC) services have been widely researched, the pronounced sub-national variation that characterizes many countries is under-studied. This article aims to contribute filling this gap by investigating the factors underlying ECEC development in Italian Regions, where take-up rates of public and subsidized day-care centers, behind a national average of 12%, range from 2% in some Southern Regions to 25% in Emilia Romagna (North-East). The article explores the configurations of economic, socio-demographic, political, institutional and cultural factors possibly responsible for high and low ECEC development through Fuzzy-set/Qualitative Comparative Analysis (Fs/QCA). Results show that economic development and female employment are necessary but not sufficient conditions for ECEC development; similarly, familistic values, the lack of early ECEC development and of social capital are necessary but not sufficient conditions for limited expansion. The analysis identifies multi-faceted patterns of (non-)expansion, thus demonstrating the complexity of social policy development processes, and preventing determinism driven by need, cultural or economic factors.



## Keywords

Early-childhood education and care, sub-national welfare variations, fuzzy-set analysis, Italy

# 1. INTRODUCTION

Since the early 2000s, an expanding body of literature on early child education and care (ECEC) has mirrored the growing policy attention to the topic in EU countries. Comparative studies have analyzed national systems, identified clusters of countries and put forward interpretations of the origins, transformations and consequences of different models (a.o. Anttonen and Sipilä, 1996; Bonoli and Reber, 2010). In most countries, ECEC services are organized in two separate segments: pre-schools (usually for children 3 to 5 years) and day-care services for children below three. The former, generally regulated and managed at the State level, have ample to universal coverage throughout Europe. The latter, usually under the responsibility of local governments, display large variations in national take-up rates (TUR) not only across but also within countries. While cross-country variation has been widely researched, this pronounced sub-national variation in the service provision for children 0-2 is under-studied. Thanks to an increasing interest for the local level of social policy, for the implications of rescaling processes and of multi-level governance (Kazepov, 2010), comparative studies have addressed local childcare systems, although mostly based on a limited number of local case studies (e.g. Fraisse et al., 2003; Fraisse and Escobedo, 2014; Kuronen et al., 2014). Studies on single countries marked by significant sub-national variations examined the factors associated with differential ECEC development pointing to needs, economic development, politics, polity and historical legacies. However, they either focus on the main cleavage, e.g. between East/West in Germany (Mätzke, 2018) and Northern/Southern macro-regions in Italy (Gambardella et al., 2015), or compare few regions (Confalonieri and Canale, 2012). This article aims to push forward this debate by systematically exploring the factors underlying the differential ECEC development across all Italian Regions. Our working hypothesis being that complex combinations of factors underlie different policy paths, we use Fuzzy-set/Qualitative Comparative Analysis (Fs/QCA) to identify the conditions associated with more marked and more limited development.

Italy is a particularly interesting case of ECEC sub-national variations. In contrast with the early-achieved universalization of pre-primary schools, ECEC services for children aged 0-2 display a later development compared to Nordic countries and slower progress compared to other latecomers, like Germany (Blome, 2016). Up to date, the country has still not reached the European target fixed in Barcelona in 2002 of a national TUR of 33% of children under three enrolled in formal childcare, public or private, by 2010. However, similarly to many countries (e.g. Spain, Germany and France) and differently from the Nordic ones, the national average hides pronounced sub-national variation. The article, by addressing the reasons why some Italian regions developed a stronger public ECEC service system and others lagged behind, paves the way to investigations of other national contexts and in other policy areas.

A brief illustration of the peculiarities of the Italian ECEC context (section 2) precedes a discussion of the possible socio-economic and institutional factors underlying the regional differentiation (section 3). After the presentation of the study's methods and results (sections 4 and 5), the final section draws some conclusions and points to possible new research paths.

## 2. ECEC SERVICES IN ITALY

In Italy, pedagogical traditions based on "readiness to school" contributed to a wide social consensus around pre-schools reflected in the enrolment of half of children aged 3-5 already in 1963 (calculations on MPI 2000). The 1968 law, by means of State premises integrating municipal and private supply, paved the way to universal coverage, achieved in the early 1990s also thanks to significant decreases in birth rates (children aged 3-5 almost halved in that period). By contrast, day-care centers for children 0-2 remained a local responsibility: the 19 Regions and 2 Autonomous Provinces (from now on: "Regions") and Municipalities within them developed ECEC at their own pace, reaching different levels of provision.

## 2.1. ECEC multi-level governance

The 1971 legislation on services 0-2 ratified a rather loose *national* framework for *municipal* day-care centres. The law introduced a (soon-disregarded) national 5-year plan aimed at building 3,008 new facilities. In absence of national earmarked funds, Regions and Municipalities have been free to define the resources to be devoted to ECEC services, to set quality indicators (i.e. children-staff ratio, staff educational and training requirements, families' participation, premises' requirements) (Mari, 2013) and fees. Only in the early 2000s, national governments, pressured by increasing female employment and by the EU, started to earmark funds to the set-up (not the functioning) of day-care services. This happened in a new context, marked by permanent austerity. The governments aimed at diverse services, including smaller premises with looser structural and organizational requirements. The role of private (market and non-profit) providers, of corporate support to working parents and of new management forms (outsourcing, public-private partnerships) increased. Simultaneously, in 2001 a constitutional reform transferred social policy competences entirely to the Regions: the State could only earmark funds to social services with the agreement of a State-Regions-Municipalities Conference. Based on such agreements, the 2007 three-year "Extraordinary crèches plan" devoted over 700 million euro to expanding provision, also with the failed ambition to reduce territorial differentiation. Ten years later, new legislation introduced the "0-6 integrated system", with day-care becoming part of the educational system. One of the goals is to enlarge the 0-2 coverage at least to the Barcelona target (33%), although with no clear timeframe, nor long-term resources.

## 2.2. ECEC development

Figure 1 shows the TUR in the Italian Regions and in Italy in 1977, 1991 and 2013, calculated as the yearly number of users of public or subsidized daycare services as a proportion of the population aged 0 to 2 years[i].

FIGURE 1. ABOUT HERE

In 1977, TURs were below 5% in all regions except Emilia-Romagna (nearly 9%), Marche and Trento (6-7%). TUR was particularly low in Southern and most North-Eastern Regions (maximum 3%) and slightly higher in Central and North-Western Regions (3-5%).

The early 1990s represent the end of the first phase of development of ECEC: in the subsequent years work-life balance gained attention due to increasing (yet low) female employment and international and academic focus. In 1991, the TUR was as high as 19% in Emilia-Romagna, followed by Trento (13.5%) and Piedmont (12.5%). All other Central and Northern regions had a TUR between 5 and 10% (except for Bolzano: 3.3%), and Southern regions and islands below 5%. While the average Italian TUR in the early 1990s was far from that of the best scoring countries in Europe, the top-scoring Italian Region – Emilia-Romagna – was relatively close to them, e.g. Denmark (44%), Sweden (29%), France (20-25%) (Anttonen and Sipilä, 1996).

TURs have grown in Italy between 1991 and 2013, when this positive trend slightly reversed, due to the great recession's effects on ECEC supply and demand. Emilia-Romagna remains the region with the higher TUR in 2013 (nearly 25%) followed by Trento (20%), Tuscany (nearly 20%), Aosta Valley (19%), Friuli V.G. (18%) and Lazio (16%). In other northern and central regions, TURs were between 10 and 15%, while in southern regions between 1.5% and 9%. In the early 2010s, however, not only the average Italian TUR but also that of the best-scoring Italian Regions was far below that of the best scoring countries in Europe, e.g. Denmark (67%), Sweden (47%) and France (50%) (OECD Family Database), even considering that our figures only encompass public and subsidized daycare.

The expansion of provision only partly explains changes in TUR. Even if the Italian TUR nearly doubled between 1977 and 1991, the number of children attending daycare grew by only 35% while the population aged 0-2 decreased by more than 30%. ECEC expansion was more marked in northern Regions, while the demographic change was similar across Regions (Figure 2). Changes in TUR between the early 1990s and the early 2010s occurred in a more diverse demographic context. While in northern and central Regions the target population remained stable or increased, in southern Regions it diminished. At the same time, in northern and central Regions the number of users grew more than the TUR, while in Southern Regions it was stable, decreased or increased less than the TUR (Figure 3). As a result, the gap between North and South is bigger than the one expressed by TURs, and increasing.

FIGURE 2 AND 3 ABOUT HERE

## 3. ANALYTICAL FRAMEWORK

Comparative research has long neglected the territorial dimension of social policies. A focus on national cash benefits (pensions, unemployment benefits, etc.) entailed a "methodological nationalism" in which WSs were largely assumed as homogeneous entities (Jensen and Lolle, 2013). However, with the post-industrial transition and related socio-economic changes, more heterogeneous and complex social risks emerged, fostering demands for social protection often based on services managed by local authorities. This suggested more careful consideration of multi-level governance and the (lack of) consistency between state steering and framing capacities and local governments' margins of maneuver in policy design and implementation (Kazepov, 2010; Trydegård and Thorslund, 2010).

Several economic, demographic, political, institutional and social factors are likely to shape subnational variations (Putnam et al., 1990; Vassallo, 2011; Pavolini, 2015). Basing our analytical

framework on different theoretical explanations of WS development, we expect that a set of factors, combined, might explain the differential ECEC development in Italy.

### 3.1. Economic development

According to the oldest explanation of WS development, the "logic of industrialism" (Wilenski, 1975), economic development is a sufficient as well as necessary condition for WS growth. Economic growth "creates" social problems that can only be solved through collective forms of protection and it provides the necessary resources to finance and organize social policies. The functionalist bias and the downplaying of political and institutional actors have been criticized. Comparative research has shown that economic development is a necessary condition but not a sufficient condition for the rise of the WS (Esping-Andersen, 1990): countries with similar levels of economic development have different degrees of WS development. Our expectation is, therefore, that, the differential economic development across Italian regions influences, combined with other factors, but does not determine alone the Regions' ability to expand ECEC (see also Fantozzi, 2011).

### 3.2. Need and problem pressure

The recent welfare scholarship is permeated with the idea that emerging social needs exert pressure on new policies, while acknowledging that "needs alone do not create policies" (Bonoli and Reber, 2010). Concerning ECEC development in post-industrial times, women's participation in the labor market and fertility appears as key factors determining the need for conciliation services. The direction of causality may be tricky, however. If increasing female employment may increase childcare demand, it may also be a consequence of childcare availability. Similarly, increases in childcare provision can stem from a growth in fertility (and therefore in the number of children in

the target group), but fertility might also be enhanced by the increasing availability of services. Moreover, it might be political concerns about decreasing fertility that sustain ECEC expansion, since care policies can favor fertility by supporting work-family balance. Thus, it may be that ECEC TURs are the antecedents, rather than the outcome, of increases in female participation rate and fertility. However, such reverse causal effects would probably need much higher TUR levels and increases than those observed in the Italian context, and a long time-span. In addition, research indicates that the overall family-friendly policy package, rather than individual measures, may foster fertility. Such package has not significantly improved in Italy over the period considered (Rosina and Zezza, 2016). These elements imply a low risk of explanation circularity in our case. Against this background, we consider that positive trends (or the halt to negative trends) in women's employment and fertility represent factors supporting the development of ECEC services.

### 3.3. Politics

"Politics matters" has been a key claim in comparative WS research (Castles and McKinley, 1979). According to the power-resource theory, the degree of power and political mobilization of labor movements and left-wing parties are crucial factors in explaining cross-national variations in social policies (Esping-Andersen, 1990). Social-democratic parties and trade unions have generally supported de-familizing policies, despite some ambiguities due to the potential risk of downward pressures on wages related to the increase in women's employment (Bonoli and Reber, 2010). Even if post-war Italian politics was dominated by Christian democracy, the Communist party, excluded from the national government, exerted strong opposition in Parliament and led the government of many regions and municipalities, particularly in central Italy (Ramella, 2000). After the collapse of the political system in the early 1990s due to widespread judicial inquiries, a (not unambiguous) reorganization of the political field in two main coalitions – center-right and center-left – took place, characterized also by strong divisiveness on family and care issues (Da Roit and

Sabatinelli, 2013). We therefore consider that a strong presence of center-left parties and coalitions in regional governments facilitates the expansion of childcare services.

Moreover, focusing on the political role played by the key beneficiaries in this policy field, many studies have pointed out the positive effect played by the presence of women in politics for the development of family-friendly policies (Bonoli and Reber, 2010). We hypothesize that the presence of women in regional governments exerts a positive influence on care policy development.

### 3.4. Polity

Political institutions, the organization of the state, the orientation and efficiency of state bureaucracies may be key factors for the development of social policies. “Polity matters” (Skocpol, 1992) for social and political mobilization, agenda setting and decision making.

The Italian polity context, compared to Continental and Northern Europe, features particularism/clientelism and reduced public administration capacity (Ferrera, 1996). However, these features are not equally distributed across regions: in Southern Regions bureaucracies are less efficient, also due to the social security cushion role traditionally played by public employment (Pavolini and Vicarelli, 2012) and to higher degrees of clientelism, particularism and illegality (Fantozzi, 2011).

In addition, four regions (Aosta Valley, Friuli V.G., Sicily, Sardinia) and two provinces (Trento and Bozen) enjoy a “special status”, guaranteed by the 1948 Constitution. Extended power and resources potentially provide a larger margin of maneuver to invest in childcare.

Therefore, we hypothesize that both higher institutional performances and more autonomy support ECEC development.

### 3.5. Timing and path dependency

ECEC expansion has become urgent on the agenda of most European countries in times of financial constraints, reduced consensus on public expenditure and strong competition with other emerging risks, like long-term unemployment, ageing, migration (Bonoli and Reber, 2010). By contrast, Nordic countries, where early childcare policies developed already since the 1960-70s, in a phase of WS expansion and legitimacy, full employment, and higher availability of resources, had a comparative advantage in adapting to new social risks. A similar comparative advantage, for specific historical reasons, is found in Eastern Germany (Mätzke, 2018). Similarly, we expect that Italian Regions with relatively developed ECEC already in the 1980s, had an advantage in further expansion.

### 3.6. Social capital

When defined as a resource of a community/society, social capital – in the form of shared values, trust in others and in institutions, social participation – is seen as productive of economic development, institutional performance, societal well-being (Putnam et al., 1990; Fukuyama, 2000). In the WS literature, the focus is much more on the influence of social policies on social capital than vice versa. However, the seminal work of Putnam and colleagues (1990) has identified a strong positive correlation between the degree of development of social capital and regional institutional performances. Studying Italy, Putnam theorizes that the lack of social capital in Southern regions – essentially explained through a historical path-dependent process – is a crucial factor for their poor institutional performances. This theory's critics pointed to its historical determinism and lack of awareness about the role that structural conditions, such as economic inequalities and the type of WS, play in shaping social engagement (Ferragina, 2012). Without undervaluing the importance of socio-economic factors, extensively covered by several elements illustrated above, we do consider a possible positive impact of social capital on social policies' development. In particular, we hypothesize that higher degrees of social and institutional trust and of social and political

participation are likely to enhance governments' responsiveness to social needs and the identification of collective solutions to social problems.

### 3.7. Familism

It has been argued that social and care policies are deeply embedded in social norms and values about patterns of sexual division of labour, both at the family- and societal level, child-raising models and the distribution of responsibility between the family and the state (Pfau-Effinger, 2005). The degree of cultural modernization concerning these dimensions is likely to affect the development of policies that reduce the dependence on family to answer care needs. Despite general long-term trends of growing consensus around gender equality, differences are observed between and within countries as to the degree of persistence of traditional values. We therefore expect that the comparatively stronger presence of traditional values about the de-familization of care in some Italian regions contributed to hinder ECEC expansion in those contexts.

## 4. DATA AND METHODS

To investigate the configurations of factors leading (or not) to ECEC development, we use Fs/QCA. This approach is located half way between quantitative (focusing on variables) and qualitative analysis (focusing on individual cases). It argues that an "all-things-being-equal" position is unrealistic, and that causation is based on the combination of different conditions rather than on their isolated effect (Ragin, 2000: 31-33). Simultaneously, it sees cases not as historically unique, but as combinations of conditions. It therefore researches 'configurations of causes' as predictors of given outcomes and assumes that the same outcome might be produced by different combinations of conditions (Ragin 1994: 114). Furthermore, this method is adapted to working with small samples, as often the case in comparative WS research at the country- and sub-national levels alike. As a result,

by means of Fs/QCA, we investigate which combinations of factors lead to ECEC development (or not) in the Italian Regions.

According to Fs/QCA, the 'outcome variable' (TUR in 2013) and the 'condition variables' (measures of economic development, need, politics, polity, path dependency, social capital and familism) are translated into 'fuzzy-sets': the degree to which a case (region) belongs to a certain set. A fuzzy-set score of 1 on the outcome variable indicates that the case is 'fully-in' the set of ECEC development (i.e. it entirely fulfils the criteria of ECEC development); a fuzzy-set score of 0 indicates that the case is 'fully out' of the set (does not at all fulfil the criteria of ECEC development); a fuzzy-set score comprised between 0 and 0.5 indicates that the case is mostly but not entirely out of the set; a fuzzy-set score comprised between 0.5 and 1 indicates that the case is mostly but not fully in the set. The researchers need to make explicit how the outcome and condition variables are converted into fuzzy-sets 'reflect[ing] theoretical concepts and analytical constructs' (Kvist, 2007: 204). The different 'degrees to which cases belong to a set' (Ragin, 2000: 149) are assessed against the criteria illustrated below. Unless differently specified, we use a calibration procedure to identify the fuzzy sets: we identify the 'full in' (1), 'full-out' (0) and 'neither-in-nor-our' (0.5) thresholds. Based on these parameters, the Fs/QCA software (Ragin, 2008) calculates calibrated fuzzy-set values.

### 4.1. Outcome variable: TUR in 2013

The outcome variable is the public and subsidized TUR in 2013 (TUR2013). Our full-in threshold does not refer to models of "full" ECEC development in European terms. As shown above, the best scoring Italian regions are far from the level of service development of the best scoring European countries. Rather, we consider regional cases "fully in" if TUR2013 approximates the Barcelona target, i.e. in the context of a moderate ECEC development they managed to develop an ECEC system at an acceptable level by EU standards. Considering that we only include public and subsidized day-care, a 25% TUR2013 appears an appropriate full-in threshold. By contrast, we

consider full-out cases when TUR2013 is 5% or below, reflecting a virtually non-existent ECEC system. Finally, a case is neither in nor out when TUR2013 is 15%. As a result, there are seven cases in our sample that are “more in than out” or ‘fully in’.

## 4.2. Condition variables

We identified a set of condition variables covering the factors illustrated above and expected to influence the (lack of) ECEC development in Italian regions. Table 1 provides a summary and table 2 reports the fuzzy-set thresholds used for calibration.

### 4.2.1. Economic development

The 2008 GDP per capita expressed in purchasing power parities (PPP) at the regional (Nuts2) level operationalizes economic development. We choose 2008 as a reference year to exclude the effects of the economic crisis.

We set the full-in threshold at 37,000 (slightly below a.o. Switzerland, Norway, North Holland). The full-out threshold is set at 17,000, below which are several Southern-Italian, Greek, Southern-Spanish, Portuguese and Eastern European regions. The intermediate threshold is set at 27,000, slightly above the French (26,700), Italian (26,000) and Spanish (25,600) average.

### 4.2.2. Need

Two condition variables account for need: female employment rates in 2008 and the changes in fertility rates between the early 1990s and the early 2010s.

Also in this case, we choose 2008 as a reference year to exclude the effects of the economic crisis. An employment rate among women aged 25-45 of 80% or above (full-in) can be considered as a

full-employment situation, as in the Nordic countries. 60% (neither-in-nor-out) is the Italian average and 40% (full-out) comprises regions with very low female employment.

Fertility rates decreased in Italy in the period 1971-91 at similar paces across regions (Vitali and Billari, 2017). Between 1991 and 2011 the trend has come to a stop and there has been a growth of the total fertility rate by 8.7% nationally. However, the trend was positive in most Northern and Central Regions and negative in the South. We consider that a positive trend (or a halt to the negative trend) represents a pressure factor towards ECEC development. We consider a set to be full-in when the fertility rate in 2011 is at least 40% higher than in 1991; to be neither in nor out when in 2011 it is 20% higher than in 1991; and to be fully out when the difference is nihil (0) or negative.

#### 4.2.3. Politics

Two variables operationalize the influence of politics on ECEC development.

The first variable refers to the influence of center-left parties, measured as the average proportion of seats obtained by center-left parties in regional assemblies between 1995 and 2013. A case is full-in when the percentage is 51 or higher (i.e. the absolute majority), it is full-out when the percentage is 10% or lower (i.e. marginal influence) and it is neither in nor out at 33%.

The second variable is women's political influence, measured as the average proportion of female elected members of regional assemblies between the mid-1990s and 2013. A case is full-in when the average proportion of women is at least 40%, full-out when below 5% and neither in nor out when at the 15% level.

#### 4.2.4. Polity

We consider the influence of polity by looking at the quality of government and at the autonomous status ensured by the Constitution to a number of Regions.

To operationalize the quality of regional government we make use of the Goteborg QoG Index, which, differently from other indicators, is constructed at a regional (Nuts2) level, and based on measures of quality, impartiality and rule of law in education, health care and law enforcement (University of Gotheborg, 2010: 12-13). To transform the QoG index variable (QualGov) into fuzzy sets, cases scoring 0.75 or higher are given a fuzzy set score of 1 (full-in), broadly corresponding to Northern European countries' scores. Cases scoring between -0.25 and 0.75 are given a fuzzy set score of 0.67 (more in than out), corresponding to the index' levels of Germany and France. Cases scoring between -0.75 and -0.25 are given a fuzzy-set score of 0.33 (more out than in), corresponding to the index' level of Southern and Eastern Europe. Cases scoring -0.75 or below are given a fuzzy set score of 0 (full out), corresponding to the Southern regions of Southern European countries and to Greece (ibid: 35).

The condition variable RegAut indicates whether the region enjoy constitutionally-defined autonomy and is coded into 1 (full-in) and 0 (full-out).

#### 4.2.5. Path dependency

To account for the influence of the earlier ECEC development, we use TURs in 1991. We fixed the full-out threshold at 5%, as for the outcome variable. The full-in and neither-in-nor out parameters are set at a lower level compared to TUR2013, in consideration of the overall lower development of services in the early 1990s, in Italy and in Europe. Since the highest TUR in Italy (Emilia Romagna: 19%) was not far from the "best" European countries back then, we set the full-in threshold at 15% and that for neither-in-nor-out at 10%.

#### 4.2.6. Social capital

To measure social capital at the regional level we use the index proposed by Ferragina (2012), despite the fact that, for Italy, it only considers 7 macro regions. Available Italian indexes (e.g. Cartocci, 2007; Brasili, 2012) do provide data at the regional level but present two problems. First, social capital's operationalization does not reflect closely enough our conceptualization[ii]. By contrast, Ferragina's index operationalizes social capital as encompassing informal networks, formal networks and trust, which we expect to be key dimensions for social and political engagement and for government's responsiveness. Second, Italian indexes do not allow placing Italian regions in the European context, while Ferragina's work covers 85 European regions.
The European Regions ranked by Ferragina (2012) score between 1.39 (Gotaland, Sweden) and -1.07 (Italian Islands). The highest scoring Italian region is the North-East (-0.13), which is close to the level of the *Ile-de-France* and West-France. We consider values equal to or above 0.50 as full in, values equal or below -1 as full out and values equal to -0.20 as neither in nor out. Therefore, North-East Italy is more in than out. Central and North-Western Regions score better than Southern Regions and Islands, but are still more out than in. Southern Regions and Islands are either more-out-than-in or fully out. This coding acknowledges both the diversity of social capital levels across Italian regions and their positioning in the European context.

#### 4.2.7. Familism

The operationalization of familism is based on one item from the 2006 Eurobarometer asking if pre-school children suffer when mothers work. We grouped "fully agree" and "agree". The Italian corresponding value is 76%, against the 44% of Sweden and Denmark, 57-60% of France and West Germany. At the Nuts-1 level, Italian North Western Regions score lower (63%) compared to all other areas which have values slightly below or above 80%. Consequently, we set the full-out score at 30%, neither in nor out at 50% and full-in at 80%.

## 5. ANALYSIS

Fs/QCA identifies necessary and sufficient (combinations of) conditions for the outcome. A condition is necessary (but not sufficient) for an outcome when the cases scoring positively (at least more in than out) in the outcome are a subset of the cases where the condition is present (Ragin 2000). Therefore, a given condition (e.g. economic development) is necessary for ECEC development if the regions with high ECEC development are a subset of the regions with high economic development: in order to have ECEC development, a case needs to have economic development, but cases might exist that do have economic development without ECEC development (condition is not sufficient). The analysis of necessity is based on two parameters. First, consistency indicates the extent to which one set is contained in another (Rihoux and Ragin, 2009: 108). Perfect consistency is equal to 1. For the purpose of the analysis, we set the threshold at 0.90. Second, coverage indicates the proportion of the cases with the outcome 'covered' by the specific condition (Rihoux and Ragin, 2009: 64).

A sufficient (combination of) condition(s) produces the outcome, even though it is not necessary for it: the same outcome may be reached through different (combinations of) sufficient conditions. A two-step procedure is used to find sufficient conditions. First, the Fs/QCA software uses the fuzzy-set scores to build a truth table made of all possible combinations of conditions leading to the outcome (Rihoux and Ragin, 2009). The researchers must then select the configurations to be included in the analysis based on the number of cases. Given our small N, we include all configurations with at least one case. Moreover, a consistency threshold is set to identify configurations that are consistent subsets of the outcome. In order to provide robust analysis of sufficiency we set the threshold at 0.95. Second, based on Boolean algebra, the software minimizes the truth table and identifies the combinations of conditions that are sufficient for the outcome. For the minimization, we used the 'intermediate' solution, therefore using the non-observed

combinations consistent with the researchers' theoretical expectations (Ragin, 2008). For each model, we report the two measures of fit: consistency and coverage. The 'raw coverage' represents the proportion of the outcome cases covered by a specific combination of conditions; the 'unique coverage' indicates the proportion of the outcome cases covered solely by a given combination of conditions (that is, no other combination of conditions covers those cases); and the 'solution coverage' expresses the proportion of cases covered by all the combinations of factors included in the solution (Rihoux and Ragin, 2009: 64)

### 5.1. Outcome 1: ECEC development

We begin by analyzing the necessary and sufficient conditions for ECEC development (TUR2013).

#### 5.1.1. Necessary Conditions for ECEC development

The analysis of necessity shows that two conditions have consistency scores above 0.90: economic development (0.91) and female employment (0.99), even if the coverage of economic development is relatively high (0.76) while that of female employment is relatively low (0.62) (Table 3). We therefore conclude that economic development and female employment are the only two necessary conditions: in a high proportion of regions where the two conditions are present ECEC is relatively well developed; however, in some regions the conditions are given and yet ECEC development is limited.

TABLE 3 ABOUT HERE

#### 5.1.2. Sufficient conditions for ECEC development

We found four paths to ECEC development (Table 4).

The first one characterizes three regions (Emilia-Romagna, Tuscany and to a more limited extent Lazio) and combines economic development, need (female employment and increasing fertility) and politics (center-left and women's influence).

The second and third paths concern three autonomous Regions. Both paths share, alongside constitutionally-defined autonomy, economic development, need (high female employment and growing fertility) and quality of government. In addition, the path of Trento and Aosta Valley includes path dependency (high TUR in 1991), despite low women's political influence. Trento (again) and Friuli V.G. include center-left political influence and social capital. These two paths show that constitutional autonomy is (not needed and) no guarantee for ECEC development, but may lead to the outcome in combination with diverse conditions.

Finally, the fourth path characterizes Marche where female employment, centre-left and women's influence and quality of government are combined, even without growing fertility. However, since the case is barely included in the set, this path to the outcome should be taken cautiously.

We tested the model's robustness in two ways. First, we excluded female employment from the model since GDP and female employment, despite measuring two different conditions, are highly correlated. The results of the model excluding female employment are identical to those presented in table 4. Second, given the theoretical issues involving changes in fertility rates, we implemented a model excluding this condition variable. While the results are identical for the first three paths, with only slight changes in the models parameters, the fourth path (relative to the region Marche) disappears from the analysis (Table 4A). Since the membership of Marche in the original model was already doubtful, this suggests not considering this case and relative path from the results. Overall, these sensitivity checks confirm the model's robustness.

TABLE 4 and 4A ABOUT HERE

### 5.2. Outcome 2: Lack of ECEC development (~TUR13)

We turn now to the analysis of the necessary and sufficient condition for the negated outcome: the lack of ECEC development.

### 5.2.1. Necessary Conditions for lack of ECEC development

Three condition variables are above the consistency level of 0.90: low TUR91 (0.96) and familism (0.99) and low social capital (0.94), with relatively high to moderate overage (Table 5). We can therefore consider path dependency, the lack of social capital and familism as necessary (but not sufficient) conditions for the lack of ECEC development in the early 2010s, i.e. regions not succeeding in developing ECEC services also tend to be regions with low TURs twenty years earlier, with low levels of social capital and high levels of familism, even though there might be regions with these features that did manage to boost their childcare services more.

TABLE 5 ABOUT HERE

### 5.2.2. Sufficient Conditions for the lack of ECEC development

The analysis finds four paths to the lack of ECEC development (Table 6).
In all paths, we see the presence of familism. In addition, paths one and two include the lack of center-left political influence either in combination with no autonomy and relatively low levels of social capital (path 1: Lombardy, Piedmont, Apulia and Calabria) or in combination with path dependency (low TUR91) (path 2: Lombardy, Bozen, Veneto, Apulia, Calabria, Sicily).
The third path combines, alongside familism, limited economic development, no positive fertility trend, no autonomy, lack of early ECEC supply and of social capital (Campania, Apulia, Basilicata, Calabria, Molise, Abruzzo and to a limited extent Marche).

The fourth path combines, alongside familism, limited economic development, low need (female employment and fertility), lack of women's political influence, low quality of government, lack of early ECEC development, low social capital (Sicily, Apulia, Calabria, Sardinia, Molise, Basilicata, Campania).

These results underline that limited ECEC development is associated with complex combinations of factors. Moreover, while Northern and Southern regions alike are included in paths (1 and 2) where political variables (center-left) are key, Southern Regions display a mix of disadvantage factors (paths 3, 4).

The same sensitivity tests described above were run for this negative outcome. The exclusion of female employment as a condition variable does not influence the results, except for slight changes in parameters (not reported in the article). The exclusion of fertility rates confirms three of the four paths, while it partly modifies one path, the third one, associated with some Southern regions (Table 6A). The combination of conditions in the new Path 3 also includes low female employment and low political participation of women. In all, the new Path 3 and Path 4 are the same, with one alternate variable: lack of autonomy and lack of good government (Table 6A). These results, while suggesting caution in considering Path 3, do not contradict and rather reinforce the finding that the lack of ECEC development in Southern Regions results from the complex interplay of different factors, political influence excluded.

TABLE 6 and 6A ABOUT HERE

## 6. DISCUSSION AND CONCLUSION

The level of 0-2 ECEC provision differs across Europe and features significant sub-national variations in many countries. While most literature focuses on national models, this article aims to

contribute to the less developed discussion on sub-national variations by analyzing the factors behind the pronounced regional variation in public or subsidized ECEC supply in Italy.

Results of Fs/QCA analysis show that economic development and female employment are necessary but not sufficient conditions for ECEC development in Italian Regions. Conversely, traditional values, the lack of early ECEC development and of social capital are necessary but not sufficient conditions to explain regional laggards.

Among northern and central regions, we found both cases of development and non-development of services. Here, three combinations of conditions allowed ECEC development. In all three paths, economic development and need pressure (women's employment and fertility trends) are combined with other factors. In Emilia-Romagna, Tuscany and Lazio the additional conditions refer to political factors (center-left parties' and women's influence), notwithstanding, in some of these Regions, the presence of familistic values, limited social capital and late ECEC development, and no matter the lack of constitutional autonomy. In Aosta Valley, Trento and Friuli V.G., alongside economic development and need pressure, polity (autonomous status and quality of government) plays a role, in combination with either path dependency or higher social capital.

Simultaneously, in northern regions displaying limited ECEC development, when looking at the sufficient conditions, two paths emerge, which combine familism and political factors (low centre-left influence) with either polity (lack of autonomy) and low social capital (Lombardy and Piedmont) or path dependency (Bozen, Lombardy). In all, it seems that in Northern Regions what matters for (non) ECEC development, besides the necessary conditions (see above), are different combinations of polity and politics.

All Southern Regions are laggards in ECEC development. While some of these regions also share the same combinations of conditions of northern laggards, all of them display specific paths with a large number of combined hindering factors, from which only lack of centre-left political influence is absent. The specific economic and social conditions characterizing the South (limited economic

development, low need pressure, low social capital, traditional values, path dependency) seem to be responsible for the limited ECEC development, despite political differences.

Our data present some limitations, insofar as better indicators of the identified factors would allow a more fine-tuned analysis of the specific role that such factors play in each regional context. Moreover, the nature of the research does not allow a more in-depth analysis in order to establish the relationships between different hindering or facilitating factors. Nonetheless, the results do justice to the complexity of social policy development processes and avoid determinism driven by need, cultural or economic factors. They help identifying multi-faceted patterns of (non-)expansion, that include factors previously identified as relevant, such as polity and politics (Fantozzi 2011; Confalonieri and Canale, 2012) and institutional legacies (Mätzke, 2018). At the same time, these findings offer a background and pave the way to further, qualitative, investigations of cases representing different paths to (non-)ECEC development. The study also points to the usefulness of an analysis of the forces underlying the subnational variations of social policy development, in other policy areas, in other national contexts and comparatively across national boundaries.

REFERENCES

Anttonen, A., & Sipilä, J. (1996). European Social Care Services: Is it Possible to Identify Models. Journal of European Social Policy, 6, 87–100.

Blome, A. (2016). The politics of Work-Family Policy Reforms in Germany and Italy. Routledge, London.

Bonoli, G., & Reber, F. (2010). The political economy of childcare in OECD countries: Explaining cross-national variation in spending and coverage rates. European Journal of Political Research, 49, 97–118.

Borgherini, S., & Grimaldi, S. (eds) (2015). Tripolarismo e destrutturazione. Le elezioni regionali del 2015. Bologna, Istituto Cattaneo.

Brasili, C. (ed.) (2016). Gli indicatori per la misura del capitale territoriale. RegiosS, Bologna, Aprile 2012.

Cartocci, R. (2007). *Mappe del Tesoro. Atlante del capitale sociale in Italia*. Bologna, Il Mulino.

Castles, F., & McKinley, R.D. (1979). Does Politics matter: an analysis of the public welfare commitment in advanced democratic states. European Journal of Political Research, 7, 169-176.

Confalonieri, M., & Canale, L. (2012). Le politiche di conciliazione famiglia-lavoro. In: Fargion, V. & Gualmini, E. (eds) Tra l'incudine e il Martello. Regioni e nuovi rischi sociali in tempi di crisi. Bologna, Il Mulino.

Da Roit, B., & Sabatinelli, S. (2012). Nothing on the move or just going private? Understanding the freeze on child- and eldercare policies and the development of care markets in Italy. Social Politics, 20, 430-453.

Esping-Andersen, G. (1990). The Three Worlds of Welfare Capitalism. Princeton, Princeton University Press.

Fantozzi, P. (2011). Il welfare nel Mezzogiorno. In: Ascoli, U. (ed) Il welfare in Italia. Bologna, Il Mulino, pp. 283-304.

Ferragina, E. (2012). Social Capital in Europe. A Comparative Regional Analysis. Edward Elgar Publishing.

Ferrera, M. (1996). The 'Southern Model' of Welfare in Social Europe. Journal of European Social Policy, 6, 17–37.

Fraisse, L., Andreotti, A., & Sabatinelli, S. (2004). Does the diversification of childcare services increase social cohesion?, TSFEPS Transversal Report, www.emes.net

Fraisse, L., & Escobedo, A. (2014). Changing Family Needs and Local Childcare Policies. In: Ranci, C., Brandsen, T., & Sabatinelli, S. (eds) Social Vulnerability in European Cities. Work and Welfare in Europe. London, Palgrave MacMillan.

Fukuyama, F. (2000). Social Capital and Civil Society. IMF Working Paper, 74, 1-19.

Kazepov, Y. (ed.) (2010). Rescaling Social Policies towards Multilevel Governance in Europe. Avebury, Ashgate.

Gambardella, D., Pavolini, E. & Arlotti, M. (2015). In: Ascoli, U., Ranci, C. & Sgritta, G.B. (eds) Investire nel sociale. La difficile innovazione del welfare italiano. Bologna, Il Mulino, pp. 45-73.

Kuronen, M., Kröger, T., Antón-Alonso, F., Cucca, R., Escobedo, A., Jensen, P.H. & Sabatinelli, S. (2014). The Relationships Between Local and National Childcare Policies. A Comparison of Nordic and Southern European Cities. In Kutsar, D., & Kuronen, M. (eds) Local Welfare Policy Making in European Cities, Springer.

Kvist, J. (2007). Exploring Diversity: Measuring Welfare State Change with Fuzzy-set Methodology. In Clasen, J., & Siegel, N.A. (eds) Investigating Welfare State Change: The 'Dependent Variable Problem' in Comparative Analysis. 198–214. Cheltenham, Edward Elgar.

Istat (various years, a). Annuario Statistico Italiano, Rome.

Istat (various years, b). Asili nido e altri servizi socio-educativi per la prima infanzia: censimento delle unità di offerta e spesa dei comuni. Rome.

Jensen, P., & Lolle, H. (2013). The Fragmented Welfare State: Explaining Local Variations in Services for Older People. Journal of Social Policy, 42, 349–70.

Mätzke, M. (2018). Comparative perspectives on childcare expansion in Germany: explaining the persistent East–West divide. In: Journal of Comparative Policy Analysis: Research and Practice, Published online February 2018.

Mari, A. (2013). L'esigenza di una nuova legge statale per la prima infanzia. Limiti costituzionali e possibili contenuti. In Monitoraggio del Piano di sviluppo dei servizi socio-educativi per la prima infanzia, Istituto degli Innocenti, Firenze.

Ministero della Pubblica Istruzione (MPI) (2000). La scuola materna statale e non statale. Roma.

Pavolini, E., & Vicarelli, G. (2012). Is decentralization good for your health? Transformations in the Italian NHS. Current Sociology, 60, 472–488.

Pavolini, E. (2015). Italy: A two welfare regimes welfare state?. In Ascoli U., & Pavolini, E. (eds) The Italian Welfare State in a European Perspective. A Comparative Analysis. Bristol, Policy Press.

Pfau-Effinger, B. (2005). Welfare State Policies and the Development of Care Arrangements. European Societies, 7, 321–47.

Putnam, R., Leonardi, R., & Nanetti, R. (1990). Making Democracy Work: Civic Traditions in Modern Italy. Princeton, Princeton University Press.

Ragin, C. (1994). Constructing Social Research: The Unity and Diversity of Method, Thousand Oaks: Pine Forge Press.

Ragin, C. (2000). Fuzzy Set Social Science. Chicago, University of Chicago Press.

Ragin, C. (2008). User's Guide to Fuzzy-Set /Qualitative Comparative Analysis, September 2008, http://www.u.arizona.edu/~cragin/fsQCA/download/ fsQCAManual.pdf

Ramella, F. (2000). Still a 'Red Subculture? Continuity and Change in Central Italy. South European Society and Politics, 5, 1-24.

Rihoux, B., & Ragin, C. (2009). Configurational Comparative Methods: Qualitative Comparative Analysis (QCA) and Related Techniques. Thousand Oaks, CA, Sage.

Rosina, A., & Zezza, R. (2016). Generare futuro. Cultura e politiche per tornare ad essere un paese vitale, Volta paper 03, http://voltaitalia.org/wp-content/uploads/2016/05/Volta-Paper-03-natalita%CC%80_3-1.pdf

Skocpol, T. (1992). Protecting Soldiers and Mothers. The Political Origins of Social Policy in the United States. Cambridge, Harvard University Press.

Trydegård, G. & Thorslund M. (2010). One Uniform Welfare State or a Multitude of Welfare Municipalities? The Evolution of Local Variation in Swedish Elder Care. Social Policy & Administration, 44, 495–511.

Vassallo, S. (ed.) (2011). Le Regioni. Capitale sociale equilibri politici e rendimento istituzionale. Bologna: Il Mulino.

Vitali, A., & Billari, F.C. (2017). 'Changing Determinants of Low Fertility and Diffusion: A Spatial Analysis for Italy', *Population, Space and Place*, 23, 2.

University of Gotheborg (2010). Measuring the Quality of Government and Subnational Variation, Report for the European Commission, http://ec.europa.eu/regional_policy/sources/docgener/studies/pdf/2010_government_1.pdf

Wilensky, H.L. (1975). The welfare state and equality: Structural and ideological roots of public expenditures. Berkeley, University of California Press.

Table 1. Outcome and condition variables. Raw and fuzzy-set values.

| | Outcome | | Conditions | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Economic development | | Need | | | | Politics | | | | Polity | | | Path dependency | | Social capital | | Familism | |
| | TUR2013 (a) | | GDP2008 (b) thousands | | FemEmpl 2008 (c) | | Fertil91-11 (d) | | CentreLeft (e) | | WomenPol (f) | | QualGov (g) | | Auton (h) | TUR1991 (a) | | SocCap (i) | | Familism (f) | |
| | Raw | Fs | Raw | Fs | Raw | Fs | Raw | Fs | Raw | Fs | Raw | Fs | Raw | Fs | Raw/fs | Raw | Fs | Raw | Fs | Raw | Fs |
| Piedmont | 13.1 | 0.36 | 28.4 | 0.6 | 75.5 | 0.91 | 29.1 | 0.8 | 28.2 | 0.35 | 17.5 | 0.57 | 0.25 to 0.75 | 0.67 | 0 | 12.5 | 0.82 | -0.79 | 0,1 | 63.5 | 0.79 |
| Aosta Valley | 18.9 | 0.76 | 33.2 | 0.87 | 75.8 | 0.91 | 39.0 | 0.94 | 9.3 | 0.04 | 10.7 | 0.22 | >1.25 | 1 | 1 | 10.4 | 0.56 | -0.79 | 0,1 | 63.5 | 0.79 |
| Liguria | 14 | 0.43 | 27.9 | 0.57 | 71.5 | 0.85 | 33.7 | 0.89 | 45.1 | 0.88 | 12.9 | 0.35 | 0.25 to 0.75 | 0.67 | 0 | 7.2 | 0.16 | -0.79 | 0,1 | 63.5 | 0.79 |
| Lombardy | 15 | 0.5 | 33.8 | 0.88 | 76.1 | 0.92 | 36.5 | 0.92 | 24.2 | 0.24 | 13.6 | 0.4 | -0.25 to 0.25 | 0.67 | 0 | 9.8 | 0.47 | -0.69 | 0,14 | 63.5 | 0.79 |
| *Bozen* | 10.9 | 0.23 | 36.0 | 0.94 | 75.6 | 0.91 | 39.8 | 0.95 | 4.8 | 0.02 | 25.7 | 0.78 | >1.25 | 1 | 1 | 3.5 | 0.02 | -0.13 | 0,57 | 79.7 | 0.95 |
| Trento | 20.9 | 0.85 | 30.7 | 0.75 | 73.8 | 0.89 | 23.8 | 0.64 | 36.2 | 0.63 | 9.5 | 0.16 | >1.25 | 1 | 1 | 13.5 | 0.89 | -0.13 | 0,57 | 79.7 | 0.95 |
| Veneto | 10.2 | 0.19 | 30.1 | 0.72 | 72.3 | 0.86 | 33.1 | 0.88 | 25.1 | 0.26 | 11.6 | 0.27 | 0.25 to 0.75 | 0.67 | 0 | 5.5 | 0.06 | -0.13 | 0,57 | 79.7 | 0.95 |
| Friuli-V.G. | 17.8 | 0.7 | 29.6 | 0.69 | 75.7 | 0.91 | 35.6 | 0.91 | 34.7 | 0.57 | 10.5 | 0.21 | 0.75 to 1.25 | 1 | 1 | 5.5 | 0.06 | -0.13 | 0,57 | 79.7 | 0.95 |
| Emilia-R. | 24.4 | 0.94 | 32.4 | 0.83 | 77.4 | 0.93 | 49.6 | 0.99 | 58.0 | 0.98 | 20.0 | 0.65 | 0.25 to 0.75 | 0.67 | 0 | 19.3 | 1 | -0.13 | 0,57 | 79.7 | 0.95 |
| Tuscany | 19.6 | 0.8 | 27.9 | 0.57 | 72.6 | 0.87 | 33.6 | 0.88 | 54.9 | 0.97 | 19.9 | 0.64 | -0.25 to 0.25 | 0.67 | 0 | 7.6 | 0.19 | -0.57 | 0,2 | 80.3 | 0.95 |
| Umbria | 13.5 | 0.39 | 24.5 | 0.32 | 73.1 | 0.88 | 21.0 | 0.54 | 52.1 | 0.96 | 16.1 | 0.53 | 0.25 to 0.75 | 0.67 | 0 | 7.8 | 0.21 | -0.57 | 0,2 | 80.3 | 0.95 |
| Marche | 15.1 | 0.51 | 26.2 | 0.44 | 73.5 | 0.88 | 18.4 | 0.44 | 47.1 | 0.91 | 15.3 | 0.51 | 0.25 to 0.75 | 0.67 | 0 | 8.7 | 0.31 | -0.57 | 0,2 | 80.3 | 0.95 |
| Lazio | 16.3 | 0.6 | 30.0 | 0.71 | 62.0 | 0.57 | 21.0 | 0.54 | 37.2 | 0.67 | 16.2 | 0.54 | -0.75 to -0.25 | 0.33 | 0 | 6.8 | 0.13 | -1.04 | 0,04 | 80.3 | 0.95 |
| Abruzzo | 8.9 | 0.14 | 21.8 | 0.17 | 59.7 | 0.49 | 0.4 | 0.05 | 36.4 | 0.64 | 8.9 | 0.14 | -0.25 to 0.25 | 0.67 | 0 | 4.6 | 0.04 | -0.91 | 0,07 | 78.3 | 0.94 |
| Molise | 8.6 | 0.13 | 20.5 | 0.12 | 53.7 | 0.28 | -14.7 | 0.01 | 33.3 | 0.51 | 7.5 | 0.1 | -0.75 to -0.25 | 0.33 | 0 | 1.7 | 0.01 | -0.91 | 0,07 | 78.3 | 0.94 |
| Campania | 2.2 | 0.02 | 16.5 | 0.04 | 33.2 | 0.02 | -20.5 | 0 | 34.1 | 0.55 | 13.4 | 0.38 | < -1.75 | 0 | 0 | 0.7 | 0 | -0.91 | 0,07 | 78.3 | 0.94 |
| Apulia | 4.3 | 0.04 | 16.9 | 0.05 | 39.3 | 0.04 | -17.0 | 0 | 29.5 | 0.39 | 6.1 | 0.06 | -1.75 to 0.75 | 0 | 0 | 3.5 | 0.02 | -0.91 | 0,07 | 78.3 | 0.94 |
| Basilicata | 6.5 | 0.07 | 18.5 | 0.07 | 43.8 | 0.08 | -22.8 | 0 | 39.3 | 0.74 | 4.0 | 0.04 | -0.75 to -0.25 | 0.33 | 0 | 3.0 | 0.01 | -0.91 | 0,07 | 78.3 | 0.94 |
| Calabria | 1.4 | 0.02 | 16.7 | 0.04 | 38.5 | 0.04 | -21.8 | 0 | 27.1 | 0.32 | 3.3 | 0.03 | < -1.75 | 0 | 0 | 0.8 | 0 | -0.91 | 0,07 | 78.3 | 0.94 |
| Sicily | 4.9 | 0.05 | 17.0 | 0.05 | 36.6 | 0.03 | -19.4 | 0 | 25.1 | 0.26 | 5.6 | 0.06 | -1.75 -0.75 | 0 | 1 | 2.0 | 0.01 | -1.07 | 0,04 | 85.6 | 0.97 |
| Sardinia | 9.7 | 0.17 | 19.8 | 0.1 | 54.5 | 0.3 | -8.5 | 0.01 | 34.4 | 0.56 | 8.3 | 0.12 | -1.75 -0.75 | 0 | 1 | 3.4 | 0.02 | -1.07 | 0,04 | 85.6 | 0.97 |

Definitions and sources:

(a) Users of public or subsidized daycare as a proportion of the population 0-2; ISTAT, various years (a).

(b) Regional GDP per capita, PPP (Eurostat)
(c) Employment rate of women aged 25-44 (elaborations on I.stat)
(d) Growth of the total fertility rate between 1991 and 2001 (Istat, Health for all -://www.istat.it/it/archivio/14562; http://www.statweb.provincia.tn.it/indicatoristrutturali/exp.aspx?fmt=csv&idind=52&t=i)
(e) Proportion of seats obtained by centre-left parties in regional/provincial assemblies. Average 1995-2013. (Elaborations on Ministry of Interior http://elezionistorico.interno.it/ and regional/provincial electoral archives.
(f) Women as a proportion of elected members in regional/provincial assemblies. (Elaborations on Ministry of Interior http://amministratori.interno.it/AmmIndex5.htm; (Borgherini and Grimaldi, 2015: 100).
(g) Gotheborg QoG Index (University of Gotheborg, 2010: 15)
(h) Autonomous Regions/Provinces
(i) Social Capital Index (Ferragina 2012).
(f) Respondents agreeing that pre-school children suffer if mother works (%) (Eurobarometer 2006-65.1.)

Table 2. Variables' coding

| Variable | Type of coding | Full-in (1) | More-in-than-out (0.67) | Neither in nor out (0.5) | More-out-than-in (0.33) | Full-out (0) |
|---|---|---|---|---|---|---|
| TUR13 | Calibration | 25 | | 15 | | 5 |
| GDP2008 | Calibration | 37.000 | | 27.000 | | 17.000 |
| FemEmpl2008 | Calibration | 80 | | 60 | | 40 |
| Fertil91-11 | Calibration | 40 | | 20 | | 0 |
| CentreLeft | Calibration | 51 | | 33 | | 10 |
| WomenPol | Calibration | 40 | | 15 | | 5 |
| QualGov | 4-point sets | >0.75 | >-0.25 and < 0.75 | | <-0,25 and >-0,75 | <-0.75 |
| Auton | Crisp/dummy | Autonomous | | | | Non autonomous |
| TUR91 | Calibration | 15 | | 10 | | 5 |
| SocCap | Calibration | 0.50 | | -0.20 | | -1 |
| Familism | Calibration | 80 | | 50 | | 30 |

Table 3. Analysis of necessity for ECEC development (TUR13)

| Condition | Consistency | Coverage |
|---|---|---|
| **GDP2008** | **0.915190** | **0.758657** |
| **FemEmpl2008** | **0.992405** | **0.623707** |
| Fertil91-11 | 0.884810 | 0.672762 |
| Centreleft | 0.803797 | 0.554585 |
| WomenPol | 0.681013 | 0.795858 |
| QualGov | 0.877215 | 0.628857 |
| Auton | 0.349367 | 0.460000 |
| TUR91 | 0.560759 | 0.887776 |
| SocCap | 0.453165 | 0.808126 |
| ~ Familism | 0.203797 | 0.941520 |

Table 4. Sufficient conditions for ECEC development

| | Raw coverage | Unique coverage | Consistency | Cases with greater than 0.5 membership |
|---|---|---|---|---|
| GDP2008*FemEmpl2008*Fert9111*CentreLeft*WomenPol | 0.525317 | 0.244304 | 0.983412 | Emilia-Romagna(0.65,0.94), Tuscany(0.57,0.8), Lazio(0.54,0.6) |
| GDP2008*FemEmpl2008*Fert9111*~WomenPol*QualGov*Auton*TUR91 | 0.162025 | 0.074684 | 1.000000 | Trento(0.64,0.85), Aosta Valley(0.56,0.76) |
| GDP2008* FemEmpl2008*Fert9111*CentreLeft* QualGov*Auton*SocCap | 0.151899 | 0.045570 | 1.000000 | Trento(0.57,0.85) Friuli-V.G.(0.57, 0.7) |
| FemEmpl2008* ~Fert9111*CentreLeft* WomenPol*QualGov | 0.311392 | 0.045570 | 0.972332 | Marche(0.51, 0.51) |

Assumptions: all conditions present Familism
Frequency cutoff: 1.000000; consistency cutoff: 0.967442
Solution's coverage=0.743038; Consistency=0.976705;

Table 4A. Sufficient conditions for ECEC development (excluding fertility rates as condition variable) (in bold changes compared to Table 4)

| | Raw coverage | Unique coverage | Consistency | Cases with greater than 0.5 membership |
|---|---|---|---|---|
| GDP2008*FemEmpl2008*CentreLeft*WomenPol | **0.578481** | **0.524051** | **0.982796** | Emilia-Romagna(0.65,0.94), Tuscany(0.57,0.8), Lazio(0.54,0.6) |
| GDP2008*FemEmpl2008*~WomenPol*QualGov*Auton*TUR91 | **0.175949** | **0.088608** | 1.000000 | Trento(0.64,0.85), Aosta Valley(0.56,0.76) |
| GDP2008* FemEmpl2008*CentreLeft* QualGov*Auton*SocCap | 0.151899 | 0.045570 | 1.000000 | Trento(0.57,0.85) Friuli-V.G.(0.57,0.7) |

Assumptions: all conditions present Familism
Frequency cutoff: 1.000000; consistency cutoff: **0.972414**
Solution's coverage=**0.764557**; Consistency=**0.986928**;

Table 5. Analysis of necessity for lack of ECEC development (~TUR2013)

| Condition | Consistency | Coverage |
|---|---|---|
| ~GDP2008 | 0.824427 | 0.941587 |
| ~FemEmpl2008 | 0.638931 | 0.992883 |
| ~Fertil91-11 | 0.740458 | 0.914232 |
| ~CentreLeft | 0.610687 | 0.837696 |
| ~WomenPol | 0.894656 | 0.823034 |
| ~QualGov | 0.687786 | 0.902806 |
| ~Auton | 0.752879 | 0.657333 |
| **~TUR91** | **0.957252** | **0.783260** |
| **~SocCap** | **0.939695** | **0.736244** |
| **Familism** | **0.992366** | **0.673924** |

Table 6. Sufficient conditions for the lack of ECEC development

| | Raw coverage | Unique coverage | Consistency | Cases with greater than 0.5 membership |
|---|---|---|---|---|
| ~CentreLeft*~Auton*~SocCap*Familism | 0.385496 | 0.036641 | 0.949248 | Lombardy(0.76,0.5), Calabria(0.68,0.98), Piedmont(0.65,0.64), Apulia(0.61,0.96) |
| ~ CentreLeft *~TUR91*Familism | 0.570992 | 0.132061 | 0.932668 | Bozen(0.95,0.77), Veneto(0.74,0.81), Sicilia(0.74,0.95), Calabria(0.68,0.98), Apulia(0.61,0.96), Lombardy(0.53,0.5) |
| ~GDP2008*~Fert9111*~Auton *~TUR91*~SocCap*Familism | 0.554962 | 0.148855 | 0.989116 | Campania(0.93,0.98), Apulia(0.93,0.96), Basilicata(0.93,0.93), Calabria(0.93,0.98), Molise(0.88,0.87), Abruzzo(0.83,0.86), Marche(0.56,0.49) |
| ~GDP2008 *~FemEmpl2008*~Fert9111* ~ WomenPol*~QualGov*~TUR91*~SocCap *Familism | 0.522137 | 0.035115 | 1.000000 | Sicily(0.94,0.95), Apulia(0.93,0.96), Calabria(0.93,0.98), Sardinia(0.7,0.83),Molise (0.67,0.87), Basilicata(0.67,0.93), Campania(0.62,0.98) |

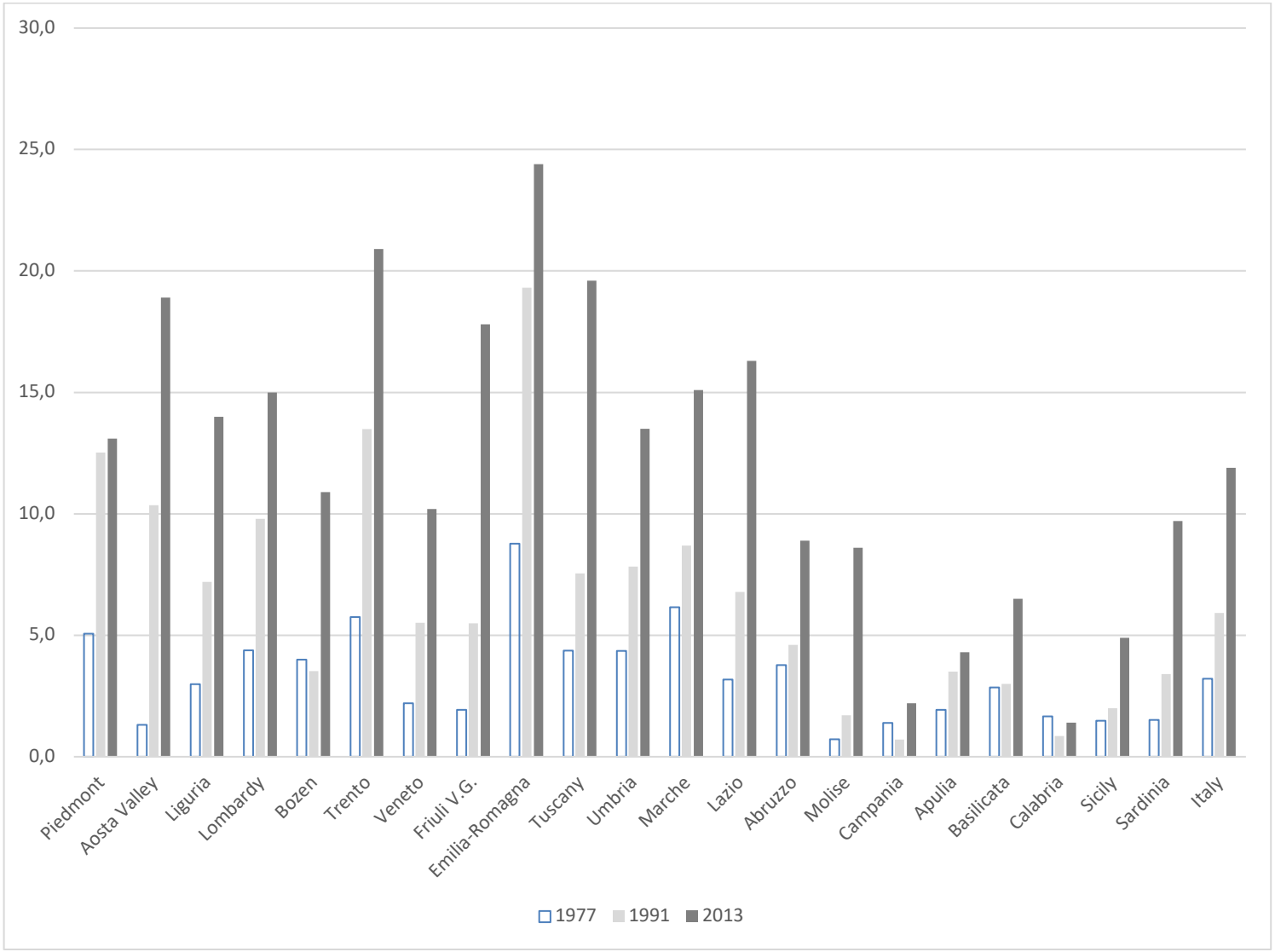
Frequency cutoff: 1.000000; consistency cutoff: 0.983425
Intermediate solution: all conditions absent except Familism
Solution coverage=0.908397; solution consistency=0.932602

Table 6A. Sufficient conditions for the lack of ECEC development excluding changes in fertility rates (in bold changes compared to Table 6).

| | Raw coverage | Unique coverage | Consistency | Cases with greater than 0.5 membership |
|---|---|---|---|---|
| ~CentreLeft*~Auton*~SocCap*Familism | 0.385496 | 0.036641 | 0.949248 | Lombardy(0.76,0.5), Calabria(0.68,0.98), Piedmont(0.65,0.64), Apulia(0.61,0.96) |
| ~ CentreLeft *~TUR91*Familism | 0.570992 | 0.132061 | 0.932668 | Bozen(0.95, 0.77), Veneto(0.74, 0.81), Sicilia(0.74,0.95), Calabria(0.68, 0.98), Apulia(0.61, 0.96), Lombardy(0.53,0.5) |
| ~GDP2008*~**FemEmpl2008***~Auton*~**WomenPol*** ~TUR91*~SocCap*Familism | **0.438931** | **0.034351** | **0.930481** | Campania(**0.62**,0.98), Apulia(0.93,0.96), Basilicata(**0.92**,0.93), Calabria(0.93,0.98), Molise(0.72,0.87), Abruzzo(0.51,0.86) |
| ~GDP2008*~FemEmpl2008*~WomenPol* ~QualGov*~TUR91*~SocCap *Familism | 0.527481 | 0.035115 | 1.000000 | Sicily(0.94,0.95), Apulia(0.93,0.96), Calabria(0.93,0.98), Sardinia(0.7,0.83), Molise(0.67,0.87), Basilicata(0.67,0.93), Campania(0.62,0.98) |

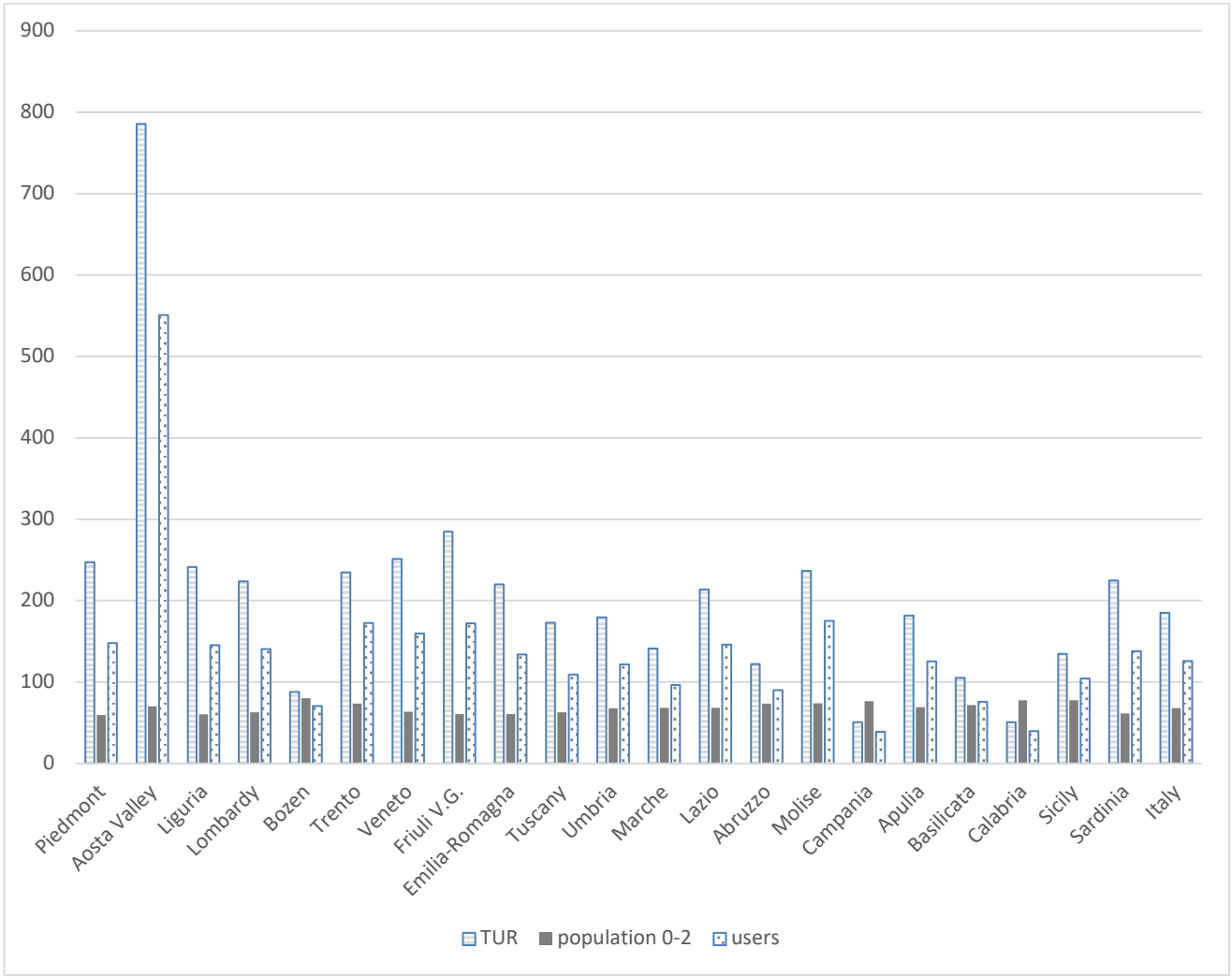
Frequency cutoff: 1.000000; consistency cutoff: 0.983425
Intermediate solution: all conditions absent except Familism
Solution coverage=**0.796946**; solution consistency=**0.930481**

Figure 1: TUR of public and subsidized day-care, 1977, 1991, 2013



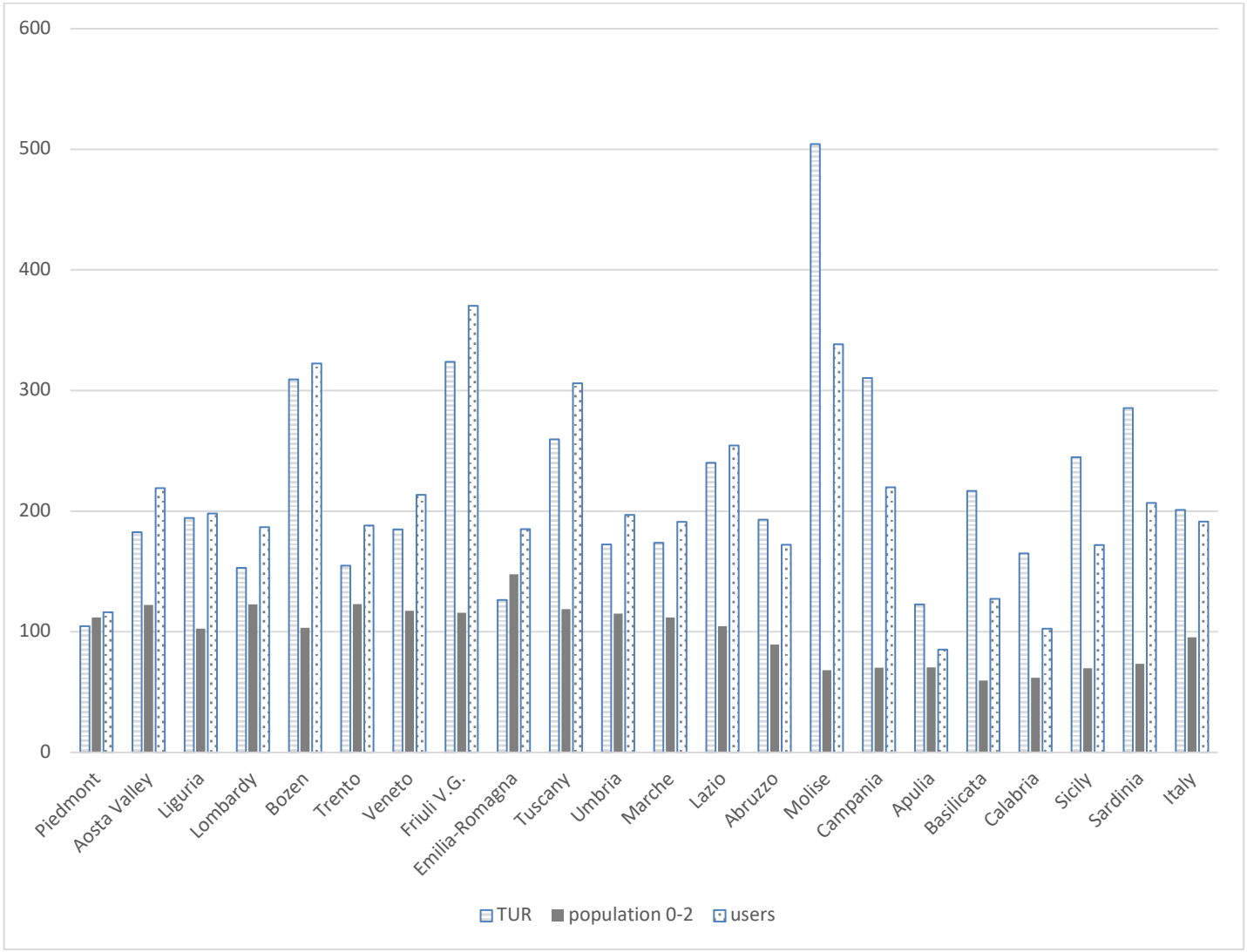

Sources: ISTAT, various years, (a) (b).

Figure 2: Growth in TUR, population 0-2 and number of users, 1977-1991 (1977=100)




Sources: ISTAT, various years, (a)

Figure 3: Growth in TUR, population 0-2 and number of users, 1991-2013 (1991=100)




Sources: ISTAT, various years, (a) (b).

[i] From 2003 onwards the data encompass, alongside places in municipal daycare centers (directly managed or contracted out), subsidized private services and classes for children aged 24-36 months. Integrative/innovative socialization services without work-family reconciliation or intensive and continuous educational ends are excluded. Micro-crèches (maximum 10 children) - included from 2012 - are negligible: in 2010-11 all integrative services' TUR was 2.2% (Istat 2012; Istat, various years (b)). Children under three enrolled in pre-primary schools, attending non-subsidized private daycare or cared for by regulated childminders (limited to few local programs) are excluded.

[ii] Cartocci's (2007) index is based on electoral turnout, newspapers reading, blood donation, presence of sport associations. Brasili's (2018) index is based on volunteering, donations, irregular work, talking about politics, and environmental crimes.