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ABSTRACT

Decentralization can lead to "good" or "bad" outcomes depending on the socio-cultural norms of the targeted communities. We investigate this issue by looking at the evolution of familism and nepotism in the Italian academia before and after the 1998 reform, which decentralized the recruitment of professors from the national to the university level. To capture familism we use a novel dataset on Italian university professors between 1988 and 2008 focusing on the informative content of last names. We construct two indices of "homonymy" which capture the concentration of last names in a given academic department relative to that in the underlying general population. Our results suggest that increased autonomy by local university officials resulted in a significant increase in the incidence of familism in areas characterized by low civic capital but not in areas with higher civic capital.

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1. INTRODUCTION

Over the last decade a large literature has documented the role of civic capital in explaining differences in a variety of political and economic outcomes, both across and within countries. [1]

A related but less explored question is to what extent the level of civic capital of a community may affect the outcome of the policies implemented in that community. A relevant example is decentralization of public decision-making. On one hand, decentralization can ensure superior outcomes by alleviating problems of asymmetric information and making public officials more responsive to local needs (see e.g. Wallis and Oates, 1988; Fisman and Gatti, 2002; Faguet, 2004). On the other hand, decentralization may result in the exacerbation of problems of scarce accountability and misallocation of public resources, as local public officials are more likely to be captured by local élites and special interests (see e.g. Prud'homme, 1995).

In what follows, we argue that the balance between the costs and benefits of decentralization depends on the level of civic capital of the targeted communities, as high civic capital enhances the benefits of decentralization and mitigates its costs. In areas with stronger civic traditions, where citizens are generally more politically involved and better informed (Putnam et al., 1993), misbehavior by local public officials will be more likely to be detected and to generate greater stigma. In addition, adherence to civic norms may attach guilt or shame to public misconduct (i.e. corrupt or extractive behavior) thus making local public officials more likely to internalize the social costs of their actions on their community.

A well known problem in testing these ideas is that both civic norms and the level of decentralization are typically very persistent variables, hence these notions are difficult to test in time series. Cross-sectional analyses are difficult because of the endogeneity of cultural traits and because of the difficulty to define and measure the same variable in different cross-sectional units, like countries.

This paper exploits a quasi-experiment in a specific branch of the public administration: the reform of the Italian university system, which in 1998 decentralized the recruitment and promotion

[1] For example, civic capital has been associated with well-functioning institutions (Knack, 2002), lower crime (Buonanno et al., 2009), economic growth (Helliwell and Putnam, 1995; Knack and Keefer, 1997; Zak and Knack, 2001), financial development (Guiso et al., 2004) and trade (Guiso et al., 2009). With regard to the functioning of public institutions, civic capital is often associated with higher accountability and lower corruption on the part of elected public officials: see e.g. Nannicini et al. (2010); Uslaner (2002).

of professors from the national to the university level. We focus on a specific outcome affected by civic values (or lack thereof): familism and nepotism - defined as the practice of favoring members of a closely knit network based on their family ties, independent of their actual qualifications. Several studies have found that in areas characterized by relatively low levels of civic capital family ties tend to be particularly strong and important for job search (Banfield and Banfield, 1958, Putnam et al., 1993, and Alesina and Giuliano, 2009); we hypothesize that decentralization resulted in an increase in familism in areas with low civic capital.

We start by presenting evidence of family connections involving Italian university high-ranked officials such as provosts and department chairs, and by showing that these connections are pervasive even in the largest and most visible universities. To measure the relevance of family connections we then exploit the informative content of professors' last names. Using data on the distribution of professors' last names in all Italian universities between 1988 and 2008, we construct two indices of "homonymy"[2]: i) the share of department members with at least a namesake in the department, ii) an index of concentration of last names in the department.

In the second part of our analysis we investigate the impact of the 1998 reform of the Italian university system which decentralized recruitment leaving all other aspects of the system unchanged, most notably a pay scale based on seniority and a centralized financing of universities based on pre-reform spending levels. Although the reform made it easier to better match candidates with local departments, it also increased the opportunities for local professors to engage in favoritism and familism without raising the private cost of such practices. Our results document that the implementation of the reform was associated with a significant increase in our "homonymy" indices in universities located in areas with low civic capital, but not in those with high civic capital.

The notion of civic (social) capital is notoriously difficult to pin down exactly; indeed, a wide range of variables has been proposed in the literature to capture civic norms [3]. In our empirical

[2] The free Merriam -Webster Dictionary defines "homonymy" as "the quality or state of being homonymous" (http://www.merriam-webster.com/dictionary/homonymy?show=0&t=1292406288. In turn, the adjective "homonymous" is defined as "having the same designation". The first known use of the word is 1597.

[3] Some studies have used aggregate indicators such as the number of civic and non-profit organizations/associations, turnout in elections or referenda, newspaper readership, and blood and organ donations (Guiso et al., 2004; Buonanno et al., 2009; Putnam et al., 1993). Other contributions rely on measures of self-reported trust based on individual responses to survey questions (Alesina and La Ferrara, 2002; Tabellini, 2010). Due the unavailability of survey data for the administrative units we focus on (provinces), we will follow the first approach.

analysis we use two variables to proxy for civic capital: the readership of non-sport newspapers, as in Putnam et al. (1993) and the level of blood donations in the province where the university is located, as in Guiso et al. (2004). These two indices capture the two specific aspects discussed above: 1) the willingness to bear the private cost of acquiring information to improve the quality of collective decision-making (resulting in a higher degree of public scrutiny of public officials); 2) the prevalence of civic norms consistent with mutual cooperation and respect.

Two previous papers on Italy are especially related to our contribution. Sylos Labini (2004) investigates the importance of family connections for job search in Italy and finds that in areas with low social capital individuals tend to rely more heavily on the help of family members to find a job. Our analysis focuses on the importance on family connections in one specific area of public administration, academia, and examines whether the same reform had different effects on the incidence of family connections depending on prevaling civic norms. From a methodological point of view, our study is related to a recent contribution by Nannicini et al. (2010) who document that Italian regions with higher civic values display more political accountability, defined as the willingness of voters' to punish political misbehavior such as the indictment of a national congressman for bribery or other misconducts.

Other recent contributions have also investigated the importance of family connections within specific professions. One example is Dal Bo et al. (2009) who study political dynasties in the United States Congress since 1789. They find that family connections are more relevant among politicians than in other occupations, and that legislators that enjoy longer tenures are significantly more likely to have relatives entering Congress later.

Our use of last names to infer family ties also has some antecedents. Angelucci et al. (2010) use last names to identify family bonds to explore the impact of the Progresa program in Mexico. Similarly, Acemoglu et al. (2008) use names and last names of municipalities' mayors in Cundinamarca between 1875 and 1895 to construct an index of political concentration, and to study how a restricted number of influential families monopolized local political power. Guell et al. (2007) exploit the informative content of last names to investigate intergenerational mobility in Catalonia using cross-sectional Census data.

The remainder of the paper is organized as follows. In the next section we briefly review the pros and cons of strong family links on the efficiency of the allocation of resources in various contexts, and argue that familism is very unlikely to enhance the efficiency of the formation and allocation of human capital in the Italian university system. In section 3 we describe the structure of the Italian university system and the 1998 reform. Section 4 presents some anecdotal evidence on the incidence of family connections even at the highest level of the largest and most visible Italian universities of familism, even at the highest level of the largest and most visible Italian universities. In section 5 we describe the construction of our homonymy indices. Section 6 presents the data, including our proxy for civic values. In section 7 we present our main results. We first present some cross-sectional evidence on the relation between research performance and our homonymy indices. We then show in panels that homonymy increased more after the reform in universities located in areas with low civic values. Section 9 presents some robustness exercises. Section 10 concludes.

2. Is familism good or bad?

In theory, of course, strong family links can have positive or negative effects on the efficiency of the allocation of resources, depending on the context. The effects of family ownership and management of firms on various measures of efficiency has been the subject of a large literature in corporate governance. Theoretically, family ownership might reduce the classic agency problem between managers and dispersed owners; but family management might have negative effects, by blunting the incentives of the designated heirs to accumulate human capital - the "Carnegie effect" [4] - and by reducing the size of the pool of candidates.

In fact, the large literature on the subject is inconclusive on the effects of family ownership or management *per se*. For instance, Van Reenen and Bloom (2007) show that family management explains a large part of the cross-country gap in management practices between the US and France. Caselli and Gennaioli (2003) show in a model of dynastic management that inheritance of control across generations can result in large inefficiencies because talent might not be easily transmitted across generations; based on numerical simulations they show that dynastic management can be an

[4] "The parent who leaves his son enormous wealth generally deadens the talents and energies of the son, and tempts him to lead a less useful and less worthy life than he otherwise would..." (Carnegie, 1891/1962).

important factor explaining cross country differences in productivity. Anderson and Reeb (2003) find that family firms have lower Tobin's q than comparable firms.

On the other hand, Holderness and Sheehan (1988) find that family firms in the US have a higher Tobin's q than comparable firms. Adams et al. (2009) and Fahlenbrach (2009) in a sample of US firms and Morck et al. (1998) in a sample of Canadian firms find that founder-CEO firms have higher valuations than comparable firms.

There appears to be more consensus on the (negative) effects of descendant management in family firms. Pérez-González (2006) in the US and Smith and Smith and Amoako-Adu (1999) in Canada find that share prices of family firms fall on the news of the appointment of descendants as managers. Villalonga and Amit (2006) find that descendant management destroys value in family firms in the US; a similar results is found by Bertrand et al. (2008) in a sample of Thai firms. Two exceptions are Sraer and Thesmar (2007) and Barontini and Caprio (2005), who do not find worse performances in descendant managed firms.

Whatever the theoretical merits of a positive effect of family ownership and control on firms' efficiency, we believe it is difficult to use them to argue that a family bias in hiring and promotion in academia leads to more efficient outcomes. In academia, the asymmetric information problem that family ownership helps overcome is unlikely to be an important issue, because human capital can be observed and measured rather precisely, for instance via the publication record. For the same reason, the case of academia is also different from those studied in the extensive literature on the relation between family ties and job search, which has emphasized how family networks can contribute to overcome information asymmetries and improve the quality of the match between employer and employee.[5] The Carnegie effect is instead more likely to be important: familism reduces the incentives for family members and friends to accumulate human capital, because it generates the expectation that they will be subject to less stringent standards. Note that this might reduce the incentive to accumulate human capital even for outsiders, as they perceive reduced returns to human capital in the tournament for promotion.

Although it is not the focus of our paper, we show below that there is a strong negative relation

[5] Using data from the European Community Household Panel, Pellizzari (2010) finds that the wage premium from informal networks varies across countries, from positive to negative.

between familism and academic performance by departments.

3. On the Italian university system

3.1. The structure of the system

In Italy, there are 14 "academic disciplines", as officially designated: Mathematics, Physics, Chemistry, Natural Sciences, Biology, Medicine, Agriculture and Veterinary, Engineering and Architecture, Computer Sciences, Literature, History, Psychology, Law, and Economics. Competitions for recruitment and promotions are run at the level of subdivisions of these disciplines. Departments typically include groups of individuals belonging to a number of sub-disciplines; often, however, the same sub-discipline is represented in more than one department in a given university.

Sub-disciplines would not be useful as units of analyses, as they represent too fine a disaggregation: often a sub-discipline has only a handful of members, even in the largest universities. A department also is unsuitable as a unit of analysis, since the same professor can be a member of more than one department. On the other hand, each professor must belong to one and only one academic discipline (and sub-discipline). Hence, using the set of individuals affiliated with an academic discipline in each university as our unit of analysis ensures that there will be no overlap between units. In addition, it allows us to take into account all those cases in which two namesakes are members of different departments but belong to the same discipline, and therefore the same network.

For brevity, and with a slight abuse of language, from now on we will refer to the members of a given academic discipline in a given university as a "department". We have observations on memberships of departments thus defined in 57 Italian universities from 1988 to 2008. We describe in more details this dataset in section 6.

3.2. Recruitment, promotions and the 1998 reform

An important aspect of the system is that academic careers are determined largely by seniority. Given seniority, salaries are uniform nationally within each level of professorship (assistant, associate and full), and salary increases occur automatically every two years. The only non-automatic career determinant is the competition for promotion to the next level of professorship.

Until 1998, promotions were largely centralized. In each academic sub-discipline, a nation-wide competition ("*concorso*") was held at irregular intervals, often every three or four years; all assistant professors aspiring to be promoted to associate professors would participate, and similarly for associate professors. In each *concorso*, a commission elected by the whole body of professors of that academic sub-discipline would select the winners, who would be declared "qualified for promotion". Typically the number of winners would be about 20 percent higher than the number of vacancies. Each university with an opening in that academic sub discipline would then be able to draw from this pool of qualified candidates.

With the 1998 reform, these *concorsi* were made entirely local. From then on, each university would run its own *concorso* to fill its vacancies; a *concorso*'s commission would include five members, one appointed by the university and four elected by the whole body of professors in that academic discipline in the whole country. The commission would declare three winners;[6] within two years, any university with a vacancy could appoint one of the winners of any *concorso*. Thus, *de facto* the 1998 reform largely decentralized the promotion and hiring decisions to each university. Importantly, it did not change other aspects of the functioning of a university: in particular, funding remained largely centralized, and based on historic values that were not affected by current actions; academic salaries remained undifferentiated nationally and based only on seniority. Thus, actions by local decision makers would have no impact on the resources available to a university, or on the salaries of the decision makers and the family members that they appointed or promoted. Hence, the reform increased the opportunities for favoritism and familism by local professors without increasing the private costs of this behavior. Note that the first *concorsi* according to the 1998 reform were held in 1999, and the first winners took up their positions in 2000: therefore, in the empirical analysis we date the start of the reformed period in the year 2000.

There is ample anecdotal evidence on the distortions created by each system. The main motivation for the 1998 reform was a reaction to the perceived corruption of the centralized system. For months members of the profession would talk about the horse-trading that accompanied each national *concorso*: a commission's member would vote for another member's *protegé* in exchange for a similar vote for her own candidate. In fact, because the *concorsi* were carried out infrequently, typically

[6] Later each *concorso* would declare two winners, and still later only one.

the number of winners was much larger than the number of commissioners. In a collusive equilibrium, each commissioner was virtually guaranteed that at least one candidate of her choice would win; indeed, this was often the key incentive to take up the unpaid and onerous position of commissioner. Thus, the system generated two sets of winning candidates: those that were "matched" to a commissioner and to a university, and those who were not. Some argue that, after the matched candidates had won, a consensus would often be found on the remaining candidates based largely on their scientific merits: the cost of declaring them qualified was small, after each commissioner had had his own *protegé* enter the winners' list.

But there is ample anecdotal evidence that the local *concorsi* too were prone to manipulation; the horse-trading was intertemporal rather than intratemporal. Clearly, there was no incentive to hold a *concorso* unless a university had a reasonable expectation that its preferred candidate (almost invariably an insider, i.e., a candidate who was already a professor in the same university that carried out the *concorso*) would be one of the winners; equally invariably, upon opening a vacancy a university would let the profession know through informal channels who was its preferred candidate; and the commission's composition was geared to ensure that this would happen. In fact, an important implication of the new system was that now the numbers of commissioners exceeded the number of winners. Hence, it was more likely that only matched candidates would win: there was little room for the unmatched candidates that sometimes managed to win in the national *concorsi*.

Table 1, from Perotti (2002), displays a few statistics on 40 reformed *concorsi* to full professor in Economics, up to 2002. These *concorsi* selected 117 winners, 91 of whom were appointed somewhere as of 2002. Two thirds of the appointments made by the university that had called a *concorso* concerned insiders. 57 percent of insiders were declared winners, against only 27 percent of outsiders. For a participating insider there was a 44 percent probability of being appointed by the university that had called the *concorso*, against a probability of only 5 percent for participating outsiders. 95 percent of the winners were eventually appointed either by the university that had called the *concorso* or by their own university. In the latter case, almost invariably one or more commissioners were from the university of the winner.

Thus, it appears that these *concorsi* were indeed largely internal affairs of a small network of

universities. Of course, the fact that it might be more difficult for unmatched candidates to win in the reformed *concorsi* does not mean necessarily that less qualified candidates on average would win. It might be that with the reform universities had stronger incentives to sponsor better internal candidates to participate in *concorsi*.

Thus, as always in a second best environment, decentralizing decision making can improve or worsen the efficiency of the outcome. Decentralization of decision making can lead to more efficient outcomes for a number of reasons. It allows to better internalize the objectives of the university, for instance what are the specific teaching or research gaps it needs to fill; it allows to better overcome informational asymmetries, for instance about the quality of the candidates and the match with the teaching and research needs of a university; and it might provide better incentives to decision makers by making their contribution to the outcome more transparent, and by making them more accountable and more easily subject to local public scrutiny.

However, in a second best world where the careers and salaries of decision makers do not depend on the outcomes of the hiring and promotion processes, decentralized decision making could also lead to more inefficient outcomes: a centralized system provides a minimum of social or administrative control, that might be lacking in a decentralized system. This is particularly so if the university is located in an environment with low civic values, where public scrutiny is deficient or lacking and public officials might be more prone to capture by private interests.

The outcome we focus on is the extent of favoritism and familism, defined as the practices of favoring members of a closely knit network based on family, political or professional ties, independently of their actual qualifications. We focus in particular on one specific manifestation, familism, because it is more easily, though imperfectly, measurable.

Therefore, we test the hypothesis that decentralization led to more efficient outcomes less familistic practices in universities located in areas with a high degree of social participation and control - which we proxy with measures of civic capital -, and vice versa in universities located in provinces subject to low social control. But first, in the next section we provide anecdotal evidence on the phenomenon of familism in Italian universities.

4. FAMILY CONNECTIONS IN THE ITALIAN UNIVERSITY SYSTEM

Family connections are extensive in the Italian university system. Table 2 lists the documented cases, during the years 2000-2010, of recruitment or promotion of a close relative[7] of a *rettore* (the head of a university, roughly equivalent to a US university's provost) or of a *preside* (the head of a *facoltà*, comparable to a department chair, but in charge specifically of recruiting and promotions). In the latter case we only record the event if the relative was hired or promoted in the same *facoltà*, department or academic discipline as the *preside*.[8] The table also lists the rank of the university in terms of number of students in the year 2005/06, the year of the mandate of the *rettore* or *preside*, the relation of the individual hired or promoted, and whether the latter belongs to the same department, faculty or academic discipline as the *rettore* or *preside*.[9]

Documented cases occurred in 18 of the 57 universities in our sample[10], including in the top three universities by size and in 6 of the 10 largest ones. The universities involved are located in most of the largest cities in the country, including Rome, Milan, Florence, Bologna, Naples, Palermo and Bari, and cover almost equally the North, the Center, and the South. In the largest Italian and European university, La Sapienza in Rome, the son of the current *rettore* was hired as assistant professor in the faculty of Medicine when his father was *preside* of the same faculty, promoted to associate professor, and then to full professor when his father had become the *rettore* of the whole university. [11] The son and two daughters of his two predecessors as *rettore* were hired during the mandates of their fathers.

During the mandate of the current *rettore* of the second largest university of Rome, Roma Tre, his nephew was hired. The son of the current *rettore* of the third university of Rome, Tor Vergata, was hired as assistant professor and promoted all the way to full professor while his father was *preside*, and his daughter-in-law was promoted while he was *rettore*. The son of his predecessor as *rettore* was

[7] We define a close relative as a son or daughter, spouse, nephew or niece, son or daughter in law.

[8] A *facoltà*, which deals with recruiting and promotions, groups professors according to their teaching, while departments aggregate professors with homogeneous research interests. A professor is a member of only one faculty, while she can be a member of more than one department.

[9] As mentioned, we omit the many cases of immediate relatives of a *preside* of a *facoltà* that were hired in a different *facoltà*, department and academic discipline than that of the *preside*.

[10] see Table 4 for a list of universities.

[11] The daughter was promoted to associate professor and then to full professor in the second faculty of Medicine, while her father was *preside* of the first faculty. She does not appear in the table because we only include relatives who are hired or promoted in the same faculty or department or academic discipline as that of the *preside*. His wife is also full professor in the same faculty of Medicine.

hired and then promoted during the latter's mandate; one nephew was also hired as assistant professor and then promoted all the way to full professor; another nephew was hired as full professor.

During the mandate of the former *rettore* of the university of Bari, the ninth largest university in Italy, two of his sons, one daughter, the wife, and a son-in-law were hired or promoted, all in his department, the department of Economics. During the mandate of the former *rettore* of the largest university in Naples his daughter was hired; in a different university in Naples, during the mandate of the *preside* of the faculty of Medicine his daughter was hired, and after the *preside* became *rettore* of the whole university his son and his son-in-law were also hired, again in the faculty of Medicine. The daughter, son-in-law and nephew of the *rettore* of a third university in Naples were hired and then variously promoted during his mandate. In total, there are 37 instances of sons or daughters hired or promoted during the mandates of either a *preside* or a *rettore*, 8 of sons- or daughters- in-law, 7 of nephews, and 3 of spouses.

These numbers are a large underestimate of the phenomenon for several reasons. First, many relations go unnoticed, especially in smaller universities that are subject to less media coverage than the large ones. Second, many hirings have occurred before the year 2000, and their documentation is not available. Third, we only focused on hirings during the mandate; but clearly these individuals were powerful even before becoming *rettore*, and could have influenced the hiring of a relative; and they continue to be powerful after the end of their mandate. In fact, from our list we have omitted many cases of spouses and other relatives that were hired before the current *rettore* or *preside* were elected, or after the end of their mandate.

Fourth, many professors who never become *preside* or *rettore* are powerful enough to influence the hiring of family members. Figure 1 displays the documented family relations between members of the department of Economics at the University of Bari. The first letter, in small character, indicates the first name; the second, capital letter indicates the last name. A vertical line indicates a son or daughter, a horizontal line a brother or sister, and a triple horizontal line a spouse. The web of relations would be even more intricate if we included the membership in the commissions that evaluated the individuals for promotion.

This is clearly an extreme case, but by no means isolated. In the university of Palermo, an

article by the Italian newspaper *La Repubblica* in October 2008 calculated that in the faculty of Medicine there were 58 professors with at least one close relative in the same faculty, out of 384 professors; the numbers are 21 out of 174 professors in the faculty of Law, 23 out of 126 in the faculty of Agronomy, and 18 out of 180 in the faculty of Engineering. Another article in the Italian newspaper *Il Fatto Quotidiano* in December 2010 calculated that in the University of Messina, 23 members out of 63 in the faculty of Veterinary Sciences were closely related, about 100 out of 531 in the School of Medicine, and 27 out of 75 in the faculty of Law.

One should also keep in mind that a major avenue for favoritism is hiring in the administration. In fact, several *rettori*, including some that appear in Table 2, and a large number of professors have been documented to have close relatives (including spouses and children) in the administration, and undoubtedly many more escaped the public attention because the process of hiring in the administration of the university is less publicized.

5. Two indices of familism

Thus, favoritism and familism appear to be important phenomena in the Italian university system. But how to quantify them? We infer their incidence from the distribution of last names in a department; to this end, we construct two indices that capture the degree of "homonymy" in a given department.[12] Clearly, an index of homonymy is bound to be an imperfect measure of the phenomena. On one hand, it is an overestimate, because not all cases of homonymy imply favoritism or familism. On the other hand, it is an underestimate, because it leaves out all individuals linked by a family connection that however do not share a common last name; it does not capture cases of favoritism and cronyism towards individuals who are not linked by a family connection; and it does not capture cases of familism and favoritism towards individuals outside the department.

The first index we construct is simply the share of department members who have at least a namesake in the department. We denote this index by *SDEP*, for "department share" of repeated last names. Let N be the total size of department d at time t, N_a the numerosity of individuals with last

[12] Allesina (2011) presents alternative measures of homonymy in the Italian university system and shows that they are highly correlated to the measure presented in a previous version of this paper (Durante et al., 2009), which, in turn, is very similar to the indices used here.

name a, and R the set of repeated last names in the department (in order not to clutter the exposition, and until further notice, we omit the subscripts "d" and "t" that denote department and time). Then the index is

$$SDEP = 100 * \sum_{a \in R} \frac{N_a}{N} \tag{1}$$

The index ranges from 0, if there are no repeated last names in the department, to 100, if all individuals have at least one namesake. Of course, a high value of the index might simply reflect a high concentration of last names in the relevant pool of individuals for that department, say the population in the region where the university is located. We therefore compare our index to the same index calculated for the regional population as a whole. For each department of size N located in region r, we ask the question: what is the median share of repeated last names in the population of region r, from a repeated sample of individuals of size N?

To do so, for each sample of size N in region r we draw 5000 times from the distribution of last names in the region (as we explain below in section 6, the distribution of last names we use is time invariant because we have data on only one year). For each draw j we compute a simulated index using the formula (1). Our "population share" $SPOP(N,r)$, to be associated with a department of size N located in region r, is the median value of these draws.

We then subtract[13] this population index from the department index $SDEP$; hence, for a given department d of size N in region r at time t the variable we use is

$$S_{d,t} = SDEP_{d,t} - SPOP(N,r) \tag{2}$$

One advantage of this index is its simplicity; a possible disadvantage is that it ignores the degree of concentration of last names in the department. Suppose two departments D_1 and D_2 located in the same region have the following distributions of last names:

D_1	D_2
$aabbcc$	$aaaaaa$

The two departments have the same value of $SDEP$; however, we surmise that D_2 represents a "worse"

[13] Alternatively, we could divide $SDEP$ by $SPOP$; the disadvantage is that we would create large outliers for values of $SPOP$ close to 0.

case of colonization: given the share of professors who have at least one colleague with the same last name, the *concentration* of last names should also be important.

Therefore, we also consider a second index of homonymy, which we define simply as the probability that any two individuals drawn at random (without replacement) among the members of the department share the same last name. We denote this index as *CDEP*, from "department concentration" of last names. Let p_a be the probability that any two individuals drawn randomly without replacement from department d at time t have the same last name a (here again we omit the subscripts "d" and "t" until further notice):

$$p_a = \frac{N_a(N_a-1)}{N(N-1)} \tag{3}$$

Then our concentration index is:

$$CDEP = 100 * \sum_{a \in R} p_a \tag{4}$$

This index takes the value 0 if all last names appear only once, and the value 100 if all individuals have the same last name.[14]

To illustrate the properties of this index, let L be the number of last names appearing at least twice in the department (i.e., the numerosity of the set R), and let $I \equiv L/N$ be the incidence of repeated last names in the department. Consider the symmetric case in which in a given department all repeated last names appear with the same numerosity N_a. The concentration index becomes

$$\begin{aligned} CDEP &= 100 * \sum_{a \in R} \frac{N_a(N_a-1)}{N(N-1)} && (5) \\ &= 100 * L \frac{N_a}{N} \frac{N_a-1}{N-1} && (6) \\ &= 100 * \frac{SDEP(SDEP/I-1)}{N-1} && (7) \end{aligned}$$

In the example above, the two departments had the same value of *SDEP* but D_2 had a lower value of I, hence a higher value of *CDEP*.

In the following example, instead, the two departments have the same value of I but D_3 has a

[14] This index is very similar, but not identical, to the Herfindal index typically used for instance in the literature on ethnolinguistic fractionalization. In that index the probability p_a is defined with replacement, i.e. $p_a = (N_a/N)^2$. If a last name appears only once, its associated probability is still $1/N^2$; if instead it is calculated without replacement, as in our index, the probability is 0. Our index has a more natural interpretation in terms of probability of meeting randomly an individual with the same last name.

higher value of *SDEP*:

D_3	D_4
aaabbb	*aabbcd*

Clearly, *CDEP* is higher in D_3.

Finally, for this index too we compute the median of 5000 draws from a sample of size N in region r, and define the concentration index of department d at time t in region r as:

$$C_{d,t} = CDEP_{d,t} - CPOP(N,r) \tag{8}$$

The index $C_{d,t}$ is the second index we use.

6. The data

The data on last names in the Italian population are obtained from the Italian Internal Revenue Service. The dataset includes the names of all individuals who filed a tax return in 2005[15], approximately about 40 millions individuals, out of a total Italian population of about 60 million individuals. Table 3 provides a summary of these data for the provinces of the capitals of the twenty Italian regions. For each province we report the number of last names recorded and the mean and the maximum number of occurrences.

This dataset has a very good coverage. First, although individuals who have only dependent employment income do not have to file a tax return, their employers is required to file for them. Second, in Italy married couples cannot file jointly: hence, all female individuals with some type of income or taxable property appear in the database. Third, only total tax evaders - individuals who do not report *any* income or taxable property - would be missed in the database; although tax evasion is not unknown in Italy, total tax evasion is a more limited phenomenon. In addition, we have no elements to believe that total tax evaders have a different distribution of last names than the rest of the sample. Finally, although our source misses those individuals who do not pay taxes because they do not have sufficient incomes, again there is no basis to believe that these individuals have a different

[15] Only data for 2005 were ever made public.

distribution of last names. [16]

We measure civic capital by readership of non-sport daily newspapers per 100 inhabitants by province, in the years 2001-2002. The source of the dataset is Cartocci (2007). As we have argued above, this is conceptually the most appropriate measure for our purposes, because it captures the willingness and ability to acquire information in order to improve the quality of collective decision making and to subject public officials to public scrutiny. Figure 2 shows the distribution of this variable in the Italian provinces that host one or more university departments. The light grey provinces denote readership above the median, while the black ones have readership below the median (white provinces do not have a university). This measure is obviously correlated with a North-South variable, but only imperfectly so; in fact, we show below that our results are weaker if we use instead a North-South dummy variable. We will also use another widely used measure of social capital in Italy, blood donation per capita, as in Guiso et al. (2004); again, our results are weaker in this case.

Our data on department membership come from the Italian Ministry of Education, Universities and Research. For each year, the dataset contains the names, academic position (assistant, associate, or full professor) and department of affiliation of all professors in Italian universities (public and private). The unbalanced panel data consists of roughly a million observations: for instance, in the year 2000 - the first year of implementation of the reform - there were 51191 individuals in the dataset and 23045 different last names. Of course, most of the observations refer to individuals appearing for several years.

We dropped two departments that take disproportionately high values of the concentration index $CDEP$ in some years and have a large influence on our results: the department of Agricultural and Veterinary Sciences of the University of Trieste (high readership sample) and the department of Earth Sciences of the University of Messina (low readership sample). In Trieste the number of professors fluctuated about 3 before 2004; in that year, a namesake of an existing member was hired and, with 4 members, the $CDEP$ index rose from 0 to 16.7, almost 200 times the standard deviation of the remaining observations; after that, it remained stable at about 10. In Messina, in 2000 the index

[16] An alternative source of data on last names could have been the Italian phone book directory (www.paginebianche.it). However, this source has two serious limitations: it does not account for those individuals who do not have a land line, and, more importantly, it omits all members of the household (particularly women) other than the person under whose name the line is registered. Ideally, the most comprehensive data would be those collected by the National Office of Vital Statistics (*Anagrafe*) which, however, are not available to the public on the scale we need.

rose from 0 to 2.78, as the number of professors fell from 13 to 9 and a namesake of an existing member was hired. Later on the index leveled off, but still at an average of almost 1. In addition, several members appear and then disappear from the department during several years. The next largest observation after this is the department of Economics of Macerata in 1994, with a size of 19 and a *CDEP* index of 1.75. Note that including Messina would raise our estimates of the differential reform effect (the post-reform change in low-vs. high-readership universities) by about 50 percent; but because Trieste is such a huge outlier and the jump occurs exactly in the year 2000 - the first year of the reform - including it would make our estimate of the differential reform effect *negative* and insignificant.[17] We show below that our estimates are not sensitive to other outliers or large groups of observations: in fact, in general our results are stronger if the top two percentiles of the homonymy index are dropped.

We also exclude all departments that do not appear in all the 21 years of the sample. Most of these departments were formed after the reform, hence they would not be useful for the purpose of estimating the effects of the reform. This means that we exclude from our sample all distance -learning universities, that were created recently and for which we cannot uniquely identify the location. In the end, we have 57 universities (of which 5 were private, all others were state-funded) and 564 departments, for a total of 11844 department -years. The list of these universities is in Table 4. 28 universities are in the low readership group, 29 in the high readership group.

Table 5 shows some summary statistics of the *CDEP*, *CPOP*, and *C* indices. The average value of *CDEP* is .045; the median is .01; the 98th percentile is .28. To put these numbers in perspective, note that, in a department with 100 members where all members have exactly one namesake (an enormous degree of familism), the probability of meeting a namesake at random would be about 1 percent and the index *CDEP* would take the value 1 (recall that we multiply probabilities by 100). Obviously *CDEP* is highly concentrated at 0: 49 percent of all department -years have no repeated last names (not shown). For this reason, the mean and median of *C* are slightly negative, as in most of these cases one subtracts a small but positive value of *CPOP* from 0.

Figures 4, 5 and 6 display respectively the evolution of *CDEP*, *CPOP* and *C* in the two groups

[17] For symmetry, we also exclude these two departments also when we use the *S* index, even though in this case the estimates are not sensitive to these outliers.

of universities. Before the reform (up to year 1999 included), *CDEP* was slightly higher in the low readership universities; there was no noticeable trend in either group in the 7 years or so preceding the reform. After the reform, the index increased by about 20 percent in the low readership group, while it declined by about 10 percent in the high readership group, to come back up later on. For *CPOP*, there is a small difference between the two groups and no noticeable trend (notice the scale). As a consequence, *C* is essentially identical to *CDEP*, although of course centered differently.

Table 6 displays the same summary statistics for *SDEP*, *SPOP* and *S*. On average in all department -years about 3.7 percent of individuals have at least a namesake in the same department; the median is 1.4 percent; the 98th percentile is 18.4 percent. Figures 7, 8 and 9 display the evolution of the three share indices in low- and high-civic capita universities. The pattern is roughly similar to that of the concentration indices.

Our indices do seem to capture family links quite well. Consider for instance the various faculties in the universities of Bari, Palermo and Messina mentioned at the end of the previous section as particularly egregious examples of family links, according to journalistic reports. Their *SDEP* indices range from 29.96 to 11.11; the faculties of Medicine and Law in Messina have the two highest scores of the whole sample in 2008.[18]

7. Results

7.1. The relation between familism and research performance

It is beyond the scope of this paper to try to identify the causal effects of familism in academia. The task is difficult, as usual in this type of investigations, because obviously familism is just one manifestation of the cultural traits of a community. In what follows, we simply document a strong negative cross-sectional relation between our concentration index of homonymy and a measure of research performance.

Data on the quality of research performance by Italian academic institutions are available from the first round of evaluation conducted by the Italian National Committee for the Evaluation of Research (CIVR). Each department or research institute was required to submit a set of research outputs

[18] The numbers are not exactly comparable to those mentioned in the two newspaper articles because there the data refer to faculties, while our data are organized by academic discipline.

produced over the period 2001-2003. Depending on the discipline, eligible categories of outputs included: books, book chapters, conference proceedings, journal articles, patents, projects, compositions, drawings, design products, performances, shows and exhibitions, art manufactures.[19] Once collected, all eligible products were evaluated according to well defined criteria. The CIVR evaluation was the first - and thus far the only - nationwide experience of this kind ever carried out in Italy.

We define the CIVR score for a given department is the weighted sum of the number of research products selected by the latter, with the weights being determined by the quality of each product (1 for products evaluated as "excellent" , 0.8 for "good" , 0.6 for "acceptable", and 0.2 for "limited"). Table 7 presents the results of regressions of the CIVR score on our homonymy indices.

An observation is an academic discipline (what we previously defined as a "department") in a given university. We show regressions using both the *CDEP* index (controlling for *CPOP*) and for the *SDEP* index (controlling for *SPOP*) each with both an OLS and a robust estimator (results using the *C* and the *S* indices are very similar).[20] Since only one observation per department is available for the dependent variable for the period 2001-2003, for each department we use the average of the homonymy index over the same period. The coefficient of the homonymy indices is always negative and highly significant. The point estimates are sizable and imply remarkably similar effects. For instance, in the robust estimates of columns 2 and 4, an increase in CDEP and SDEP by one standard deviation corresponds to a decrease in the CIVR performance score of 0.32 and 0.35 standard deviation respectively.

7.2. The average differential effect of decentralization on familism

We start in Column 1 of Table 8 with the simplest DD estimate:

$$C_{d,t} = \alpha LOW_d {}^{*} REFORM_t + \gamma N_{d,t} + \lambda_t + \mu_d + \varepsilon_{dt} \tag{9}$$

where d indicates a department, t indicates a year, LOW_d is a dummy variable for "below median readership" , $REFORM_t$ is a dummy variable taking value 1 for the year after the reform, i.e. from

[19] Other categories of outputs, such as textbooks or software produced mainly for teaching purposes, conference abstracts, and internal technical reports were not eligible for purpose of evaluation.

[20] Robust estimators were obtained using the STATA command rreg, which down-weighs observations with large residuals using the Huber weight function.

2000 on, $N_{d,t}$ is the number of department members, and λ_t and μ_d are respectively year and department fixed effects.

We are interested in the coefficient α, which can be interpreted as the average differential effect of the reform on departments in low- vs. high-readership areas.[21] The coefficient is 0.008: on average after the reform the concentration of last names increases in low readership departments (relative to high readership departments) by about 18 percent of the average value of *CDEP* in all departments, 90 percent of the median, and 15 percent of the demeaned standard deviation. The table reports, below the point estimates, two p-values: one based on OLS standard errors (in parentheses), and one based on standard errors clustered at the university level (in brackets), to allow for generic correlation over time and for correlation across departments within a university. The estimate of α is significant at the 1 percent level in the first case and at the 6 percent level in the latter.[22]

That standard errors are much larger with clustering is not surprising. In fact, since both the dependent and the independent variables are very persistent, taking into account serial correlation is likely to increase the standard errors considerably. One frequently proposed solution is to control for department-specific trends. Removing the trend is also often advocated as a method to address the issue of pre-existing trends (see e.g. Angrist and Pischke, 2008, and Besley and Burgess, 2004 for applications of this argument). If the two groups exhibit differential trends before the reform, and if these pre-existing trends continue even after the reform, a positive estimate of α may well just be capturing the continuation of these trends to the post-reform period.

However, in other situations detrending may lead to the opposite conclusion, and show no differential effect, or even a negative differential effect, even when, in reality, there is a positive differential effect that is not attributable to any pre-existing trend. Figure 10 illustrates this point. The pattern displayed in the figure is similar to that observed in the data we use (although the magnitudes are different for illustrative purposes). The low-readership group (triangles) and the high-readership group (squares) have constant values of the homonymy index before the reform, at 5 and 4 respectively. After the reform, the high readership group remains at a value of 4, while in 2001 the low

[21] The estimate of λ, the coefficient of N, is negative but very small and statistically insignificant.

[22] When we cluster by year, in general our standard errors fall. We cannot cluster by both department and year, because we typically obtain several non-positive variances on the diagonal of the covariance matrix. As argued by Cameron et al. (2006) and by Thompson (2010), this is typically an indication that clustering along one dimension only is called for, which is consistent with our results on clustering by year.

readership group starts increasing with annual increments of 2. A standard difference-in-difference estimator would correctly report an estimate of α, the average differential reform effect, of 3. Removing the group-specific trends has obviously no effect on the high readership group since the residuals (displayed in the lower part of the figure) are the same as the raw data. However, the average detrended residual for the low-readership group after the reform is negative, while it is zero before the reform; hence the estimate of α in equation (9) becomes negative. This negative estimate is spurious, an unwanted effect of detrending.

To address these problems, we estimate several variants of equation (9). In the first, instead of interacting $REFORM$ with LOW, we interact each year dummy with LOW (1988 is the excluded year), hence we estimate the following regression:

$$C_{d,t} = \alpha_t \lambda_t LOW_d + \gamma N_{d,t} + \beta TREND_t * C_{d,1988} + \lambda_t + \mu_d + \varepsilon_{d,t} \tag{10}$$

$\beta TREND_t * C_{d,1988}$ is the interaction of a time trend with the value of the concentration index in 1988 ($C_{d,1988}$) to control for possible reversion to the mean effect (Acemoglu et al., forthcoming). Figure 11 plots the estimated coefficients α_t, with two standard errors above and below the estimate: it is clear that they exhibit no trend until 1999 and that they increase substantially with the reform. They are significantly different from zero after the reform but not before. Column 2 of Table 8 makes the point more formally. It displays the average differential reform effect, calculated as the difference between the average values of the α_t's in the post-reform period (2000-2008) and the 1995-1999 or the 1989-1999 averages; the table also displays raw and clustered p-values of the differences. These differences are large, about 15 percent of the demeaned standard deviation of $CDEP$, and always significant at the 1 percent level with OLS standard errors, and at or below the 10 percent level with clustered standard errors. To check that this is not due to the continuation of a pre-existing trend, we compare the difference between the 1995-1999 and 1989-1994 averages, which is virtually zero, with the difference between the 2000-2003 and 1995-1999 averages, which is about 13 percent of the demeaned standard deviation of $CDEP$, and statistically significant. Thus, the large increase that followed the reform cannot be attributed to the continuation of a pre-existing trend.[23]

[23] In principle, there could be a trend starting within the 1995-99 period. However, this is not consistent with the pattern of individual year effects displayed in Figure 11.

Columns 3 and 4 of Table 8 are analogous to columns 1 and 2, but with S as dependent variable. In column 3 the DD estimate of the average differential reform effect is .65 percentage points, significant at the 1 percent level even with clustering at the department level. This effect is large: it represents approximately 16 percent of the mean value of $SDEP$, 50 percent of the median, and 35 percent of the demeaned standard deviation.

The results in column 4 display a similar pattern to those in column 2, and the p-values of the estimates of the differential reform effects are now smaller than .01 even with clustered standard errors. The only difference is that, in this case, the difference between the 1995-1999 and 1989-1994 averages is positive (0.26 percentage points). Nevertheless it is still smaller than the difference between the 2000-2003 and 1995-1999 averages which is 0.38, with a clustered p-value of 0.01. The difference between the average values of the α_t's in the post-reform period 2000-2008 and the 1989-1999 or the 1995-1999 averages is large - 0.64 and 0.50 respectively - and always significant at the 0.1 percent level with both OLS and clustered standard errors.

In Table 9 we replicate the analysis presented in Table 8 using blood donations per capita as an alternative measure for local civic capital. The results are similar, with two qualifications. In columns 1 and 2, where the dependent variable is the concentration index C, the difference between the 2000-2008 average and the 1989-1999 average is significant at the 1 percent level with raw standard errors, but no longer significant with clustered standard errors. In columns 3 and 4, where the dependent variable is S, the estimate is significant at the 5 percent level even with clustered standard errors. However, in this case one cannot exclude that the jump observed in the post-reform period is a continuation of a pre-existing trend. With these two qualifications, the results with blood donations are qualitatively similar to those with readership, hence in the next section we will concentrate on the latter.

8. Robustness

One could argue that the incentives to favor family members in the public administration are higher when alternative occupational opportunities are scanter (see Alesina et al., 2001; Kramarz and Skans, 2011). To account for this possibility we estimate our baseline regressions controlling for province-

and year-specific rate of unemployment, and for its interaction with newspaper readership. The results are virtually identical, hence we do not report them.[24]

From Table 5 we see that, even after excluding the two largest outliers, the maximum observation on *CDEP* is still about 35 times larger than the demeaned standard deviation. To verify that our results are not driven by a relatively few number of extreme cases, we then re-estimate the regressions in Table 8 excluding the observations in the top 2% of the distribution of the dependent variable. Note that now the maximum value of *CDEP* is 5 times the demeaned standard deviation, and 3 times the undemeaned one. The estimates of the average differential effects (not shown) become larger, and more significant.

In Table 10 we interact the post-reform dummy with the continuous variable "newspaper readership" instead of the dummy variable for below median readership used in Table 8. The coefficient of the interaction with reform in column 1 is negative (the index *C* increased more after the reform in universities in areas with lower readership) and highly significant even with clustered standard errors. In column 2, the differences between the post- and pre-reform averages are also negative also in column 2, and again highly significant when the raw standard errors are used; as before, the results are less significant with clustered standard errors, and are stronger in columns 3 and 4, where the dependent variable is *S*. Now, in particular, even with clustered standard errors the p-values are below .01.

In Tables 11 and 12 we divide the sample of departments in two groups of disciplines: humanities plus medicine, and the others.[25] One might in principle think that individual research achievements is likely to be more easily assessed in the latter disciplines - for instance using bibliometric indicators - than in the former ones. However, the estimates of the differential post-reform effects are almost identical in the two groups.

We also replicated all the regressions shown so far, imposing the restriction that the coefficients α_ts in the four sub-periods are the same, i.e. we estimate the equation:

[24] We prefer to show the regressions without the unemployment rate because data for unemployment at the provincial level are available only from 1992, hence we would loose four years of observations.

[25] Specifically, the first group includes Medicine, Agriculture and Veterinary, Literature, History, Psychology, Law, and Economics, Sociology and Political Science. The second group includes Mathematics, Physics, Chemistry, Natural Sciences, Biology, Engineering and Architecture, Computer Sciences. The inclusion of Economics, Sociology and Political Science in the second group does not change the results.

$$C_{d,t} = \sum_{s=1}^{4} \alpha_s \theta_s \, LOW_d + \gamma N_{d,t} + C_{d,1988} t + \lambda_t + \mu_d + \varepsilon_{d,t} \tag{11}$$

where the θ's are dummy variables for the four sub periods. The results (not shown) are virtually identical to those shown so far.

9. Conclusions

This paper investigates to what extent the impact of policies of decentralization depend on the specific socio-cultural norms of the targeted communities. We examine this question by looking at the incidence of practices related to familism and nepotism in the Italian academia and, in particular, at the evolution of this phenomenon before and after the 1998 reform which decentralized the recruitment of professors from the national to the university level. To measure the incidence of practices related to familism we construct two intuitive measures of "homonymy" by comparing the concentration of last names in each academic unit with that of the population of the region where the university is located. We first use the "homonymy" indices to investigate the incidence of familism across departments, with particular regard to the relationship between familism and academic performance, finding evidence of a robust negative correlation: departments characterized by higher degrees of familism - as measured by our "homonymy" indices - tend to display poorer research performance.

We then investigate the effect of the 1998 reform of the recruiting process on the incidence of familism, with particular regard to the interaction between decentralization and the underlying cultural characteristics of the areas where the reform was implemented. In particular we test the hypothesis that decentralization had a particularly negative impact on familism in areas characterized by poor civic values as opposed to areas with stronger civic values, where individuals are more prone to internalize the social costs of their actions and the public is equally more likely to monitor the conduct of public officials. The empirical results provide robust support for this hypothesis.

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Table 1: **Some statistics on post-reform public competitions in Economics (*concorsi)*.**

number of *concorsi* with insiders	32
number of winning insiders	35
number of winning insiders appointed as full professors	27
P (winner | insider)	0.57
P (winner | outsider)	0.27
P (appointed by X | insider)	0.44
P (X appoints insider)	0.67
P (appointed by X or own university | winner)	0.95

The table reports some summary statistics for forty public competitions (*concorsi*) for positions of full professor in the area of Economics, carried out between 1999 and 2002 (source: Perotti, 2008). We indicate with "X" the university that opened the position, and we define as an "insider" any candidate that, at the time of the *concorso*, was serving as assistant or associate professor in university "X". The three top-ranked candidates in each *concorso* - which we call "winners" - become eligible to be appointed to the open position in university "X" as well as to other same-level positions in the same area in other universities.

Table 2: **Some examples of familism in the Italian Academia**

Rank	University	Role	Mandate	Relation	Level	Same Dept., Faculty or Discipline?	Hired or Promoted?
1	**Roma La Sapienza**	Provost	1997-2004	S	FP	No	H
		Provost	2004-2008	D1	AP	No	H
				D2	AP	No	H
		Chair	1990 -	S	AP	Yes	H
				S	AsP	Yes	P
		Provost	2008 -	S	FP	Yes	P
2	**Bologna**	Provost	1986-2000	D	AP	No	H
		Provost	2000-2009	S	AsP	No	P
				S	FP	No	P
				DIL	AsP	No	P
3	**Napoli Federico II**	Provost	2001-2010	D	AsP	Yes	P
7	**Palermo**	Chair	2002-2008	W	AsP	Yes	P
9	**Bari**	Chair	1995 - 2004	S	AP	Yes	H
				D	AP	Yes	H
		Provost	2000-2006	S1	AP	Yes	H
				S2	FP	Yes	P
				D	AP	Yes	H
				W	AP	Yes	H
				W	AsP	Yes	P
				SIL	AsP	Yes	P
10	**Firenze**	Chair	2001 - 2007	D	AP	Yes	H
		Provost	2000 - 2009	D	AP	Yes	H
12	**Milano Politecnico**	Provost	2002 - 2010	S	FP	Yes	P
16	**Roma Tre**	Provost	1998 -	N	FP	Yes	H
17	**Cagliari**	Provost	1991-2009	S	AP	Yes	H

Continued on next page

"Rank" indicates the university's rank in terms of total number of registered students. In column "Relation", "S" indicates a son, "D" a daughter, "SIL" a son-in-law, "W" a wife. "N" a nephew. If more than one son is hired or promoted we indicated them using "S1" for the first son, "S2" for the second, etc.; we do the same for other relatives. In column "Level", "AP" indicates an assistant professor, "AsP" an associate professor, and "FP" a full professor.

Table 2: **Some examples of familism in the Italian Academia (continued)**

Rank	University	Role	Mandate	Relation	Level	Same Dept., Faculty or Discipline?	Hired or Promoted?
18	**Calabria**	Chair	1998 - 2007	D	AsP	Yes	P
				D	FP	Yes	P
19	**Roma Tor Vergata**	Chair	1991 - 1996	N1	AP	Yes	H
		Provost	1996 - 2008	S	AP	Yes	H
				S	AsP	Yes	P
				N1	AsP	Yes	P
				N1	FP	Yes	P
				N2	FP	Yes	H
		Chair	1996 - 2008	S	AP	Yes	H
				S	AsP	Yes	P
				S	FP	Yes	P
		Provost	2008 -	DIL	AsP	Yes	P
21	**Messina**	Chair	1999 - 2004	D	AP	Yes	H
		Provost	2004 - 2011	S	AsP	No	P
22	**Perugia**	Chair	2001 - 2010	S	AP	Yes	H
26	**Napoli II**	Chair	1998 - 2006	D	AP	Yes	H
		Provost	2006 -	S	AP	Yes	H
				SIL	AP	Yes	H
28	**Siena**	Provost	1994-2006	S	AP	Yes	H
32	**Modena**	Provost	1999-2008	S	AP	No	H
				S	AsP	No	P
				S	FP	No	P
45	**Napoli Parthenope**	Provost	1986 - 2010	D	AsP	Yes	H
				D	FP	Yes	P
				SIL	AP	Yes	H
				SIL	AsP	Yes	P
				SIL	FP	Yes	P
				N	AP	Yes	H
				N	AsP	Yes	P
55	**Foggia**	Provost	1999-2008	S	AP	Yes	H
				SIL	AP	No	H

"Rank" indicates the university's rank in terms of total number of registered students. In column "Relation", "S" indicates a son, "D" a daughter, "SIL" a son-in-law, "W" a wife, "N" a nephew. If more than one son is hired or promoted we indicated them using "S1" for the first son, "S2" for the second, etc.; we do the same for other relatives. In column "Level", "AP" indicates an assistant professor, "AsP" an associate professor, and "FP" a full professor.

Table 3: **Data on the distribution of last names in the Italian population**

	(1)	(2)	(3)	(4)
Province	**Total population**	**Num. of last names**	**Mean occurrences**	**Max occurrences**
Ancona	350.866	32.669	11	1.490
Aosta	97.955	18.794	5	472
L'Aquila	212.580	19.637	11	895
Bari	942.530	32.400	29	5.771
Bologna	754.428	69.902	11	3.051
Cagliari	464.976	19.603	24	7.543
Campobasso	156.809	12.556	12	832
Catanzaro	218.928	13.188	17	1.705
Florence	722.605	67.137	11	3.465
Genoa	667.803	72.834	9	5.210
Milan	2.834.116	181.971	16	22.689
Naples	1.509.143	57.905	26	31.591
Palermo	668.632	27.446	24	3.224
Perugia	463.916	42.811	11	3.509
Potenza	251.678	13.782	18	1.333
Rome	2.636.181	160.021	16	11.315
Trento	389.812	41.925	9	1.691
Turin	1.638.080	112.818	15	5.280
Trieste	191.029	35.332	5	500
Venice	606.115	50.862	12	6.505

The table reports summary statistics on the distribution of last names in the population of the provinces of the twenty Italian regional capitals (source: Italian Fiscal Census, 2006). The columns indicate: (1) total population; (2) number of last names represented in the population; (3) average number of occurrencies of each last name(2/1); (4) maximum number of occurencies of a last name.

Table 4: **Universities in the sample**

Low readership sample	**High readership sample**
AQUILA	BERGAMO
BARI	BOLOGNA
BASILICATA	CAGLIARI
BRESCIA	FERRARA
CALABRIA	FIRENZE
CAMERINO	GENOVA
CASSINO	MILANO POLITECNICO
CATANIA	MILANO STATALE
CHIETI PESCARA	PADOVA
MACERATA	PARMA
MARCHE POLITECNICA	PAVIA
MESSINA	ROMA SAPIENZA
MODENA REGGIO EMILIA	ROMA TOR VERGATA
MOLISE	SASSARI
NAPOLI FEDERICO II	SIENA
NAPOLI L'ORIENTALE	TORINO
NAPOLI PARTHENOPE	TORINO POLITECNICO
PALERMO	TRENTO
PERUGIA	TRIESTE
PERUGIA STRANIERI	TRIESTE SISSA
PISA	UDINE
PISA NORMALE	VENEZIA CA' FOSCARI
PISA S.ANNA	VENEZIA IUAV
REGGIO CALABRIA MEDITERRANEA	VERONA
SALENTO	MILANO BOCCONI (private)
SALERNO	MILANO CATTOLICA (private)
TUSCIA	MILANO IULM (private)
URBINO	ROMA LUISS (private)
	ROMA LUMSA (private)
(28 universities; 5670 obs.)	(29 universities; 6174 obs)

The table reports the list of universities in our sample divided into two groups: universities located in provinces characterized by low newspaper readership (i.e. readership of non-sport daily newspapers per 100 inhabitants below the median of the overall sample), and universities located in provinces with high newspaper readership (above median).

Table 5: **Summary statistics: *C* indices**

	CDEP			*CPOP*			*C*		
	all	**HR**	**LR**	**all**	**HR**	**LR**	**all**	**HR**	**LR**
obs.	11844	6174	5670	11844	6174	5670	11844	6174	5670
mean	.045	.041	.050	.046	.045	.048	-.001	-.004	.002
median	.009	.017	0	.036	.028	.043	-.020	-.016	-.029
75th perc.	.058	.048	.074	.048	.036	.056	.016	.012	.024
98th perc.	.280	.266	.294	.236	.237	.077	.210	.154	.243
99th perc.	.395	.395	.396	.237	.239	.080	.314	.279	.345
first perc.> 0	50th	45th	55th	1st	1st	1st	65th	64th	67th
max	1.754	1.515	1.754	.293	.293	.094	1.715	1.489	1.715
sd	.087	.085	.089	.043	.058	.015	.084	.079	.089
sd, demeaned	.052	.048	.056	.004	.004	.004	.052	.048	.056

The table reports the summary statistics for the three version of the homonymy concentration index *CDEP*, *CPOP*, and *C* for the overall sample and, separately, for the high- and low-readership groups ("HR" and "LR" respectively). "First perc.> 0" indicates the first percentile at which the index takes a non-zero value, while "sd, demeaned" indicates the standard deviation of residuals after regressing on department fixed effects.

Table 6: **Summary statistics: *S* indices**

	SDEP			*SPOP*			*S*		
	all	**HR**	**LR**	**all**	**HR**	**LR**	**all**	**HR**	**LR**
obs.	11844	6174	5670						
mean	3.67	3.53	3.82	3.02	3.19	2.83	.65	.34	.98
median	1.36	2.25	0	1.91	1.90	1.92	-.23	-.16	-.31
first perc.> 0	50th	45th	55th	1st	1st	1st	64th	62nd	66th
98th perc.	18.36	15.87	20.21	14.13	15.79	12.99	10.44	7.14	13.37
99th perc.	22.13	19.60	23.85	17.18	18.49	14.71	13.38	8.32	15.23
max	30.91	27.63	30.91	29.68	29.68	28.32	23.76	16.38	23.76
75th perc.	6.06	5.75	6.37	3.94	4.01	3.84	1.93	1.78	2.22
sd	5.04	4.46	5.61	3.52	3.86	3.10	3.43	2.82	3.97
sd, demeaned	1.84	1.69	2.00	.53	.54	.53	1.72	1.61	1.84

The table reports the summary statistics for the three version of the homonymy share index *SDEP*, *SPOP*, and *S* for the overall sample and, separately, for the high- and low-readership groups ("HR" and "LR" respectively). "First perc.> 0" indicates the first percentile at which the index takes a non-zero value, while "sd, demeaned" indicates the standard deviation of residuals after regressing on department fixed effects.

Table 7: **Homonymy and research performance**

	(1) **OLS**	(2) **Robust**	(3) **OLS**	(4) **Robust**
	(1)	(2)	(3)	(4)
CDEP	-.225*	-.345***		
	(.129)	(.036)		
CPOP	.071	.110		
	(.156)	(.119)		
C			-.085	-.162***
			(.072)	(.051)
N	0.011*	.003	.011*	.004
	(.006)	(.003)	(.006)	(.003)
Obs.	501	499	501	499
R^2	.320	.418	.312	.398

The table reports the results of a set of cross-sectional regressions of the CIVR research performance score for the years 2001-2003 on our homonymy concentration indices (averaged over the same period). The unit of observation is a department within a university. In columns (1) and (2) we regress the CIVR score on *CDEP* controlling separately for *CPOP*, while in columns (3) and (4) we regress the CIVR score on *C* directly. *N* indicates the average size of the department between 2001 and 2003. All regressions include university fixed effects. Columns (1) and (3) report standard OLS estimates, while columns (2) and (4) report estimates obtained using a robust estimator which down weighs observations with large residuals using the Huber weight function. Robust standard errors clustered at university level are reported in parentheses.*** p<0.01, ** p<0.05, * p<0.1.

Table 8: **Decentralization and the evolution of familism**
Regressions with newspaper readership as measure of social capital

Dependent variable:	(1) $\boldsymbol{C}$	(2) $\boldsymbol{C}$	(3) $\boldsymbol{S}$	(4) $\boldsymbol{S}$
N	-.00001	.00005	.004	.007
	(.719)	(.050)	(.000)	(.000)
	[.733]	[.151]	[.136]	[.033]
$LOW^*REFORM$	.008		.650	
	(.000)		(.000)	
	[.061]		[.001]	
$[avg(95-99)-avg(89-94)]^*LOW$		-.001		.259
		(.601)		.003
		[.778]		[.149]
$[avg(00-03)-avg(95-99)]^*LOW$		.007		.388
		(.018)		(.000)
		[.139]		[.013]
$[avg(00-08)-avg(89-99)]^*LOW$		.007		.641
		(.000)		(.000)
		[.113]		[.007]
$[avg(00-08)-avg(95-99)]^*LOW$		.008		.500
		(.001)		(.000)
		[.064]		[.007]
$TREND_t{}^*C_{d,1988}$		-.030		
		(.000)		
		[.000]		
$TREND_t{}^*S_{d,1988}$				-.022
				(.000)
				[.000]
R^2	.004	.103	.019	.076
Observations	11844	11844	11844	11844

Columns (1) and (2) report regressions with homonymity concentration index C as dependent variable, while in columns (3) and (4) the dependent variable is the share index S. N represents the number of professors in a given department in a given year. LOW is a dummy variable that equals one for the departments of universities located in provinces characterized by below-median newspaper readership. $REFORM$ is a dummy variable that equals one for the post-reform years (2000-2008). $[avg()-avg()]^*LOW$ represents the difference in the average coefficient of the interaction term between year dummies and LOW for the years in parentheses. $TREND_t{}^*C_{d,1988}$ and $TREND_t{}^*S_{d,1988}$ represent the interactions of a time trend with the value of the concentration index in 1998 and the value of the share index in 1988 respectively. All regressions include department and year fixed effects. P-value based on OLS standard errors are reported in parentheses. p-values based on standard errors clustered at the department level are reported brackets.*** p<0.01, ** p<0.05, * p<0.1

Table 9: **Decentralization and the evolution of familism**
Regressions with blood donations as measure of social capital

	(1)	(2)	(3)	(4)
Dependent variable:	***C***	***C***	***S***	***S***
N	-.00002	.00005	.004	.004
	(.575)	(.085)	(.000)	(.000)
	[.591]	[.183]	[.171]	[.160]
$LOW^*REFORM$	.001		.359	
	(.587)		(.000)	
	[.804]		[.083]	
$[avg(95-99)-avg(89-94)]^*LOW$		.002		.294
		(.361)		(.001)
		[.638]		[.081]
$[avg(00-03)-avg(95-99)]^*LOW$		.005		.239
		(.085)		(.013)
		[.286]		[.130]
$[avg(00-08)-avg(89-99)]^*LOW$		.005		.458
		(.010)		(.000)
		[.280]		[.050]
$[avg(00-08)-avg(95-99)]^*LOW$		.004		.297
		(.123)		(.000)
		[.406]		[.120]
$TREND_t{}^*C_{d,1988}$		-.031		
		(.000)		
		[.000]		
$TREND_t{}^*S_{d,1988}$				-.022
				(.000)
				[.000]
R^2	.003	.102	.013	.070
Observations	11844	11844	11844	11844

Same as Table 8. The only difference is that here "LOW" is a dummy variable taking the value 1 for values of blood donations per capita below the median across provinces.

Table 10: **Decentralization and the evolution of familism**
Regressions with newspaper readership as a measure of social capital

Dependent variable:	(1) ***C***	(2) ***C***	(3) ***S***	(4) ***S***
N	.00001	.00004	.004	.006
	(.613)	(.067)	(.000)	(.000)
	[.630]	[.156]	[.156]	[.035]
$READERSHIP^* REFORM$	-.0001		-.009	
	(.000)		(.000)	
	[.019]		[.000]	
$[avg(95-99)-avg(89-94)]^* READERSHIP$		.000004		-.003
		(.907)		(.009)
		[.942]		[.226]
$[avg(00-03)-avg(95-99)]^* READERSHIP$		-.00007		-006
		(.046)		(.000)
		[.174]		[.004]
$[avg(00-08)-avg(89-99)]^* READERSHIP$		-.00008		-.009
		(.0007)		(.000)
		(.182)		[.005]
$[avg(00-08)-avg(95-99)]^* READERSHIP$		-.00009		-007
		(.059)		(.000)
		[.150]		[.005]
$TREND_t{}^* C_{d,1988}$		-.030		
		(.000)		
		[.000]		
$TREND_t{}^* S_{d,1988}$				-.021
				(.000)
				[.000]
R^2	.005	.103	.021	.076
Observations	11844	11844	11844	11844

Same as Table 8. The only difference is that instead of the dummy variable "LOW" here we use the continuous readership variable "READERSHIP".

Table 11: **Decentralization and the evolution of familism**
Humanities departments with newspaper readership as measure of social capital

	(1)	(2)	(3)	(4)
Dependent variable:	***C***	***C***	***S***	***S***
N	.000003	.00004	.003	.005
	(.907)	(.091)	(.003)	(.000)
	(.881)	[.136]	[.294]	[.096]
$LOW^*REFORM$	.005		.544	
	(.027)		(.000)	
	[.402]		[.071]	
$[avg(95-99)-avg(89-94)]^*LOW$		-.003		.268
		(.280)		(.049)
		[.337]		[.183]
$[avg(00-03)-avg(95-99)]^*LOW$		.007		.364
		(.031)		(.015)
		[.204]		[.144]
$[avg(00-08)-avg(89-99)]^*LOW$		.007		.576
		(.002)		(.000)
		[.234]		[.080]
$[avg(00-08)-avg(95-99)]^*LOW$		.009		.430
		(.002)		(.001)
		[.148]		[.154]
$TREND_t{}^*C_{d,1988}$		-.030		
		(.000)		
		[.000]		
$TREND_t{}^*S_{d,1988}$				-.020
				(.000)
				[.000]
R^2	.005	.161	.018	.069
Observations	5166	5166	5166	5166

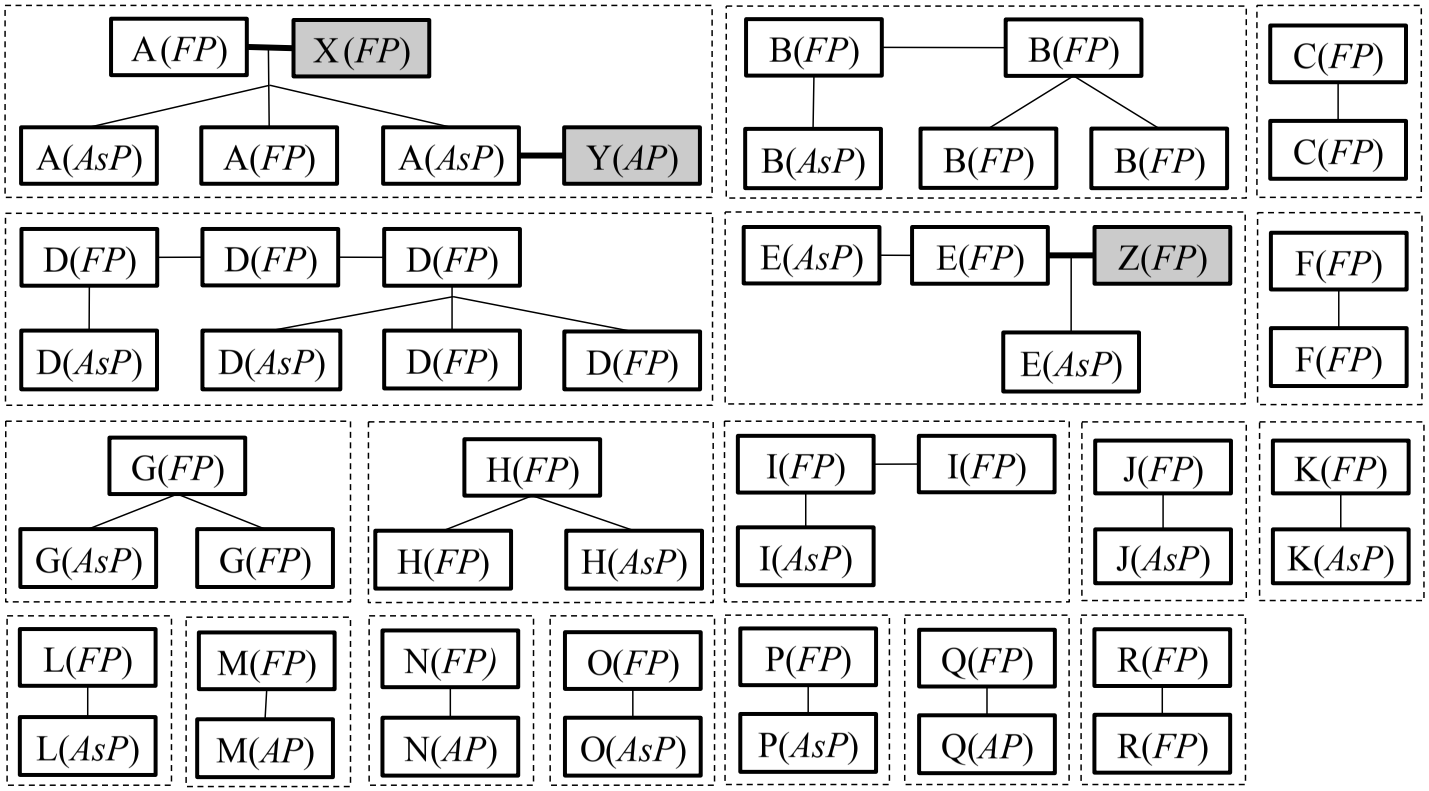
The table reports the same regressions as in that Table 8 for the sub-sample of departments in the disciliplines of humanities and medecine.

Table 12: **Decentralization and the evolution of familism**
Hard sciences departments with newspaper readership as measure of social capital

Dependent variable:	(1) ***C***	(2) ***C***	(3) ***S***	(4) ***S***
N	.004	.00008	.007	.009
	(.518)	(.202)	(.000)	(.000)
	[.690]	[.429]	[.091]	[.028]
$LOW * REFORM$	.010		.733	
	(.001)		(.000)	
	[.107]		[.002]	
$[avg(95-99) - avg(89-94)] * LOW$		.0001		.256
		(.980)		(.024)
		[.990]		[.247]
$[avg(00-03) - avg(95-99)] * LOW$		.006		.399
		(.149)		(.001)
		[.426]		[.045]
$[avg(00-08) - avg(89-99)] * LOW$		.007		.683
		(.012)		(.000)
		[.218]		[.011]
$[avg(00-08) - avg(95-99)] * LOW$		.007		.544
		(.044)		(.000)
		[.227]		[.013]
$TREND_t * C_{d,1988}$		-.031		
		(.000)		
		[.000]		
$TREND_t * S_{d,1988}$				-.023
				(.000)
				[.000]
R^2	.005	.082	.022	.083
Observations	6678	6678	6678	6678

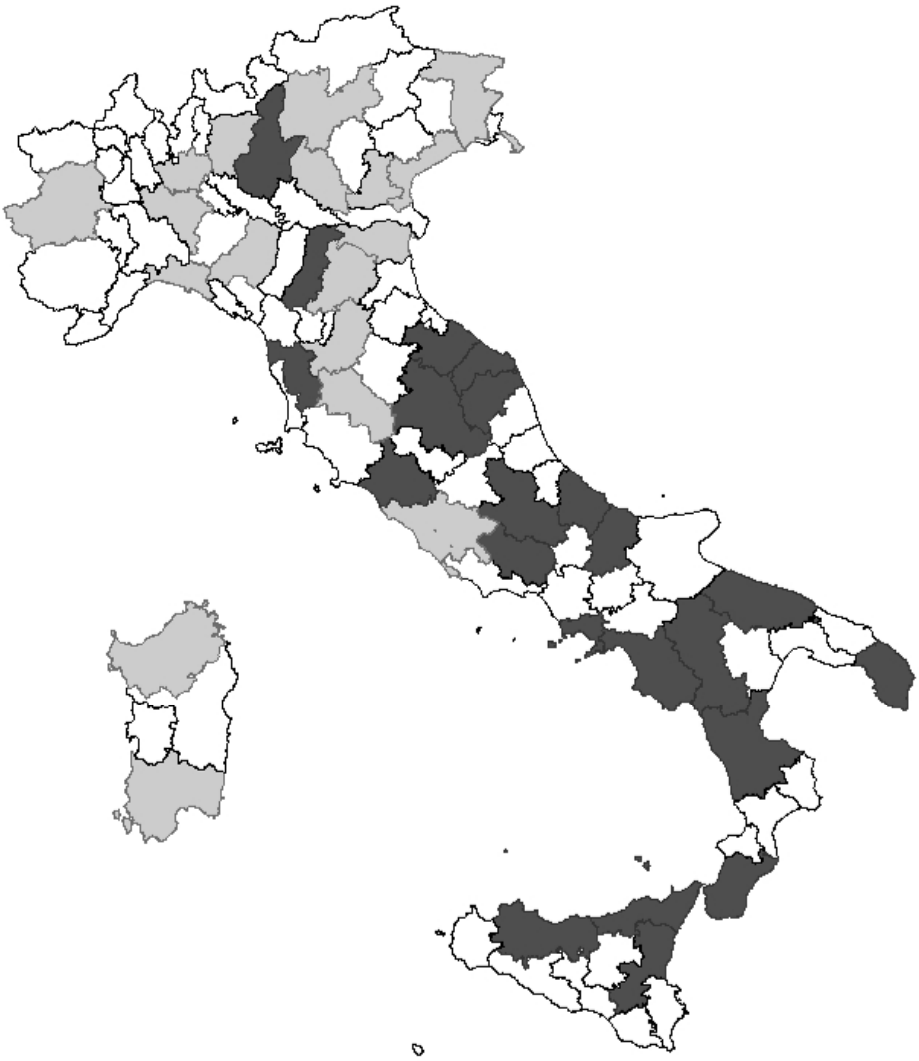
The table reports the same regressions as in that Table 8 for the sub-sample of departments in hard sciences and social sciences.

Figure 1: **Web of family relations in the Department of Economics of the University of Bari (2007)**



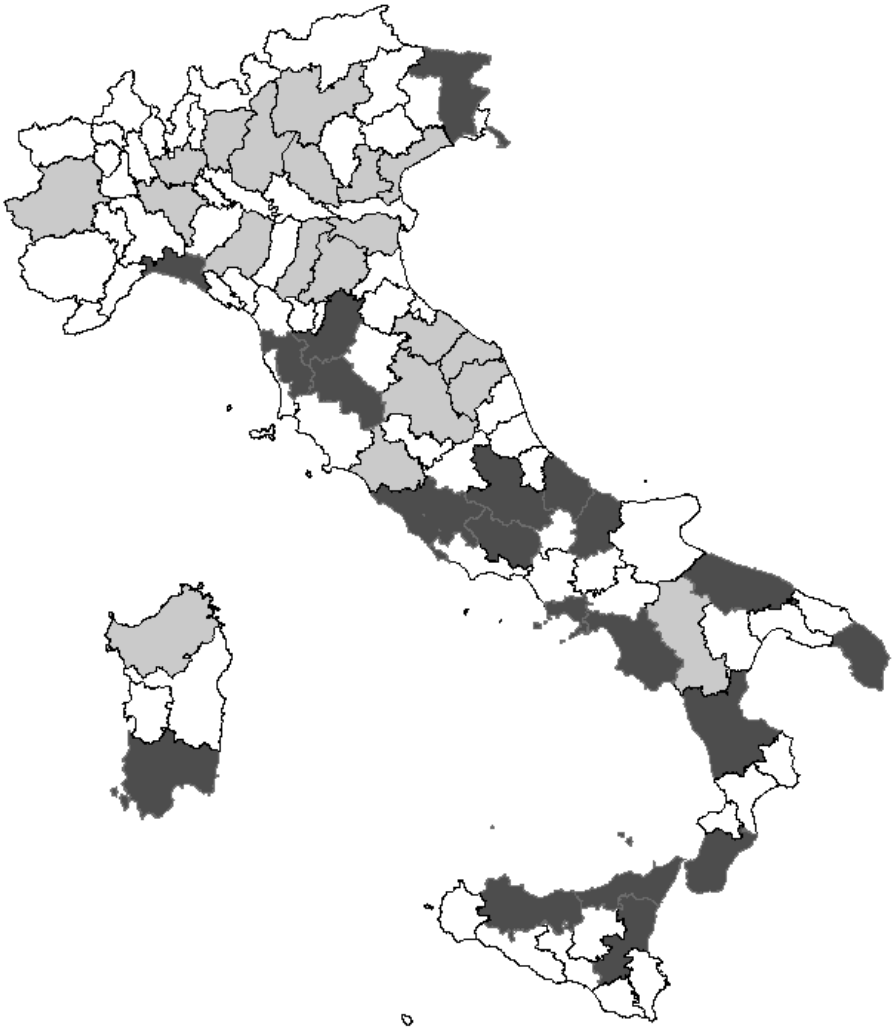
The figure summarizes the web of family relations linking the members of the Department of Economics at the University of Bari in 2007 (source: Perotti (2008)). Each cell indicates one faculty member represented by the last name (e.g. A, B, etc.) and, in parentheses, the corresponding academic position (*FP* for full professor, *AsP* for associate professor and *AP* for assistant professor). Each dashed rectangle includes all faculty members belonging to the same family with vertical and diagonal thin lines connecting parents to children, horizontal thin lines connecting siblings to each other, and horizontal thick lines connecting spouses to each other. The shaded cells indicate those professors members that, despite being related to other faculty members, do not share with them a common last name. These cases of relatedness are not captured by our homonymy indices.

Figure 2: **Readership of non-sport daily newspapers in Italian provinces (2001-2002)**



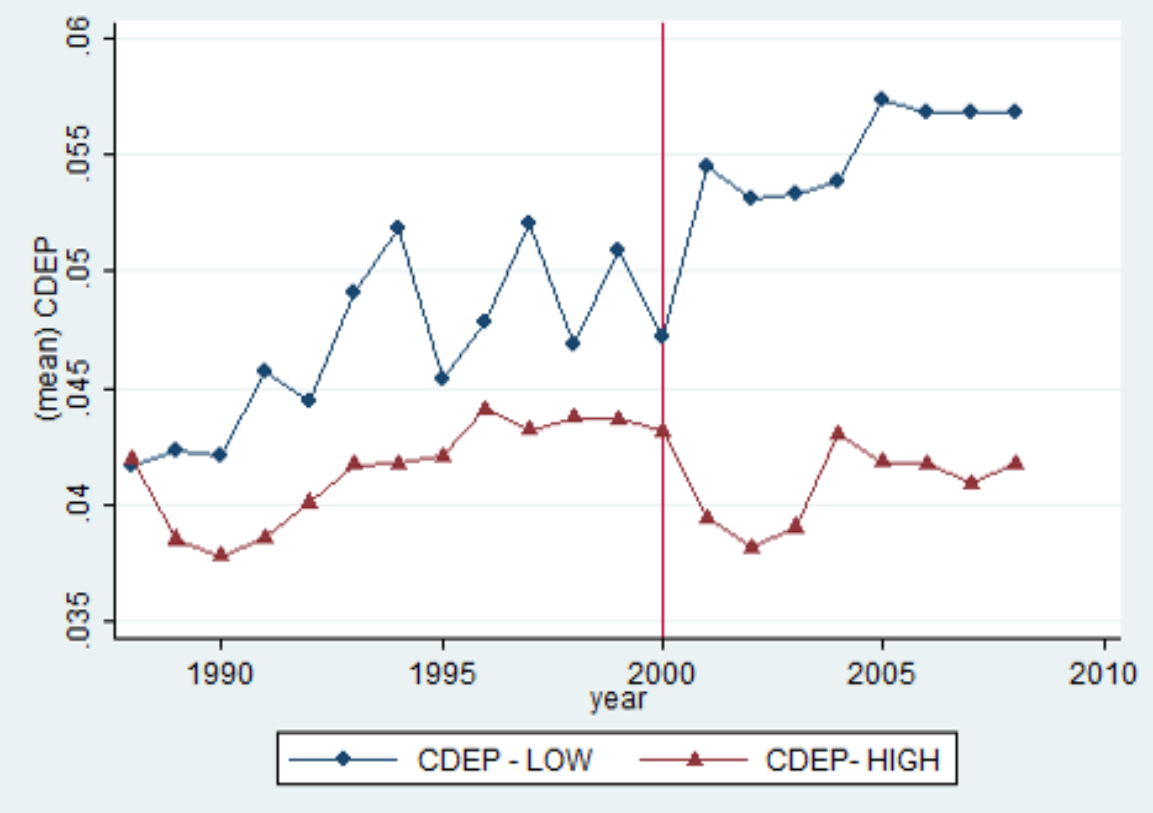
The map summarizes the distribution of newspaper readership in Italian provinces for the years 2001-2002. The light grey areas represent provinces characterized by low (below-median) newspaper readership, while the dark grey ones represent provinces with high (above-median) newspaper readership. White areas represent provinces where no university is located, and which are hence not relevant for our analysis.

Figure 3: **Levels of per capita blood donations in Italian provinces (1995)**



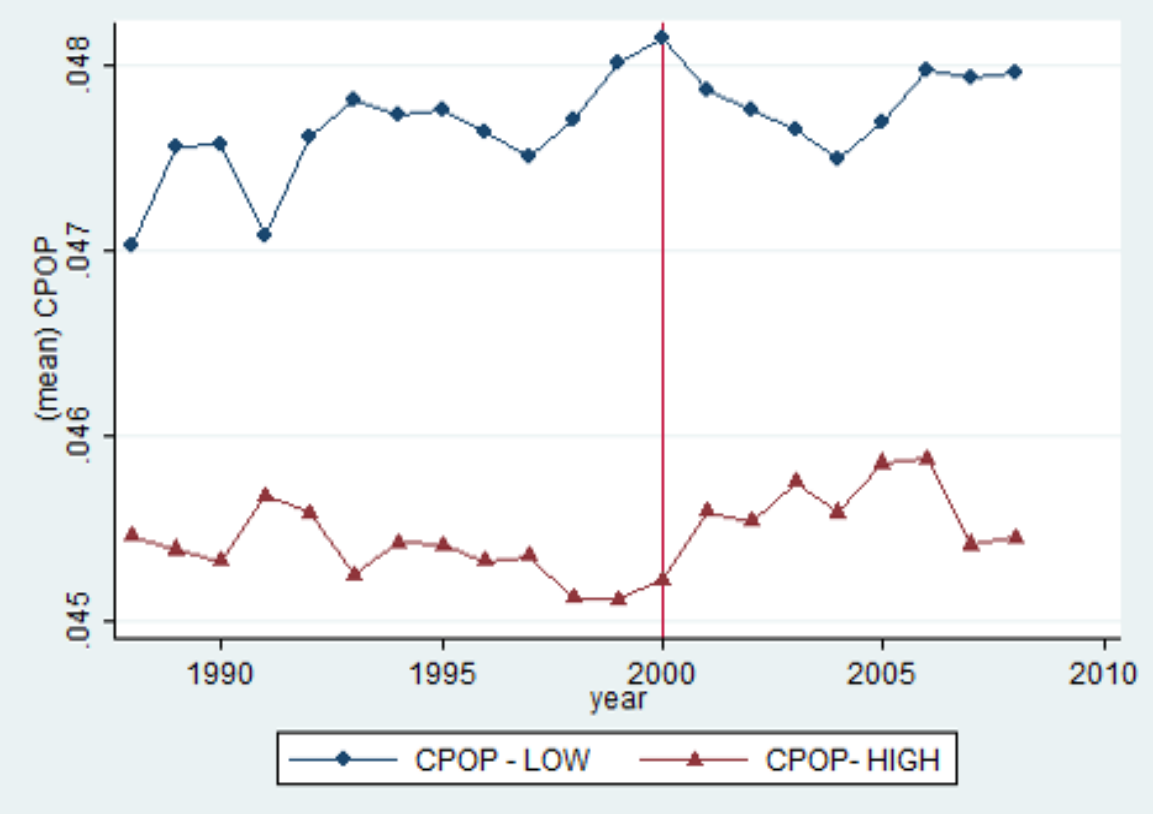
The map summarizes the distribution of per capita blood donations in Italian provinces for the year 1995. The light grey areas represent provinces characterized by low (below-median) levels of blood donations per capita, while the dark grey ones represent provinces with high (above-median) levels of blood donations. White areas represent provinces where no university is located, and which are hence not relevant for our analysis.

Figure 4: **Evolution of familism before and after decentralization in areas with high and low civic capital:** ***CDEP*** **index**



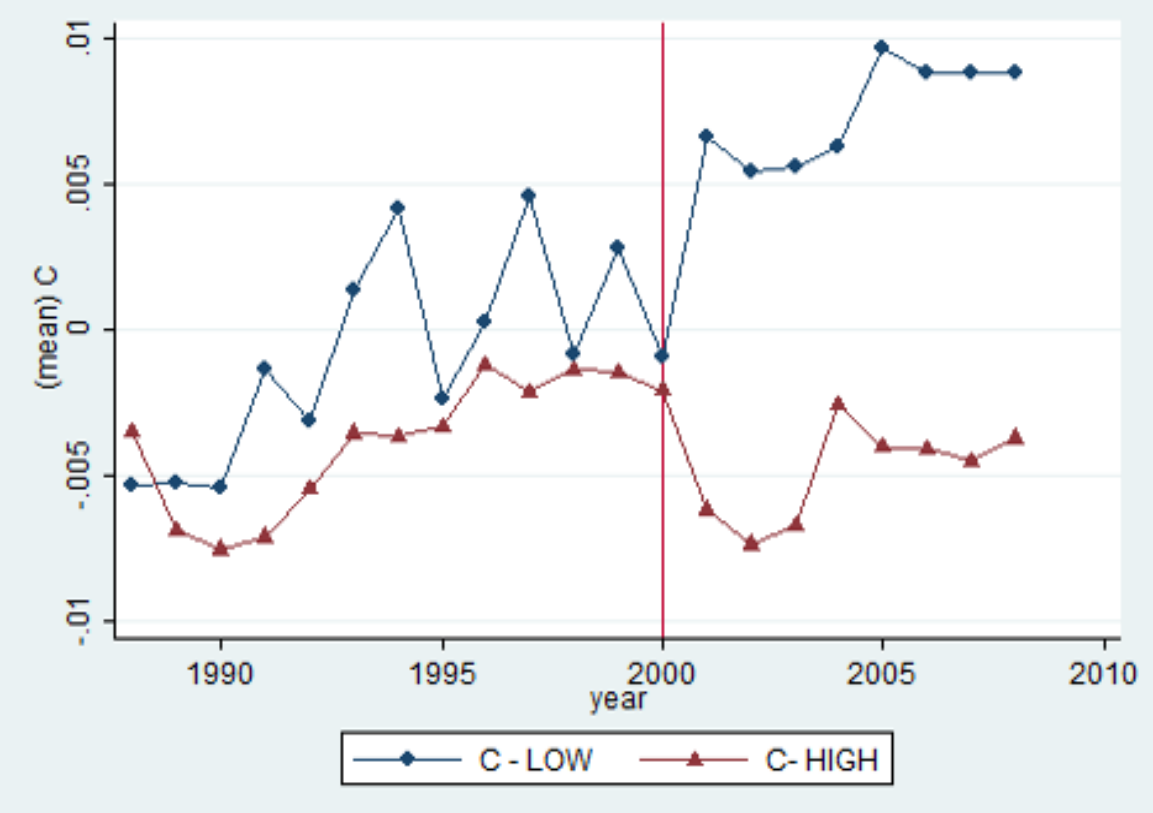
The figure illustrates the evolution of the concentration index *CDEP* between the years 1988 and 2008 separately for departments in universities located in high-readership (red) and low-readership (blue) provinces. The red line depicts the implementation of the reform that decentralized recruitment of professors from the national to the university level.

Figure 5: **Evolution of familism before and after decentralization in areas with high and low civic capital: *CPOP* index**



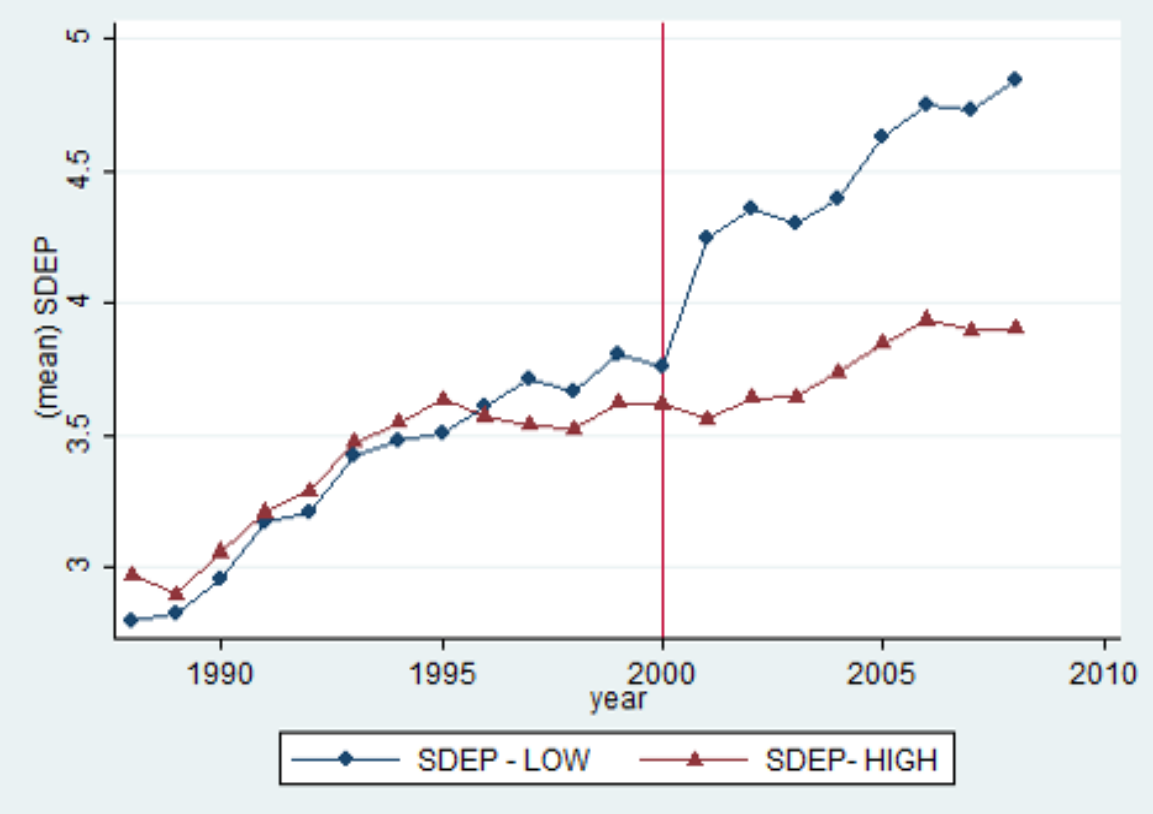
The figure illustrates the evolution of the concentration index *CPOP* between the years 1988 and 2008 separately for departments in universities located in high-readership (red) and low-readership (blue) provinces. The red line indicates the implementation of the reform that decentralized recruitment of professors from the national to the university level.

Figure 6: **Evolution of familism before and after decentralization in areas with high and low civic capital: *C* index**



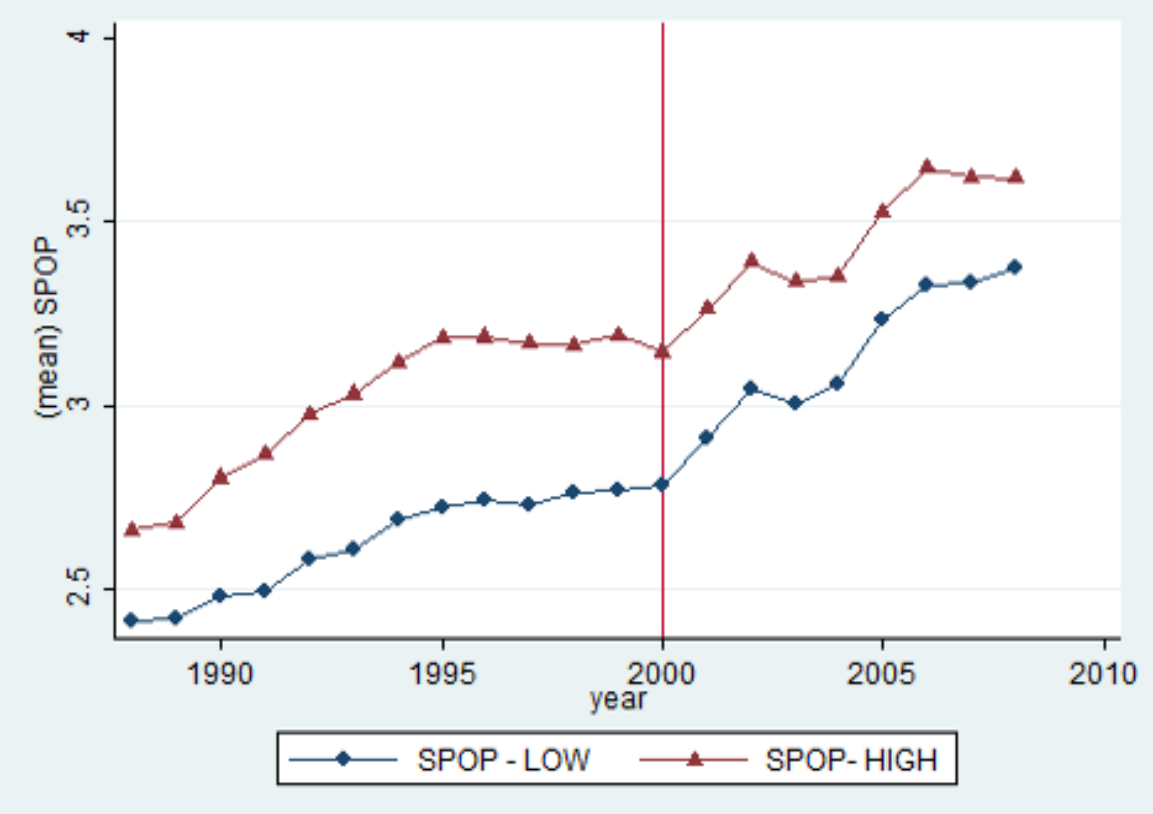
The figure illustrates the evolution of the concentration index *C* between the years 1988 and 2008 separately for departments in universities located in high-readership (red) and low-readership (blue) provinces. The red line indicates the implementation of the reform that decentralized recruitment of professors from the national to the university level.

Figure 7: **Evolution of familism before and after decentralization in areas with high and low civic capital: S_dept index**



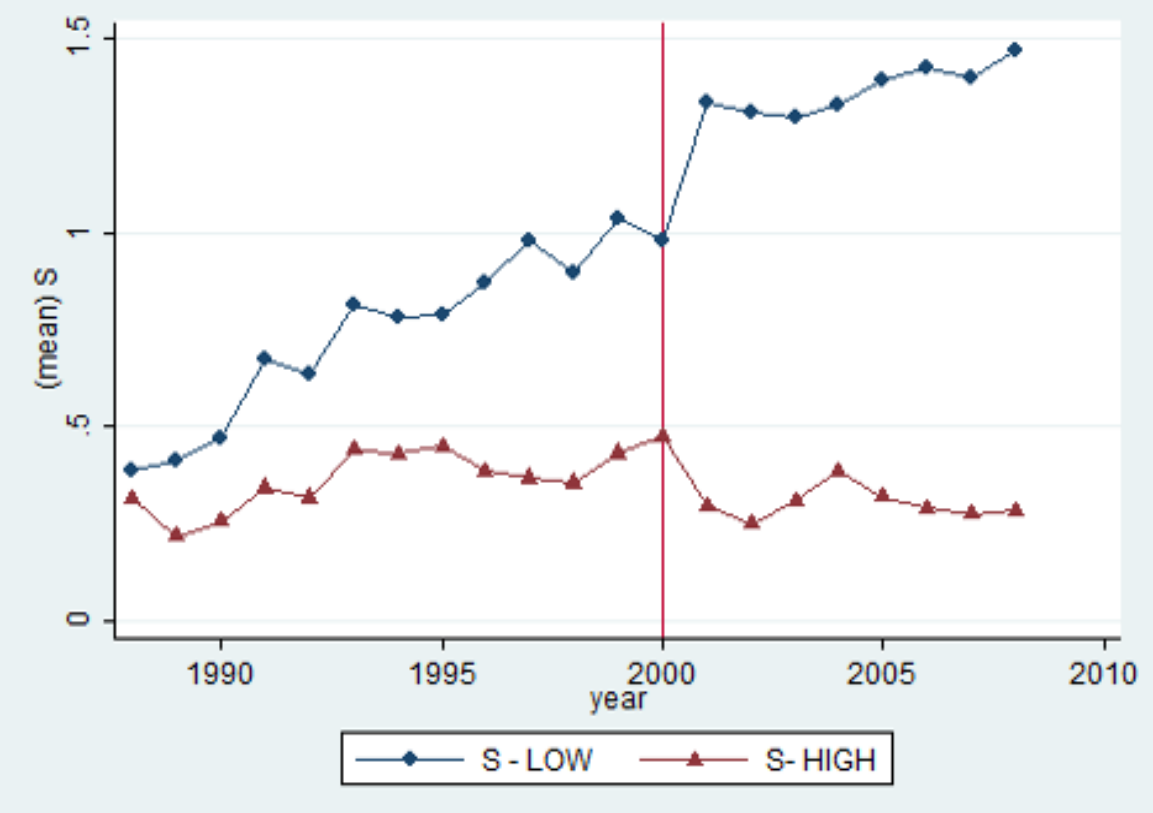
The figure illustrates the evolution of the concentration index *SDEP* between the years 1988 and 2008 separately for departments in universities located in high-readership (red) and low-readership (blue) provinces. The red line indicates the implementation of the reform that decentralized recruitment of professors from the national to the university level.

Figure 8: **Evolution of familism before and after decentralization in areas with high and low civic capital: S_pop index**



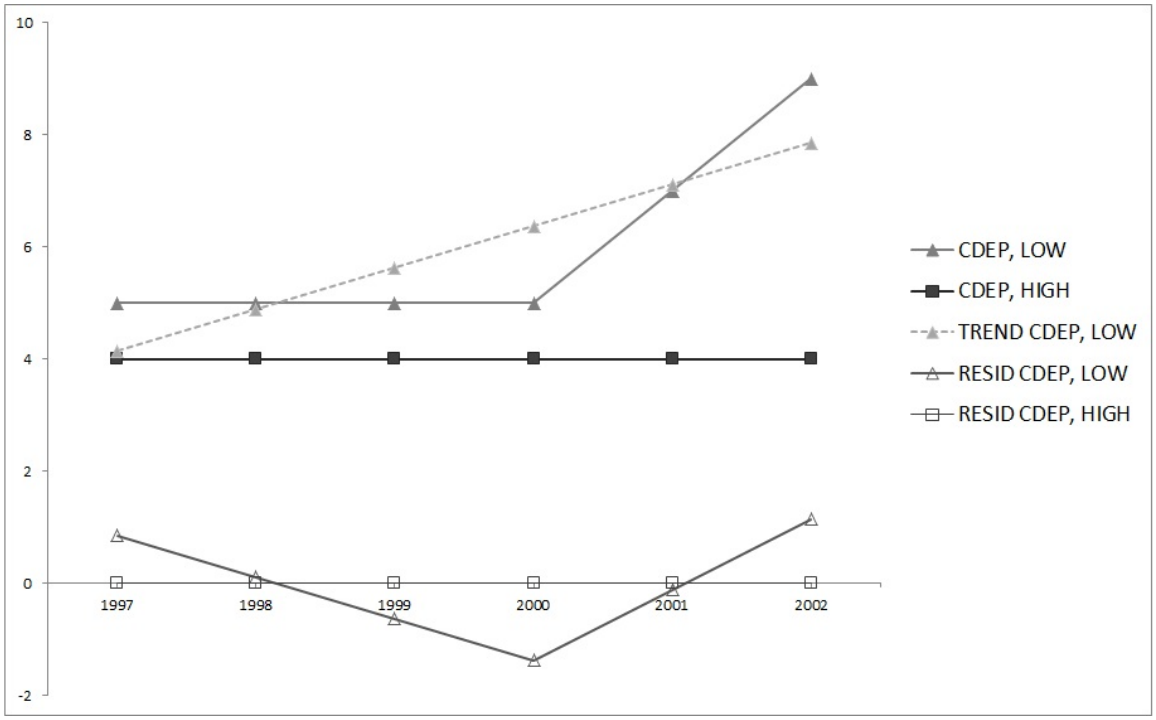
The figure illustrates the evolution of the concentration index *SPOP* between the years 1988 and 2008 separately for departments in universities located in high-readership (red) and low-readership (blue) provinces. The red line indicates the implementation of the reform that decentralized recruitment of professors from the national to the university level.

Figure 9: **Evolution of familism before and after decentralization in areas with high and low civic capital: *S* index**



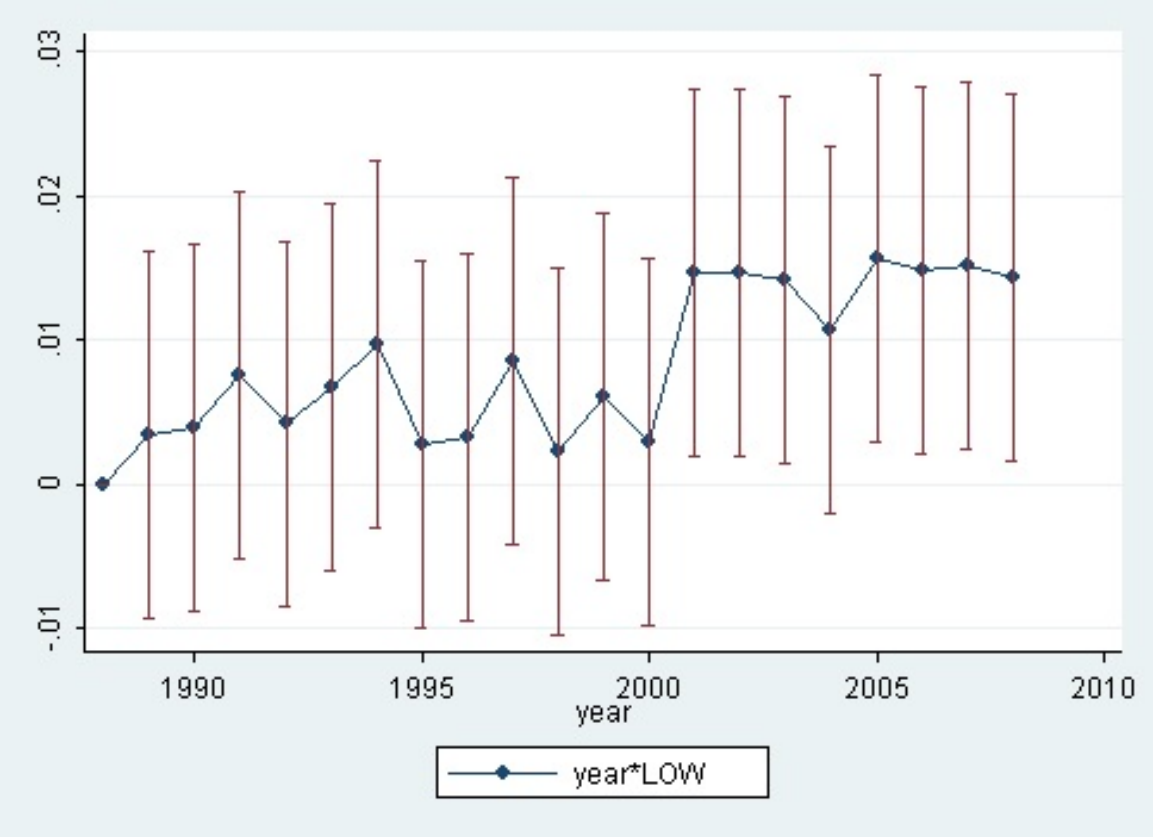
The figure illustrates the evolution of the concentration index *S* between the years 1988 and 2008 separately for departments in universities located in high-readership (red) and low-readership (blue) provinces. The red line indicates the implementation of the reform that decentralized recruitment of professors from the national to the university level.

Figure 10: **An illustration of the possible unintended effects of detrending**



See...

Figure 11: **Evolution of familism before and after decentralization: coefficients of the interaction between year dummies and low social capital indicator (*C* index)**



The figure represents the estimated coefficients (+ and - two standard errors) of the interaction terms between each year's dummy and a dummy variable for below-median newspaper readership. The estimates are based on a regression in which the concentration index *C* is the dependent variable. The decentralization of professors' recruitment was implemented in the year 2000.