

New Dimensions of Regulatory Complexity and their Economic Cost. An Analysis using Text Mining

JUAN DE LUCIO AND JUAN S. MORA-SANGUINETTI¹

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There is no economic development without regulation. Norms are necessary to mitigate so-called “market failures” and reduce transaction costs in an economy. However, if such regulation is not well designed, the positive effects may not be fully realized, and some costs may arise unnecessarily.

One of the reasons why regulation could be ineffective is that it is excessively “complex”. Complexity” is a “formal” concept. That is, it does not have to do with the “content” of the rules but with how the rules are drafted. Complexity relates specifically with the number of norms that are adopted, with the network structure of these norms and with the linguistic quality with which they are drafted (see figure 1). The analysis of these last two dimensions can be considered, to a certain extent, “new” in the economics literature and was carried out by Juan de Lucio and Juan S. Mora-Sanguinetti for the case of Spain in their recent paper “*New Dimensions of Regulatory Complexity and their*

Economic Cost. An Analysis using Text Mining”, published as DT 2107 of the Banco de España (BdE).

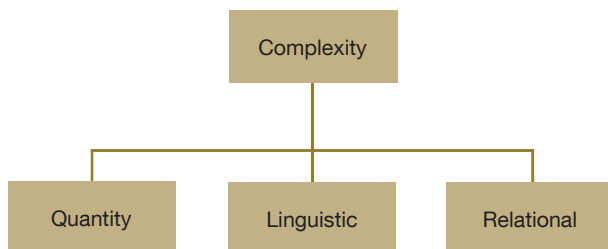
More specifically, De Lucio and Mora-Sanguinetti developed a database (“RECOS - Regulatory Complexity in Spain”) extracting information from 8,171 norms (61 million words) covering the regulation set of all the Spanish autonomous regions using natural language processing (NLP) techniques. This database would therefore be comparable to another (“RegData”) developed for the U.S. case by Al-Ubaydli and McLaughlin (2017) covering industry-specific federal regulations.

Some quantitative results for these dimensions of “complexity” have been found in the article.

- In terms of relational complexity (i.e., in terms of the internal “structure” of the regulatory corpus, in terms of how the norms relate to one another): on average, the regulations with force of Law of the Autonomous Regions (*Comunidades Autónomas*) make 11 links to other regulations. However, there is a certain diversity between the regulatory frameworks of the different autonomous regions: the Aragonese regulations make, on average, 18 references to other regulations and those of Navarre make only 3. See Figure 2 for another example of this diversity among Autonomous Regions.
- On the other hand, as far as linguistic complexity is concerned, the readability indicators used indicate that those regulations are, in general, difficult to read.

Figure 1

THE THREE DIMENSIONS OF REGULATION COMPLEXITY

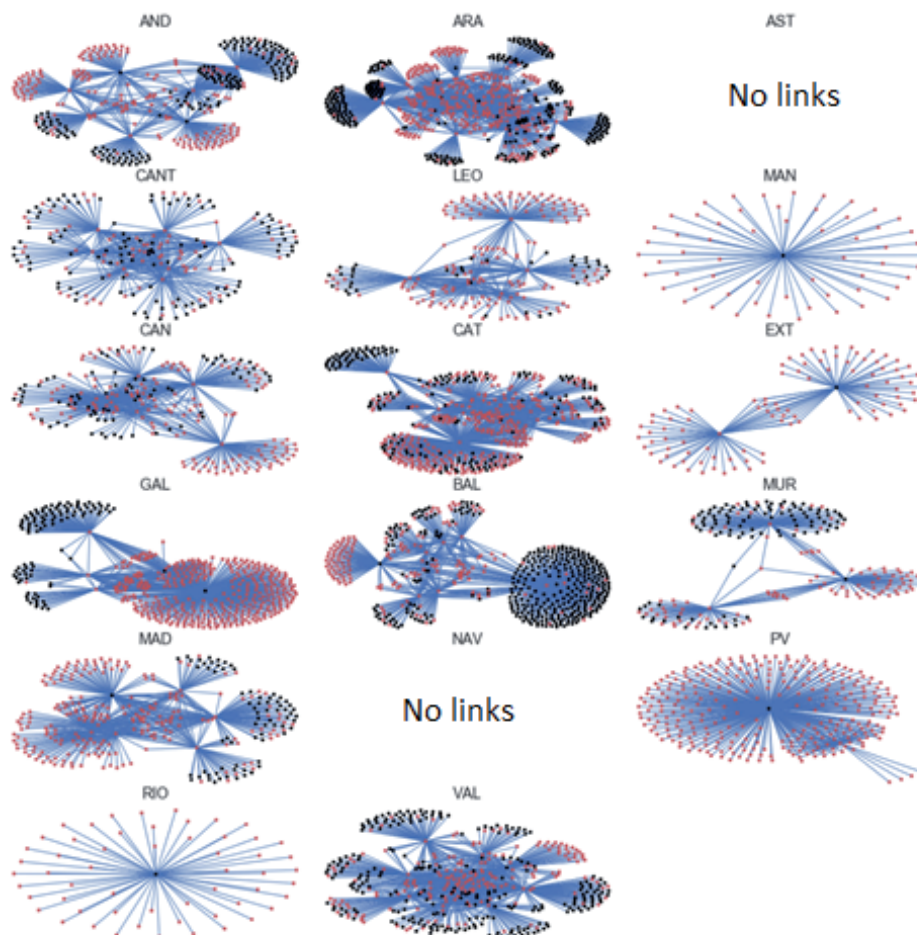


¹ The views expressed are those of the authors and should not be attributed to the Banco de España or the Eurosystem.

These two sets of results are complementary to those obtained by Juan Mora-Sanguinetti and Ricardo Pérez-Valls in their 2002 Working Paper, later published in European Journal of Law Economics (2021) “*How does regulatory complexity affect business demography? Evidence from Spain*”, in which they studied the volume (quantity) of regulation in Spain and by each level of administration. According to the results of that article, 386,850 norms have been published in Spain in the period 1979-2020. Moreover,

Figure 2

REGIONAL NETWORK OF NORMS (ONLY FOR NORMS WITH MORE THAN 50 INWARD-OUTWARD LINKS)



NOTE: Red: regional regulations. Black: other regulations (usually national). Note: AND: Andalusia, ARA: Aragón, AST: Asturias, BAL: Balearic Islands; CAN: Canary Islands, CAT: Catalonia. CANT: Cantabria, EXT: Extremadura, GAL: Galicia, LEO: Castile and Leon, MAD: Community of Madrid, MUR: Murcia; NAV: Navarra, PV: Basque Country, RIO: La Rioja, VAL: Valencia.

the rate of adoption has quadrupled since 1978 (12,250 new regulations were published in 2020). In that set, in that year 2020, the weight of regulation of the Autonomous Regions exceeded 75% and that of the central administration was around 15%. If we analyze the level of the regulation of the Autonomous Regions exclusively for the period 1983-2018, it can be seen that the weight (%) of each Autonomous Region over the regional total differs: Catalonia passed 12% of the total, compared to

Andalusia or Castile and Leon, which passed 8% each, or Extremadura, which passed 5%.

The “complexity” of regulation seems to have, indeed, economic impacts. Relational and linguistic complexity have negative impacts on the productivity of the economy and on the efficiency of the judicial system. Specifically, a 1% increase in readability is associated with a 0.07% increase in productivity per hour worked. On the other hand, the

complexity of regulation also seems to matter for the proper functioning of justice. A 1% reduction in the number of links is associated with a 0.02% reduction in judicial congestion.

As for the impacts of the volume of regulation (from Mora-Sanguinetti and Pérez-Valls, 2021), a higher volume of regulation seems to be negatively related to the total volume of firms in Spain. Specifically, a 1% increase in the volume of regulation is related to 0.05% fewer firms. Along with this, “expected” regulation is negatively related to the capitalization of new firms (the “entrants”). More specifically, a 1% increase in the volume of regulation is related to a 1.4% to 1.8% reduction in the capitalization of entrants.

The analysis of the complexity of regulation is an area of great potential in economic analysis. It is worth recalling that regulation is one of the main pillars of the institutional framework of any developed economy (North, 1990 and 1994). Its quantification and analysis with econometric modeling, however, has not been possible until very recently. This area of research is currently being applied to specific areas of regulation, such as finance and banking. See, for example, the recent works of Amadjarif et al. (2019), Gai et al. (2019) and Colliard and Co-Pierre (2020).

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