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Is Equality Regulation Effective in Reducing Gender Gaps in the Labor Market? Quantification and Evidence for Spain

Juan S. Mora-Sanguinetti[1], Laura Hospido[2], Andrés Atienza-Maeso[3]

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ABSTRACT

This article quantifies, through text analysis, when, at what rate and in what regions, Spanish administrations have adopted regulations aimed at achieving gender equality, improving work-life balance or combating harassment. The study covers the period 1996-2022, identifying both central government legislation and legislation in each of the regions. The analysis, therefore, organises the information in a panel format. The indicators reveal the high degree of heterogeneity in terms of the legislation in the various related areas, with non-discrimination legislation being the most developed and frequent. They also reveal differences between regions, with Andalusia and Catalonia being those in which most legislation has been adopted. The database is then used to investigate the relationship between legislative changes and labour market inflows for women in Spain. Our correlation analysis exhibits a positive relationship between the volume of legislation passed in the areas of interest, such as non-discrimination policies, and indicators of both employment and female labour force participation.

Keywords: Regulation, Discrimination, Work-Life Balance, Labour Market.

JEL classification: K00, K36, K38.

[1] Juan S. Mora-Sanguinetti. Banque de France - Eurosystème (Direction Générale des Statistiques, des Études et de l'International. 39 Rue Croix-des-Petits-Champs - 75001 Paris - France) and Banco de España - Eurosistema (Dirección General de Economía y Estadística. C/Alcalá, 48 - 28014 Madrid - Spain). E-mail: Juan.MORASANGUINETTI.external@banque-france.fr. Tel.: (+34) 913385197. This working paper reproduces the contents of the Banco de España - Eurosystem Working Paper 2320 "The numbers of equality regulation. Quantifying regulatory activity on non-discrimination and its relationship with gender gaps in the labour market". The views expressed are those of the authors and should not be attributed to the Banque de France, the Banco de España or the Eurosystem.

[2] Laura Hospido. Banco de España - Eurosistema. DG Economics and Statistics. Alcalá, 48 - 28014, Madrid (Spain). E-mail: laura.hospido@bde.es. Tel.: (+34) 913385625.

[3] Andrés Atienza-Maeso. Universidad Carlos III de Madrid and Banco de España - Eurosistema. Alcalá, 48 - 28014 Madrid (Spain). E-mail: a.atienzamaeso@gmail.com. Tel: (+34) 649334906.

NON-TECHNICAL SUMMARY

Public policies that aim to achieve gender equality, improve work-life balance or combat harassment may have economic consequences, for example, through changes in the labour supply of women or other groups. Although there may be an increase in social awareness of these problems, a separate question is whether this increase is reflected in specific legislation in a society.

The objective of this paper is to quantify, through text analysis, when, where and at what rate these social concerns have been translated into legislation in Spain. The study covers the period 1996-2022, identifying both central government legislation and legislation in each of the autonomous regions. The analysis, therefore, organises the information in a panel format.

Specifically, this article provides indicators for the following subjects: regulations related to the fight against discrimination, harassment or racism, regulations related to the achievement of gender equality and a better work-life balance, regulations related to childcare, the reduction of working hours for care, the introduction of teleworking, and to matters related to homosexuality and transsexuality.

The indicators reveal the high degree of heterogeneity in terms of the legislation in the various related areas. Non-discrimination legislation was the most developed and frequent, with 11,228 regional regulations and 2,590 central administration regulations adopted in the analysis period. They also reveal differences between autonomous regions, with Andalusia and Catalonia being those in which most legislation has been adopted.

Figure 1. Equality regulations and their relationship with labour market indicators (%)
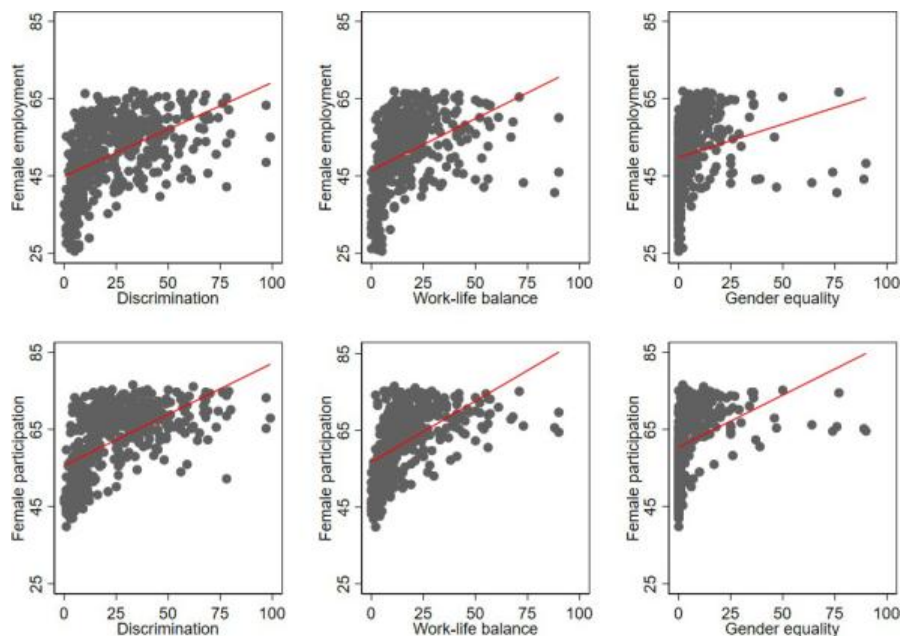
Source: Own elaboration based on EPA microdata and Aranzadi LA LEY.

As an example of an application of this analysis, the database is then used to investigate the relationship between legislative changes and labour market inflows for women (see Figure 1). Our correlation analysis shows a positive relationship between the volume of legislation passed in the areas of interest, such as non-discrimination policies, and indicators of both employment and female labour force participation. More precisely, the results for the female employment rate indicate that passing an additional anti-discrimination norm is associated with an average increase of 1 pp in the female employment rate.

La réglementation en matière d'égalité est-elle efficace pour réduire les écarts entre les hommes et les femmes sur le marché du travail ? Quantification et preuves pour l'Espagne

RÉSUMÉ

Cet article quantifie, par le biais d'une analyse textuelle, quand, à quel rythme et dans quelles régions, les administrations espagnoles ont adopté des réglementations visant à atteindre l'égalité entre les hommes et les femmes, à améliorer l'équilibre entre vie professionnelle et vie privée ou à lutter contre le harcèlement. L'étude couvre la période 1996-2022 et identifie à la fois la législation de l'administration centrale et celle de chacune des régions. L'analyse organise donc l'information sous forme de panel. Les indicateurs révèlent le degré élevé d'hétérogénéité en termes de législation dans les différents domaines concernés, la législation sur la non-discrimination étant la plus développée et la plus fréquente. Ils révèlent également des différences entre les régions, l'Andalousie et la Catalogne étant celles où la plupart des lois ont été adoptées. La base de données est ensuite utilisée pour étudier la relation entre les changements législatifs et les entrées sur le marché du travail pour les femmes en Espagne. Nos estimations montrent une corrélation positive entre le volume de la législation adoptée dans les domaines d'intérêt, tels que les politiques de non-discrimination, et les indicateurs d'emploi et de participation des femmes au marché du travail.

1   Introduction

One of the most significant changes in the labour market in Spain in the last three decades has been the rise in the incorporation of women (Guner, Kaya, and Sánchez-Marcos, 2014). In the mid-1990s, 1 out of every 3 women of working age was employed, while by 2022 that proportion had doubled (see Figure 1). Moreover, with respect to men, the gender gap in both employment and labour participation narrowed markedly, although in the last decade, this decline seems to have slowed (Hupkau and Ruiz-Valenzuela, 2022). In fact, the gender gap in the employment rate has remained stable at around 15% since 2012. The female participation rate has also remained stable at around 13%. While it is true that the percentage of college-educated women has continued to increase at a faster rate than that of men. Finally, the decline in the percentage of adults living with non-adult children has slowed, after having experienced a notable drop from the mid-1990s to the mid-2000s. This slowdown, however, has been less pronounced for women than for men, with the result that the responsibility for caregiving continues to fall more heavily on mothers (De Quinto, Hospido, and Sanz, 2021).

Figure 1. Gender gaps in the labour market, 1996-2022
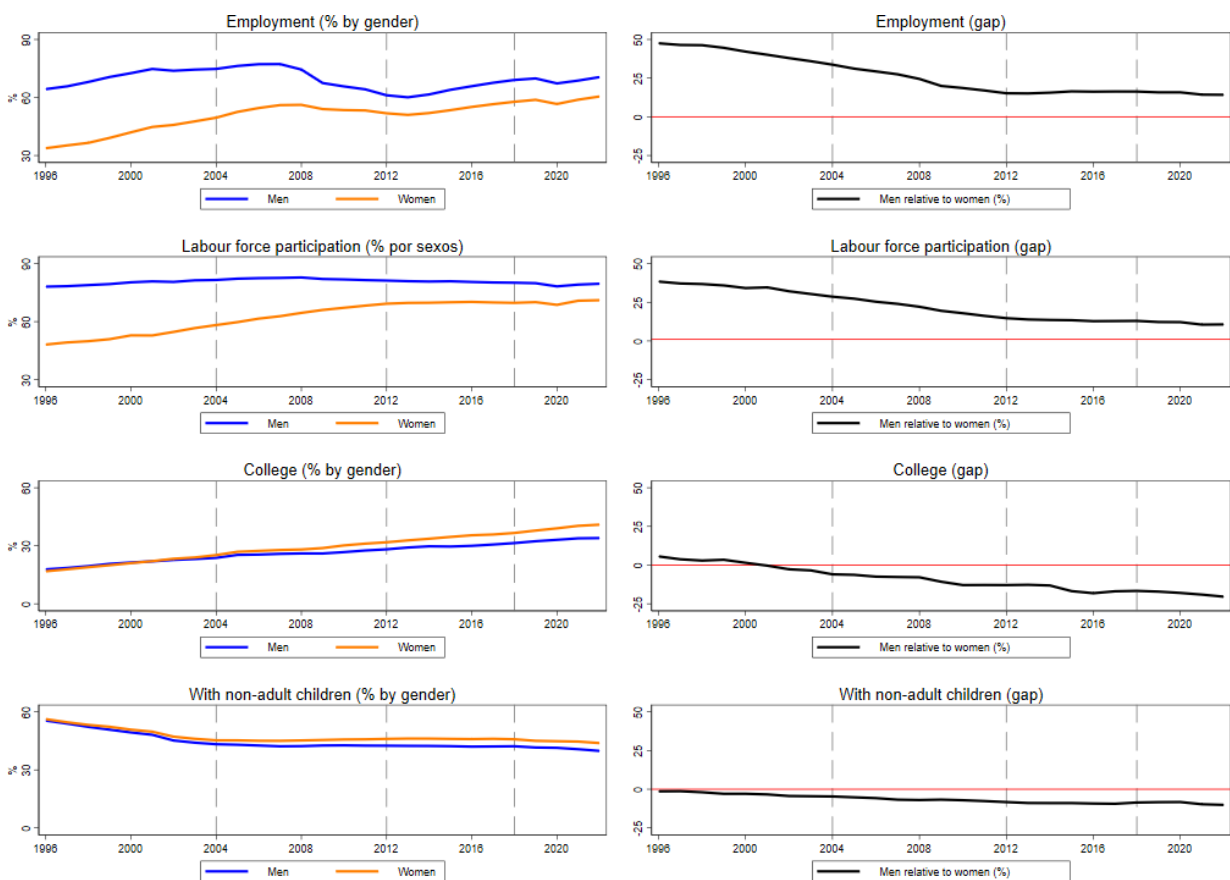
Source: Own elaboration based on microdata from the Labour Force Survey (EPA).

At the same time as the presence of women in the labour market has increased, so has the adoption of regulations relating to gender equality, those aimed at mitigating discrimination or harassment in the workplace, and those aimed at promoting the work-life balance (see Figure 2). Most of the regulations adopted are coming from the Autonomous Regions (*Comunidad Autónoma*), with notable heterogeneity between regions and between subjects (see Figure 3).

As its main contribution, this document exhaustively quantifies when, in which regions, and at what pace these social concerns have been transformed into regulations. In practice, we constructed a database that identifies and organizes for the first time the new regulations adopted, both by the (central) State Administration and the Autonomous Regions, which regulate different matters related to discrimination, work-life balance, gender equality or harassment in the workplace in the period 1996-2022. Thus, by way of example, we identify the 13,818 norms that dealt with discrimination and the 3,862 norms that dealt with gender equality. The indicators thus constructed show the high degree of heterogeneity that exists

concerning the adoption of regulations on the different related subjects, with regulations aimed at promoting non-discrimination being the most developed and frequent. The database, in panel format, also reveals that there are significant differences between administrations, with Andalusia and Catalonia being the Autonomous Regions in which most regulations have been adopted.

This database provides useful information also for the debate on the design of regulation (better regulation policies) and the *ex-post* evaluation of the performance of public administrations (see, among others, Doménech Pascual, 2005 or European Commission, 2015).

Figure 2. Trend of adopted standards by subject matter, 1996-2022
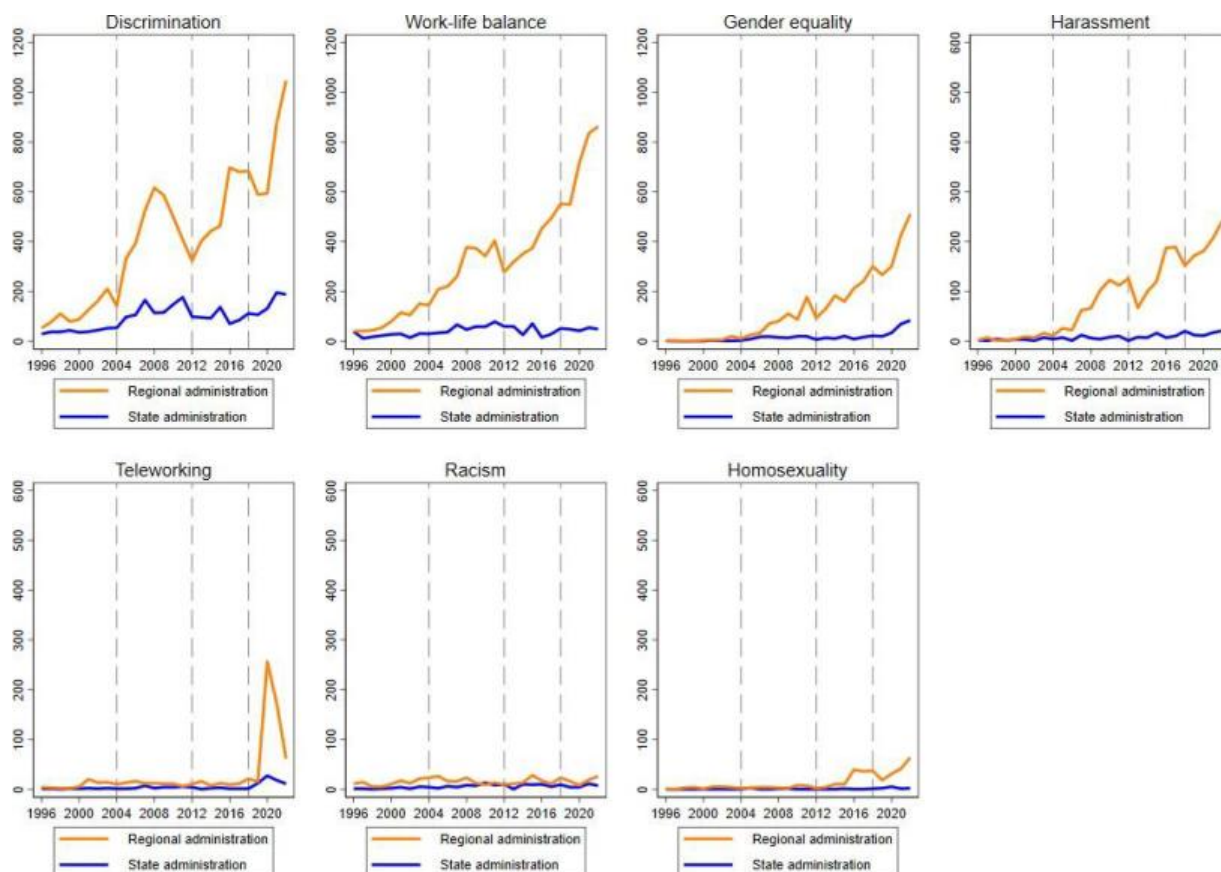
Source: Own elaboration based on Aranzadi LA LEY.

As an example of application, in the second part of the document we relate the adoption of regional regulations with the narrowing of the gender gaps observed in the labour market by Autonomous Regions (Figure 4). Simple correlations show a positive relationship between the volume of adopted regulations related to discrimination, work-life balance, and gender equality, and indicators of both employment and female labour force participation (Figure 5). When we consider the potential problems of endogeneity and the relative weight of other explanatory factors, we find that the volume of regional regulations, especially the adopted regulations related to discrimination and work-life balance, has contributed to these advances, although its role seems to have been relatively modest compared to other economic or social variables.

Figure 3. Regulations adopted by the Autonomous Regions on Discrimination and Work-life balance, 1996-2022
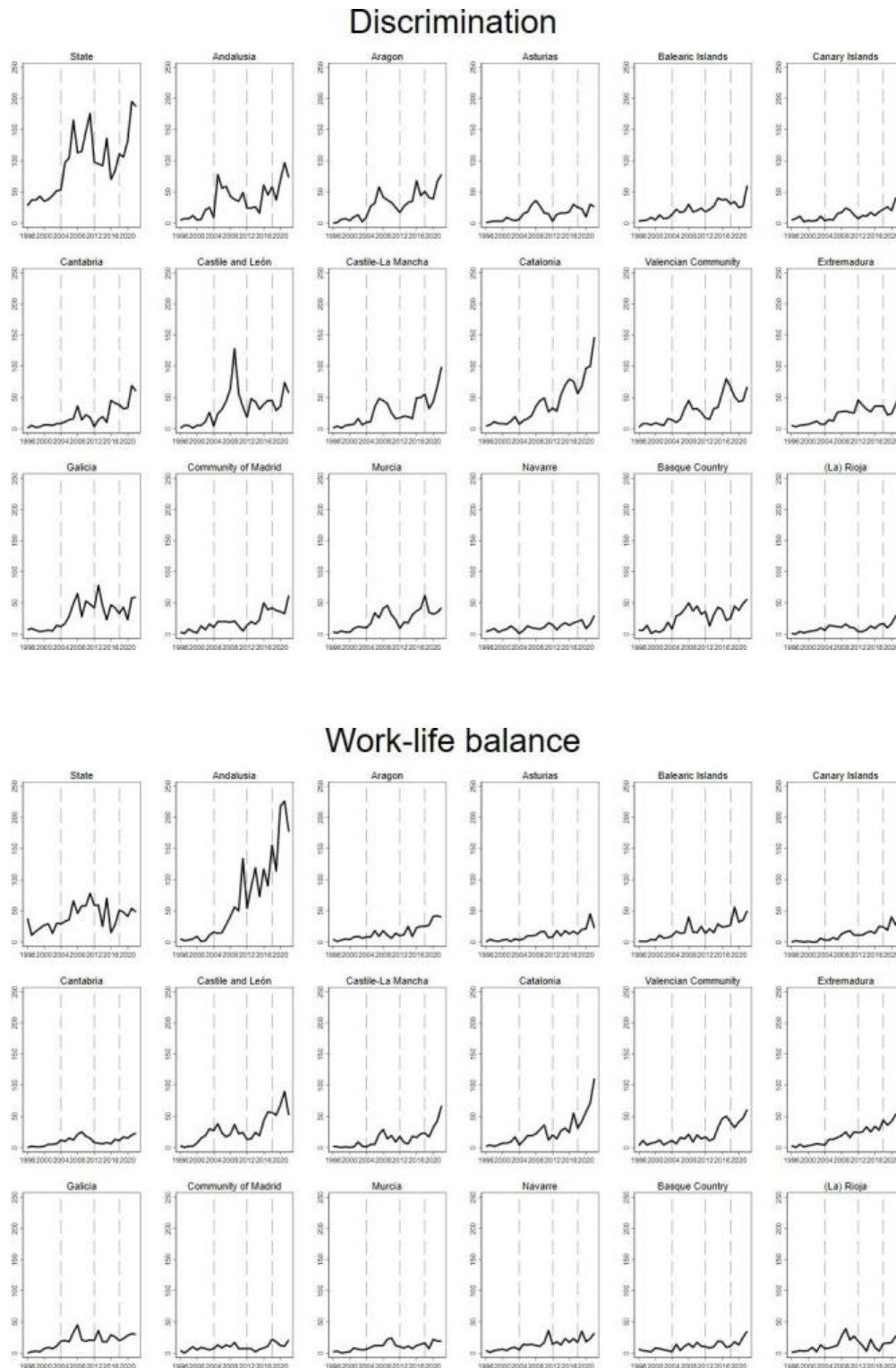
Source: Own elaboration based on Aranzadi LA LEY.

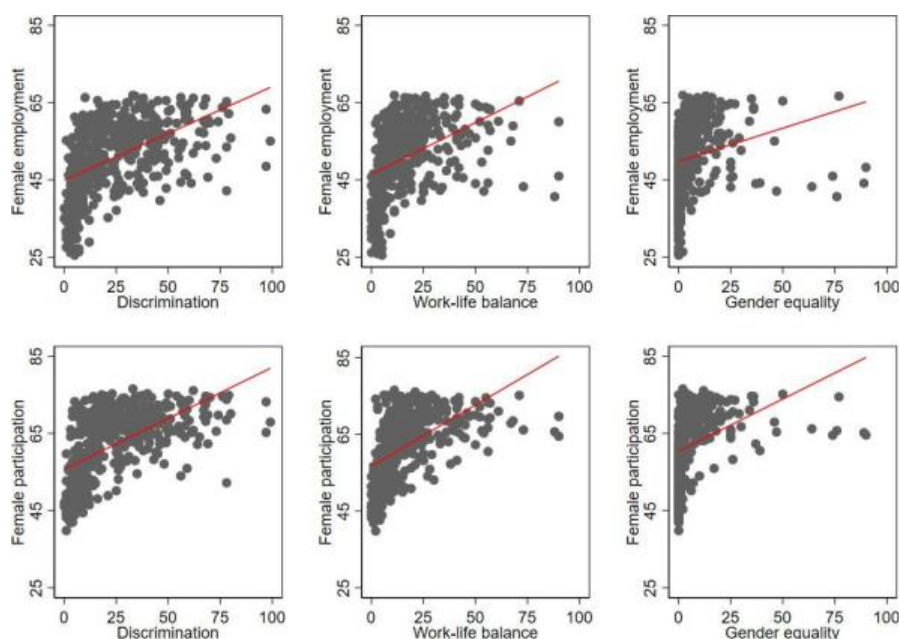Figure 4. Gender gaps in the labour market by Autonomous Regions, 1996-2022

Employment (% by gender)

Labour force participation (% by gender)

Source: Own elaboration based on EPA microdata.

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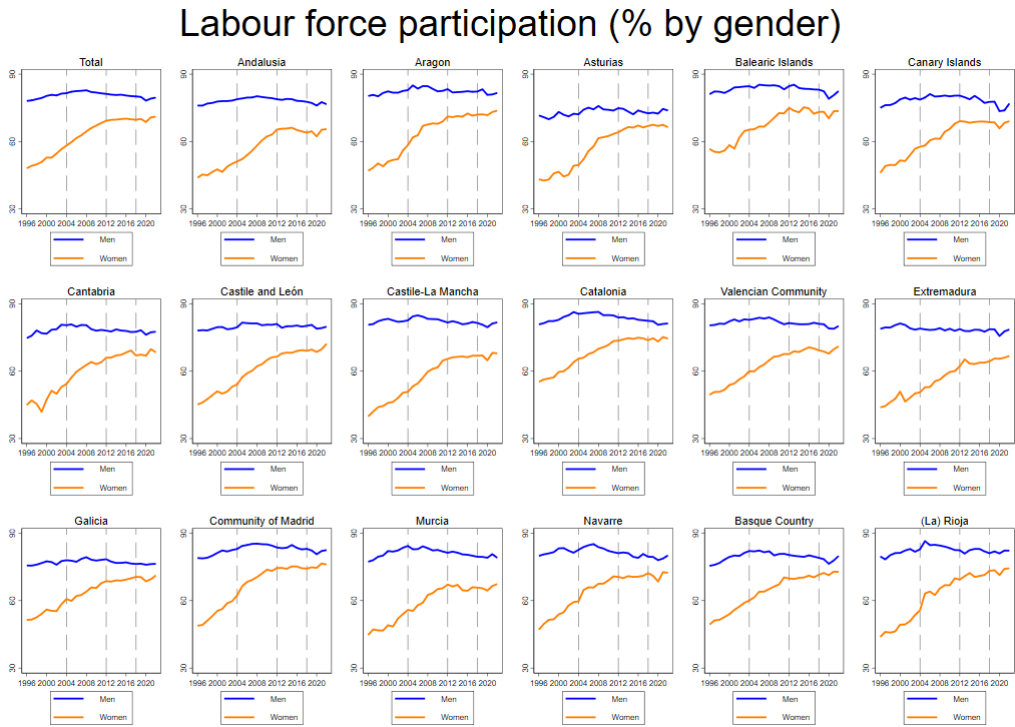
Figure 5. Regulations and their relationship with labour market indicators (%)

Source: Own elaboration based on EPA microdata and Aranzadi LA LEY.

The design of institutions has always been present in economic analysis. Several seminal references (Coase, 1960, 1992; Williamson, 1985; North, 1981, 1990a, 1999) and more recent ones (Hall and Jones, 1999; Henisz, 2000; Rodrik, 2000; Acemoglu, Johnson and Robinson, 2005; Fatás and Mihov, 2013) have evidenced that institutions are a key explanatory factor for long-term economic development. This framework is composed of three sets of institutions: "informal" institutions (consisting of a society's customs, ethics, and non-formalized modes of operation), "formal" institutions (regulation), and "enforcement" institutions (structures created to enforce regulation and contracts, such as the judicial system). The study of regulation is therefore of fundamental interest because it is the vehicle through which the government formulates its policies in a developed economy (see Jalilian, Kirkpatrick and Parker, 2007; Mora-Sanguinetti and Soler, 2022; Mora-Sanguinetti, Quintana, Soler and Spruk, 2023). One of these policies may have precisely to do with the promotion of a better work-life balance, the fight against harassment, or the promotion of gender equality, all aimed at achieving improvements in the functioning of the labour market.

Regulations could generate positive or negative impacts depending on how well they are designed (Ogus, 2004; Mora-Sanguinetti and Pérez-Valls, 2021). From a positive point of view, North (1990a) argues that the institutional framework can guide economic agents in the face of uncertainty. More generally, regulation can mitigate market failures, reducing transaction costs (Wallis and North, 1986; Yang and Borland, 1991; Bischoff and Bohnet, 2000; Kovac and Spruk, 2016). However, North (1990a) himself also recalled that institutions are created in processes (such as the political one) themselves affected by transaction costs and with imperfect information. Even those institutions that were well designed at the beginning could cease to have positive effects over time, i.e., because of their own obsolescence and mismatch with new social or economic conditions (Helpman, 2008).

Therefore, regulation could sometimes increase, rather than reduce, transaction costs (North, 1990b; Gratton, Guiso, Michelacci and Morelli, 2021), and hence market failures are considered a necessary, but not sufficient, condition to justify the use and adoption of regulations (Laffont and Tirole, 1993). The purpose of this document is not to judge the wisdom of the design of equality regulations in Spain, but to provide ordered information in the form of objective indicators of the volume of legislative activity in this area.

Despite the relevance of regulation as part of the institutional framework, empirical studies with data on the regulatory framework of the economy from a disaggregated point of view (by sector, subject, or region) are still very scarce. To our knowledge we only have the case of the disaggregated database at the sector level carried out for the U.S. (Dawson and Seater, 2013; McLaughlin et al., 2019) and the recently constructed one for Spain, with the same methodology used in this study, in which Spanish regulation is classified by sector of economic activity and autonomous region (Mora-Sanguinetti and Soler, 2022; Mora-Sanguinetti, Quintana, Soler and Spruk, 2023). The reasons for the lack of progress in the study of regulation at a disaggregated level have to do with the difficulty, so far high, in accessing basic information, characterized by very high volumes of documents. In the period considered in this study (1996-2022), 317,663 new regulations were adopted in the Spanish administrations as a whole

(297,402 if only the (central) State and the Autonomous Regions are taken into account). Based on this volume of information, all the regulations of interest for this article are systematically identified.

The rest of the paper is structured as follows: section 2 details the regulatory activity measurement exercise; section 3 describes the database constructed; section 4 estimates the relationship between regulation and gender gaps in the labour market; and section 5 concludes.

2   How to measure regulation?

The literature dealing with the measurement of the complexity of regulation in an economy (and the implications of that regulation for efficiency) provides us with various methods of objective measurement. In this context, the term *complexity* refers to the formal characteristics of a regulatory corpus. In other words, it does not discuss the content, or the correctness of the specific measures included in a regulation. This approach is, therefore, easily objectifiable and allows the construction of databases that can be used in subsequent research projects that do manage to influence the impacts of regulations on the economy and society.

There are three perspectives from which the formal characteristics of a body of regulations can be measured (see Figure 6): first, the volume of regulations adopted by an administration or set of administrations; second, the "linguistic" characteristics of the regulations (how they are written); and third, their "relational" characteristics, i.e., the way in which the regulations relate to each other (the number of links they establish between them).

Figure 6. Different perspectives on the measurement of the complexity of a regulatory body according to the literature
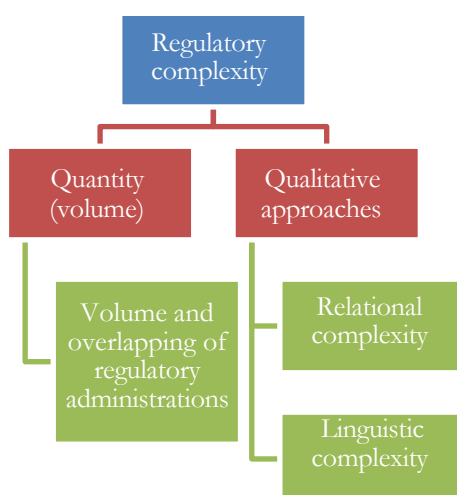
Source: Own elaboration, Mora-Sanguinetti (2019) and De Lucio and Mora-Sanguinetti (2021 and 2022).

The database constructed in this article provides information from the first perspective (volumetric) for each subject matter, for each administration and over time. This perspective, besides being the simplest, is the most common in the literature, with examples available for other countries' regulations (see Kirchner, 2012; Dawson and Seater, 2013) and for Spain (see Econlaw Strategic Consulting, 2009; Marcos, Santaló and Sánchez-Graells, 2010; Mora-Sanguinetti, 2019; Mora-Sanguinetti and Soler, 2022). It should also be noted that this first perspective is the one that has traditionally been used to approximate the potential costs generated by the coincidence of many regulatory administrations for the same subject or country (Ellingsen, 1998; Di Vita, 2018). This circumstance may be especially relevant in decentralized countries, as is the case of Spain.

Specifically, our indicators quantify the number of new regulations of all types of legal rank[1] that each administration (either the State Administration or each of the Autonomous Regions) has adopted. This is done for each of the subjects of interest of our research, each year, using the Aranzadi LA LEY database as a basis. Several examples are provided in Table A1. The adoption of a new norm in a given subject will increase the corresponding indicator. This simple measure makes it easy to compare the temporal or geographic evolution of regulatory activity in each subject. Our strategy provides, therefore, an approximation to the "activism" of Spanish administrations in each subject or set of subjects. It therefore provides us with valuable information on the frequency of changes in a regulatory body, its fragmentation, and, potentially, the good or bad planning of regulatory policy.

This strategy, the counting of norms, is only one of the possible approaches to the problem and has the advantage of simplicity and high comparability. Of course, alternatively, more disaggregated approaches can be developed that quantify the number of paragraphs or sentences (Waltl and Matthes, 2014), a ratio of the number of rules and pages (Kirchner, 2012) or the number of words contained in a set of regulation (Mora-Sanguinetti and Spruk, 2018). Mora-Sanguinetti (2019) and Mora-Sanguinetti, Quintana, Soler, and Spruk (2023) conduct a review of the different options.[2]

If we take into account the entire democratic period, between 1979 and 2022, the Spanish administrations as a whole adopted 414,272 regulations, of which 104,972 (25.3%) came from the State and 286,459 (69.1%) from the Autonomous Regions (see figure A1 in the appendix).[3] If we focus more specifically on our period of study (1996-2022), the set of administrations adopted 317,663 new regulations (297,402 if we only take into account the State and the Autonomous Regions). The 63,569 regulations issued by the State in our period of analysis represent 20% of the total and the 233,833 issued by the Autonomous Regions represent 73.6% of the total. The most active administrations in adopting regulations are the Autonomous Regions.

On the other hand, both levels of administration, the State and the Autonomous Regions, are relevant, since they adopt regulations both with the rank of law and below the rank of law, within their respective powers established by the Constitution and by their Statutes of Autonomy (in addition to constitutional jurisprudence) (see, among others, Soler Sánchez, 2012). More specifically, the State regulates the matters of interest in this research based on the provisions of Article 149.1.1 of the Constitution (equality of Spaniards in the exercise of rights) and Article 149.1.7 (labour legislation), in addition to Article 14.[4] Although state regulations are of a basic nature for the whole of Spain and can establish a common framework for the exercise of fundamental rights, their provisions are complemented by those issued by the Autonomous Regions[5] both by means of regulations with the rank of law and by means of regulations with a lower rank than law. In fact, the regions currently have (as a result of the distribution of powers established by the statutes of autonomy) the task of promoting "equal opportunities" and, by way of example, all of them currently have an agency that promotes specific policies to achieve equal opportunities for women (Cabrera Mercado and Carazo Liébana, 2008). It should be emphasized that state competence does not lead to equality in regulation between different regions and that there is no prohibition of divergence, as recognized by the Spanish Constitutional Court.[6] In fact, regulatory activity in all these areas has nuances and specificities in each region (Galera Victoria, 2012). A clear example of these differences is precisely all the information contained in our database.

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[1] By way of clarification, the regulations identified in the indicators constructed for this research cover all legal ranges, whether the rank of law or lower than the rank of law. This perspective is chosen to avoid selection bias and to be consistent with previous literature on the subject, which indicates that increasing regulations (without necessarily distinguishing by their strength) can generate increases in complexity in their use by economic agents, whether firms or citizens (Bardhan, 2002; Di Vita, 2018).

[2] If we were to use the word count technique, the three regulations on discrimination mentioned in the annex, taken as an example, would have approximately: 11,090 words in the case of Decree-Law (of Andalusia) 14/2022, of December 20; 28,981 words in the case of Law (of the Community of Madrid) 12/2022, of December 21; and 19,392 words in the case of Law (of Catalonia) 19/2020, of December 30.

[3] As a reference, in 2022 the State Administration adopted 2,030 norms in total (for the matters of interest in this research or for any other matter) and the Autonomous Regions adopted 8843 norms in total. On the other hand, we have evidence of another 902 provincial and municipal regulations.

[4] Article 14 establishes the principle of equality, within the framework of fundamental rights. Article 149.1.1ª establishes the power of the State to establish the basic conditions that guarantee equality in the exercise of rights and the fulfilment of duties. 149.1.7º establishes the power of the State in labour legislation (without prejudice to its execution by the Autonomous Regions).

[5] By way of example, Law (of Cantabria) 8/2020, of November 11, on the Guarantee of Rights, first mentions the powers derived from Article 148 of the Constitution, and then mentions the provisions of its Statute of Autonomy (Articles 24.18, 24.20, 24.21, 24.22, 24.23, 24.33, 25.3, 25.9, 26.1, 26.11 and 28).

[6] Judgment of the Constitutional Court (STC 61/1997, of March 20).

3   The regulation of equality and non-discrimination in Spain (1996-2022)

3.1 The database

The database is created by identifying the regulations of any rank that deal with the matters of interest of our study (discrimination, gender equality, work-life balance, etc.), both from the General State Administration and from the administrations of all the Autonomous Regions. The search for regulations is carried out by means of words or sets of words that we find within the texts of the universe of regulations that make up the Spanish written law contained in Aranzadi. These rules come from official sources such as the Official State Gazette (BOE), the official gazettes of the Autonomous Regions [Official Gazette of the Junta de Andalucía (BOJA), Official Gazette of the Generalitat de Catalunya (DOGC)], etc.[7]

Table 1 lists the total volume of norms by subject and Table A1 in the Annex shows some examples of the norms identified.[8]

Table 1. Total number of norms adopted, by subject (1996-2022)

Subjects	Regional administrations	State administration	Total
Discrimination / *Discriminación*	11,228	2,590	13,818
Work-life balance / *Conciliación laboral*	3,824	833	4,657
Childcare / *Cuidado de hijos*	642	178	820
Reduction of working hours for care / *Reducción de jornada por cuidado*	362	79	441
Gender equality / *Igualdad de género*	3,446	416	3,862
Harassment / *Acoso*	2,316	205	2,521
Teleworking / *Teletrabajo*	747	115	862
Racism/ *Racismo*	414	146	560
Homosexuality / *Homosexualidad, gais, etc.*	348	17	365
Transgender / *Transgénero*	106	2	108

Source: Own elaboration based on Aranzadi LA LEY.

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[7] The words or sets of words considered are as follows: *discriminación, conciliación laboral, cuidado de hijos, reducción de jornada por cuidado, igualdad de género, acoso, teletrabajo, racismo, homosexualidad* (we have also searched for the terms *gais* or *gays,* as the different regional regulations used one term or the other to refer to the same concept) and *transgénero.* In the analysis, we grouped the following concepts under the "work-life balance" category: «*conciliación laboral*», «*cuidado de hijos*» (childcare) and «*reducción de jornada por cuidado*» (reduction of working hours for care), since all three regulate similar realities.

[8] The search is thorough in that it finds regulations that are commonly part of the debate on equality policies, such as a "Gender Equality Act", but it also finds regulations that are difficult to identify in the debate, such as a budgetary regulation of a given administration that includes measures designed to combat discrimination. This second type of regulation could go unnoticed and yet be very relevant.

We have performed 27 x 10 x 18 searches (one search for each of the 27 years covering the period from 1996 to 2022) for each of the 10 subjects listed in Table 1 and for each administration (State + 17 Autonomous Regions). Table 2 summarizes the descriptive statistics of the regulatory activity variables constructed from these searches at the state level. At the regional level, we consider a panel of 459 annual observations (17 regions in the period from 1996 to 2022). Table 3 summarizes the descriptive statistics of the corresponding regulatory activity variables.

Table 2. Descriptive statistics on the number of norms adopted each year by subject for the State Administration (1996-2022)

Variable	Observations (years)	Average	Standard deviation	Min	Max
Discrimination / *Discriminación*	27	95.93	49.82	28	195
Work-life balance / *Conciliación laboral*	27	30.85	15.89	7	58
Childcare / *Cuidado de hijos*	27	6.59	3.82	0	16
Reduction of working hours for care / *Reducción de jornada por cuidado*	27	2.93	2.38	0	9
Gender equality / *Igualdad de género*	27	15.41	19.58	0	83
Harassment / *Acoso*	27	7.59	5.81	1	21
Teleworking / *Teletrabajo*	27	4.26	6.17	0	27
Racism/ *Racismo*	27	5.41	3.75	0	13
Homosexuality / *Homosexualidad, gais, etc.*	27	0.63	1.18	0	5
Transgender / *Transgénero*	27	0.07	0.27	0	1

Source: Own elaboration based on Aranzadi LA LEY.

Table 3. Descriptive statistics of the number of norms adopted each year by subject for each Autonomous Region (1996-2022).

| Variable	Observations (17 regions in the period from 1996 to 2022)	Mean	Standard deviation	Minimum	Maximum
Discrimination / *Discriminación*	459	24.40	21.08	0	147
Work-life balance / *Conciliación laboral*	459	10.74	9.59	0	92
Child care / *Cuidado de hijos*	459	1.40	1.54	0	10
Reduction of working hours for care / *Reducción de jornada por cuidado*	459	0.79	1.24	0	8
Gender equality / *Igualdad de género*	459	7.51	18.42	0	168
Harassment / *Acoso*	459	5.04	16.33	0	134
Teleworking / *Teletrabajo*	459	1.62	4.64	0	58
Racism/ *Racismo*	459	0.90	1.26	0	10
Homosexuality / *Homosexualidad, gais, etc.*	459	0.76	2.59	0	28
Transgender / *Transgénero*	459	0.23	1.05	0	18

Source: Own elaboration based on Aranzadi LA LEY.

3.2 Change in the regulatory environment

Figures 2 and 3 in the introduction show the high degree of heterogeneity in the adoption of regulations during this period, with regulations aimed at mitigating discrimination being the most frequent, especially in Andalusia and Catalonia.[9] Alternatively, we can visualize the information on maps to facilitate comparison between territories (see Figure 7).

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[9] The complexity of regulations in general, beyond specific subjects, may be related to the size of the economy considered. A more complex economy, understood as one with more sectors of activity, higher GDP, larger population and a larger number of economic agents (companies, associations, professionals, etc.), may generate a greater number of interactions, greater conflict and may also require a greater volume of regulations (see Carmignani and Giacomelli, 2010; Mora-Sanguinetti and Garoupa, 2015; Mora-Sanguinetti and Soler, 2022). This phenomenon may partially explain the higher volume of regulations found in the more populated Spanish Autonomous Regions with higher GDP. Such factors can be simply controlled for in a regression analysis, as we will do later.

Figure 7. Norms adopted in the Autonomous Regions

Discrimination
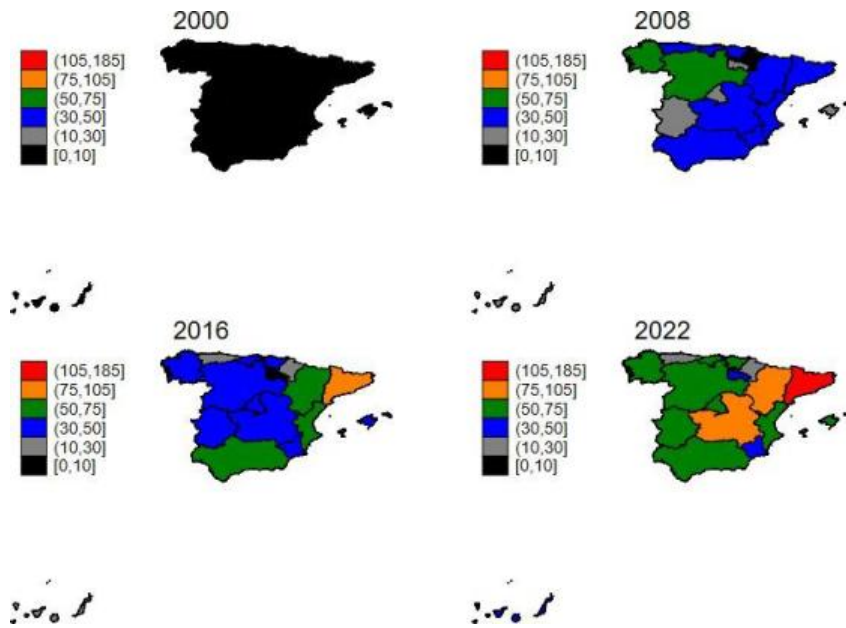
Work-life balance
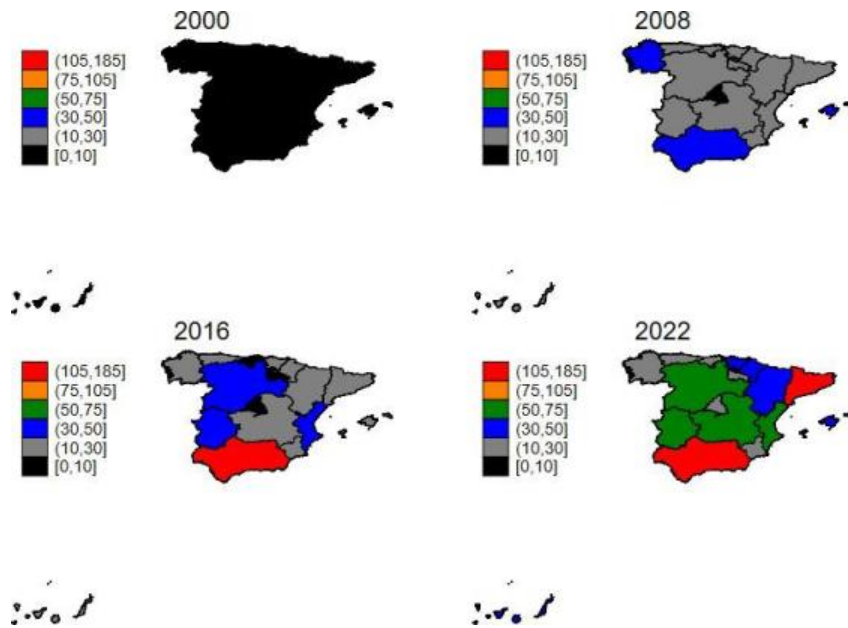
Source: Own elaboration based on Aranzadi LA LEY.

As mentioned above, the main contribution of this document is the construction of a database of new regulations by subject, in a panel format and, therefore, useful for research purposes. The following is a specific example of the application of the database for some of the subjects studied.

Tertilt, Doepke, Hannusch and Montenbruck (2022) document that, at the international level, the extension of women's rights has been positively correlated with overall economic development, measured in terms of GDP per capita in 2000. Countries where women have more rights (index close to 100) have a per capita income above $10,000, while places where women enjoy few rights (an index below 30) tend to be poor.[10] This correlation with GDP per capita, however, is reduced and even disappears once the development of women's labour force and fertility are taken into account. As for the background of such regulation, Hunt and Rubin (1980) argue that the adoption of equal rights in the labour market is related to the number of single women present in the economy, who have more to gain from such regulation and confirm this hypothesis empirically on data from several U.S. states. Pande and Roy (2021) document a strong correlation between equality in labour legislation and social norms affecting working women. Hyland, Djankov and Goldberg (2020) also find positive correlations between women's labour force-related norms and more egalitarian labour market outcomes, such as higher female labour force participation or a smaller gender wage gap.

To estimate the effect of regulation adopted on female employment or on labour force participation in each autonomous region c and year t, we consider the following specification:

$$female\ employment_{ct} = \theta_1 female\ employment_{ct-1} + \theta_2 norms_{ct-1}$$
$$+\theta_3 other\ covariates_{ct-1} + \mu_c + \tau_t + v_{ct},$$

Where θ_1 captures the persistence of employment, θ_2 the effect of regulation (whether regulation referring to discrimination, work-life balance or gender equality), θ_3 the effect of other possible determinants of female employment in the region (such as the level of wealth measured by the GDP per capita of the autonomous region, the percentage of college-educated women or the percentage of women with non-adult children in the household) and μ_c any unobserved time invariant heterogeneity specific to each autonomous region, while τ_c represents a set of annual shocks to employment common to all regions in the sample. We also consider alternative specifications for the gender gap in employment or in labour force participation. Aiming for a causal interpretation of our estimates, and given the time dimension of our panel, we consider fixed effects estimators and generalized method of moments, GMM, estimators (Arellano and Bond,1991; Arellano and Bover, 1995; Blundell and Bond, 1998).

The results are shown in Table 4 for female employment, Table 5 for female labour force participation and Annex Tables A.2 and A.3 for the corresponding gender gaps.[11] In general, the estimates obtained for the regulatory variables of interest tend to be lower with the fixed effects estimator (columns 1 and 2), which ignores the possible bias arising from the correlation between the transitory shock v_{ct} and the data transformed in first differences or in deviations from each regional mean, so we prefer the results obtained via GMM (columns 3, 4, 6, 7, 9, 10). The GMM system specification (columns 5, 8, 11) combines instruments in levels for the model in differences with instruments in differences for the model in levels, a combination that in contexts like this one, in which the dependent variables have a high autocorrelation, allows the use of instruments with greater predictive power.

The results for the female employment rate (Table 4) indicate that passing an additional anti-discrimination norm is associated with an average increase of 1 pp in the female employment rate. The impacts of work-life balance or equality regulations are more imprecise[12].

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[10] These authors highlight some exceptions of rich countries with a low index for women's rights; these are mainly countries that owe their wealth to natural resources such as oil and have therefore become rich without going through the usual development process.

[11] Additional specifications have been estimated that include as controls information on the political orientation of the regional government and the interaction of this variable with anti-discrimination, work-life balance and equality norms. The results do not show, however, significant differences in this dimension, in addition to being more imprecise in some cases. The results are available upon request from the authors.

[12] The impact of work-life balance regulations on female employment is significant and of a similar magnitude to that of anti-discrimination regulations (Table A2).

The increases associated with the region's per capita economic level are substantially higher (around 23 pp), as is the negative relationship in the case of the proportion of women living with children (-10 pp).[13].

Table 4. Regulatory activity and female employment, 1996-2022

Dependent variable: Female employment $_t$	(1) Fixed effects	(2) Fixed effects	(3) GMM	(4) GMM	(5) System GMM	(6) GMM	(7) GMM	(8) System GMM	(9) GMM	(10) GMM	(11) System GMM
Female employment $_{t-1}$	0.777***	0.706***	0.927***	0.722***	0.790***	0.937***	0.721***	0.801***	0.950***	0.713***	0.804***
	(0.032)	(0.037)	(0.018)	(0.039)	(0.028)	(0.017)	(0.039)	(0.028)	(0.018)	(0.039)	(0.029)
Women with children $_{t-1}$		−0.095**		−0.106***	−0.097***		−0.107***	−0.093***		−0.103***	−0.099***
		(0.044)		(0.030)	(0.025)		(0.031)	(0.026)		(0.030)	(0.026)
College women $_{t-1}$		0.097**		0.096**	0.006		0.101**	0.013		0.109***	0.018
		(0.041)		(0.040)	(0.028)		(0.040)	(0.027)		(0.040)	(0.028)
PIB per capita $_{t-1}$		0.198**		0.221***	0.242***		0.234***	0.235***		0.240***	0.226***
		(0.068)		(0.074)	(0.049)		(0.074)	(0.050)		(0.073)	(0.051)
Discrimination $_t$	0.007	0.007	0.015***	0.008	0.011***						
	(0.005)	(0.005)	(0.005)	(0.005)	(0.004)						
Work-life balance $_{t-1}$						0.008*	0.003	0.003			
						(0.004)	(0.004)	(0.003)			
Gender equality $_{t-1}$									0.007***	0.004	0.001
									(0.002)	(0.005)	(0.003)
p-value for the test of zero autocorrelation of errors in first differences: order 1			0.0003	0.0003	0.0003	0.0004	0.0004	0.0003	0.0004	0.0003	0.0003
p-value for the test of zero autocorrelation of errors in first differences: order 2			0.7542	0.8777	0.8709	0.7895	0.8959	0.9135	0.8006	0.8866	0.9411
p-value for the test of over-identification restrictions			0.9479	0.7832	0.9164	0.9402	0.7501	0.9068	0.9576	0.7414	0.9081
Observations	442	442	442	442	442	442	442	442	442	442	442

Notes: Standard errors in parentheses. * p-value < 0.1; ** p-value < 0.05; *** p-value < 0.01. Year dummies included in all specifications.

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[13] In any case, it is important to bear in mind that above a certain regulatory level it is to be expected that the effect produced by the adoption of an additional norm will be small, given that the lagged variable reflects the effect of previously adopted norms (for example, the impact in the case of norms related to non-discrimination is greater in the first half of the period considered than in the second half).

The results related to participation (Table 5) show similar impacts derived from the adoption of an additional anti-discrimination norm, as well as with respect to the regulation on work-life balance (0.5 pp).[14]. In this case, the impacts of economic and social variables are also as expected.

Table 5. Regulatory Activity and Female Labour Participation, 1996-2022

Dependent variable: Female labour force participation$_t$	(1) Fixed effects	(2) Fixed effects	(3) GMM	(4) GMM	(5) System GMM	(6) GMM	(7) GMM	(8) System GMM	(9) GMM	(10) GMM	(11) System GMM
Female labour force participation$_{t-1}$	0.721***	0.712***	0.909***	0.760***	0.826***	0.904***	0.745***	0.822***	0.919***	0.746***	0.829***
	(0.033)	(0.042)	(0.018)	(0.032)	(0.023)	(0.017)	(0.032)	(0.023)	(0.014)	(0.032)	(0.023)
Women with children$_{t-1}$		−0.069		−0.107***	−0.074***		−0.109***	−0.072***		−0.109***	−0.070***
		(0.042)		(0.029)	(0.023)		(0.030)	(0.024)		(0.030)	(0.023)
College women$_{t-1}$		0.007		0.035	−0.007		0.045	−0.022		0.045	−0.008
		(0.044)		(0.036)	(0.026)		(0.035)	(0.025)		(0.035)	(0.026)
PIB per capita$_{t-1}$		0.108		0.167***	0.116***		0.174***	0.160***		0.178***	0.131***
		(0.071)		(0.063)	(0.039)		(0.062)	(0.040)		(0.062)	(0.041)
Discrimination$_{t1}$	−0.002	−0.002	0.008*	0.002	0.007*						
	(0.004)	(0.003)	(0.005)	(0.005)	(0.004)						
Work-life balance$_{t-1}$						0.007*	0.003	0.005*			
						(0.004)	(0.003)	(0.003)			
Gender equality$_{t-1}$									0.004***	0.002	0.003
									(0.001)	(0.005)	(0.003)
p-value for the test of zero autocorrelation of errors in first differences: order 1			0.0004	0.0003	0.0004	0.0004	0.0003	0.0003	0.0003	0.0003	0.0003
p-value for the test of zero autocorrelation of errors in first differences: order 2			0.2663	0.3530	0.2995	0.2656	0.3473	0.2929	0.2790	0.3575	0.3137
p-value for the test of over-identification restrictions			0.9595	0.7745	0.9721	0.9319	0.7902	0.9716	0.9881	0.7702	0.9747
Observations	442	442	442	442	442	442	442	442	442	442	442

Notes: Standard errors in parentheses. * p-value < 0.1; ** p-value < 0.05; *** p-value < 0.01. Year dummies included in all specifications.

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[14] The magnitude of the effects of regulations, in the case of the gender gap, on the participation rate is slightly higher and, in fact, is significant also for the regulations associated with gender equality, which seems to suggest some impact on men's labor indicators (in the opposite direction to that of women).

5   Conclusions

The labour supply of women and other groups, as well as other important features of the functioning of an economy, can be affected by public policies aimed at facilitating a better work-life balance, measures aimed at achieving gender equality or initiatives to fight harassment. Given their importance and society's increased interest in these problems, it is worth asking whether Spanish regulations have also changed in recent decades. This paper quantifies for the first time when, where and at what pace these social concerns have been transferred to regulatory activity. The main contribution of this research is, therefore, to build an ordered database with information for all these matters in panel format. The study covers the time period 1996-2022, identifying the adoption of new regulations both at the state level and for each of the Autonomous Regions.

The indicators show a high degree of heterogeneity in terms of regulatory activity in the various related areas. In terms of subjects, regulations aimed at developing non-discrimination policies are the most frequent. In terms of territorial and administrative scope, Andalusia and Catalonia are the Autonomous Regions in which most regulations have been adopted.

The second part of the document is devoted to developing an application of the database. Specifically, we relate the adoption of regional regulations to the narrowing of the gender gaps observed in the labour market by region. Our estimates show that the volume of new regulations at the regional level, mainly those related to discrimination and work-life balance, has contributed to these advances, although their role seems to have been relatively modest compared to other economic or social variables.

This paper provides a case study of regulatory activity in Spain for a specific area, which may be useful for the subsequent debate on how to improve regulation, the design of "better regulation" policies and the *ex post* evaluation of the actions of public administrations.

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Databases

Aranzadi LA LEY legislation database.

Table A1. Examples of norms adopted

Subject	Examples
Discrimination / *Discriminación*	• **Decreto-ley (Andalucía) 14/2022, de 20 de diciembre.** Adopta medidas de carácter extraordinario y urgente en materia de Renta Mínima de Inserción Social, de bono social térmico y de simplificación de los procedimientos de expedición del título de familia numerosa y de atención a las personas con discapacidad en Andalucía. • **Ley (Comunidad de Madrid) 12/2022, de 21 de diciembre.** Ley de Servicios Sociales de Madrid de 2022. • **Ley (Cataluña) 19/2020, de 30 de diciembre.** Ley de igualdad de trato y no discriminación.
Gender equality / *Igualdad de género*	• **Decreto (Galicia) 80/2018, de 21 de junio.** Establece el currículo del ciclo formativo de grado superior correspondiente al título de técnico superior en Promoción de Igualdad de Género. • **Decreto (Castilla y León) 20/2018, de 5 de julio.** Regula el distintivo «Óptima Castilla y León», dirigido al reconocimiento de la igualdad de género en el ámbito laboral. • **Decreto (Castilla-La Mancha) 38/2019, de 7 de mayo.** Regula las unidades de igualdad de género en la Administración de la Junta de Comunidades de Castilla-La Mancha.
Work-life balance / *Conciliación laboral*	• **Orden (Aragón) EPE/1657/2022, de 8 de noviembre.** Aprueba la actualización de la Carta de Servicios de las Unidades de Conciliación Laboral de Huesca, Teruel y Zaragoza. • **Orden (Canarias) de 5 de julio 2010.** Aprueba las bases reguladoras, de vigencia indefinida, que regirán las convocatorias de concesión de subvenciones del Instituto Canario de Igualdad, en régimen de concurrencia competitiva, destinadas a fomentar la creación e implantación de unidades de igualdad de género en las Corporaciones locales canarias y a favorecer la conciliación de la vida personal, familiar y laboral de las mujeres y los hombres en el ámbito local. • **Resolución (Cantabria) de 22 de octubre 2007.** Dispone la inscripción en el Registro y publicación del V Acuerdo Interprofesional de Cantabria sobre Procedimientos Extrajudiciales de Solución de Conflictos Laborales.
Teleworking / *Teletrabajo*	• **Decreto (Extremadura) 107/2021, de 15 de septiembre.** Modifica el Decreto 1/2018, de 10 de enero, por el que se regula la prestación del servicio en la modalidad no presencial, mediante la fórmula del teletrabajo, en la Administración de la Comunidad Autónoma de Extremadura. • **Decreto (La Rioja) 45/2021, de 28 de julio.** Regula el teletrabajo para el personal funcionario y laboral al servicio de la Administración General de la Comunidad Autónoma de La Rioja y sus Organismos Autónomos. • **Decreto (Islas Baleares) 36/2013, de 28 de junio.** Regula la modalidad de prestación de servicios mediante teletrabajo en la Administración de la Comunidad Autónoma de las Islas Baleares.
Harassment / *Acoso*	• **Orden (País Vasco) de 9 de julio 2021.** Regula el procedimiento de actuación en casos de acoso sexual y acoso por razón de sexo en la Administración General de la Comunidad Autónoma de Euskadi y sus Organismos Autónomos. • **Orden Foral (Navarra) 204/2010, de 16 de diciembre.** Regula la convivencia en los centros educativos no universitarios públicos y privados concertados de la Comunidad Foral de Navarra. • **Resolución (Comunidad Valenciana) de 2 de noviembre 2022.** Delegación de competencias en materia de acreditación de las personas que componen las Unidades de Resolución de Conflictos (URC) previstas en el Protocolo de prevención y actuación ante el acoso laboral en la Administración de la Generalitat.
Racism/ *Racismo*	• **Ley (Principado de Asturias) 6/2019, de 29 de marzo.** Participación y Promoción Juvenil. • **Ley (Murcia) 8/2015, de 24 de marzo.** Regula la actividad física y el deporte de la Región de Murcia. • **Decreto (Andalucía) 98/1995, de 11 de abril.** Crea el Comité Andaluz de la Campaña Europea de la Juventud contra el Racismo, la Xenofobia, el Antisemitismo y la Intolerancia.

Homosexuality / *Homosexualidad, gais, etc.*	• **Ley (Aragón) 18/2018, de 20 de diciembre.** Igualdad y protección integral contra la discriminación por razón de orientación sexual, expresión e identidad de género en la Comunidad Autónoma de Aragón. • **Decreto (Canarias) 43/2020, de 16 de abril.** Aprueba el Reglamento Orgánico de la Consejería de Derechos Sociales, Igualdad, Diversidad y Juventud. • **Ley (Cantabria) 8/2020, de 11 de noviembre.** Garantía de Derechos de las Personas Lesbianas, Gais, Trans, Transgénero, Bisexuales e Intersexuales y No Discriminación por Razón de Orientación Sexual e Identidad de Género.
Transgender / *Transgénero*	• **Ley (Cantabria) 8/2020, de 11 de noviembre.** Garantía de Derechos de las Personas Lesbianas, Gais, Trans, Transgénero, Bisexuales e Intersexuales y No Discriminación por Razón de Orientación Sexual e Identidad de Género. • **Ley (Cataluña) 11/2014, de 10 de octubre.** Busca garantizar los derechos de lesbianas, gays, bisexuales, transgéneros e intersexuales y erradicar la homofobia, la bifobia y la transfobia. • **Ley (Extremadura) 12/2015, de 8 de abril.** Promueve la igualdad social de lesbianas, gais, bisexuales, transexuales, transgénero e intersexuales, así como políticas públicas contra la discriminación por orientación sexual e identidad de género en la Comunidad Autónoma de Extremadura.
Child care / *Cuidado de hijos*	• **Orden (Castilla y León) FAM/652/2020, de 16 de julio.** Modifica la Orden FAM/960/2019, de 16 de octubre, por la que se aprueban las bases reguladoras para la concesión de subvenciones para la conciliación de la vida personal, familiar y laboral y el cuidado de hijos menores de cuatro años en la Comunidad de Castilla y León. • **Decreto (Extremadura) 69/2017, de 23 de mayo.** Establece las bases reguladoras de las subvenciones destinadas a la conciliación de la vida familiar, personal y laboral. • **Orden (Galicia) de 22 de marzo 1999.** Regula los programas de fomento de la contratación por cuenta ajena en la Comunidad Autónoma de Galicia para el ejercicio de 1999.
Reduction of working hours for care / *Reducción de jornada por cuidado*	• **Orden (La Rioja) DEA/58/2022, de 26 de septiembre.** Modificación de la Orden DEA/60/2020, de 16 de octubre, por la que se establecen las bases reguladoras para la concesión de ayudas a la contratación laboral de cuidadores cualificados y empleados del hogar y a la reducción de la jornada de trabajo para el cuidado de hijos y de personas con discapacidad o con dependencia. • **Decreto (País Vasco) 177/2010, de 29 de junio.** Ayudas para la conciliación de la vida familiar y laboral. • **Orden (Andalucía) de 24 de febrero 2010.** Establece las bases reguladoras de las ayudas públicas destinadas a fomentar la igualdad de oportunidades entre mujeres y hombres en el ámbito laboral.

Source: Own elaboration based on Aranzadi LA LEY.

Table A2. Regulatory activity and gender gap in employment, 1996-2022

Dependent variable: Gender gap in employment$_t$	(1) Fixed effects	(2) Fixed effects	(3) GMM	(4) GMM	(5) System GMM	(6) GMM	(7) GMM	(8) System GMM	(9) GMM	(10) GMM	(11) System GMM
Gender gap in employment$_{t-1}$	0.578***	0.552***	0.881***	0.630***	0.755***	0.887***	0.625***	0.770	0.897***	0.624***	0.758***
	(0.078)	(0.069)	(0.021)	(0.041)	(0.028)	(0.021)	(0.041)	(0.029)	(0.021)	(0.041)	(0.029)
Women with children$_{t-1}$		0.088		0.200***	0.143***		0.185***	0.128***		0.189***	0.136***
		(0.060)		(0.050)	(0.041)		(0.051)	(0.042)		(0.051)	(0.041)
College women$_{t-1}$		−0.111		−0.176***	−0.014		−0.183***	−0.002		−0.187***	−0.022
		(0.100)		(0.066)	(0.047)		(0.065)	(0.046)		(0.065)	(0.047)
PIB per capita$_{t-1}$		−0.094		−0.309***	−0.225***		−0.309***	−0.229***		−0.311***	−0.223***
		(0.119)		(0.103)	(0.063)		(0.101)	(0.065)		(0.102)	(0.066)
Discrimination$_{t}$	0.001	0.002	−0.019**	−0.03	−0.011*						
	(0.007)	(0.007)	(0.009)	(0.008)	(0.07)						
Work-life balance$_{t-1}$						−0.013**	−0.08*	−0.008*			
						(0.007)	(0.006)	(0.004)			
Gender equality$_{t-1}$									−0.012***	−0.008	−0.005
									(0.002)	(0.008)	(0.006)
p-value for the test of zero autocorrelation of errors in first differences: order 1			0.0016	0.0009	0.0009	0.0018	0.0011	0.0009	0.0017	0.0009	0.0009
p-value for the test of zero autocorrelation of errors in first differences: order 2			0.5630	0.6363	0.6368	0.5241	0.5630	0.6033	0.5470	0.5827	0.6406
p-value for the test of over-identification restrictions			0.9544	0.7918	0.8171	0.9423	0.7748	0.8149	0.9166	0.7342	0.8300
Observations	442	442	442	442	442	442	442	442	442	442	442

Notes: Standard errors in parentheses. * p-value < 0.1; ** p-value < 0.05; *** p-value < 0.01. Year dummies included in all specifications.
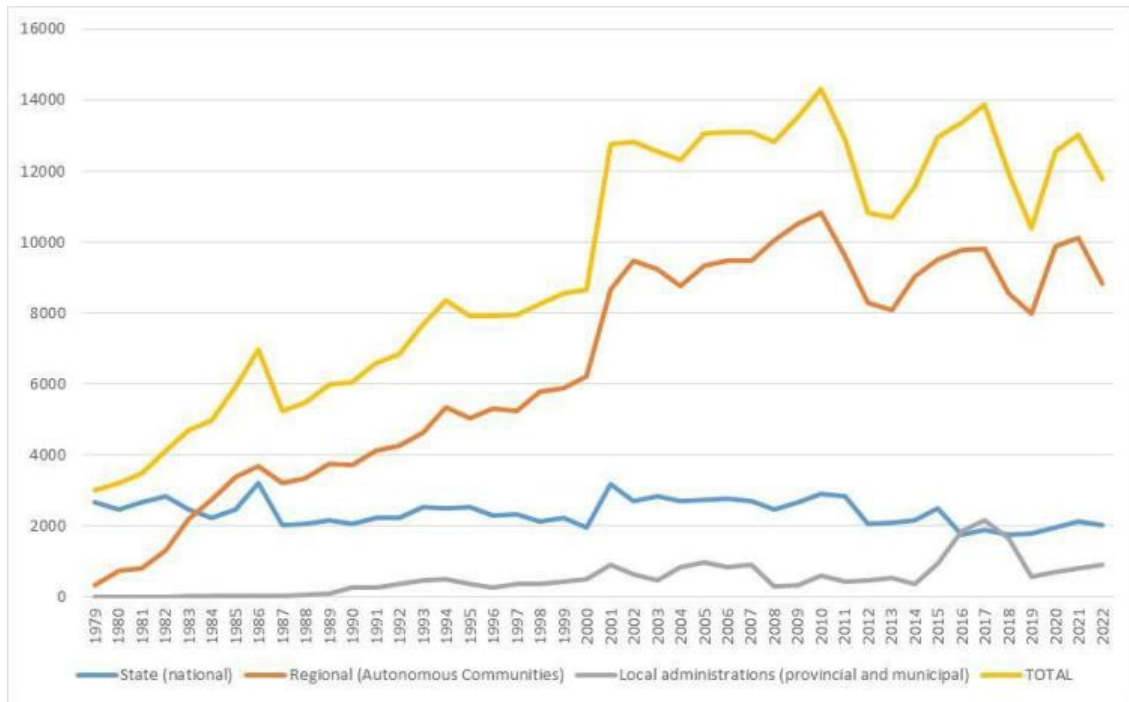
Table A3. Regulatory activity and gender gap in labour participation, 1996-2022

Dependent variable: Gender gap in labour force participation$_t$	(1) Fixed effects	(2) Fixed effects	(3) GMM	(4) GMM	(5) System GMM	(6) GMM	(7) GMM	(8) System GMM	(9) GMM	(10) GMM	(11) System GMM
Gender gap in labour force participation$_{t-1}$	0.634***	0.632***	0.884***	0.718***	0.789***	0.881***	0.713***	0.796***	0.889***	0.711***	0.795***
	(0.048)	(0.050)	(0.019)	(0.033)	(0.024)	(0.018)	(0.033)	(0.024)	(0.016)	(0.033)	(0.024)
Women with children$_{t-1}$		0.050		0.137***	0.089***		0.126***	0.082***		0.123***	0.072**
		(0.049)		(0.038)	(0.030)		(0.039)	(0.031)		(0.038)	(0.030)
College women$_{t-1}$		−0.009		−0.071	−0.027		−0.80*	−0.002		−0.083*	−0.031
		(0.058)		(0.047)	(0.035)		(0.047)	(0.034)		(0.047)	(0.035)
PIB per capita$_{t-1}$		−0.039		−0.195**	−0.097**		−0.196**	−0.142***		−0.203***	−0.108**
		(0.088)		(0.077)	(0.046)		(0.076)	(0.046)		(0.076)	(0.048)
Discrimination$_{t-1}$	0.003	0.003	−0.012*	−0.003	−0.009*						
	(0.004)	(0.004)	(0.006)	(0.006)	(0.005)						
Work-life balance$_{t-1}$						−0.012**	−0.006	−0.008**			
						(0.005)	(0.005)	(0.003)			
Gender equality$_{t-1}$									−0.011***	−0.008	−0.008*
									(0.001)	(0.006)	(0.004)
p-value for the test of zero autocorrelation of errors in first differences: order 1			0.0006	0.0004	0.0005	0.0006	0.0005	0.0005	0.0006	0.0004	0.0004
p-value for the test of zero autocorrelation of errors in first differences: order 2			0.1412	0.1677	0.1541	0.1391	0.1600	0.1445	0.1442	0.1652	0.1549
p-value for the test of over-identification restrictions			0.9783	0.7870	0.9578	0.9568	0.8384	0.9728	0.9699	0.8089	0.9705
Observations	442	442	442	442	442	442	442	442	442	442	442

Notes: Standard errors in parentheses. * p-value < 0.1; ** p-value < 0.05; *** p-value < 0.01. Year dummies included in all specifications.

Figure A1. Evolution of total regulatory activity and for each level of administration in Spain (1979-2022).

Source: Own elaboration based on Aranzadi LA LEY.