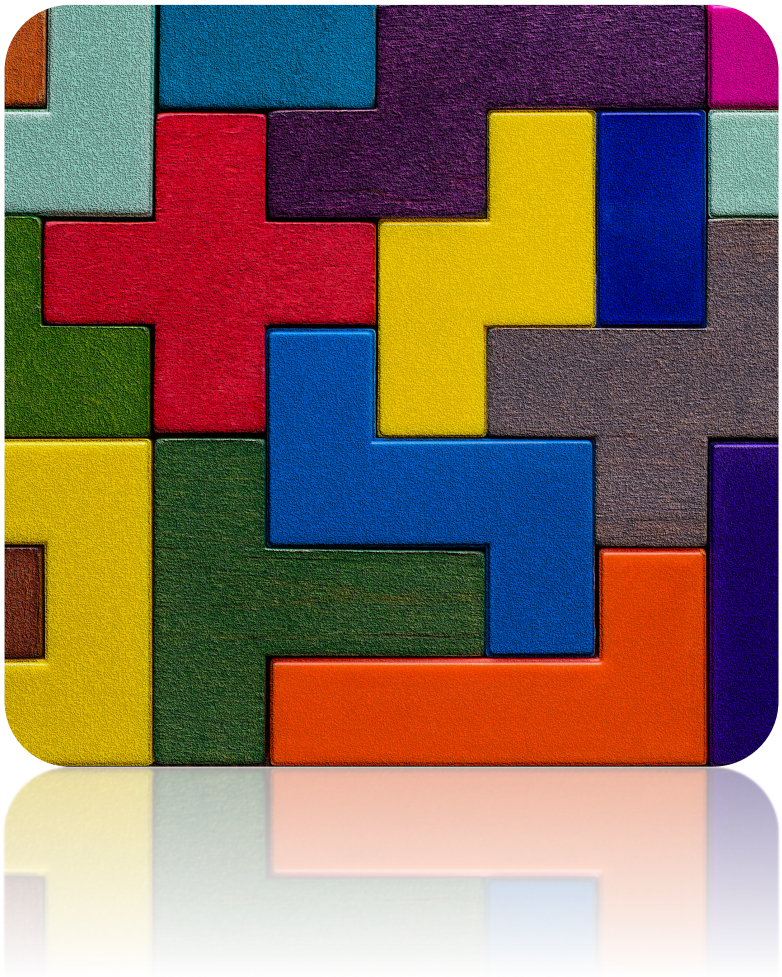
Diversity in the public administration: a Multidimensional Index of Bureaucratic Underrepresentation



Codebook. version 1.0, August 2022.

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Background

Issues of diversity and representation in the public administration have grown in interest in recent years. In its 2021 *Governance at a Glance* report, the OECD dedicates, for the first time, a special section to government initiatives addressing diversity from a multidimensional perspective (OECD 2021). Scholars of representative bureaucracy continue to advance insights on how bureaucratic representation affects policy outcomes, social equity and citizen-bureaucrat interactions, and to perfect the theory's micro- and macro-foundations (Meier 2019; Ricucci & Van Ryzin 2017). At the same time, the literature on diversity management in the public sector continues to unravel the practices that help or hinder the potential of diverse workforces (Riccucci 2021; Ashikali & Groeneveld 2015). In general terms, normative theories of representation consider that the inclusion and representation of all social groups in the public administration is a key pillar of democratic responsiveness (Meier 1993, among others).

Despite this growing interest, the study of social compositions in the public administration and their impacts has remained geographically circumscribed. A recent systematic review of the literature shows that about 80% of published empirical research on bureaucratic representation relates to the U.S. context (Bishu & Kennedy 2020). This narrow focus has limited the possibilities to study bureaucratic diversity and representation from a comparative public administration perspective, with the resulting lack of knowledge of how diversity interacts with important aspects such as administrative traditions (Peters 2021; Painter & Peters 2010), meritocracy (Nistotskaya & Cingolani 2016; Dahlström et al. 2012), Weberian impartiality (Eckhard 2020; Meier 2018), public sector innovation (Lapuente & Suzuki 2020) or public administration reforms (Hammerschmid et al. 2016), among many others.

This dataset presents a time-series cross-sectional Index of Bureaucratic Underrepresentation (IBU) covering a total of 37 European countries between 2008 and 2018 (unbalanced). It aggregates levels of bureaucratic representation on five common diversity dimensions, namely gender, ethnicity, nationality, age and disability. It uses household survey data from the European Social Survey (ESS) rounds 4 to 9, profiting from its representativeness and intended cross-country comparability (ESS 2020). The ESS is a biennial cross-national survey run by the ESS European Research Infrastructure Consortium (ESS ERIC) which measures the attitudes, beliefs, and behavior of diverse populations in more than thirty European countries, aiming to provide rigorous and comparable data for scientific analysis. It has been conducted since 2001[1].

Index construction

The multidimensional IBU index first uses ESS microdata on the occupation of individuals, registering whether they work in the public sector (either in the central / local government or in decentralized public services such as health or education). After adjusting for the analytical weights indicated by ESS administrators this allows for the possibility to approximate comparisons between the demographic characteristics of public sector officials versus the

[1] More information can be found here: https://www.europeansocialsurvey.org/docs/about/ESS_prospectus.pdf

broader country population. For each individual, information on the five diversity dimensions is collected in the form of binary variables: a) female, b) ethnic minority, c) non-national, d) young and e) with disabilities (see Table 2 for descriptive stats and variable construction).
Once these variables are aggregated at the national level, the index operates with the same logic that most empirical works on representative bureaucracy, namely by capturing differences in the ratios of disadvantaged groups between the public sector and the population at large (Liang, Park & Zhao 2020, Park & Liang 2019; Grissom, et al. 2009; Wilkins & Williams 2009; Meier and Nicholson-Crotty 2006, among many others). In its multidimensional nature, it takes inspiration from the indices of multidimensional poverty (e.g. Alkire & Santos 2014; Alkire & Foster 2011), in that it accounts for two simultaneous factors capturing underrepresentation: its incidence and its depth. The first expresses the number of underrepresented dimensions, while the second accounts for the depth of underrepresentation in each.
The index is then calculated as the product of the incidence of underrepresentation and its depth for each country *i*. The steps for index construction are as follows:

$$(1) \qquad U_{ij} = 1 - \left(\frac{Share\ PSector_{ij}}{Share\ Soc_{ij}}\right)$$

Where *U* is a measure of the level of bureaucratic underrepresentation for each diversity dimension *j* {female; ethnic minority; non-national; young; with disability} and each country *i*. Positive numbers reflect underrepresentation, negative numbers overrepresentation. Shares are calculated considering the needed analytical weights according to the ESS survey guidelines, which minimize design, non-response and country size biases.

$$(2) \qquad TUD_i = \sum_{j=1}^{5} \mathbb{I}\,[U_{ij} > 0.1]$$

Where *TUD* is the total number of underrepresented dimensions for country *i*. An underrepresented dimension is considered such if U_{ij} is greater than 0.1, meaning that people in diversity category *j* (in country *i*) are underrepresented by more than 10% in the public sector with respect to the overall society. This threshold is set in order to account for the necessary margin of error that emerges in any sampling exercise (in the case of ESS it oscillates between 1,78 and 3,51%). If anything, this means the index is conservative in expressing underrepresentation).

$$(3) \qquad UIncidence_i = \frac{TUD_i}{TD_i}$$

The incidence of underrepresentation is then calculated as the total number of underrepresented dimensions divided by the total number of dimensions considered in each country *i*, (TD_i, which for the index presented here is 5).

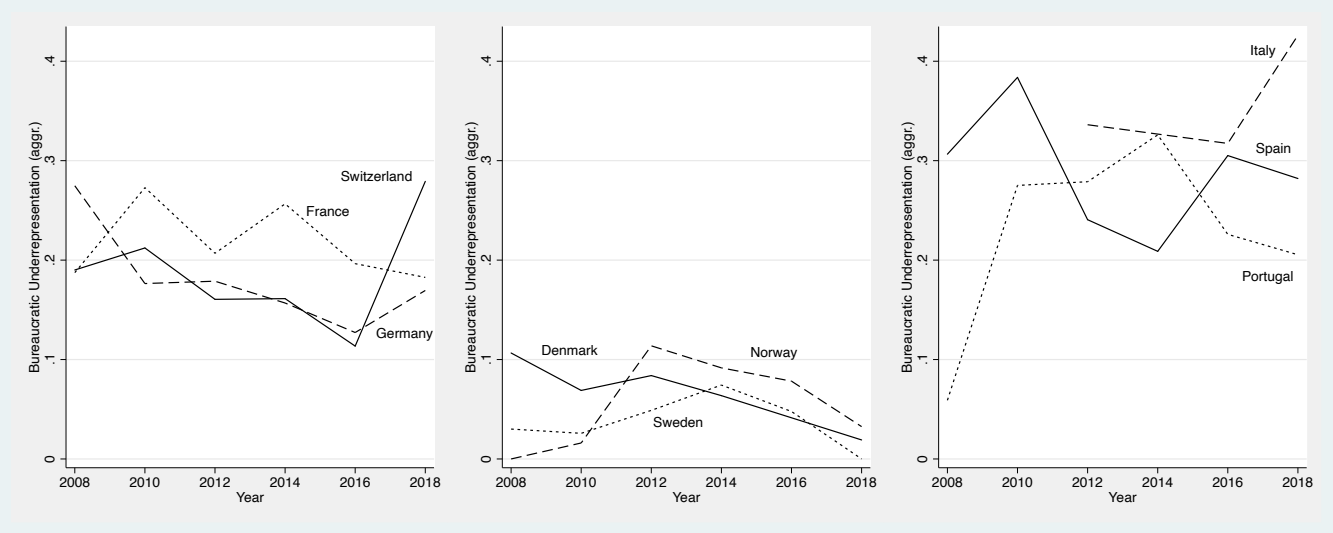
$$(4) \qquad UDepth_i = \frac{\sum_{j=1}^{5} U_{ij} - 0.1}{TUD_i} \qquad given\ U_{ij} > 0.1$$

The depth of underrepresentation is calculated as the average gap across dimensions between the threshold of 0.1 and the existing level of underrepresentation for each underrepresented dimension. With eqs. 3 and 4 it is possible to calculate the final index for each country:

$$(5) \qquad IBU_i = UIncidence_i * UDepth_i$$

Figure 1 below illustrates the application of the index to three sets of selected countries. Because the incidence component sets a threshold for the definition of underrepresentation, the index is sensitive to small changes around the threshold, which may result in relatively big changes over time. This is certainly a subjective choice and researchers may choose to aggregate the individual components differently (see Table 1).

Figure 1: Multidimensional Index of Bureaucratic Underrepresentation (selected countries, 2008-2018)



Given that the aggregate IBU index accounts for the combination of incidence and depth, it does not have a straightforward interpretation, except that 0 represents a scenario without underrepresentation (e.g. Sweden in 2018). The individual components, however, are straightforwardly interpreted: a 0.1 means a 10% underrepresentation, 0.2 20% and so on, with 1 meaning no representation at all (see table 1).

Table 1: Aggregate IBU index and individual components (2018)

Country	IBU Index	Female	Ethnic Minority	Non-national	Young	With Disability
Sweden	**0**	-0.3494	0.0633	-0.1804	0.0992	-0.1505
Iceland	**0.0075**	-0.4882	-0.2439	0.1379	0.0616	-0.0147
Denmark	**0.0191**	-0.3853	0.1112	0.1382	0.1463	-0.0535
Norway	**0.0325**	-0.3079	-0.2833	-0.0041	0.0978	0.2627
Belgium	**0.0723**	-0.2570	0.1355	0.3644	0.0077	0.1618
Serbia	**0.0892**	-0.1280	0.2321	0.0812	0.4140	-0.1484
Latvia	**0.0892**	-0.3152	-0.1681	-0.3653	0.5462	-0.2446
UK	**0.0908**	-0.2791	0.2060	0.2342	0.3141	0.0280
Bulgaria	**0.1004**	-0.2997	0.0850	-3.1374	0.5523	0.1498
Lithuania	**0.1059**	-0.4171	-0.9674	-4.4682	0.3487	0.3808
Croatia	**0.1141**	-0.0131	0.0907	0.3786	0.3918	-0.7543
Czech Rep.	**0.1160**	-0.3503	-0.5818	0.1978	0.5825	0.0309
Poland	**0.1178**	-0.4639	0.0165	.	0.3946	0.0379
Estonia	**0.1255**	-0.3998	0.2531	0.3445	0.3300	-0.2879
Austria	**0.1494**	-0.1713	0.5476	0.2190	0.1489	0.2314
Germany	**0.1694**	-0.2885	0.4726	0.5228	0.1518	-0.0074
Netherlands	**0.1791**	-0.3887	0.1332	0.6275	0.2013	0.3335
France	**0.1826**	-0.1764	0.1604	0.5777	0.3474	0.2273
Finland	**0.1878**	-0.4101	0.3691	0.4803	0.3899	0.0586
Portugal	**0.2053**	-0.2286	-0.1916	0.6837	0.5431	0.0849
Hungary	**0.2218**	-0.3408	-0.2781	1	0.3093	-0.2551
Ireland	**0.2428**	-0.2491	0.3781	0.5284	0.6077	-0.0035
Montenegro	**0.2470**	0.0251	0.0153	0.9336	0.4472	0.1542
Cyprus	**0.2621**	0.1212	0.1425	0.7281	0.3221	0.4967
Switzerland	**0.2791**	-0.3154	0.4325	0.5104	0.0160	0.7527
Spain	**0.2820**	-0.1398	-0.5258	0.8019	0.2325	0.6756
Slovenia	**0.3157**	-0.2971	0.3741	1	0.5044	-0.1767
Slovakia	**0.3606**	-0.2716	0.5138	1	0.3426	0.3468
Italy	**0.4260**	-0.1997	0.8818	0.8458	0.7025	-0.1775

Notes: green=overrepresented, red=underrepresented, white=balanced representation.
For Poland, the survey did not include any non-national with information on all relevant variables. The index is then computed with the remaining four dimensions. For Hungary, Slovenia and Slovakia, 1 represents a scenario where the public sector has no non-nationals, in this case the maximum level of underrepresentation in the individual components.

Variables and summary statistics

Table 2 provides a list of variables in the IBU dataset (available as .dta and .csv), as well as their sources and descriptive statistics:

Table 2: Codebook and variable description

Variable	Name	Obs	Mean	St. dev.	Min	Max	Source	Expl.
cntry	Country code						ISO 3166-1 alpha 2 codes / Europen Social Survey (ESS)	
cname	Country name							
year	Year	157	2012.904	3.511	2008	2018		
cntry_ids	Country IDs	157	17.738	10.051	1	37		

ibu	Index of Bureaucratic Underrepresentation (IBU)	157	0.1623	0.0934	0	0.4275	Author's compilation based on ESS	Aggregate IBU Index (see description above)
w_gen	Representation females	157	-0.2538	0.1547	-0.5277	0.4144	ESS survey question: gender.	IBU sub-component: gender.
w_eth	Representation ethnic minorities	157	0.1345	0.3477	-1.2975	0.8941	ESS survey question: Do you belong to a minority ethnic group in [country]?	IBU sub-component: ethnic minority.
w_nonnat	Representation non-nationals	149	0.3966	0.6308	-4.4682	1	ESS survey question: are you a citizen of [country]?	IBU sub-component: non-national.
w_yout	Representation youth	157	0.2929	0.1544	-0.1728	0.7025	ESS survey question: age (between 18 and 35)	IBU sub-component: young.
w_disab	Representation: with disability	157	0.0406	0.2642	-0.7543	0.7657	ESS survey question: Are you hampered in your daily activities in any way by any longstanding illness, or disability, infirmity or mental health problem?	IBU sub-component: with disability.

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