



Towards an index of linguistic justice

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WORKING PAPER No. 20-1

Updated: 2021-05-07

REAL

Research group “Economics and language”



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Abstract

As a step towards systematic comparative evaluation of the fairness of different language policy regimes, a rationale is presented for the design of an Index of Linguistic Justice. The approach taken is to define a “minimum threshold of linguistic justice” with respect to government language policy in three domains: law and order, public administration, and essential services. The benchmark for evaluation is the theoretically ideal situation in which all individuals have the same rights, independent of their language repertoire; departures from this standard incur lower scores. Indicators are chosen to assess effective access to three kinds of language rights: toleration (lack of State interference in private language choices), accommodation (accessibility of public services in different languages) and compensation (symbolic and practical recognition of languages outside the fundamental language regime). In order to take account of the cost-benefit trade-offs involved in providing language-related goods to language groups of varying sizes, a method is proposed for weighting scores with respect to compensation rights so that lack of recognition for larger groups incurs greater penalties, while factoring in the particular characteristics of each language-related good. A trial set of ten indicators illustrates the compromises entailed in balancing theoretical rigour with empirical feasibility.

*Part of this work has been carried out in the Research group “Economics and language” in Berlin, with which the first two authors are associated. The work of this group and that of Mark Fettes was supported by the European Union’s Seventh Framework Program (Project MIME – grant agreement 613344). This support is gratefully acknowledged.

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1 Introduction

Indices are regularly used in national and international comparative analyses. Governments or governmental organisations use them to collect and organise quantifiable information on important social and economic variables, and to monitor their evolution over time. Some well-known examples are the *Human Development Index* designed by Mahbub ul Haq and Amartya Sen and published by the United Nations (UN), and the *Gini Index* of income inequality developed by Corrado Gini and employed by international bodies such as the Organisation for Economic Co-operation and Development (OECD) or the World Bank. Various international indices are produced also by private bodies such as magazines, foundations, universities, or non-governmental organisations, e.g. the *Global Competitiveness Index*, the *Democracy Index*, and the *World Press Freedom Index*.

To the best of our knowledge, no indices of this kind exist in language policy, with a few partial exceptions discussed in the concluding section of this article. This is surprising, considering the ubiquity of language in virtually any area of human activity. In part, this negligence may stem from the incorrect idea that language is simply a tool of communication between individuals, beyond the decision-making powers of government. This view, however, overlooks the deeply socio-political nature of language, including the outcome of government's decisions as to which languages to use in its activities on the linguistic environment in which individuals live. As Helder De Schutter notes, "in making policies on, among other things, education or simply courtroom practices, states unavoidably have to make linguistic decisions: fully a-linguistic state policies simply do not exist" (De Schutter 2007: 17). Language decisions are inevitable because public authorities at any level cannot exercise key government functions, such as law promulgation and enforcement, police services, criminal justice, public administration, health care and education, in whatever language individuals may request. Since all existing societies to different extents are multilingual, a situation of absolute linguistic equality is practically an illusion. Yet not all decisions bring about the same effects. Language policy can entail substantial distributive effects between different groups of people (defined in terms of their linguistic repertoire), and therefore it can affect the well-being of individuals living in a country or region. An index should enable us to characterise such distributive effects across time and space and to monitor their development, opening the way to more systematic and comparative evaluation of the outcomes of language policy.

Scholarly work on the identification of language-related inequalities/disadvantage and on the principles that should guide public policies in tackling them is not new (see for instance the pioneering work in political science by Pool 1987, 1991). The debate, nevertheless, gained momentum in the 2000s and more intensively in the 2010s, in particular in political philosophy/normative political theory; three books of especial note in this regard are *Language Rights and Political Theory* (Kymlicka and Patten 2003), *Linguistic Justice for Europe and for the World* (Van Parijs 2011), and

Equal Recognition: The Moral Foundations of Minority Rights (Patten 2014).¹ Whilst most recent papers in this research area, often referred to as “linguistic justice”, comes from normative political theory, we must recall important contributions from applied linguistics and educational studies² as well as law.³ As shown in the detailed overviews by Alcalde 2018, and by Morales-Gálvez and Elvira Riera-Gil 2019, research on linguistic justice is interdisciplinary.

Although this body of literature provides an important and rich resource, the question of linguistic justice has yet to be addressed from a public policy perspective, let alone from an empirical and measurable point of view.⁴ One obvious factor is that there are very different views about what linguistic justice means, and therefore people may disagree about whether a certain type of linguistic inequality/disadvantage leads to injustice. As a result, we lack agreed-upon indicators that would enable us to monitor the extent to which language policies reduce (or conversely increase) linguistic justice.

Our aim in this article is to outline a practically feasible and theoretically grounded index of linguistic justice. Starting from some fundamental considerations from economics of the function of the government as provider of language-related goods and services in society (Section 2), we identify a series of policy areas in which government language policy have a direct or significant impact on what individuals are able to do and to be, given their linguistic repertoire (Section 3). In effect, we adopt a minimalist view of the concept of linguistic justice that focuses on the distributive effects of the language choices of the government rather than on features of the linguistic environment in general (Section 4 and Section 5). This enables us to outline criteria for the identification of a “minimum threshold” of linguistic justice to which governments might be held accountable.⁵ Our approach, of course, is open to criticism, but it has the merit of facilitating the operationalisation of the concept into quantifiable indicators. Section 6 presents a list of possible indicators, explores their properties, and explains how they could be aggregated into an index of linguistic justice.

¹ For a critical discussion of the last two books, see papers in De Schutter and Robichaud (2015) and Morales-Gálvez and Stojanović (2017). Further contributions in the same tradition can be found in the volumes edited by Peled Peled, Ives, and Ricento (2015), Léger and Lewis (2017), as well as Bonotti and Mac Giolla Chríost (2019), and Weinstock and Peled (2020). Papers in Gazzola, Templin, and Wickström (2018) address the question of linguistic justice from an economic and sociolinguistic perspective.

² Contributions from the sociolinguistic tradition so far have focused on documenting and problematizing different forms of language-related social discrimination. See, among others, Skutnabb-Kangas, Phillipson, Mohanty, and Panda (2009); and Piller (2016).

³ See de Réaume (1991), Varennes (1996), and Mowbray (2012). These contributions tend to focus on the question of the compliance of national law with the provision of international law on minority languages.

⁴ An exception is the work of Iannàcaro, Dell’Acquila, and Gobbo (2017), who developed different parameters of what they name “sociolinguistic unease”, defined as situations in which the speaker’s linguistic repertoire is not adequate for the linguistic needs of the moment. Sociolinguistic unease, however, is not necessary a source of injustice.

⁵ For a comparison of the relative advantages and disadvantages of a narrow and a wide definition of linguistic justice, see Shorten (2018).

Section 7 discusses the limits of the index and summarizes our conclusions. It is worth emphasising that this article, as its title reveals, aims at stimulating a debate on the evaluation of linguistic justice, rather than providing a conclusive and definitive set of indicators.

2 The Public Provision of Language-Related Goods and Services

Standard fundamental economic theory distinguishes between the extremes of a pure individual (or private) good on the one hand, and a pure collective good (or pure public good) on the other (Atkinson and Stiglitz 1980, Cornes and Sandler 1996). Pure private goods can be characterised by three properties, that is, they are rival (*R*), shielding (*S*), and excludable (*E*), whereas the technical term “public good” is used if a good is non-rival, non-shielding and non-excludable. Most goods do not belong to one of the extreme categories but fulfil to a smaller or larger degree some of these properties.

Because language-related goods can be of many different kinds they too display the same range of characteristics. For example, property *R* describes to what extent a good can be consumed by several individuals at the same time. Open TV broadcasting in a language is a perfectly non-rival language-related good, since one person’s watching the TV programme in that language does not limit other individuals’ access to the same programme. Dimension *E* describes the extent to which it is technically feasible to exclude someone from the consumption of a given good, once it has been produced. If the TV program is coded and one needs to acquire a decoder to watch it, we have perfect exclusion; if it is freely transmitted in the ether, we have perfect non-exclusion. Dimension *S* describes to what extent one can shield oneself from the consumption of a certain good, once it is available. Shielding is a property of TV broadcasting in a language, since one can choose not to watch those channels (or watch TV at all), but it is not, for example, a property of street signs in a language (e.g. in areas of contested bilingualism), since it is almost impossible not to see the sign in the other language when reading it in one’s preferred language.

In the case of pure individual goods, neoclassical economic theory predicts that under certain assumptions the spontaneous interaction of independent individuals and firms will lead the economy towards an efficient allocation of resources (Mas-Colell, Whinston, and Green 1995). Difficulties arise when goods are not purely rival, excluding and shielding. For example, if the good is non-rival in consumption, once the good is available it can be consumed by everyone. The social value of a certain individual’s contribution to the provision of the good exceeds its value to the contributing individual. Hence, too little of the good would be provided by spontaneous interaction via the free market, since no individual would consider the social value he or she creates, only the smaller private value. We have therefore a *market failure* due to a positive external effect resulting in incentives to “free ride”, that is, enjoy the good without contributing to its provision. Similar arguments can be made in the case of non-exclusion (individuals can enjoy a rival good without contributing to its provision, creating a negative external effect – also known as the tragedy of the commons) and non-shielding (individuals can provide a non-rival “bad” for others without paying the costs imposed on the sufferers, also a negative external effect – for instance, environmental damage). In these and

other cases, the spontaneous interaction between individuals leads to sub-optimal results since total social benefits differ from total social costs. Public policy can here improve the allocation of resources by trying to equate social benefits to social costs.

There are also distributive implications, since the financing of publicly provided goods comes from general taxes, more or less equitably distributed in the population, whereas the individual evaluations of the benefits can vary considerably from one individual to another. This applies not only to goods that are unambiguously public in nature, such as roads, parks and sewers, but also to other goods such as basic education and fundamental health care that are essentially private in nature, but that in many countries are provided by the government. Note that provision does not imply direct production; the government can directly produce goods through its administrative apparatus or alternatively subsidise or legally force a private hospital or school to provide the good. There are two major rationales for such public provision of private goods. In the first place, the arguments above reappear: services such as basic education and health care have important spill-over and external effects. Both acquisition of literacy by the population and vaccination campaigns are beneficial for the society, not just for the single individual. Secondly, there is a general question of social equity involved. Children, for example, cannot make informed choices about their education and health care. Such decisions are made by parents who do not necessarily have the means to pay for these core services. Also, if education or health services are financed through individual user fees, the quality of the service may depend on the size of the payments, so that poor people receive a lower quality of service than rich people for a given need. In this article, therefore, we use the term “publicly provided good” to define goods provided by the government either for efficiency reasons (e.g. pure public goods) and/or for equity reasons.

How does language fit into this picture? In the established typology of language planning, language policy consists of measures to influence, explicitly or implicitly, the corpus, status, and acquisition of a language (see, among others, Johnson 2013). A significant dimension of status planning consists of allocating functions to a language in society. In practice, this means ensuring the public provision in one or more languages of different goods such as road signs, official documents, and public services. While public goods such as street lighting and clean air have no linguistic component, many other goods provided exclusively or predominantly by the government do have a linguistic component. Therefore, governments’ decisions as to which languages to use in providing such good can directly affect the well-being of citizens, and in general residents and taxpayers alike. Typically, individuals have preferences pertaining to the language in which such goods and services are provided. At the very least, to benefit from them, they must understand the language used. The ubiquity of societal multilingualism implies that residents, generally, do not all have the same “first language” or “preferred language”. Considering also that government provision of goods and services is usually funded through general taxation (that is, by the taxpayers), the question becomes, what are the distributive effects of publicly providing goods in only one or a few languages?

3. The Political Economy of Language and the Government Fundamental Language Policy

We term the government's choice of which language(s) to employ in providing language-related goods the "original language choice" or "fundamental language policy". The original language choice, which - as already said - cannot be avoided, raises two issues. The first one concerns the criteria for choosing the language(s) of government, often (though not necessarily) referred to as the "official language(s)" of a jurisdiction. Frequently there is only one such language for most government functions; however, as May notes, "the imposition of a single language for use in state activities and services is by no means a neutral act" (May 2005: 322). While it can be the case that the public language corresponds to the language of the majority (that is, the original language choice is based on the *de facto* prevalence of a certain language in a society), counterexamples abound. In fifteen postcolonial African countries where English is official, for example, the percentage of speakers of this language, no matter at which level of proficiency, nowhere exceeds 20 percent (May 2014). In India, where English is an official language at the national level along with Hindi, the proportion of the population who declare themselves to be fluent in English is 5 percent for men and 3 percent for women (Desai and Dubey 2010). Similar situations were not unusual in the past, even in countries that today are viewed as officially monolingual at the national level. At the outbreak of the French Revolution in 1789, French was spoken by no more than 11 percent of the total population of the country (Grégoire 1794). At the unification of the Kingdom of Italy in 1861, only 2.5 to 10 percent of the population could speak Italian (De Mauro 1963, Castellani 1982).

Clearly, the fundamental language policy is not shaped in an historical vacuum. State traditions, power relationships, path-dependencies, or, sometimes, radical political changes play a determinant role in explaining the historical evolution of a language policy (on this point see Sonntag and Cardinal 2015). Until 1991 and the beginning of a process that eventually brought about the dissolution of Yugoslavia, for example, Slovene was just one of the official languages of a State in which Serbo-Croatian was demographically dominant. When independence was declared, Serbs, Croats and other Yugoslav citizens that moved to Slovenia for economic reasons before 1991 suddenly found themselves to be resident in a country where Serbo-Croatian has no official status (Novak-Lukanovič and Limon 2012).

The choice of one (or a few) *de jure* or *de facto* official language(s) creates *per se* a distribution of material and symbolic resources in society in favour of those with an educated command of the language(s) chosen, thereby burdening the speakers of other languages with the costs of adoption (adaptation). This leads to our second point. As Jonathan Pool notes, "it is wrong to claim (as is often done) that having many official languages is necessarily inefficient. As more native languages are made official, translation costs rise but adoption costs fall. If all adoption costs are sufficiently large, it will be efficient to officialise all the groups' native languages. [...] The tendency to regard multiple official languages as inefficient may, then, reflect a state-centred neglect of costs incurred by individuals in adapting to language policies" (1991, 503). Adoption costs (sometimes also

referred to “adjustment costs” or “implicit costs”)⁶ include expenditures for language training and the costs of translations and interpreters borne by private agents such as individuals or businesses who must interact with the government in a language that they do not understand or that they do not master at a sufficient level of proficiency. Adoption costs also include psychological costs that may be difficult to quantify, such as the contribution to feelings of exclusion or marginalization that stems from a lack of official recognition for one’s native language.

A key question, then, is how language-related costs and benefits are distributed. Analysis of costs requires the setting of a benchmark. Of course, there is no objective manner to fix a just benchmark (see Wickström 2007); this depends on social/political/philosophical values and choices. Given a benchmark, however, one can identify the distributive effects of a language policy and assess the re-distributive effects of various alternatives. A hypothetical situation of pure equality can be used as a theoretical benchmark to study alternatives.

As Mowbray notes, justice does not “require the State to communicate with individuals in the language of their choice” (2012: 135), or that the government use all languages spoken on its territory for official purposes. Rather, “linguistic justice requires greater attention to the *differential* cost of state language choice and consideration of how disparities could be reduced” (2012: 136, italics in the original). This observation is central when such inequalities derive from the fundamental language policy. A possible angle to study linguistic justice from an empirical point of view, therefore, is to identify linguistic inequalities entailed by the fundamental language policy, and to examine whether and how the government addresses such inequalities. Compensation between linguistic communities is a possible means to redress the unequal distribution of adjustment costs in society (for a discussion, see Pool 1991, and Van Parijs 2002). This compensation, as shown in the next section, can take different forms and need not entail direct financial transactions; minority language broadcasting funded by the State central budget is an example.

4 A Minimum (but Operational) Threshold of Linguistic Justice

In the current debate about the nature of linguistic justice, most authors focus on what has been described as the “fair background conditions position”, that is, linguistic justice should equate to establishing fair background conditions for individuals. The prevalent approach, influenced by John Rawls’ theory of justice, tends to focus on access to certain basic linguistic resources in the form of rights, goods and services (for a discussion, see Lewis 2017; Bonotti 2017). In this perspective, linguistic disadvantage is examined in terms of resources to which one person has access in comparison to another person. In principle, a wide range of resources might be used to compare people’s situations, for example political rights or public services (Shorten 2017).

In recent years, a new approach to linguistic justice has been proposed (though not yet fully developed) in which linguistic disadvantage is defined in terms of what people are able to be and do in a given language, rather in terms of what they can receive (see Lewis 2017, Shorten 2017, Carey 2019).

⁶ See Vaillancourt and Coche (2009) and Gazzola (2014).

In this application of the capability approach developed by Amartya Sen and Martha Nussbaum, resources or means should be viewed as only part of the story, since “if the goal is to establish conditions that provide people with truly fair opportunities to use and sustain their respective languages, then additional ‘conversion’ factors, for example the constraining influence of implicit social norms and conventions, also need to be considered and addressed” (Lewis 2017: 604). The twofold nature of this approach (philosophical/economic, normative/prospective) makes it well suited to analysing complex human phenomena: it describes factors that can be easily operationalised and often readily measured, while keeping in view the socio-political dimensions of human needs (Comim *et al.* 2008). Nonetheless, the differences between the two approaches should not be exaggerated, at least where applied policy research is concerned. The organisation of a bilingual public administration, for example, can be viewed both as a resource accessible to individuals, and as a condition that affords the members of a linguistic minority substantive freedom to open a business and pay taxes in their first language. The lack of interference by the State in people’s choices as to which languages to use in their private life can be seen both as a resource (a right) and as a condition enabling individuals to exercise their freedom of expression.

Andrew Shorten (2017) argues that both approaches have limited practical applicability, because people may disagree about what goods or services people are entitled to have and about what persons should be able to be and do. This is certainly true. It does not mean, however, that these approaches cannot be used in empirical work if we are careful to define the scope of the analysis. There are many reasons why individuals might disagree on the types of private goods and services that people should have access to avoid linguistic disadvantage. However, as shown above, there is a set of language-related goods, necessarily provided by the government for efficiency and/or equity reasons, that are relevant for all citizens, long-term residents and asylum-seekers of a given country or jurisdiction. The approach to the empirical evaluation of linguistic justice proposed in this article starts from this observation.

It is important at this stage to introduce an important distinction between domains in which the state exerts a direct and often exclusive influence (in some cases legally determined, e.g. the administration of public security and the judicial system, but in many cases due to market failure or redistribution objectives, as noted above), and domains in which the government shares its influence with the private sector (e.g. the media, the labour market and cultural activities). In this article, we focus on domains in which the government exerts its exclusive or predominant competence because in these domains it must be held directly responsible for the consequences of its language policy decisions. Although we recognise that a person can be linguistically disadvantaged in other areas of social and economic life such as the labour market, and that for some persons those areas may be more important than those under direct public control, our analysis is limited to the latter as a starting point.

There are two relevant levels of analysis in this regard. The first one is general or systemic, and it refers to the existence (or not) of a certain degree of recognition of languages by the government in the public sphere. The second level of state action is functional or operational. It consists in the

concrete decisions of the government as to what languages to use (or not) in three broad domains in which the state and subordinate public authorities exert exclusive or predominant competence, that is:

- a) Law and order, the minimal infrastructure necessary for a functional society, i.e., judicial authorities such as courts and tribunals, and public security systems (police and prisons). Also, legal texts and decrees or other official communications belong to this category.
- b) Administration, the agencies necessary for the smooth working of a government, i.e. the general registry office, the tax office, and the migration office, including relevant public communication in these areas.
- c) Essential public services found in the public sector in most countries of the world, such as the public health care system (e.g. hospitals) and emergency centres, especially for asylum-seekers and refugees.⁷

Education, of course, is another important public service. It raises, however, many other issues related to language policy that lie beyond the scope of this article, most notably the influence exerted by the state on the linguistic repertoire of children and adults through education and vocational training. For the three domains of language policy, we focus on here, the most important contribution of education is to increase the state's capacity to train staff and employees so that they can provide certain services and information in the languages of autochthonous minorities and migrants. Access to formal schooling in one's first language(s), along with effective educational access to dominant or national languages, are clearly important dimensions of linguistic justice, but pose theoretical and methodological challenges in indicator design that we cannot address adequately here.

Having limited the scope of the evaluation of linguistic justice in this article to the three domains listed above, the next question is, what type of rights can be granted by the government to minorities in these core domains. Building on Heinz Kloss's (1977) distinction between toleration-oriented and promotion-oriented rights, Alan Patten (2009) identifies three general classes of language rights: (1) toleration rights, (2) norm-and-accommodation rights, and (3) promotion rights. Toleration rights guarantee members of a society freedom of expression in the language of their choice; they are "protections individuals have against government interference with their private language choices" (Patten 2009: 107). Norm-and-accommodation rights aim at facilitating communication in the local dominant language (what Patten calls "normal public language") in certain public contexts for those who are not fluent in it; they ensure access to certain forms of assistance such as interpreters in trials, immersion education programmes or provision of services by bilingual staff. Finally, promotion rights proper are "not contingent on a lack of proficiency in a 'normal' public language. A person

⁷ On problems associated with language diversity in the public health care system see Segalowitz and Kehayia (2011); as well as Vecchiato, Gerolimich, and Komninos (2015).

is free to exercise her promotion rights in a minority language even if she is quite fluent in the majority language” (Patten 2009: 109).

In Patten’s view, one (and only one) language typically qualifies as the “normal” public language by virtue of its use in different domains, e.g. the courts and legislatures, and in the delivery of public services and in education. In our view, however, this notion of “normal public language” is problematic. Although in many states or regions official monolingualism is *de jure* or *de facto* the norm, we see no need to naturalise a monolingual view of the State as a benchmark. Rather, we propose to treat the choice of a “normal” public language as just one language policy among various alternatives. Whatever alternative is chosen, the fundamental language policy will create an initial distribution of resources that may require various forms of compensation. These “compensation rights” should not be treated as promotion rights proper, as Patten’s approach might suggest, but as a *re*-distributive measure to compensate the distributive effects of the fundamental language policy. In other words, they are better seen as a consequence of a benchmark conception of linguistic justice that applies to all citizens.

Focusing on compensation rights rather than promotion rights, then, it is possible to develop a modified set of linguistic rights defining what we name a “minimum threshold of linguistic justice” that many could accept as reasonable. Some authors use the term “sufficiency principle” for such a minimal set of rights (e.g. Nielsen and Axelsen 2016); discussions in global policy forums use the concept of “social protection floors” (Deacon 2013). Our proposed minimalist (but operative) view of linguistic justice considers three types of rights derived from our modification of Patten’s framework:

- a) Toleration. As above, the presence or not of measures aimed at interfering with individuals’ private language choices.
- b) Accommodation. In this article, this refers to the degree to which different publicly provided language-related goods in key areas of government competence (as already described) are available and accessible to people with different linguistic repertoires.
- c) Compensation. This refers to the presence of some form of compensation for the adjustment costs associated with government fundamental language policy even if speakers of minority languages are reasonably proficient in the official language(s).

Note that the three types of rights can be viewed as a continuum spanning three degrees of inclusion of individuals’ preferences by the policy maker. Toleration simply requires the respect of freedom from interferences of the government in private life language decisions, accommodation refers to the objective practical need of the speaker to be understood, while compensation is a dimension that assumes a partial entitlement to the satisfaction of linguistic preference irrespectively of the concrete practical needs of the speaker.

5 Accounting for Language Demographics and Cost-Benefit Trade-Offs

There is a fourth important aspect of the State’s language policy regime that should be taken into account when assessing the impact on linguistic justice of various measures in favour of minorities.

This arises from the unequal numbers and distribution of minority language communities. While the issue is easily described, it is more challenging to incorporate it into the definition of a minimum threshold.

We begin by noting that it is common practice in different countries to allow for the provision of goods in minority languages only when “numbers warrant”. A report of the United Nations Special Rapporteur on minority issues (2017: 26) provides some useful examples in that respect. US federal equality legislation mandates that the threshold for the use of minority languages in federal services is 10,000 people; in Finland, a variety of public services is guaranteed in municipalities where at least 3,000 people are members of a minority; in Canada, the threshold for access to federal public services in both English and French in big cities is 5,000 people, while other public services are provided in additional languages where there are sufficient concentrations of indigenous people or immigrants.

Intuitively, such an approach seems reasonable; it clearly responds to the fact that there are extra costs entailed in providing services in languages beyond those included in the fundamental language policy. Such costs are more readily justified when there are many recipients of the extra services. The question is how to formalize this principle so as to evaluate the relative fairness of different situations, taking into account the fact that there may be many language minorities of different sizes within a given jurisdiction.

In this paper we adopt an indicator based on constitutional economics (Wickström and Gazzola 2020), which takes into account the relationship between the costs of production of a language-related good and the number of beneficiaries of the policy (i.e. the cost elasticity, σ), as well as the size of the minority in absolute terms n and the total size of the population in the jurisdiction P . The formal derivation of this “indicator of official recognition” will not be repeated here, but an intuitive explanation may help clarify its importance within our overall approach to building an index of linguistic justice. Crucially, this indicator involves the definition of a critical (or threshold) value n^* of the size of the minority for which provision of some administrative or public services is estimated to be efficient (i.e. benefits are equal to or exceed costs of the publicly provided language-related good). This threshold is set by the analyst, as explained below.

In keeping with the overall approach outlined earlier, the authors begin with a theoretical starting point or benchmark according to which *all* languages within a given jurisdiction are recognized (all individuals have the same rights), and the jurisdiction is “punished” (that is, loses points according to this indicator) for failing to give recognition to some languages (i.e. removing the rights from some people). In other words, the model starts from a theoretical situation of equity and assesses whether deviations from that equity are justified (in terms of public policy) on efficiency grounds. If providing rights to speakers of a certain language would be efficient (estimated benefits exceed estimated costs), there would be no allowable justification for removing these rights.

The interesting situation occurs when the costs are higher than the benefits in a cost-benefit calculation. In this case, providing the language-related good in the minority language would imply a

deliberate redistribution in favour of the minority, at the cost of an efficiency loss for the entire population in the community. If the language-related good is not provided, the jurisdiction would lose points for the inequality entailed by denying rights to the speakers of that language, but the magnitude of this “punishment” would be mitigated by taking into account the loss in efficiency that the provision of the good would entail. In other words, the indicator is designed to capture, in a quantifiable way, the classic trade-off between efficiency and equality in welfare economics, applied here to the provision of language-related goods.

In practice, the analyst first must determine in which languages provision of the language-related good is guaranteed. For those languages, the indicator value I is set equal to one. In the second step, the analyst estimates the value n^* equal to the minimal size of a minority community for which the provision of rights would be efficient in the cost-benefit sense. This value is then compared to the number of speakers n of each minority language without recognition. If n exceeds n^* and the language receives no recognition, the value of the indicator for that language is zero (the “punishment” is maximum, i.e. one). However, if the size of the minority is smaller than n^* , the size of the “punishment” will be less than one (mitigation due to taking the efficiency gain into account), and so the indicator will have a value somewhere between zero and one.

For those readers interested in how the calculation is done, the indicator is defined by the following expression:

$$I = 1 - \frac{n}{P-n} \frac{P-n^0}{n^0} \quad (1)$$

with

$$n^0 = \sigma n + (1 - \sigma)n^* \quad (2)$$

If the language-related good in question is non-rival, i.e. it causes only fixed costs, $\sigma=0$ and $n^0=n^*$. If the language-related good is not perfectly non-rival, one must find σ from the cost function. The exact definition to be used is found in Wickström and Gazzola (2020):

$$\sigma = \frac{c(n^*)-c(n)}{n^*-n} \frac{n^*}{c(n^*)} \quad (3)$$

I.e., one has to estimate the cost function $c(n)$ for the provision of the language-related good. This estimate becomes especially easy if the cost function can be written as $c(n)=\kappa+\lambda n$ with fixed costs κ and constant marginal costs λ . Then, $\sigma=n^*\lambda/(\kappa+ n^*\lambda)$. As a rule of thumb, if the language policy involves the provision of both a non-rival good and a rival good, σ can in most cases be set at 0.5.

Finally, the aggregate value of the indicator I is calculated for the jurisdiction being evaluated. This is accomplished by summing the scores for each language, whose contribution is weighted by the relative size of that language minority relative to the sum of all minorities residing in the

jurisdiction. This ability of *I* to summarize a complex demographic picture in a single figure makes it useful to all of the compensation-related indicators described in the following section.

6 An Index of Linguistic Justice

Having mapped out the scope of the index to be designed, our next step is to consider what a suitable range of indicators might be. Taken together, those indicators should reflect explicitly or implicitly the three types of rights identified, that is, toleration, accommodation, compensation, and take into account practicability/costs. The indicators should also cover both the systemic level (i.e. the overall language regime) and the operational level of state action (i.e. law and order, public administration, and essential public services). Further, the indicators should be applicable to different groups of speakers affected by language policy, although not necessarily to the same extent. These include dominant/majority groups, traditional (autochthonous) minorities, minorities issuing from immigrations (e.g. resident migrants, asylum-seekers and refugees) sometimes named “new minorities”.

The process of indicator design is based on a series of standard principles well summarised in Atkinson, Cantillon, Marlier, and Nolan (2002: 20-26) and in Maggino and Zumbo (2012). First, an indicator should identify the essence of the problem (e.g. language-related disparities in access to legal documents) and have a clear and accepted interpretation; this means that there should be a general agreement that movement in a particular direction represents an improvement. Second, an indicator should be robust and statistically validated (i.e., it should be measurable in a way that commands general support, and the data employed should be regarded as reliable). Third, an indicator should be responsive to effective policy intervention and difficult to manipulate.⁸

Ideally, we wish to measure the consequences of a policy, irrespective of the means by which results are achieved (e.g. financial inputs); hence, the indicators should focus on output and possibly outcomes of government actions. However, there are practical constraints involved. In order for an index to be useful, its indicators should be easy to populate with available data, and they should not be too many. For this reason, in this article we present indicators that can be populated with secondary data that are generally available or that are relatively easy to collect. Some of these indicators refer to the formal aspects of linguistic justice such as the presence of norms, whereas others focus on the substantive aspects of linguistic justice, that is, to what degree such norms are respected in practice. Conceptually, this is not entirely satisfying; however, one must balance theoretical finesse with empirical feasibility. Finally, we select just ten indicators as a point of departure, and we present some additional variants of them that could be adopted in applied research. As stated in the introduction, the purpose of this article is to stimulate debate (and perhaps experimentation) on the empirical evaluation of linguistic justice rather than present a definitive set of indicators.

A trial set of indicators is presented in Table 1. To facilitate comparisons, all indicators assume a simple value between 0 and 1 inclusive. Changes in the value of an indicator towards 1 are associated

⁸ On the problem of manipulating language-rights allocations, see Wickström (2020).

with an increasing level of linguistic justice. The first column reports the dimension considered, the second the domain. The third column presents the indicator. The fourth column describes the characteristics of the corresponding good considered, while the last column presents the type of data necessary to populate the indicator.

INSERT TABLE 1 HERE

As noted earlier, the Index is to be used to compare jurisdictions that vary in size and in the composition of their minority populations. (We should note here that the term “jurisdiction examined” in the indicator description may refer to a country or to a region within a country, while the term “sub-jurisdiction” refers to an institutional level immediately below the one being examined. Because of the challenges involved in making such comparisons, half the indicators (1-3, 7, 8) deliberately involve non-spatial and non-rival goods (pure collective goods) whose costs are independent of the number of beneficiaries and the size of the jurisdiction. This makes comparisons easier. The additional costs of translating web-pages into additional languages, for example, depends simply on the number of pages to be translated. At the opposite extreme, we find that essential services (as in indicators 4 and 10) typically involve spatial and partially (or fully) rival goods (because they suffer from congestion). For example, the additional costs to provide services in different languages in a centre for asylum-seekers are dependent on the number of the centres, which in turn depends both on geographical factors and the number of the individuals assisted. At the intermediate level, we find partially-rival and non-spatial goods (indicators 5 and 6), and spatial but non-rival language-related goods such as bilingual street signs (indicator 9). It is important to keep the spatial dimension in mind when comparing countries of different size and different geopolitical locations.

The first two indicators refer to the dimension “toleration” and to individuals’ capability of expressing themselves in their preferred language. They are couched in negative terms: “Absence of legislation or measures restricting the use of any language in the private life of residents in the jurisdiction examined”, and “Absence of legislation or measures forbidding the written public use of any language by businesses”, possibly under the condition “that a translation in the local dominant language is available.” Both indicators are self-explanatory. They can take the value zero or one. Indicators 1 and 2, therefore, describe the presence of toleration on the whole territory being examined; in this sense, toleration is a non-spatial non-rival good. The first indicator can be made more demanding, e.g. by requiring the absence of measures restricting the use of any language in the private life of residents and in fully private schools.

Indicators 3 and 4 reflect the accommodation dimension in the domains Law and Order as well as essential public service. Indicator 3, “Existence of the right to language assistance in one’s first language during trials in criminal proceedings,” can be applied to citizens, resident migrants or tourists alike. A better indicator would refer to the actual implementation of this right rather than its existence (e.g. “Proportion of trials (criminal proceedings) in which a defendant receives language assistance in his/her first language”), but data to populate this indicator would be very difficult to collect from official sources. The specification “criminal proceedings” deliberately emphasises the

importance of linguistic mediation in criminal justice (United Nations Special Rapporteur on minority issues 2017: 29), but the indicator of course could be made more general by removing this specification. Indicator 4, “Proportion of centres for asylum-seekers in the jurisdiction examined employing staff or linguistic mediators fluent in at least one non-official language relevant for the asylum seekers (corrected for the total number of asylum-seekers and the total population of the country)”, is a proxy to assess the capacity of a government to deal with foreigners in situation of crisis. The correction for the number of asylum-seekers and the size of the country should reflect both the fixed costs and variable costs involved. A more precise indicator perhaps would be “Proportion of refugees and asylum-seekers who received assistance in their first language for initial administrative procedures” per unit of time, but again it could be very difficult to obtain data to populate this indicator.

The remaining indicators refer to the compensation dimension. Unlike the accommodation dimension, they do not require the satisfaction of a practical need, since the possibility of using one’s language in communication with local authorities often carries symbolic importance even if the members of the minority group are reasonably proficient in the local dominant language (e.g., most Welsh speakers are proficient in English, too). Symbols and identity issues matter in language policy. Providing public goods in the local minority language is not only a tool for status planning, but also a form to recognise the cultural dignity of speakers and to provide symbolic compensation for inequalities caused by the State original language choice, especially for traditional minorities. The concept of “first language” could be replaced by “mother tongue” or “heritage language”; what matters is the importance that minority speakers attach to their language of identity, even if they did not acquire oral fluency or literacy in it. These indicators, therefore, do not impose any specific hierarchy on languages of a territory, but are responsive to how those languages are perceived by their speakers. The two systemic indicators, 5 and 6, address the explicit formal legal/administrative status of the languages spoken, whereas the operational ones, 7-10, are concerned with the actual implementation of language rights.

The aggregate “indicator of official recognition,” explained in section 5, is employed in both indicators 5 and 6, which differ according to the type of minority considered. The former focuses on traditional/autochthonous minorities, while the latter is concerned with resident “new minorities” with or without citizenship. As outlined earlier, the researcher should choose a threshold value n^* for both indicators as well as the value of σ (variables describing the dependence of costs of implementation on the size of the minority) and consistently apply them to languages spoken in the jurisdiction to compute the aggregate I . The indicator reflects the *potential* implementation of formal legal and administrative rights as the minimum form of systemic recognition. Such rights *per se* are non-rival and non-spatial, but their implementation can be partially rival. For example, one of the most basic forms of recognition of a language is the right to use it in written communication with state offices. The right as such is a public good, but providing answers to individual correspondence in a minority language requires officials to possess a capacity in that language. The actual costs incurred by this requirement vary widely, however. In Slovakia, for example, residents can

legitimately use Czech when they write to authorities, although this language is not official; if the correspondence is answered in Slovak, no additional capacity is needed and the good is almost non-rival. In Amsterdam in the Netherlands one can write in English to public authorities, although this is not an official language of the country; here too, depending on the mastery of English by a typical public servant, the additional capacity might be negligible. For indicator 5, an alternative source of data to feed the indicator could be the availability of official information in the minority language pertaining to elections or other processes involving decision making in public life (see United Nations Special Rapporteur on minority issues 2017: 35).

Indicators 7-10 directs the focus towards the actual implementation of language policy. A challenge common to all *de facto* evaluation is the availability of reliable data, and we have commented on this issue as it applies to each proposed indicator. Indicators 7 to 10 deliberately focus on citizens, but potentially they can be used for residents too, depending on the scope of applied research.

Indicator 7, “Proportion of legally binding documents such as laws and regulations published online per year in the languages spoken in the jurisdiction examined (weighted across citizens and indicator *I* of recognition of individual languages)” relies, in the first instance, on the state maintaining a registry of legal documents in its languages. Since lawyers, citizens and advocacy groups are likely to depend on such official registries for authoritative versions of the laws and regulations in any given language, this seems to be an appropriate way to gauge their effective availability. We specify “online” since this type of good is non-spatial and non-rival (contrary to the paper version).

For the sake of illustration, take the example of a jurisdiction with 100,000 inhabitants and three minority languages spoken by 30,000 persons. Language *A* is the preferred language of 15,000 persons (equivalent to 50 percent of individuals belonging to minority groups), language *B* is spoken by 10,000 persons (equivalent to 33 percent of individuals belonging to minority groups), and language *C* is spoken by 5,000 people (equivalent to 17 percent of individuals belonging to minority groups). The value of indicator 7 is 1.0000 if all documents are available in all three minority languages.⁹ In other cases, the indicator must be calculated with the help of the formula for the indicator of recognition taking the size of the minorities into account. We assume that $n^*=12900$ and $\sigma=0$. Case (i), non-recognition: the indicator *I* for language *A* is then 0 (it is efficient in the cost-benefit sense to provide the language-related good in language *A*, non-providing it would be inefficient) and for languages *B* and *C*, 0.25 and 0.64, respectively. The value of indicator 7 is therefore 0.1913 if no documents are available in any of the minority languages.¹⁰ Case (ii): documents are only published in the biggest minority language; the value is 0.6913.¹¹ Case (iii): all documents are published in language *A*, 50 percent of the documents in language *B*, and only 5 percent in language *C*; the value of the indicator is 0.8181.¹²

⁹ $0.5*1+0.33*1+0.17*1$.

¹⁰ $0.5*0+0.33*0.25+0.17*0.64$

¹¹ $0.5*1+0.33*0.25+0.17*0.64$.

¹² $0.5*1+0.33*(0.5*1+0.5*0.25)+0.17*(0.05*1+0.95*0.64)$.

Although in case (ii) 50 percent of minority speakers receive no information in their preferred language, the two smallest languages give rise to higher indicators of recognition than zero in the absence of rights as explained in section 5. The injustice of not providing rights is mitigated, from the point of view of society, by avoiding the efficiency loss that rights provisions would cause. Per person these costs are mirrored in the indicator value that is more than 2.5 times as high for minority *C* as for *B*. Aggregated over the respective community (weighted by the size of the community) the difference is smaller, though.

Indicator 8, “Proportion of administrative forms of the tax office and the population registry released/published online per year in the languages spoken in the jurisdiction examined (weighted across citizens and the indicator of recognition of the individual languages),” is similar to indicator 7, but refers to the domain of public administration. The calculation of the indicator follows the same pattern as indicator 7. The indicator deliberately includes different types of administrative documents and reports the average proportions. For practical reasons, however, it may be necessary to limit the analysis to one type of document only. As for indicator 7, this indicator rewards substantive use of language in administrative procedures, rather than simple formal status.

Indicator 9, “Proportion of road signs available in languages spoken in the jurisdiction examined (weighted across citizens, the indicator of recognition of the individual languages, and administrative sub-units),” is self-explanatory. Data can be collected for a sample if no official register exists. The specification “average across administrative sub-units” means that the final value of the indicator depends on the arithmetical average of the proportions computed at the sub-unit level of the jurisdiction examined (in the case of Switzerland, for example, this would imply determining the weighted average across citizens per Canton and taking an average over all 26 Cantons, weighted by their populations). This is needed because some languages are spoken only at the sub-jurisdiction level and road signs are a spatial good. An alternative formulation is “One minus the proportion of citizens who cannot benefit from road signs in their first language on the territory of the administrative sub-units of the jurisdiction”. Because of the spatial nature of road signs, however, this indicator is less precise than the other one. If bilingual signs, for example, are available only in the largest urban centres, or in areas where the linguistic minority is concentrated, it is difficult accurately to assess the benefit to individuals.

Indicator 10, “Proportion of public hospitals, health centres, and clinics in which consultations are available in the languages of the sub-jurisdiction examined (weighted across citizens, the indicator of recognition of the individual languages, and administrative sub-units),” is a proxy for bi- or multilingual health care services across the territory of the jurisdiction examined. A more precise indicator would be “Proportion of citizens in ward *X* who were treated in their first language in public hospitals or clinics in the sub-jurisdiction examined (average across the indicators of recognition of the individual languages and administrative sub-units), per year”, where the specification “in ward *X*” could be adapted according to the circumstances. Possible examples in which the role of bilingual staff may be particularly crucial are “emergency rooms” or “psychological support”. It could be very difficult, however, to find data to populate this indicator.

The simplest way of producing a synthetic index of linguistic justice that lends itself to inter-regional and international comparison would be simply to add up the values of the ten indicators presented in Table 1. If we adopted this method, the level of linguistic justice in a jurisdiction would be defined in terms of an absolute score. Countries/regions would be compared on the basis of the total score, which could range between 0 and 10. Scores could potentially be organised in three ranges, e.g., low (score 0 to 3), medium (4-7) and high (8-10). Alternatively, researchers could attribute weights to the indicators, thereby valuing some dimensions of linguistic justice more than others. Further discussion and trial application of the indicators could help the development of such choices.

7 Final remarks

An index of linguistic justice is open to the same kinds of criticism as other indices used at the international level for a broad range of purposes. The usual criticism is that such indices oversimplify a complex reality, and that their methodology is flawed. However, we welcome the prospect of such debates. As noted by Klugman, Francisco, and Choi (2011), the Human Development Index “should be understood as the starting point of a conversation about what we mean by development, rather than as its endpoint”, and this accurately captures our own objective. We see current debates about linguistic justice, while stimulating, as too firmly ensconced in theory, rather than being engaged in a productive dialogue with data analysis, measurement and policy-making.¹³ An index of the kind we have proposed could play an useful role in encouraging theorists to make greater use of empirical data to test their ideas, while prodding policy makers to look beyond the immediate social and political context to broader visions of the (linguistically) just society. As for any index, the choice of the number of indicators, the relevant dimensions to be monitored and the weights attributed to the indicators that made up an index rely, of course, on value judgements which can be criticized. However, as long as their methodology is clear, explicit and consistent, and their data reliable, indices and the resulting rankings may produce useful information and stimulate public debate. In certain cases, the systematic use of indices by countries, or, sometimes, their popularization in the media, can promote changes in public policy.

We are aware that there are already some examples of linguistic indicators being used to monitor various aspects of language use and vitality. One example is the *Montreal Index of Linguistic Integration* (Segalowitz and Ryder 2006), which measures the degree to which participants feel integrated into specific linguistic communities when using language involving everyday idiomatic expressions.¹⁴ Another example is the *Multiculturalism Policy Index* (MPI) developed by Keith Bunting and Will Kymlicka (2013). Nevertheless, these indices do not explicitly address the question of the effects of language policy on a community of speakers. To our knowledge, the only partial exception is the work of Guus Extra and Kutlay Yağmur (2012a, 2012b), who propose a series of indicators for the *European Index of Multilingual Policies and Practices*, intended as a descriptive tool “for

¹³ For a broader discussion of this issue, see Carens (2000).

¹⁴ See the related Canadian index of linguistic insecurity in Owens and Baker (1984).

awareness-raising at both the public and the political macro-level and for motivating key stakeholders across a variety of sectors, languages and countries to take action: no more and no less [...] The proposed index is *not* meant to be a normative or prescriptive tool” (2012b: 2). The indicators developed by various authors in the report *Language Rich Europe* (Extra and Yağmur 2012a) concern a range of policy areas, including the use of languages in official documents and databases, education, business, media, and public services. These indicators, however, are specifically aligned with documents and recommendations on multilingualism produced by the European Union and the Council of Europe (e.g., teaching two foreign languages in the school system, and using the media to support foreign language learning through subtitling instead of dubbing). As such, they do not have general validity outside the European context.

In conclusion, all states make language policy decisions that have far-reaching implications for the lives of their citizens and residents. It is worth reiterating that some government language choices, all other things being equal, create more disparities than others, and certain policies are more effective than others in reducing or mitigating linguistic disadvantage. Rather than aiming at definitive, one-size-fits-all solutions to the problem of linguistic justice, we see prospects for greater progress through the development of a system of theory-based indicators that policy makers can use to nudge language policy towards incremental improvements over time. Multilingual education and training as well as translation are clearly central instruments in that respect. One means for governments to positively influence the evolution of the indicators presented in this article is by training civil servants to work in more than one language and investing in translation and interpreting in public services, especially in the health sector and in emergency and support services for migrants and asylum seekers. Such practical measures can have measurable effects on decreasing linguistic disadvantage for different groups of people in a jurisdiction.

References

- Alcalde, Javier (2018) "Linguistic justice: An interdisciplinary overview of the literature ", in Gazzola, Michele, Torsten Templin, and Bengt-Arne Wickström (eds.) *Language Policy and Linguistic Justice: Economic, Philosophical and Sociolinguistic Approaches*, pp. 65-149. Berlin: Springer.
- Atkinson, Anthony, Bea Cantillon, Eric Marlier, and Brian Nolan (2002) *Social indicators. The EU and social inclusion*. Oxford: Oxford University Press.
- Benting, Keith and Will Kymlicka (2013) "Is there really a retreat from multiculturalism policies? New evidence from the multiculturalism policy index", *Comparative European Politics*, 11 (5), pp. 577-598.
- Bonotti, Matteo (2017) "Political liberalism, linguistic diversity and equal treatment", *Journal of Multilingual and Multicultural Development*, 38 (7), pp. 584-594
<https://doi.org/10.1080/01434632.2016.1192179>.
- Bonotti, Matteo and Diarmait Mac Giolla Chríost (eds.) (2019) *Linguistic justice in an interdisciplinary context*. Special issue of *Sociolinguistica*, vol. 33.
- Carens, Joseph H. (2000) *Culture, Citizenship, and Community: A Contextual Exploration of Justice as Evenhandedness*. Oxford: Oxford University Press.

- Carey, Brian (2019) "The preference satisfaction model of linguistic advantage", *Critical Review of International Social and Political Philosophy*, 22 (2), pp. 134-154
<https://doi.org/10.1080/13698230.2016.1270905>.
- Castellani, Arrigo (1982) "Quanti erano gli italofoeni nel 1861?", *Studi linguistici italiani*, 7, pp. 3-26.
- Comim, Flavio, Mozaffar Qizilbash, and Sabina Alkire (eds.) (2008) *The capability approach: Concepts, measures and applications*. Cambridge: Cambridge University Press.
- Cornes, Richard and Todd Sandler (1996) *The theory of externalities, public goods, and club goods* (2nd). Cambridge (UK): Cambridge University Press.
- De Mauro, Tullio (1963) *Storia linguistica dell'Italia unita*. Bari: Laterza.
- De Schutter, Helder (2007) "Language policy and political philosophy: On the emerging linguistic justice debate", *Language Problems & Language Planning*, 31 (1), pp. 1-23.
- De Schutter, Helder and David Robichaud (eds.) (2015) *Linguistic justice. Van Parijs and his critics*. Critical Review of International Social and Political Philosophy (Volume 18, Issue 2): Special issue of
- de Varennes, Fernand (1996) *Language, minorities and human rights*. The Hague ; Boston: Kluwer Law International.
- Deacon, Bob (2013) *Global social policy in the making: The foundations of the social protection floor*. Bristol: Policy Press.
- Desai, Sonalde and Amaresh Dubey (2010) *Human Development in India: Challenges for a Society in Transition*. Oxford: Oxford University Press.
- Extra, Guus and Kutlay Yağmur (eds.) (2012a) *Language rich Europe. Trends in policies and practices for multilingualism in Europe*. Cambridge: Cambridge University Press/British Council.
- Extra, Guus and Kutlay Yağmur (2012b) "Towards a European index of multilingual policies and practices", *RECODE Working Paper Series*, (8).
- Gazzola, Michele (2014) *The evaluation of language regimes. Theory and application to multilingual patent organisations*. Amsterdam: John Benjamins.
- Gazzola, Michele, Torsten Templin, and Bengt-Arne Wickström (eds.) (2018) *Language Policy and Linguistic Justice. Economic, Philosophical and Sociolinguistic Approaches*. Berlin: Springer.
- Grégoire, Henri Jean-Baptiste (1794) *Rapport sur la nécessité et les moyens d'anéantir les patois et d'universaliser la langue française*, Convention nationale. Paris.
- Iannàccaro, Gabriele, Federico Gobbo, and Vittorio Dell'Aquila (2017) "The assessment of sociolinguistic justice: Parameters and models of analysis", in Gazzola, Michele, Torsten Templin, and Bengt-Arne Wickström (eds.) *Language Policy and Linguistic Justice: Economics, Philosophical and Sociolinguistic Approaches* Berlin: Springer.
- Johnson, David Cassels (2013) *Language policy*. Basingstoke: Palgrave Macmillan.
- Kloss, Heinz (1977) *The American bilingual tradition*. Rowley (MA): Newbury House.
- Klugman, Jeni, Francisco Rodriguez, and Hyung-Jin Choi (2011) "The HDI 2010: new controversies, old critiques", *Journal of Economic Inequality*, 9, pp. 249-288.
- Kymlicka, Will and Alan Patten (eds.) (2003) *Language rights and political theory*. Oxford: Oxford University Press.

- Léger, Rémi and Huw Lewis (eds.) (2017) *Normative political theory's contribution to language policy research*. Special issue of *Journal of Multilingual and Multicultural Development*, vol 38 (7).
- Lewis, Huw (2017) "Realising linguistic justice: resources versus capabilities", *Journal of Multilingual and Multicultural Development*, 38 (7), pp. 595-606 <https://doi.org/10.1080/01434632.2016.1192178>.
- Maggino, Filomena and Bruno D. Zumbo (2012) "Measuring the quality of life and the construction of social indicators", in Land, Kenneth C., Alex C. Michalos, and M. Joseph Sirgy (eds.) *Handbook of Social Indicators and Quality of Life Research*, pp. 201-238. Dordrecht: Springer.
- Mas-Colell, Andreu, Michael D. Whinston, and Jerry R. Green (1995) *Microeconomic theory*. New York-Oxford: Oxford University Press.
- May, Stephen (2005) "Language rights: Moving the debate forward", *Journal of Sociolinguistics*, 9 (3), pp. 319-347.
- May, Stephen (2014) "Contesting public monolingualism and diglossia: Rethinking political theory and language policy for a multilingual world", *Language Policy*, 13, pp. 371-393.
- Morales-Gálvez, Sergi and Elvira Riera-Gil (2019) "Què són polítiques lingüístiques justes? Els paradigmes actuals de la justícia lingüística", *Revista d'Estudis Autònoms i Federals* (30), pp. 25-56.
- Morales-Gálvez, Sergi and Nenad Stojanović (eds.) (2017) *Equal Recognition, Minority Rights and Liberal Democracy: Alan Patten and his Critics*. Special Issue of *Critical Review of International Social and Political Philosophy*. Vol. 20.
- Mowbray, Jacqueline (2012) *Linguistic justice. International law and language policy*. Oxford: Oxford University Press.
- Nielsen, Lasse and David V. Axelsen (2016) "Capabilitarian sufficiency: Capabilities and social justice", *Journal of Human Development and Capabilities*, 18 (1), pp. 46-59.
- Novak-Lukanovič, Sonja and David Limon (2012) "Language policy in Slovenia", *Language, Culture and Curriculum*, 25 (1), pp. 27-39.
- Owens, Thompson W. and Paul M. Baker (1984) "Linguistic insecurity in Winnipeg: Validation of a Canadian index of linguistic insecurity", *Language in Society*, 13 (3), pp. 337-350.
- Patten, Alain (2009) "Survey article: The justification of minority language rights", *Journal of Political Philosophy*, 17 (1), pp. 102-128.
- Patten, Alain (2014) *Equal Recognition: The Moral Foundations of Minority Rights*. Princeton: Princeton University Press.
- Peled, Yael, Peter Ives, and Thomas Ricento (eds.) (2015) *Language policy and political theory. Building bridges, assessing breaches*. New York: Springer.
- Piller, Ingrid (2016) *Linguistic diversity and social justice*. Oxford: Oxford University Press.
- Pool, Jonathan (1987) "Thinking about linguistic discrimination", *Language Problems & Language Planning*, 11 (1), pp. 3-21.
- Pool, Jonathan (1991) "The official language problem", *American Political Science Review*, 25 (2), pp. 485 - 514.

- Réaume, Denise (1991) "The constitutional protection of language: Security or survival?", in Schneiderman, David (ed.) *Language and the State: The Law and Politics of Identity*, pp. 37-57. Cowansville: Éditions Yvon Blais.
- Segalowitz, Norman and Eva Kehayia (2011) "Exploring the determinants of language barriers in health care (LBHC): Towards a research agenda for the language sciences", *The Canadian Modern Language Review/ La revue canadienne des langues vivantes*, 67 (4), pp. 480-507.
- Segalowitz, Norman and Andrew Ryder (2006) *Montreal Index of Linguistic Integration (MILI)*, Unpublished manuscript. Montreal: Concordia University.
- Shorten, Andrew (2017) "Four conceptions of linguistic disadvantage", *Journal of Multilingual and Multicultural Development*, 38 (7), pp. 607-621.
- Shorten, Andrew (2018) "Justice in the linguistic environment: Narrow or wide?", in Gazzola, Michele, Torsten Templin, and Bengt-Arne Wickström (eds.) *Language Policy and Linguistic Justice. Economic, Philosophical and Sociolinguistic Approaches*, pp. 153-172. Berlin: Springer.
- Skutnabb-Kangas, Tove, Robert Phillipson, Ajit K. Mohanty, and Minati Panda (2009) *Social justice through multilingual education*. Toronto: Multilingual Matters.
- Sonntag, Selma K. and Linda Cardinal (2015) "State traditions and language regimes: conceptualizing language policy choices", in Cardinal, Linda and Selma K. Sonntag (eds.) *State Traditions and Language Regimes*, pp. 3-28. Montreal: McGill-Queen's University Press.
- United Nations Special Rapporteur on minority issues (2017) *Language rights of linguistic minorities. Practical guide for implementation*. Geneva: Office of the High Commissioner for Human Rights, United Nations.
- Vaillancourt, François and Olivier Coche (2009) *Official language policies at the federal level in Canada: Costs and benefits in 2006*, Studies in Language Policy. Vancouver: Institut Fraser.
- Van Parijs, Philippe (2002) "Linguistic justice", *Politics, Philosophy & Economics*, 1 (1), pp. 59-74.
- Van Parijs, Philippe (2011) *Linguistic justice for Europe and for the World*. Oxford: Oxford University Press.
- Vecchiato, Sara, Sonia Gerolimich, and Nickolas Komninou (eds.) (2015) *Plurilingualism in healthcare*. London: BICA Publishing.
- Weinstock, Daniel M and Yael Peled (eds.) (2020) *Language ethics*. Montreal: McGill-Queen's University Press.
- Wickström, Bengt-Arne (2007) "Fairness, rights, and language rights: On the fair treatment of linguistic minorities", in Baake, Pio and Rainald Borck (eds.) *Public economics and public choice. Contributions in honor of Charles B. Blankart*, pp. 81-102. Berlin: Springer.
- Wickström, Bengt-Arne (2020) "On the political economy of minority rights. Three ways to manipulate a minority: goals, rules, and border poles", *European Journal of Political Economy*, 64 (101894).
- Wickström, Bengt-Arne and Michele Gazzola (2020) *Official recognition of minority languages and linguistic justice: An indicator based on welfare-economics*, Working Paper of the Research Group "Economics and Language" - N. 20-5. Belfast: Ulster University.

Table 1. Indicators of linguistic justice

Dimension	Level-Domain	Indicator	Characteristics of the relevant good	Type of data to be collected
<i>Toleration</i>	Systemic: Private life	1. Absence of legislation or measures restricting the use of any language in the private life of residents in the jurisdiction examined	Pure public good, non-spatial	Norms in force
	Systemic: Business life	2. Absence of legislation or measures forbidding the written public use of any language by businesses provided that a translation in the local dominant language is available	Pure public good, non-spatial	Norms in force
<i>Accommodation</i>	Operational: Law and order	3. Existence of the right to of assistance in one's first language during trials in criminal procedures	Pure public good, non-spatial	Official documents
	Operational: Essential public services	4. Proportion of centres for asylum seekers in the jurisdiction examined employing staff or linguistic mediators fluent in at least one non-official language relevant for the asylum seekers (corrected for the total number of asylum seekers and the total population of the country)	Excludable, partially rival, spatial	Official figures (if available) or sample data
<i>Compensation</i>	Systemic: Recognition	5. Aggregate indicator of recognition of languages traditional minorities. Potential implementation of explicit legal or administrative rights such as to receive official information and to address and receive answers from authorities in one's first language	Partially rival, non-spatial	Official documents, census data
		6. Aggregate indicator of recognition of languages of "new" minorities. Potential implementation of explicit legal or administrative rights such as to receive official information and to address and receive answers from authorities in one's first language	Partially rival, non-spatial	Official documents, census data
	Operational: Law and order	7. Proportion of legally binding documents such as laws and regulations published online per year in the languages spoken in the jurisdiction examined (weighted across individuals and the indicator of recognition of the individual languages)	Pure public good, non-spatial	Official documents, sample data, census data
	Operational: Administration	8. Proportion administrative forms of the tax office and the population registry released/published online per year in the languages spoken of the jurisdiction examined (weighted across individuals and the indicator of recognition of the individual languages)	Pure public good, non-spatial	Official documents, sample data, census data
		9. Proportion of road signs available in the languages of the jurisdiction examined (weighted across citizens, the indicator of recognition of the individual languages, and administrative sub-units)	Pure public good, spatial	Official figures (if available) or sample data
	Operational: Essential public services	10. Proportion of public hospitals and clinics in which consultations are available in the languages of the jurisdiction examined (weighted across citizens, the indicator of recognition of the individual languages, and administrative sub-units)	Excludable, partially rival, spatial	Official figures (if available) or sample data