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# The economics of language policy and planning

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# The economics of language policy and planning<sup>\*</sup>

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## Abstract

From the perspective of welfare economics, public policies can be seen as a government response to so-called “market failures” and as a means of mitigating inequities produced by the mechanisms of spontaneous interaction. This chapter clarifies the fundamental principles of welfare economics and public policy analysis in an accessible fashion and discusses how these fundamental principles can be applied to language policy and planning in the framework of public policy. The chapter clarifies concepts such as efficiency and market failure, as well as equity and distribution, and relates them to the fundamental and different properties associated with the provision of various types of goods – degrees of rivalry, of exclusion, and of shielding. Common notions such as “public, or collective, goods” and “externalities” are clarified in light of these properties. Many of these properties lead to undesirable results in an unregulated world. This failure of spontaneous interactions to bring efficient and equitable results usually justifies the intervention of the state in language-policy issues. For example, many language-related goods display perfect non-rivalry (e.g. bilingual road signs), which would lead to an under-provision without collective action, and language use creates so-called “network externalities” that are central in explaining language death and language spread, giving reasons for public interventions both in support of a minority language and of an international lingua franca. Equity concerns help us understanding why education in minority languages is generally supported by the state.

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## 1. Introduction

This chapter presents and discusses the justifications for government intervention in language matters using the tools of policy analysis and public economics. We define the goal of the planner to be the achievement of as a high level of welfare as possible. We define welfare more specifically to consist of two ingredients – efficiency and equity. In this perspective, important central responsibilities of a government can be summarised as follows. First, providing the necessary economic infrastructure to society, which means protecting property rights, enforcing contracts, maintenance of law and order, preserving competitive markets through antitrust laws and authority. Second, supplementing the market in case of “market failures” by internalizing externalities, among other things providing collective goods and services. Third reducing or mitigating inequalities by promoting a minimum access of individuals to goods and services in the economy. Each of these three functions is relevant for language policy: language policy and planning (LPP) is unavoidable because at least one language is necessary to write laws and government websites and for the administration of justice; LPP can contribute to economic efficiency because many language-related goods have properties leading to market failures; and finally, language policy can be inspired by equity concerns, e.g. providing health care services and education in a minority language.

A very central issue in economics is to compare different forms of social organisation of production, consumption and exchange in order to clarify which one leads to the best outcome in terms of allocation of resources and distribution of well-being, and under which conditions this can happen. Efficiency refers to the best allocation or use of goods (where “best” means avoiding waste) – a term which includes physical commodities, services, “nontangible” matters, like rights or duties, etc – in different activities, for instance as consumption by an individual or as inputs in the production process of a firm. Distribution – in the language of the economist – identifies who gets to consume the goods; that is, how the goods are apportioned between different groups of individuals. Two fundamental dimensions of economic analysis, therefore, are efficiency, and equity. We discuss them in detail in the next sections

## 2. Key issues, concepts, and definitions: Efficiency and Equity

### 2.1 Efficiency

The main criterion used to compare the efficiency of different states of the economy or different policies is based on Pareto efficiency. This criterion is named after Wilfried (Vilfredo) Pareto (1848-1923), who argued that “the only objective basis under which one can say society is better off is when some people are made better off and no one is made worse off” (Just *et al.* 2004: 6). A Pareto improvement, therefore, is defined as a change in the allocation of resources such that at least an individual is better off, and no one is worse off. It is, hence, an application of unanimous decision-making. If a Pareto improvement is possible, then there is room for an efficiency gain. A simple example will clarify the issue. Alice and Bill consume two goods—apples and olives. Assume that Alice and Bill receive the same quantity of apples and olives, say, half of the total supply each. There is no reason why they should be fully satisfied with this endowment unless they have identical tastes and preferences. Hence, they might find it advantageous to trade some of their endowments to increase their satisfaction, or “utility” in economic jargon. Alice and Bill trade, and at the end Alice has two thirds of the supply of olives and one third of the total amount of apples, while Bill owns the rest. Alice feels that this second allocation of goods is better than the initial one, while Bill is as satisfied as before. Was the initial allocation efficient? An economist would answer negatively, since Alice increased her utility simply by exchanging part of her initial endowments, without decreasing Bill’s utility. The exchange, therefore, brought about a Pareto improvement, and therefore an efficiency

gain.<sup>1</sup> To make the criterion operational, a weaker version, potential Pareto efficiency has been introduced. It has its origin in the Kaldor-Hicks compensation tests, after Nicholas Kaldor (1908-1986) and John Hicks (1904-1989). The Hicks test states that an allocation  $A$  should be preferred to  $B$  if those who are better off in  $A$  could (but would not *necessarily*) fully compensate those who are worse off in  $B$ , and that in the aggregate at least one person is better off. The Kaldor criterion is the reverse: if we were in  $B$ , would the Hicks test bring us back to  $A$ ? The two tests point in the same direction from two different perspectives. The compensation principles based on the Kaldor-Hicks tests are preferred in applied economics, e.g. in cost-benefit analysis and in project evaluation, because in different circumstances compensations are not practically feasible.<sup>2</sup>

The notion of Pareto efficiency is virtually unknown in LPP research (see Gazzola 2014 for a discussion), where the notion of economic efficiency is often mistakenly associated with ‘technicist decisions in the absence of emotion or sentiment’. This view is deeply misleading. Efficiency, as shown in the simple example of Alice and Bill, is a concept that makes sense only in the light of actors’ subjective preferences and tastes (which of course are not independent of the environment). However, there is no guarantee that the outcome is “just” in any sense of the word, because choices are made on the basis of an initial distribution of resources. Giving all the apples and olives to Bill as an initial allocation of endowments is Pareto efficient because no Pareto improvement is possible, as is giving all the apples and olives to Alice.

Deciding to invest resources to support linguistic diversity (e.g. maintaining a fully bilingual civil service or translation and interpreting services) can be as rational and efficient as working in one language only. Choices depend on the subjective perceptions and preferences of individuals regarding the value of languages and multilingualism, embedded in a certain environment, compared to the costs of the given policy. Ultimately their willingness-to-pay for private and public investments in language learning and use are balanced by the value of other investments foregone (see section 3 below).

## 2.2 Rationale for language policy: Market failures

Economists have explored if and under which conditions the free market, in which supply and demand meet without interferences by the government, can lead the economy towards a Pareto-efficient allocation of resources. The answer is: “it depends”. Under certain assumptions the market will tend toward a competitive equilibrium and this equilibrium is Pareto efficient.<sup>3</sup> In many cases, however, these assumptions are violated, and the market fails to lead to an efficient allocation of resources. In this case public policy is needed to guide, correct, or supplement the market. In economics, these cases are named “market failures”, and they are considered as one of the most important reasons to justify the intervention of the government in the economy and society through public policy, including in linguistic matters. In this

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<sup>1</sup> The example of Bill and Alice refers to efficiency in consumption. Efficiency in production is reached when it is not possible to produce more of a given commodity unless we reduce the production of other commodities.

<sup>2</sup> The problem, however, is that if no compensation is paid out, the criteria are not necessarily mutually consistent because of the change in implicit income of the individuals; the losers feel poorer and the winners feel richer. It is very easy to find examples where the Hicks criterion tells us that  $B$  is the better choice and the Kaldor criterion selects  $A$  as the recommended allocation. This is the so called reversal or Scitovsky paradox, named after Tibor Scitovsky (de Scitovszky) (1910-2002). To get an unambiguous result, both criteria have to be applied and give the same result (Just *et al.* 2004: 35).

<sup>3</sup> See Myles (1995: 18-59) for a discussion.

section, we focus on two types of market failures, namely network externalities and public goods.<sup>4</sup>

An externality is present “whenever some economic agent’s welfare (utility or profit) includes real variables whose values are chosen by others without particular attention to the effect upon the welfare of other agents they affect” (Myles 1995: 313). Pollution is a standard example of externality. Chemical industries pollute air and this harm bees nearby. This may have a negative effect on the quality and the quantity of honey produced in beehives, without compensation paid by polluting industries. Externalities are also called “external effects” because they refer to the effects of an individual’s choice on the welfare of another individual that are not transmitted via prices (in this sense they are “external”). Language learning is an example. When a person decides to invest time and resources to learn a new language, speakers of that language gain an additional potential communication partner without bearing any related cost (economists talk about a positive “network externality”). If sharing a common language is a good, then sharing costs of language acquisition and subsidising learning will result in an efficiency gain because more people will learn the common language (the economist use the term “to internalise an externality”).<sup>5</sup> Language shift (Fishman 1991) is an example of process resulting from cumulative negative externalities. When people speaking a threatened language do not pass the language to their children, they cause a negative externality to those who still speak it and wish to preserve it. The number of potential communication partners decreases, and this further reduces the communication value of the language for those who already speak it without compensating them for this loss. A coordinated language policy making the learning of the threatened minority compulsory in schools is a possible collective measure to reduce, at least partially, the impact of this externality (see Wickström *et al.* 2018b).

Public goods are a second form of market failure due to externalities. A useful classification of goods is one according to three dimensions of an individual’s consumption: degree of rivalry, of exclusion, and of shielding. Let us stress again that the concept “goods” (as well as “bads”) is a very broad one that includes both tangible and nontangible goods. *Rivalry* describes to what extent joint consumption is possible. The consumption of a radio transmission in a minority language, for example, is non-rival because it can be enjoyed by everyone within reach of the radio station (which in the Internet age is everyone in the whole world with internet connection). The fact that someone listens to the transmission does not prevent anyone else from listening. *Exclusion* is concerned with whether it is technically feasible or not too expensive to exclude an individual from the enjoyment of a good once it has been provided. Once a street is lit it is not possible to exclude a specific passer-by from enjoying it. If official documents are published in the Internet in a language, it is virtually impossible to prevent anyone from reading these documents unless we use a password or a code to have access to them. *Shielding* is in a sense the opposite of exclusion – can you prevent yourself from being exposed to a certain good/bad. It is easy to avoid being exposed to books in a certain language, it is less easy to be shielded from public announcements in a train or an airplane made in that language on loudspeakers.

Traditionally one talks about private (or individual) goods *versus* public (or collective) goods. An individual good is then a good that is rival in consumption, permits exclusion, and exhibits shielding. The consumption of any normal commodity, like a glass of wine, is of this type. Privately learning a language for a holiday trip to an area where the language is spoken is a

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<sup>4</sup> For an accessible discussion of market failures see Weimer and Vining (2017) or any textbook in public economics (e.g. Hindriks and Myles 2013).

<sup>5</sup> For a discussion of externalities in language learning, see among others, Selten and Pool (1991), Church & King (1993), G uth *et al.* (1997); and Caminal (2016). Note that many contributions in this area belong also to the group of papers dealing with language dynamics (see Templin and Wickstrom’s chapter in this volume).

language-related good that comes close to an individual good. A pure public good, such as national defence or public lighting, on the other hand, exhibits non-rivalry, non-exclusion, and non-shielding. Street signs, law texts, or public decrees in a minority language are other good examples. “Impure” public goods are somewhere between pure collective and pure private goods. The degree of rivalry, for example, is not necessarily a property of the good *per se*. It is often context dependent. The enjoyment of a theatre performance in a certain language is basically non-rival good if the theatre is half full, but rival good if the performance is sold out (this problem is known as “congestion”).

The amount of a good that will be provided spontaneously in a society depends to a large extent on its type. Economic analysis shows that individual goods will be provided in a Pareto efficient manner in a well-functioning market. In such cases, there is no efficiency-motivated reason to provide the good through a public policy measure. At the other extreme, we have the pure collective good. If the authors of this chapter decide to provide a public good – some street signs in a certain language, say – our action will benefit everyone who enjoys reading the signs. That is, our action creates benefits for many other people without them having to contribute to the provision. We create a positive externality. Since the other individuals receive benefits without actively contributing, they are likely to contribute too little to the provision (this is known as the “free-riding problem”). In the end, the production costs to expand the number of bilingual street signs will not be adequately covered, unless people are very altruistic, too little of the good will be provided, which is clearly inefficient. For this reason, public goods tend to be provided by the government and funded by general taxation. Note that provision does not imply direct production, the government may pay private companies to provide the good at a given price.

### 2.3 Rationale for language policy: Equity

Economists have studied whether the free market can lead to an allocation of resources and private goods that is at the same time Pareto efficient, and socially equitable according to the preferences of the decision-maker (which in turn are the result of an aggregation of individuals’ preferences).<sup>6</sup> Without entering into detail, the short answer is “yes” in theory but “no” in practice. Decision makers, therefore, face trade-offs. As Myles notes “it is often the case that the efficient policy is highly inequitable whilst the equitable policy would introduce into the economy significant distortions and disincentives. Given this fact, the design of optimal policy can be seen as the process of reaching the correct trade-off between equity and efficiency objectives” (1995: 7). Economists have studied the properties of different forms of divisions of resources, but there is no generally accepted theory of justice or universal moral principle behind economic and policy analysis (Moulin 2003). Such an analysis, therefore, boils down to carrying out an examination of the distributive effects of public choices and market processes between groups of individuals in order to allow the decision makers to make informed choices (Just *et al.* 2004: 11).

One of the most important forms of redistribution of resources in society, apart from direct income transfers, is the provision of public services funded partially or totally through general taxation. Public hospitals, the courts, the internal revenue service, and public schools are good examples. Education and health care are rival or partially rival goods in the sense already clarified, and in principle their provision could be left to the market. However, in most liberal democracies they are provided by the government as a matter of social justice. Illness is not a choice, and private insurance tend to prefer to insure healthy people, thereby not adequately covering precisely those who need more care. Children cannot make informed choices about

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<sup>6</sup> See Mueller (2003) for a discussion of different rules to aggregate individuals’ preferences.

their education. Such decisions are made by parents who do not necessarily have the means to pay for good education.

Language policy too can respond to an equity concern. Education in the minority language is an example. If there are setup – or fixed – costs, the per-unit (or average) costs of providing a good is decreasing because fixed costs are spread over more people. Big production units can produce at lower average costs and consequently bring goods to the market at a lower price. This applies to the education system where, for instance, the production of textbooks displays high fixed costs. A school system in a minority language, therefore, would have higher costs per pupil than a school system in the majority language. In a free-market situation this would lead minority parents to send their children to the majority schools at a higher rate than if the costs were comparable if families must carry the costs of education. Of course, this entails a disadvantage for a member of the minority by comparison with a member of the majority. There are basically two types of remedies for the situation above. The members of the minority could be compensated in monetary terms for their disadvantage or the public sector can directly provide education of equal quality in the minority language.

### 3. Development and Literature Review

Policy makers must set priorities and make decisions. Therefore, language policy as any other public policy is the outcome of *choices* in which the decision makers have to compare and weigh the advantages and disadvantages of alternative options (or the “benefits” and “costs”), and assess the trade-off between efficiency and equity. For reasons of space it is not possible to provide a detailed overview of the contributions in the economics of language policy (see Gazzola 2014; Gazzola, Grin, Wickström 2016). We focus here only on four significant developments, that is, the examination of the components of the value of language, the study of the trade-off between efficiency and equity, the identification of the benefits and the costs of language policy, and the characterisation of equity in LPP.

The concept of “benefit” of a language policy is closely related to the concept of “value” of languages. Drawing from insights provided by environmental economics theory (Grin 1994), economists have discussed the notion of value of languages (Grin and Vaillancourt 1997, Gorter *et al.* 2007: 21-40, Wickström *et al.* 2018a). They show that the value of a language in economic terms is not restricted to the market value of language skills (well presented in Chapter 9 of this Handbook), but includes *anything* people are willing to pay for material and symbolic reasons (e.g. learning a language to have access to literature, or paying education services to transmit a threatened language to the new generation). The concept of “propensity to pay” or “willingness to pay” is defined as the amount of resources that individuals are willing to give up for something that they consider valuable (that is, a “benefit”) for whatever reason it be.<sup>7</sup>

A second development in the literature has been the development of formal models of social welfare optimisation based on the comparison between the benefits and costs of alternative language policies. Wickström (2013, 2016) builds up a model that combines three variables, namely, individuals’ propensity to pay, the costs of different allocations of language rights, and the preferences of the social planner. He shows that for any allocation of language rights, the key efficiency decision depends on a critical mass of beneficiaries. If the number of beneficiaries is above a certain level, the benefits exceeds the costs and language policy should be realised. It is shown under which conditions the optimal choice changes. This contribution sheds new light on the relationship between the demographic characteristics of the speakers’

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<sup>7</sup> The concept is closely related the compensation tests discussed in Section 2.1 and suffers from the same possible inconsistencies manifested as a path dependency. I.e., the propensity to pay for a set of policy measures might be different dependent on the order in which they are implemented.



community and the efficient level of linguistic rights, and it paves the way for a more fine-grained analysis of the costs of a language policy (see next section).

A third important development is the characterisation and the calculation of the benefits of language policies. Two approaches exist in that respect. The first approach is based on cost-benefit analysis. The benefits of bi- or multilingual government services have been characterised as the absence or reduction of costs to have access to such services in a language that people do not speak or not speak well enough (see Pool 1991; Vaillancourt and Coche 2009; Vaillancourt 2018; Gazzola and Volpe 2014; Gazzola 2017). These costs are called “adoption costs”, “adjustment costs” or “implicit costs” of a language policy. For example, if documents of an officially bilingual country such as Canada were available in English only, speakers of French (both monolingual ones and those with limited proficiency in English as a second language) would have to bear different forms of costs to adapt to official monolingualism (See Vaillancourt’s chapter in this volume). The second approach relies on cost-effectiveness analysis. Here, we focus only on one single benefit (or “effect” or “outcome”) expressed in a non-monetary indicator (see Gazzola and Iannaccaro’s chapter in this volume). Grin and Vaillancourt (1999) employ “units of time of language use” to measure the effectiveness of LPP measures aimed at supporting threatened minority languages in different European countries. Other authors use “effective communication” as the main benefit of a language policy, where effective communication can be interpreted as simple information transfer between the government and individuals, a process that makes cooperation possible, or the result of an activity aimed at persuading and influencing others (see Gazzola 2014: 73-81). Empirical analyses tend to adopt the first interpretation (i.e. effective communication as information transfer), and to quantify it in terms of “linguistic disenfranchisement rates” or “rates of linguistic exclusion” (see Ginsburgh and Weber 2005; Gazzola 2016), that is, the percentage of the population that have no access to official documents because they do not understand the language in which such documents are published.

There is a fundamental difference between cost-benefit and cost-effectiveness analysis. In the former one attempts, at least in principle, to anchor the benefit side in individual preferences inspired by the Pareto criterion. Cost-effectiveness analysis, on the other hand, selects the goals *ad hoc* and searches the lowest possible implementation costs for a certain degree of goal achievement; one could say that the analysis aims for cost-efficiency, but not allocative consumption efficiency. Cost-benefit analysis tries to respect the preferences (or “demand”) of the individuals, cost-effectiveness analysis is based on objectives defined by the policy maker, who is assumed, at least in a democratic setting, to make decisions reflecting a concern for the common good (see section 4 below).

The fourth development concerns the study of the distributive effects of language policies. It includes contributions exploring formal rules to define a fair distribution of the costs of learning a common language (Pool 1991; De Briey and Van Parijs 2002; Liu 2015), and empirical analyses of the distributive effects of linguistic hegemony (Grin 2005; Van Parijs 2011).

#### 4. Theory and methods: Identifying the Costs of Language Policy

From a policy analysis perspective status and acquisition planning in practice consists mostly in the public provision of language-related goods and services. Status planning consists of allocating societal functions to one or more languages (see Chapter 2 of this Handbook). In concrete terms, this means providing things such as official documents and road signs in a language, to promote its prestige via information campaigns, to train bilingual civil servants so that they can work with citizens in their preferred language, etc. Acquisition planning implies the provision of education of and in a language. A language policy, therefore, includes different language planning measures, and each of these measures can be viewed as a good or



service that can be more or less rival, excludable and shielding. A classification of different language-related goods is provided by Wickström, Templin and Gazzola (2018a). Four groups of goods are defined, namely pure individual, adjacently individual, adjacently collective, and pure collective goods.

This distinction is not an end in itself, however. Different types of language-related goods are associated with different types of production costs. For example, the cost of providing official documents in two languages via the Internet does not depend on the number of potential beneficiaries. Once a document is published it can be read by an unlimited number of people. The costs of providing bilingual health care, on the contrary clearly depends on the number of beneficiaries. To accurately estimate the costs of a language policy, therefore, we must study the properties of the goods and services provided by the government that give substance to the policy. Since different LPP measures can entail different types of costs, the calculation of cost-benefit ratios of different alternatives depends on the type of measure adopted.

It is useful to see how the costs of a language policy measure change according to two dimensions, that is, whether the implementation costs depend on the number of beneficiaries or not, and whether they depend on the size of the territory (Wickström 2017, 2020). See Table 1

**Table 1: A classification of the cost structures of LPP measures**

<b>The costs of the implementation of a LPP measure...</b>	<i>... do not depend on the size of the territory</i>	<i>... increase with the size of the territory</i>
<i>... do not depend on the number of beneficiaries</i>	1. Non-spatial and non-rival goods	2. Spatial and non-rival goods
<i>... increase with the number of beneficiaries</i>	4. Non-spatial and rival goods	3. Spatial and rival goods

Four different polar cost structures can be identified, that is:

1. Non-spatial and non-rival goods. These are public goods with constant costs, that is, positive fixed costs and zero variable costs. An example is the provision of a bilingual website or the use of more languages on banknotes.
2. Spatial and non-rival goods. These are local public goods with positive fixed costs and zero variable costs in a given region, but these costs vary as the jurisdiction size changes. Bilingual road signs are an example. The cost does not depend on the number of people living in an area, but only on the size of the area.
3. Spatial and rival goods. These are private goods or impure public goods with positive variable costs and often fixed set up costs. Bilingual essential public services such as schools and hospitals are an example. The number of pupils/patients and the size of the territory affect the total cost of the language policy.
4. Non-spatial and rival goods. These are also private goods or impure public goods with positive variable costs and often fixed set up costs. Bilingual public call centres are an example.

Intermediate solutions and further dimensions are frequent; for example, multilingual health assistance for asylum seekers may depend on the type and the origin of migrations flows.

Two conclusions can be drawn from Table 1. In the first place, the comparison between the costs and benefits of different status and acquisition planning measures depends on the type of measure considered. While the benefits are largely proportional to the number of beneficiaries, the implementation costs can also vary according to the size of the territory. If the fixed costs are high and the good rival and spatial, then the benefits exceed the costs only if a certain critical mass of users is reached. If the size of the territory varies, then there must

be a certain density of speakers of a language to justify the language planning intervention. Hence, housing density of the minority population in a jurisdiction and its numerical size are two key parameters in guiding efficient choices in LPP (see next section for an example). On the contrary, the percentage rule currently used in different countries to allocate (or not) minority rights is inadequate because it leads to different efficiency results in urban and rural communities; in addition, it can easily be manipulated by policy makers with astute gerrymandering (Wickström 2020). The second conclusion is that the study of the cost structure of LPP measures is a good starting point to collect and organise policy interventions into categories. It is not efficient to have one rule covering all policy measures (such as having a language official or not), nor is a different formal policy rule for each conceivable type of policy measure possible. In an effective and efficient language policy, measures have to be collected into categories, reflecting the cost structure. See also Wickström (2021).

In a cost-benefit analysis, the policy maker is concerned with the well-being of the beneficiaries of the policy. To find an optimal set of language planning measures, he wants to measure the propensity to pay of each beneficiary for the implementation of any measure and add them up in order to find the total gross benefit of the measure in question. These gross benefits are then compared to the costs of implementing the measure, and the measure is found to increase efficiency if the benefits exceed the costs. This condition satisfies the Kaldor-Hicks compensation tests since potentially it is possible for winners to compensate losers. For example, if the members of a community are willing to pay a tax to fund bilingual road signs because this increases the status of a language, and the aggregate propensity to pay exceeds the cost of this status planning measure, then it is efficient to implement the language policy, all other things being equal.

There are reasons, however, that make this analysis difficult both for theoretical and for practical reasons (Wickström 2016). On the theoretical side, the effects on the well-being of various beneficiaries of many measures are often strongly correlated. Our propensity to pay for a certain language-related good such as a bilingual civil service may be different, depending on whether this is the only status-planning measure proposed by decision-makers, or whether it is part of a bundle of measures. The order of implementation of different measures matters in the evaluation of the policy. Second, an individual's propensity to pay for a public good can be different before and after the policy has been implemented, since the policy alters the individual implicit income. Recall that the implicit income includes all the intangible goods that have a value for the individual. If more language-related goods are provided, the individual perceives himself as having more wealth, and this can alter his propensity to pay for additional goods. Finally, LPP can alter an individual's preferences. The provision of more linguistic rights might alter the prestige of a language; this in turn can change the perception of its value by the speakers and therefore their propensity to pay for language-related goods (see Templin and Wickström's chapter in this volume). All this can lead to path dependencies or Scitovsky paradoxes.<sup>8</sup>

On the empirical side, the propensities to pay must be elicited from the affected individuals. This is often associated with several incentive problems, including the already mentioned "free-rider problem". Given these problems, the practical solution is often that the policy maker sets the values of the benefits based on various political processes. This has the added advantage that by weighing different individuals in the specification of the benefits, distributional issues can be taken into account. In applied research, therefore, benefits of LPP measures are computed in the ways presented in the Section 3. One is the absence or reduction of adjustment costs. A second one is to assess efficiency with cost-effectiveness analysis in lieu of cost-benefit analysis. We focus on one specific benefit of the language policy measured

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<sup>8</sup> See Scitovszky (1941) and previous footnotes above. For a more detailed discussion of the theoretical difficulties in the evaluation of the benefits of LPP see Wickström *et al.* (2018a: 32-38).

through an outcome indicator, and we study which policy minimises costs for a unit of outcome. The aggregate individuals' propensity to pay is then replaced by the decision maker's politically determined propensity to provide different language-related goods.

## 5. Selected Application: A Critique of the Percentage Rule

The study of the cost structure of language-related goods is useful to provide an assessment of alternative decision rules in LPP as this simple example taken from Wickström (2020) shows. Let  $c$  be the implementation costs of a language policy measure potentially benefitting  $n$  individuals (for example the number of speakers of a minority language). The area of the jurisdiction of implementation is  $a$ . The goods resulting from the planning measure should be available to each beneficiary in the same way. The cost of provision is a function of  $n$  and  $a$ :  $c=f(n, a)$ . We define the geographical density of the beneficiaries as  $\delta=n/a$  and write  $c=f(n, n/\delta)$ . The policy maker sets  $b$ , the estimated average propensity to pay of the beneficiaries, equal to a constant. The budget for the provision of the policy measure is then at the most  $B=bn$ . If  $B > c$ , then the language planning measure is sensible in the eyes of the policy maker.

Non-rival and non-spatial goods give rise only to fixed costs, and therefore  $c$  is a constant. The decision rule would hinge on a critical value  $n^*$ , such that  $bn^* > c$ . For example, let us assume that the total costs to set up and run the bilingual website of a public authority is equal to €100,000. This good is perfectly non-rival and non-spatial. Let minority  $y$  be made up of 1,000 people with  $b_y = \epsilon 100$  and minority  $x$  have 10,000 speakers and  $b_x = \epsilon 100$ . The critical value  $n^*$  is 1000 individuals. Implementing the measure is efficient in both cases. If  $b = \epsilon 50$ , the critical value  $n^*=2000$  individuals, and it is efficient in the case of the  $x$  minority but not for the  $y$  minority.

Let us move to the case of a rival and spatial good. The definition of a rule is more difficult, but a good approximation would be a combination of two critical values,  $n^*$  and  $\delta^*$ , that both have to be met in order for the measure to be implemented. The percentage rule used in many countries, on the contrary, is not satisfactory. A simple example will illustrate this. Suppose the percentage of the minority population is given by  $\pi=n/N$ , where  $n$  is the number of speakers of a minority language and  $N$  the total population in a jurisdiction. Transylvania is a region in Romania inhabited by a minority of native speakers of Hungarian. Romanian law prescribes that the minority must reach at least 20 percent the population in a jurisdiction to be granted minority rights (Romania 2001). Table 2 below reports the case of two jurisdictions in Transylvania, namely, Cluj-Napoca/Kolozsvár, an urban area, and Sălaj/Szilágy, a rural area neighbouring to Cluj-Napoca/Kolozsvár.

**Table 2. Comparison of two jurisdictions in Transylvania, Romania,**

Jurisdiction	Size ( $a$ )	Number of inhabitants ( $N$ )	Number of Hungarian speakers ( $n$ )	Percentage of Hungarian speakers ( $\pi$ )	Density of Hungarian speakers ( $\delta$ )
Cluj-Napoca/ Kolozsvár	6,674	691,106	102,966	14.9	15.43
Sălaj/Szilágy	3,864	224,384	50,928	22.7	13.18

*Source: Wickström (2020), based on official figures. The size  $a$  is in  $km^2$  and  $\delta$  in individuals per  $km^2$ .*

The percentage rule suggests providing bilingual goods in Sălaj/Szilágy but not in Cluj-Napoca/Kolozsvár, although both  $n$  and  $\delta$  are higher in the latter than the former. This is not to say that the language policy should be implemented in Cluj-Napoca/Kolozsvár, but simply

that if the policy maker finds it efficient to implement it in Sălaj/Szilágy then *a fortiori* it is efficient to provide it in Cluj-Napoca/Kolozsvár also. The language policy measures in Sălaj/Szilágy clearly cause higher costs per beneficiary than in Cluj-Napoca/ Kolozsvár, unless the cost of the language-related good is proportional to the number of speakers. As a matter of fact, the percentage rule is only sensible if the majority population indeed wants to actively discriminate against and persecute the minority and the policy maker takes those preferences into account (see Wickström 2019).

## 6. Challenges, debates and perspectives

From this discussion two important consequences follow. The first one is that in general the intervention of the government in the provision of private language-related goods is not required for efficiency (e.g. books, films, and language holidays). The production of these goods can be left to the free market, unless there is a reason based on equity (e.g. subsidizing publications in a threatened language if fixed production costs are high) or if diversity as such is something people are willing to pay for.

The second conclusion is that the intervention of the government in language matters through LPP is not only unavoidable – since at least one language must be used for official purposes – but in certain circumstances it is also desirable for efficiency and equity reasons. In other words, there is no economic justification for a general *laissez-faire* stance in linguistic matters. The property of the good (i.e., whether it is rival, excludable and shielding) determines the need for public action, and therefore for language policy.

An important challenge in LPP is the estimation of individuals' willingness to pay for language policy when market prices are not available. Although some economists are sceptical about the usefulness of the concept of willingness to pay and on the techniques to elicit it such as contingent evaluation, there are few existing alternatives to it in the estimation of the value of non-market goods. Studies in environmental economics (Bateman *et al.* 2002) are a good point of departure (Grin 1994).

## 7. Further reading

Gazzola, Michele and Bengt-Arne Wickström (eds.) (2016). This book contains, among other things, one of the most comprehensive bibliographies in language economics.

Ginsburgh, Victor and Shlomo Weber (eds.) (2016). A rich collection of contributions in language economics.

Grin, François (2003). An accessible introduction to the economic approach to LPP.

Vigouroux, Cécile and Salikoko S. Mufwene (eds.) (2020) This book contains different chapters by economists and linguists on the relationship between languages and economics.

Wickström, Bengt-Arne, Torsten Templin, and Michele Gazzola (2018a). This chapter provides an extensive and up-to-date discussion of the concepts of efficiency and equity in LPP.

## 8. References

- Bateman, Ian, Richard T. Carson, and Brett Day (2002) *Economic valuation with stated preference techniques*. Cheltenham: Edward Elgar.
- Caminal, Ramon (2016) "Economic value of reciprocal bilingualism", in Gazzola, Michele and Bengt-Arne Wickström (eds.) *The Economics of Language Policy*, pp. 165-202. Cambridge (MA): MIT Press.
- Church, Jeffrey and Ian King (1993) "Bilingualism and network externalities", *Canadian Journal of Economics*, 27 (2), pp. 335-345.

- De Briey, Laurent and Philippe Van Parijs (2002) "La justice linguistique comme justice coopérative", *Revue de philosophie économique*, 5, pp. 5-37.
- Fishman, Joshua A. (1991) *Reversing language shift*. Clevedon: Multilingual Matters.
- Gazzola, Michele (2014) *The evaluation of language regimes. Theory and application to multilingual patent organisations*. Amsterdam: John Benjamins.
- Gazzola, Michele (2016) "Multilingual communication for whom? Language policy and fairness in the European Union", *European Union Politics*, 17 (4), pp. 546-569.
- Gazzola, Michele (2017) "Multilingualism and the international patent system: An assessment of the fairness of the language policy of WIPO", *Journal of Industry, Competition and Trade*, 17 (3), pp. 349-369.
- Gazzola, Michele, François Grin, and Bengt-Arne Wickström (2016) "A concise bibliography of language economics", in Gazzola, Michele and Bengt-Arne Wickström (eds.) *The Economics of Language Policy*, pp. 53-92. Cambridge (MA): MIT Press.
- Gazzola, Michele and Alessia Volpe (2014) "Linguistic justice in IP policies: Evaluating the language regime of the European Patent Office", *European Journal of Law and Economics*, 38, pp. 47-70.
- Gazzola, Michele and Bengt-Arne Wickström (eds.) (2016) *The Economics of Language Policy*. Cambridge (MA): MIT Press.
- Ginsburgh, Victor and Shlomo Weber (2005) "Language disenfranchisement in the European Union", *Journal of Common Market Studies*, 43 (2), pp. 273-286.
- Ginsburgh, Victor and Shlomo Weber (eds.) (2016) *The Palgrave Handbook of Economics and Language*. Basingstoke, UK: Palgrave-Mac Millan.
- Gorter, Durk, Jasone Cenoz, Paulo Nunes, Patrizia Riganti, Laura Onofri, Barbara Puzzo, and Rajesh Sachdeva (2007) "Benefits of linguistic diversity and multilingualism" *Position paper of Research Task 1.2 - Project "Sustainable Development in a Diverse World (SUS.DIV)"*. Milan: Fondazione Eni Enrico Mattei (FEEM).
- Grin, François (1994) "L'identification des bénéficiaires de l'aménagement linguistique: la langue comme actif naturel", in Philipponneau, Catherine (ed.) *Sociolinguistic Studies and Language Planning - XVI Colloque annuel de l'association de linguistique des provinces atlantiques*, pp. 67-101. Université de Moncton.
- Grin, François (2003) "Language planning and economics", *Current Issues in Language Planning*, 4 (1), pp. 1-66.
- Grin, François (2005) *L'enseignement des langues étrangères comme politique publique*, 19. Paris: Rapport au Haut Conseil de l'évaluation de l'école.
- Grin, François and François Vaillancourt (1997) "The economics of multilingualism: Overview and analytical framework", *Annual Review of Applied Linguistics*, 17, pp. 43-65.
- Grin, François and François Vaillancourt (1999) *The cost-effectiveness evaluation of minority language policies: Case studies on Wales, Ireland and the Basque Country*, ECMI Monograph n. 2. Flensburg: European Centre for Minority Issues.
- Güth, Werner, Martin Strobel, and Bengt-Arne Wickström (1997) "Equilibrium selection in linguistic games - kial ni (Ne) parolas Esperanton?", in Albers, Wulf, Werner Güth, Peter Hammerstein, and Benny Moldovanu (eds.) *Understanding strategic interaction - Essays in honor of Reinhard Selten*, pp. 257-269. Heidelberg - New York - Tokyo: Springer-Verlag.
- Hindriks, Jean and Gareth D. Myles (2013) *Intermediate public economics (2nd ed.)*. Cambridge (MA): MIT Press.
- Just, Richard E., Darrell L. Hueth, and Andrew Schmitz (2004) *The welfare economics of public policy: A practical approach to project and policy evaluation*. Cheltenham: Edward Elgar.
- Liu, Amy H. (2015) *Standardizing Diversity: The Political Economy of Language Regimes*. Philadelphia: University of Pennsylvania Press.
- Moulin, Hervé (2003) *Fair division and collective welfare*. Cambridge (MA): The MIT Press.
- Mueller, Dennis C. (2003) *Public choice III*. Cambridge-New York: Cambridge University Press.
- Myles, Gareth D. (1995) *Public economics*. Cambridge-New York: Cambridge University Press.
- Pool, Jonathan (1991) "The official language problem", *American Political Science Review*, 25 (2), pp. 485 - 514.
- Romania (2001) *Legea administrației publice locale Nr. 215/2001. Monitorul Oficial nr. 204/23*. . Bucarest: Romanian government.

- Scitovszky, Tibor de (1941) "A note on welfare propositions in economics", *Review of Economic Studies* 9(1), pp. 77–88.
- Selten, Reinhard and Jonathan Pool (1991) "The distribution of foreign language skills as a game equilibrium", in Selten, Reinhard (ed.) *Game Equilibrium Models, vol. 4, Social and Political Interaction*, pp. 64-87. Berlin: Springer.
- Vaillancourt, François (2018) "Linguistic justice in a federal setting: The case of Canadian Provinces", in Gazzola, Michele, Torsten Templin, and Bengt-Arne Wickström (eds.) *Language Policy and Linguistic Justice: Economic, Philosophical and Sociolinguistic Approaches*, pp. 233-258. Berlin: Springer.
- 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 (2011) *Linguistic justice for Europe and for the World*. Oxford: Oxford University Press.
- Vigouroux, Cécile and Salikoko S. Mufwene (eds.) (2020) *Bridging Linguistics and Economics*. Cambridge: Cambridge University Press.
- Weimer, David L. and Aidan R. Vining (2017) *Policy Analysis: Concepts and Practice* (6th ed.). New York: Routledge.
- Wickström, Bengt-Arne (2013) "The optimal Babel: An economic framework for the analysis of dynamic language rights", in Cabrillo, F. and M. Puchades Navarro (eds.) *Constitutional economics and public institutions: Essays in honour of José Casas-Pardo*, pp. 322-344. Cheltenham: Edward Elgar.
- Wickström, Bengt-Arne (2016) "Language rights: A welfare-economics approach", in Ginsburgh, Victor and Shlomo Weber (eds.) *The Palgrave Handbook of Economics and Language*, pp. 659-688. Basingstoke: Palgrave.
- Wickström, Bengt-Arne (2017) *A cost theory of language planning and policy*, Research report no. 17-2. Berlin: REAL – Research group "Economics and language".
- Wickström, Bengt-Arne (2019) "The percentage rule for minority language rights: Inadequate or discriminatory", *Język. Komunikacja. Informacja (Language. Communication. Information)*, 14, pp. 72–84.
- 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, Torsten Templin, and Michele Gazzola (2018a) "An economics approach to language policy and linguistic justice", in Gazzola, Michele, Torsten Templin, and Bengt-Arne Wickström (eds.) *Language Policy and Linguistic Justice. Economic, Philosophical and Sociolinguistic Approaches*, pp. 3-64. Berlin: Springer.
- Wickström, Bengt-Arne, Torsten Templin, and Michele Gazzola (2018b) "Should the government slow down the decline of minority communities?", in Grin, François, Manuel Célio Conceição, Peter A. Kraus, László Marác, Žaneta Ozolina, Nike K. Pokorn, and Anthony Pym (eds.) *The MIME vademecum: Mobility and inclusion in multilingual Europe*, pp. 58–59. Geneva: MIME Project.