Bengt-Arne WICKSTRÖM[1]

Language Rights: Efficiency, Justice, Implementation

Abstract

An economic analysis of language rights takes its point of departure in individual preferences. Individuals attribute values to different allocations of language rights. One then compares the implementation costs to the aggregate value attributed to the rights by the individuals; a certain allocation of rights should then be implemented if the aggregate value exceeds the costs of realizing the allocation. The costs of implementing a certain right are as a rule both conceptually and practically well defined. Generally they will decrease per capita *when the number of beneficiaries increases. This implies that optimal rules should be expressed in terms of a "critical mass" of beneficiaries.*

The definition of value is more difficult and, hence, more interesting. As in any cost-benefit analysis, the point of departure is the individual propensities of pay for the rights allocation. The benchmark is then that rights should be realized if aggregated benefits exceed costs. The benchmark, however, has to be modified in different directions. Modifications are necessary if:

- *rights increase the status of the language and this in turn increases the individual propensities to pay (more rights should be implemented than in the benchmark case).*
- *rights increase the size of future generations using the language (more rights should be implemented than in the benchmark case).*
- *rights decrease the size of future generations using other languages (fewer rights should be implemented than in the benchmark case due to the concave cost structure).*
- *the speakers of the language are poorer than speakers of other languages and the government wants to redistribute in favor of the poor (more rights should be implemented than in the benchmark case).*
- *linguistic diversity is a good in itself and the language is small and threatened (more rights should be implemented than in the benchmark case).*

The practical legal realization of language rights depends in part on the federal structure of the state. A sensible federal structure depends on the geographical distribution of the speakers of the languages. Manipulations of the federal structure can then be used by a majority to discriminate a minority.

Keywords: language rights, linguistic justice, efficiency, status planning, federalism, linguistic discrimination

1 Introduction

Like in any other analysis that claims to be scientific, the problem of language rights has to be structured in such a manner that it can be made operative in principle. That is, we need to find

1 Part of the work on this paper has received funding from the European Community's Seventh Framework Program under grant agreement No. 613344 (Project MIME) and was carried out during visits as a guest to Humboldt-Universität zu Berlin and its Research group on economics and language, which is gratefully acknowledged.

sensible definitions of language rights that can be made the object of policy analysis. Then we need to decide on the possible goals of the language policy and find an optimal policy with respect to these objectives. Finally, the optimal policy has to be translated into real-world implementations. In this section, we will briefly specify the ingredients of the analysis with the point of departure in welfare-economics theory.[2]

1.1 Normative analysis

Initially, we note that we are interested in a normative analysis. We are looking for policy decisions leading to some goals that are determined outside of the analysis. That is, the goals themselves are not the object of analysis; they are rather the independent variables of the problem. We could say, the policy makers decide on the goals, and our task is to find out how to come as close as possible to the goals of the policy makers. This would be a trivial exercise if there were not some constraints to be considered. In an economics analysis, such constraints are first and foremost given by human behavior. Human beings react to changes in their surroundings. These changes are, for instance, caused by policy decisions. One could say, the normative (prescriptive) analysis has to be subjected to the constraints given by the positive (descriptive) analysis of the workings of society.

A central concept in an economics analysis is methodological individualism. That signifies that the point of departure consists of individual wants and behavior. The goals of the policy makers (for short: the planner) are in our analysis supposed to be derived only from individual preferences. Collective preferences do not exist in their own right, but only as some aggregates of individual preferences.

Individuals are also supposed to have entitlements to various resources including "money" as a general store of value. From the assumption that any bilateral or multilateral exchange which no individual objects to is permissible and "good" comes the concept of Pareto efficiency which is generally seen as the foundation of welfare theory. Cost-benefit analysis makes the Pareto efficiency operational.[3] In this essay we will argue in terms of cost-benefit analysis.

In order to analyze distributional aspects of language rights, we need to define concepts of justice or fairness. The basic point of departure is equality of all individuals. For our purposes, all individuals are assumed to be endowed with the same rights with respect to their chosen language. Adding Pareto efficiency to this concept implies that one has to accept voluntary changes. Hence, individuals are in principle allowed to sell or buy rights. That is, the absence of rights for one group can be justified with compensation payments to the members of that group, such that they rather have no rights and the compensation than no compensation and certain rights.[4] In the absence of full compensation payments, we can translate the rights allocation and partial compensation payments into changes in an implicit income distribution and let the planner have preferences over such income distributions. For policy purposes, the evalu-

2 For a more detailed analysis, see Wickström (2013) and Wickström (2016).

3 Due to so called "income effects" there are a number of theoretical difficulties in the transition from Pareto efficiency to cost-benefit analysis, especially the so-called Scitovsky paradox. See Scitovszky (1941), as well as the discussion in Wickström (2016).

4 For a further discussion, see Wickström (2007).

ation of changes in implicit income can be expressed with the help of weights attached to the individuals by the planner. The sum of weighted individual changes in implicit income can then be interpreted as welfare changes. If all individual weights are equal and constant, the planner is only concerned with efficiency; if the weights increase with decreasing income, the planner wants to redistribute in favor of the poor.

1.2 Language rights

In order to operationalize the concept of language rights, we look at different domains that can be legally defined. An allocation of language rights, denoted by r, is then a matrix of zeroes and ones. In one dimension we have the domains in the other the legal status of the language in each domain; if it is one, the individuals have a legal right to use the language in the corresponding domain; if it is zero, no such right exists. That is, $r_{ld} = 1$ would mean that one has the right to use language l in domain d. Typical domains can be the courts of law, public education, debates in the parliament, street signs, official announcements, etc. Of course, several domains can be collected into one aggregate domain. That way one can define concepts like "official language","national language", or "working language".

1.3 Benefits and costs

The benefits of a certain allocation of rights is what this allocation is worth to the individuals of society. The costs are the resources used by the society to implement the language rights.

1.3.1 Individuals

Each individual i attributes a certain value b to a given allocation of language rights r: $b^i(r)$. This value, or *propensity to pay*, has its origin both in the need to be able to communicate, if one needs the language to communicate, and in a purely emotional attachment to the idiom, giving a boost to the proper identity. One can also consider each domain separately. The propensity to pay for rights for language l in domain d of individual i is then denoted b^i_{ld}.

1.3.2 Society

The aggregate propensity to pay of society b^s is simply the sum of the individual propensities to pay: $b^s_{ld} = \sum_i b^i_{ld}$. For the sake of simplicity, we assume that there are only two groups in society, a minority and a majority. Further, we will focus on language rights for the minority language, implicitly assuming that the majority language has all possible rights. We also make the simplifying assumption that only the members of the minority are interested in rights for the minority language, and we denote the average propensity to pay of a member of the minority by $\bar{b}$ and the size of the minority population by m. The aggregate propensity to pay can then be written as $b^s_{ld} = m\bar{b}_{ld}$. Finally, we assume that $\bar{b}$ is independent of m.

1.3.3 Costs

The costs to society c of introducing rights in a certain domain for the minority language generally will depend both on the rights allocation and the number of the beneficiaries, the size of the minority community: $c(r, m)$. The dependence on m can take various forms. Generally there is a fixed component and a variable one. In the case of street signs or public documents,

there is only the fixed component; that is, the cost curve as a function of *m* is horizontal as illustrated in figure 1. On the other extreme, public education has very low fixed costs, but high variable costs that are proportional to the number of beneficiaries. The cost curve goes from the origin with a constant slope. This is pictured in figure 2. In general, both components are present or the costs increase less then proportionally with the number of beneficiaries. Then the cost curve is a concave function as can be seen in figure 3.

Figure 1. The cost structure of street signs

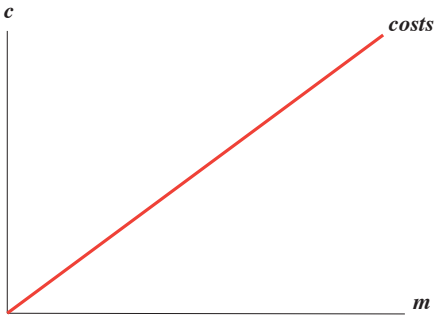

Figure 2. The cost structure of public education

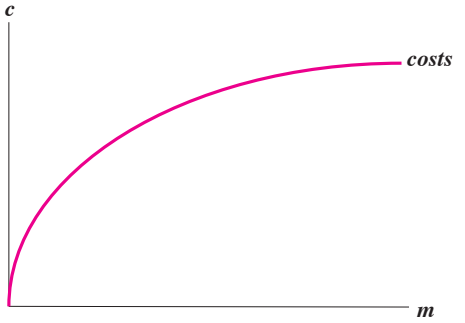

Figure 3. Concave cost structure in general

1.4 Goals

In the following we will analyze the implications of two sets of goals. First we will only consider efficiency and totally neglect distributional issues. That is, the only thing that matters is if the aggregate propensities to pay for a certain rights allocation exceed the costs of providing the allocation or not, independently of who carries the costs.

Thereafter, we will consider who carries the costs and take redistributional preferences of the planner into account. Normally, one wants to redistribute from the rich to the poor, but sometimes redistribution goes in the opposite direction. This can depend on the rich being more powerful than the poor and using their power to further their interests. Talking about minority languages, one could also imagine that there is a desire of having a uniform state – a nation. One way of achieving this might be found in the reduction of minority rights, if extensive minority rights lead to autonomy and centrifugal forces. In this case, the planner will give higher weights to the members of the majority than to those of the minority – a form of optimal discrimination.

2 Efficiency

In the simple cost-benefit analysis, costs are compared to benefits and a proposal is accepted if benefits exceed costs. In our case we find the net benefits p:

$$p(r) = m\bar{b}(r) - c(r, m) \tag{2.1}$$

If $p(r)$ is positive, the result is that the rights allocation r should be implemented. Under the assumption that $\bar{b}$ is independent of m and that c is a concave function in m, we immediately see that p will change from negative to positive at some value $m = m^*$. If m is below m^*, the rights allocation should not be introduced and if m is above m^*, it should be realized. The critical value of m, $m = m^*$ is shown in figure 4. For each individual right there exists a critical mass of beneficiaries. That is, the analysis says that there should be more rights in a big minority community than in a smaller one, and for the introduction of a certain right there should be a rule stating the minimal number of beneficiaries necessary – a critical-mass rule.

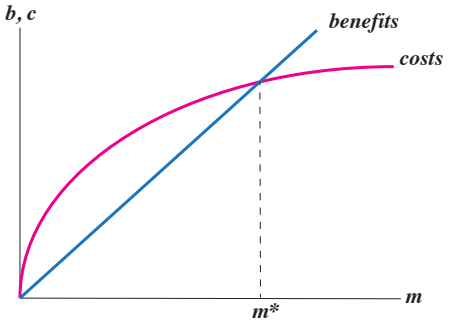

Figure 4. Concave cost structure and a critical mass

The critical mass will, of course vary between zero and infinite. In the case of proportional costs it is either zero or infinite. That is, the decision on providing public education in a minority language should only depend on the average propensity to pay of the members of the minority community in comparison to the *per capita* costs and not at all on its size. On the other hand, the decision to put up street names in the minority language will always depend on the size of the community.

2.1 Modifications

There are many reasons why the introduction of rights for a minority language can have feed-back effects on the variables entering our decision criterion $m\bar{b}(r) \overset{!}{\geq} c(r, m)$. The introduction of rights might increase the pride in the language and culture of the members of the minority, hence increasing $\bar{b}(r)$, the average propensity to pay for the rights in the community. More rights might also lead to the size of the minority community increasing, since more individuals in the next generation will stay in the community and adopt the language. This would increase m and also affect the costs of providing the rights.

2.1.1 Increase in the average propensity to pay for the rights

The affect of an increase in the average propensity to pay is straight-forward. The left-hand side of the inequality will increase and consequently the inequality will be satisfied in more cases. That is, more rights-allocations would be accepted by the decision criterion. In other words, the *ex ante* benchmark decision criterion is too strict and one should modify it, taking the feed-back effect into account.[5]

2.1.2 Increase in the size of the minority community

An increase in the size of the minority community leads to a decrease in the size of the majority community if the total population stays constant. The effect on our bench-mark criterion is an increase of both the left-hand side (due to m increasing) and the right-hand side due to an increase in the costs. However, since the cost function is assumed to be concave, the cost *per capita* $c(r, m)/m$ will decrease. See figure 5; the costs *per capita* are given by the slope of the lines from the origin. Hence, the left-hand side will increase more than the right-hand side, and we again have an argument for a smaller critical mass and more extensive rights than what is implied by our benchmark case.

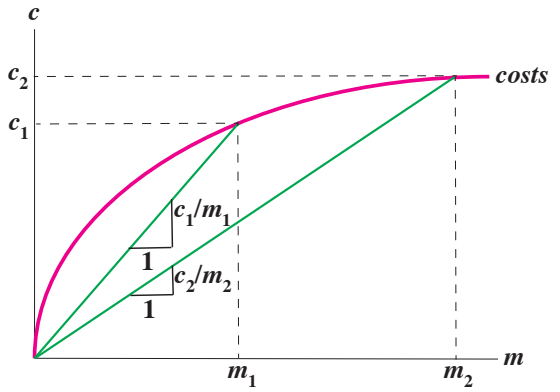

Figure 5. Costs per capita *for different m*

However, the majority community will decrease and the costs of providing the language rights for the majority will also decrease. Since the size of the majority community is greater than that of the minority one, the decrease in costs for implementing language rights for the majority will be smaller than the increase in costs for the implementation of the same rights for the minority. That is, for the implementation of a given rights allocation there will be a net increase in total costs. For the country as such there will hence be an increase in the *per capita* costs of implementing language rights if the total population stays constant. Hence, there is also a negative feed-back effect due to the increase in the size of the minority community. In this case, the benchmark condition overstates the benefits of minority-language rights.

5 A similar result with the opposite sign will be obtained if a right is removed. This could lead to a "cycle" and no clear result would be obtained, see Wickström (2016).

2.1.3 Language-ecology arguments

Some people claim that there is a value *per se* to have a large number of languages in the world. This is inspired by the arguments for a diversity of biological species. The argument is that if a language disappears, valuable knowledge is lost to humanity. This argument, of course, trivially implies that the benchmark case understates the benefits of minority-language rights if the minority language is threatened by extinction.

3 Distributional issues

To discuss distributional issues, we have to specify and evaluate the distribution of implicit income for different rights allocations. Generally speaking, we would need not only the individual propensities to pay for the rights allocations, but also the distribution of the associated costs as well as that of other goods and income on the different individuals. Since we are mainly interested in the language rights, we ignore the other aspects, implicitly assuming that there is no difference between the minority and the majority with respect to income distribution. Also, it is assumed that the costs of implementing language rights are distributed equally over the entire population. Then the remaining distributional issue is due to whether the members of the minority are enjoying rights for their language or not.

3.1 Point of departure

As the point of departure of the analysis, we let all individuals in society have the same rights.[6] The alternative then is that there are fewer rights for the minority and consequently a reduction in the costs caused by the implementation of language rights. The first best solution would be that the members of the minority be fully compensated with a higher income for the loss of rights and full equality would be preserved.[7] However, we consider this unrealistic and study the situation with inequality.

3.2 Modified cost-benefit analysis

Let the size of the majority be M and write the costs saved by the abolition of the rights for the minority as c and the average propensity to pay off the members of the minority for the abolished rights allocation $\overline{b}$. A member of the majority will then on average have a gain of $c/(M+m)$ and a member of the minority a (negative) gain of $c/(M+m) - \overline{b}$. The planner attaches a weight β to the members of the minority and the weight 1 to the members of the majority. The net weighted gain to society of abolishing the rights allocation for the minority is then:

6 The choice of *status quo*, however, is not quite straightforward. One gets slightly different results depending on whether the point of departure is one with universal rights (the "liberal" point of view) or with universal absence of rights (the "absolutist" point of view), or any point in between. This is analyzed in Wickström (2007).

7 This is the line of reasoning of Van Parijs (2011) who argues for the use of English as the sole official language in the European Union, but with compensation payments for the non-English speakers.

$$\triangle u = \frac{Mc}{M+m} + \beta\left[\frac{mc}{M+m} - m\bar{b}\right] = c\frac{M+\beta m}{M+m} - \beta m\bar{b} \tag{3.1}$$

If $\beta = 1$, the majority and the minority have equal weights, this reduces to our benchmark case:

$$\Delta u = c - m\bar{b} \tag{3.2}$$

However, if β is different from one, one gets a modified rule for giving the rights allocation to the minority, $\Delta u < 0$:

$$m\bar{b} > c\left[1 - \frac{\beta-1}{\beta}\frac{M}{M+m}\right] = c\left[1 - \frac{\beta-1}{\beta}(1-\alpha)\right] \tag{3.3}$$

The parameter α is the size of the minority as a fraction of the total population.

If $\beta > 1$, the planner wants to redistribute in favor of the minority when it does not enjoy rights for their language and, hence, is poorer than the majority. The benchmark condition is now modified and less restrictive. The desire to redistribute in favor of the weak thus leads to a more generous allocation of rights than what is implied by the simple benchmark condition. We also note that now the condition does not only depend on the absolute size of the minority, but also on its fraction of the population. This is due to the fact that the costs are distributed over the entire population and the costs *per capita* are the higher the bigger is the fraction of the minority by a given absolute size. The result of this is that the critical mass will depend negatively on α. The bigger is α, the smaller is the critical mass. Since the size of the minority is given by $\alpha(M + m)$, a minority of a fixed percentage size should enjoy more rights in a large country than in a small one. A minority of a given absolute size should also enjoy more rights in a large country than in a small one.[8]

3.3 Discrimination of the minority

The same model applies also to the case when the planner sees the minority as a liability *per se*. One sees homogeneity of the population as desirable. Then the weights allocated to the minority are smaller than one, $\beta < 1$. The condition for providing minority rights remains the same:

$$m\bar{b} > c\left[1 + \frac{1-\beta}{\beta}(1-\alpha)\right] \tag{3.4}$$

8 As the total population increases, the critical mass declines, since the *per capita* costs by a give rights allocation decline. Hence, a minority of a given size will have the same benefits from the rights, but the costs *per capita* decline both for the members of the minority and the members of the majority, making the inequality easier to satisfy. If the minority increases proportionally to the total population, the benefits to each member of the minority from the rights stay the same, but due to the concavity of the cost function the costs *per capita* again decrease for everyone. If β is very big there could even be a reversal of the critical mass, such that a minority smaller than the critical mass should receive rights. This would in general be the case if costs are proportional to m. We ignore this case here.

Now the condition is more difficult to fulfill and the critical mass is greater. Fewer rights will be allocated to the members of the minority than in the benchmark case. What was said above with respect to the size of the country is reversed.

In this case, we can in some cases derive a percentage rule for granting minority rights. If costs are proportional to the number of beneficiaries, like in the case of public education, this happens. Let the costs equal $m\bar{c}$. The condition becomes:

$$\bar{b} > \bar{c}\left[1 + \frac{1-\beta}{\beta}(1-\alpha)\right] \tag{3.5}$$

We can solve this for α:

$$\alpha > \frac{\bar{c} - \beta\bar{b}}{\bar{c} - \beta\bar{c}} \tag{3.6}$$

and the critical percentage, hence, becomes:

$$\alpha^* = \frac{\bar{c} - \beta\bar{b}}{\bar{c} - \beta\bar{c}} \tag{3.7}$$

Since the cost-benefit benchmark is $\bar{b} \geq \bar{c}$, in comparison to the simple cost-benefit analysis the minority is discriminated against, if $\bar{c} < \bar{b} < \bar{c}\beta$ and if it is smaller than the fraction α^* of the total population. The benchmark is not a sufficient criterion for the introduction of the right any more.

4 Implementation

In order to implement language rights in a territory, a number of practical considerations has to be taken into account. On the one side, one cannot have a different rule for each possible domain, but has to group domains together. On the other hand, there is a geographical dimension. Most states have federal structures with many different levels of government and the users of various languages are unevenly distributed over the territory of a state. In this section we will first discuss the definition of the relevant domains in general; then the geographical dimension will be addressed. Finally, the political economy of language rights will be illustrated with the help of a couple of simple examples.

4.1 Basic formal rule

We learned in section 2 that welfare theory clearly implies that a "critical-mass" rule is to be used in defining language rights. The determination of the size of the critical mass is, of course, an empirical problem. The cost side can relatively easily be estimated, whereas the benefit side involves not only straight-forward propensities to pay, but also has to take a number of external effects as well as preferences for redistribution into account. In the end, the number has to be determined by the political (constitutional) process.

That in most real-world cases not a critical-mass rule is being used, but a percentage rule, cannot easily be justified by welfare-economics analysis except in the case of proportional costs.

In this case, the critical mass is zero or infinite in the simple cost-benefit analysis. If it is infinite, that is the introduction of the right is efficient, we have seen, however, that the modification due to discriminatory desires of the planner towards the linguistic minority leads to the right being introduced only if the minority reaches a certain proportion of the population.

4.2 Quantification

In the theoretical discussion we have assumed that there can be different rules for each considered domain. In reality we often encounter only one single rule – a language is given an official status or not in a certain geographical area; occasionally one might distinguish between the status as a working language, the status as a national language, and the status as an official language. This choice could be made more flexible, though, bundling similar domains together. Mostly symbolic domains, like street names, important public documents etc. could be one such aggregated domain, everyday government services could be another one, and basic education a third one, for example. More than one category can certainly increase efficiency if sensibly applied. On the other hand, too many categories causes additional transaction costs. In the end, we would have a trade-off between allocative efficiency and transaction costs – a kind of Coase theorem.

Given the three bundles above, it is reasonable to assume that in the first one the costs are only fixed and not too high, whereas in the second one there are higher fixed costs as well as variable costs depending on the number of beneficiaries, and finally in the last case the costs are mainly variable and proportional to the number of beneficiaries. The two first cases would then call for critical-mass rules with a fairly small critical mass in the first case and a higher one for the government services. In the case of public education, we have seen that the critical mass coming out of the cost-benefit analysis is either zero or infinite, but we have also seen that in the case the planner wants to discriminate against the minority, a percent rule is called for.

In reality, the distinction made is between local and national rules, but rarely between domains. Finland here comes close to the theory. In Finland the rule for the use of Finish and Swedish is the same locally and nationally. It is also both a percent rule and a critical-mass rule: a language has official status in a given area if at least 3000 individuals or at least 8% of the population use it. Swedish is then an official language at the national level (more than 3000 people use it in the whole country) and locally in some counties; in the small ones, the percentage rule is important, but in the larger ones it is the critical-mass criterion that determines the status of the language. From a welfare-economics point of view this is, of course, the sensible criterion. It is also worth noting that the rule is symmetric and that there are a number of smaller counties in Finland where Finnish is not an official language.

The combination of a percentage and critical-mass rule also has the advantage that this combination is politically more difficult to manipulate than only the one or the other rule; see below.

It is interesting to compare the Finnish situation with the rules in Slovakia and Romania. In these countries, there is only a percentage rule, 15% in Slovakia and 20% in Romania. This leads to an official status of a minority language only locally and and in the smallest geographical units of the country. It also leaves the granting of minority rights open to political ma-

nipulation. It would be an instructive exercise to redraw the language maps of these two countries using the Finnish rule.

4.3 Local autonomy and optimal federal structures

Two principal types of considerations form the background of the federal structure of a country. On the one hand, the size of the different jurisdictions has to be determined. On the other hand, the composition of the population largely determines how the borders are to be drawn.

The main argument for big jurisdictions is economies of scale. If economies of scale are present, there are efficiency gains from increased size. This also adds a new dimension to the costs of implementing language rights. On the one extreme, the costs could be proportional to the physical size of the jurisdiction; for instance providing street signs in the minority language. If the composition of the population is homogeneous, also the number of beneficiaries will be proportional to the physical size of the jurisdiction. Then the critical mass will be proportional to the size of the jurisdiction as well, and the decision on providing the right will be unaffected by the size of the jurisdiction. On the other hand, the costs could be independent of the size of the jurisdiction – the most extreme case of economies of scale – like official communications from the head of the jurisdiction. Here, the critical mass will not change as a result of a change in the size of the jurisdiction, but since the number of beneficiaries is proportional to the size, the critical mass will not be reached in sufficiently small jurisdictions and the decision on providing the right will depend on the size of the jurisdiction.

The main welfare argument for small jurisdictions is that one can make the population in each jurisdiction more homogeneous, thereby making also the demand for public goods more homogeneous. This leads to different levels of the optimal public-goods supply in different jurisdictions, which is then closer to the individual demand and, hence, a gain in welfare. An immediate consequence of this is that in a linguistically heterogeneous landscape, there are welfare gains to be had if the borders are drawn in such a way that each jurisdiction is linguistically as homogeneous as possible.[9]

An argument against the welfare-optimal federal structure is a political one. With different very homogeneous areas the country can be threatened by dissolution. One just has to think about Belgium, Czechoslovakia, Yugoslavia, or the Soviet Union. If it is the goal of the central government to prevent an ever greater degree of autonomy, this is an argument for not having too homogeneous local or regional jurisdictions. This leads us to a discussion of the manipulability of rules that formally seem to be neutral, in order to reduce the influence of minorities.

4.4 A simple example

Imagine a fictitious country with 10 million inhabitants. 9.5 million belong to a linguistic majority and 0.5 million to a minority. The minority is concentrated to one region where it makes up half the population. The situation is pictured in figure 6. The minority is here evenly

9 See, for instance Boadway and Shah (2009) or Baldwin and Wyplosz (2012) for discussions of the principles of federalism.

distributed in the southern part of the country. We assume two possible rules for providing language rights to the minority:

1. It has to make up at least 20% of the population in the jurisdiction
2. It has to reach a critical mass of 150 000 individuals in the jurisdiction

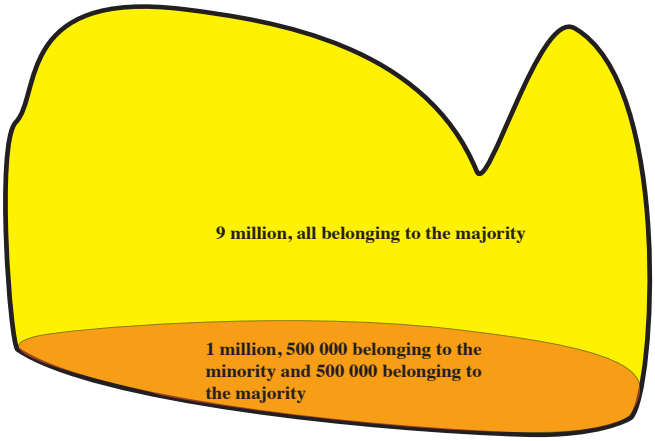

Figure 6. Some country with a 5% linguistic minority

For the sake of argument, we assume that the costs of providing the language rights in a jurisdiction are independent of its size. That is, the size of the critical mass does not depend on the size of the jurisdiction.

The federal structure in figure 7 could be welfare optimal. It is the one that the theory of federalism would suggest, making each jurisdiction as homogeneous as possible. In the southern county the minority makes up more than 45% of the population and counts 500 000 individuals. Both decision criteria are satisfied.

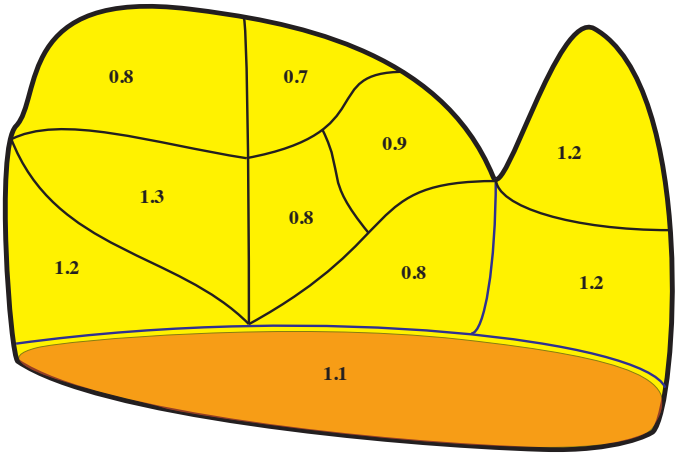

Figure 7. Welfare-optimal federal structure

An alternative division of the country is depicted in figure 8. This is not in line with the welfare theory, since several jurisdictions are rather heterogeneous. As a consequence, neither decision criterion is satisfied in any of the jurisdictions and no minority rights at all will be in effect.

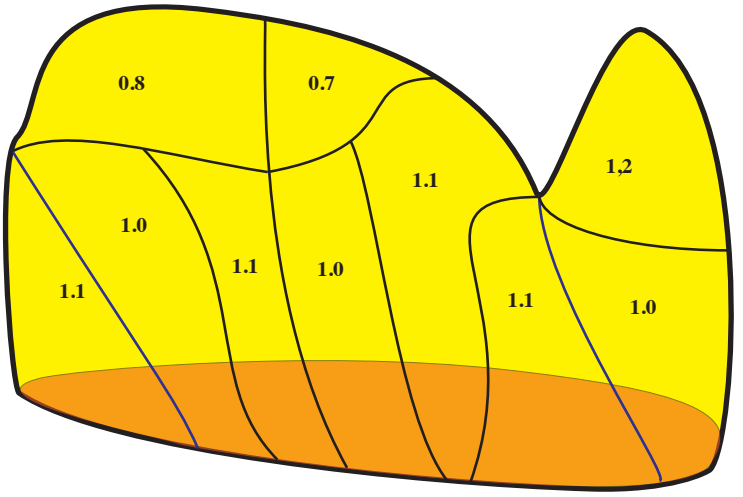

Figure 8. Discriminatory federal structure

To see the political importance of the two different rules, we reform the optimal federal structure in two ways. First the government creates bigger and (maybe) more efficient units, each consisting of about 2.5 million individuals. This is shown in figure 9.

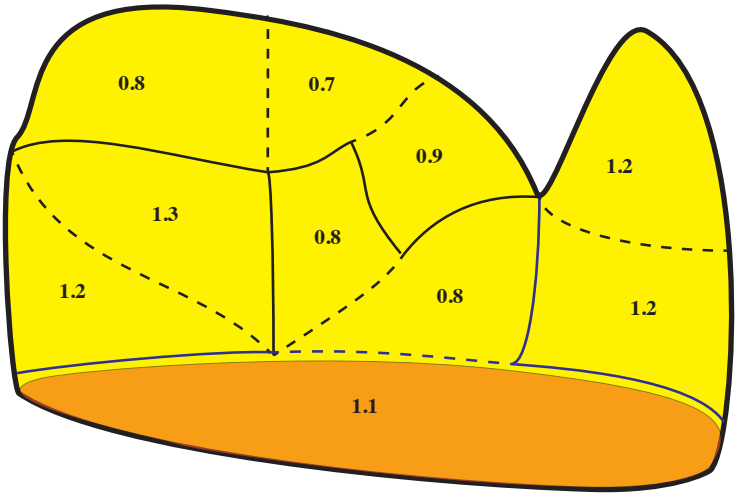

Figure 9. Big units federal structure

The minority will be found in the southern-most jurisdiction and the size, 500 000 individuals will not change. That is, the critical-mass rule, which is the sensible one from a welfare-economics point of view, implies that the minority rights be in effect. In the new jurisdiction, however, the minority will have only 18.5% of the population and no minority rights would be in effect if the percentage rule is applied.

Finally, the small-is-beautiful movement reaches our country and the jurisdictions are reduced to about the size of 250 000 people; see figure 10. With the percentage rule, the minority will have about 45% of the population in the four southern districts, but will not reach the critical mass of 150 000 if they are relatively evenly distributed geographically.[10] Hence, the critical-mass rule can be manipulated by reforms of the federal structure. With the Finnish type of rule, the rights allocation would to a large extent be immune to federal reforms. In that way, the percentage rule in combination with the critical-mass rule makes sense.

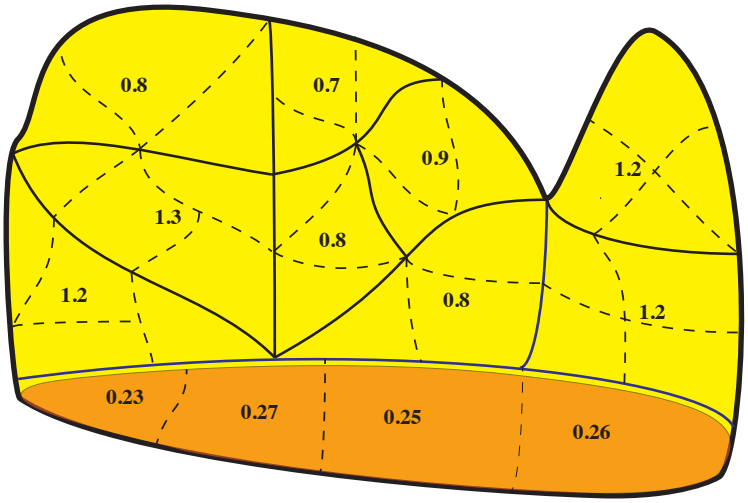

Figure 10. Small units federal structure

4.5 Summing up

With the help of a small example, we have tried to show that the implementation of minority-rights allocations can be manipulated very easily when the spatial dimension is considered. The welfare analysis can provide some guidance, but in the real-world political power determines the outcomes, and there is no guarantee that minorities will be respected.

10 On the other hand, the majority will also have problems to reach the critical mass. However, we assume that linguistic rights for the majority are not questioned in this country and only consider the situation of the minority.

5 Conclusions

In this essay, we have tried to outline a framework for the analysis of language rights based on normative economic theory. In the real world, of course, normative considerations play a very small role. Political opportunity and power are by by far more important. This, however, does not reduce the need for normative benchmarks that are needed in order to evaluate different political policies. Just as we need the welfare theory in order to evaluate the regulation of simple markets, we need a standard of comparison to evaluate government policies in non-market sectors.

The analysis can, and should, be extended in many different directions. Especially the question of implementation, which has only been touched upon in a very rudimentary fashion in this essay, needs to be elaborated further. One issue that has become very acute in our world with great movements of population is what constitutes a legitimate minority. When does a newly arrived group become a legitimate minority with the same rights as historical minorities? Many historical minorities today were majorities a few generations ago and became minorities as the results of wars or mass migration. Why should the situation today be different?

References

1. Baldwin, R. and C. Wyplosz (2012). *The Economics of European Integration*. 4th edition. London: McGraw-Hill. (Originally published as: *The Economics of European Integration*. London: McGraw-Hill, 2003.)
2. Boadway, R. and A. Shah (2009). *Fiscal Federalism: Principles and practices of multiorder governance*. Cambridge: Cambridge University Press.
3. Scitovszky, T. de (1941). "A note on welfare propositions in economics". In: *Review of Economic Studies* 9: 77–88.
4. Van Parijs, P. (2011). *Linguistic justice for Europe and for the world*. Oxford political theory. Oxford: Oxford University Press.
5. Wickström, B.-A. (2007). "Fairness, rights, and language rights: On the fair treatment of linguistic minorities". In: *Public economics and public choice*. Edited by P. Baake and R. Borck. Berlin: Springer: 81–101.
6. Wickström, B.-A. (2013). "The optimal Babel: An economic framework for the analysis of dynamic language rights". In: *Constitutional economics and public institutions: Essays in honour of José Casas Pardo*. Edited by F. Cabrillo and M. Puchades-Navarro. New thinking in political economy. Cheltenham: Edward Elgar. Chapter 18: 322–344.
7. Wickström, B.-A. (2016). "Language rights: A welfare-economics approach". In: *The Palgrave handbook of economics and language*. Edited by V. A. Ginsburgh and S. Weber. Houndmills: Palgrave MacMillan. Chapter 22: forthcoming.