

## ARTICLES

**CHANGING ELECTORAL DISTRICTS IN SLOVENIA:  
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*ABSTRACT****Changing electoral districts in Slovenia: empirical challenges for geography***

*Designing electoral districts is never a straightforward task, as many different, often conflicting, principles must be taken into account. In Slovenia, similar population size and geographical and cultural homogeneity are the two main principles on which electoral district/constituency plans must be based. However, as both principles are only vaguely defined, this brings opportunities for their endless politicisation, potentially enabling gerrymandering, on the one hand, and challenges to geographers involved in the electoral districts/constituency design on the other.*

*The experience gained in such a project is briefly presented, highlighting empirical solutions applied to approach the abovementioned challenges. Geoinformatic support plays an essential role in the process of designing electoral districts/constituencies and their versioning. Due to time constraints, it was not possible to fully develop and apply automatic procedures that provide acceptable results. However, our initial attempts suggest that automatic procedures can provide usable results (also in the design of other administrative spatial units) if the rules (the empirical form of the principles) are clearer and less elastic. Another empirical problem, the practical involvement of political parties in the process of electoral districting, has been attempted through a geoinformatic application that allows political parties to create their own district plans, perhaps leading to more problems than solutions.*

*KEY WORDS*

*electoral districts, geography, geoinformatics, geographic homogeneity, size of electoral districts, Slovenia.*

## **1. Introduction**

States use territorial divisions to serve different administrative purposes. Electoral purposes are among them. Majority of states are divided into spatial units, usually called electoral districts or constituencies, to serve these purposes (Reynolds and Reilly, 1997). They are usually included in the electoral system because of the desire for a more even spatial distribution of seats, a closer connection between voters and representatives, and a simpler organization and conduct of elections. The division of the state into electoral districts can have a significant impact on the distribution of seats and the eligibility of individual parties or candidates. Thus, it is not surprising that parties seek to impose an arrangement that best serves their interests. Such behaviour, known as gerrymandering, can have a decisive impact on the process of forming electoral districts. This is especially true when the adoption of a proposal is decided by representatives of the political parties.

Designing electoral districts is therefore a complex and delicate task, carried out in an atmosphere of suspicion and scepticism. Political parties with strong territorial organisation and influence may try to pressure this process to gain electoral advantage. On the other hand, the expert group that conducts the electoral districting process should maintain political neutrality and professional consistency. Moreover, the designers (of the electoral districts) must fulfil different, often contradictory objectives and principles (Rogelj, 2012).

In this paper, we focus on the empirical geographic and geoinformatic challenges faced by the Working Group set up by the Ministry of Public Administration that participated in the process of creating a new arrangement of electoral districts and constituencies in Slovenia in 2019 (Rogelj et al., 2019a; 2019b). The following empirical challenges faced by the Working Group are highlighted:

- the problems of empirically accounting for geographic homogeneity and uniformity of the size of the electoral districts/constituencies;
- the conflicts arising from the combination of the two principles and the consequent need to make methodological compromises;
- the provision of geoinformatic support for the empirical implementation of the design of electoral districts/constituencies.

## 2. Project of designing new electoral districts and constituencies in Slovenia 2019

In Slovenia, a three-tier electoral districting is in use, with the national, electoral district and constituency levels. The first two levels are relevant for allocation of seats across parties, while the latter is only relevant for the allocation of seats in parliament within the parties.

The problem of the formation of electoral districts/constituencies in Slovenia has already been addressed three times. The first time in 1992, when the Act on Elections to the National Assembly (ZVDZ, 2006) and the Act on the Formation of Electoral Districts for the Elections of Deputies to the National Assembly (ZDVEDZ, 2005) were adopted (Rogelj, 2011; 2012). The second time in the attempt to introduce a majority voting system in 2000 (Ravbar, 2000; Krevs, 2000). The third time in 2019, after the ruling of Constitutional Court (Odločba..., 2018) that ZDVEDZ is inconsistent with the Constitution. This inconsistency was declared because the constituencies no longer met any of the ZVDZ criteria: electoral districts/constituencies that were “constitutionally acceptable” in 2000 became “constitutionally unacceptable” by 2018.

The main reason that led to this change in acceptability was the significant change in the distribution of population (and therefore voters) across the electoral districts/constituencies, which resulted also in changes in their geographic homogeneity. Another – methodologically and politically less problematic - aspect to be considered in the creation of the new electoral districts/constituencies was the adjustment of the boundaries of the districts/constituencies to the boundaries of the municipalities, which changed after 2000. The existing electoral districts boundaries largely follow the administrative-territorial division into municipalities from 1992 (Rogelj, 2011). The constituencies formed in this way differ considerably in terms of the number of inhabitants or voters (in 2019, the largest constituency had 31.694 voters and the smallest 7.945).

The circumstances under which the Working Group conceived and implemented the project were strongly influenced by the short period of time available to develop the proposal and the unclear and contradictory legal starting points. The proposal of constituencies (Rogelj et al., 2019a; 2019b) was necessarily a compromise with such loose legal criteria, which is why the Working Group placed particular emphasis on professional and transparent implementation. It sought to achieve the first aspect primarily through professional arguments for the methodology used and the proposals offered, and the second through transparency of the procedures used and the simultaneous involvement of political parties at certain stages of the process. Geoinformation support has played a very important role in promoting both aspects.

### 3. Empirical solutions to conflicting principles

Looking at the empirical implementation of the task, the design of the constituencies seems straightforward. Slovenia is divided into 8 electoral districts, and each of them further into 11 constituencies. Each of the latter is supposed to provide one member of parliament (National Assembly of the Republic of Slovenia). The aim of the task is thus to create 88 constituencies, which must fulfil two main principles: equal representation of the population and geographical/cultural homogeneity. However, Slovenia does not consist of 88 geographically homogenous areas of similar territorial and population size. Some geographically homogeneous areas are too large for constituencies or even electoral districts. Vague and elastic definitions of the aforementioned seemingly straightforward principles, and their often conflicting demands, inevitably lead to taking compromises, and locally breaking one or the other principle.

“Geographical homogeneity, common cultural and other characteristics” of the constituencies, as demanded by the electoral law (ZDVEDZ, 2005; in the rest of the text we refer to this principle as geographic homogeneity), can be defined and measured in many ways. Differences between the possible approaches relate to the aspects as well as to the level of homogeneity/commonness. As these definitions and measurements are left to arbitrary judgements of experts, politicians or everyone else, this provides fertile grounds for politicisation (including gerrymandering), but prevents efficient, objective professional solutions. The Working Group decided to approach the problem empirically, as simply and objectively as possible. Starting from the assumption that existing administrative units, especially municipalities and settlements, have historically developed as geographical entities with a certain level of geographical homogeneity, we attempted to fulfil the principle of geographical homogeneity by limiting the division of said administrative units to exceptional cases only, when local solutions required this kind of compromise.

The principle of uniform size (population representation) of constituencies reflects the legal demand that a Member of Parliament is elected to approximately the same number of inhabitants. Implementation of this principle is based on objectively measurable criterion, in our case number of voters. Theoretically it is possible to construct areas of almost exactly the same population size, in our case with 19.358 voters. But only rare of such areas would be geographically homogenous, maybe none.

Strict adherence to one principle therefore often leads in the direction of violating another. The empirical solution is almost always a compromise, usually one of the following: an area of desired size and as geographically homogenous as possible, or a geographically homogenous area changed (enlarged or reduced) to fit the desired size as much as possible.

As mentioned, targeting the size is an easier achievable goal, so the rules are applied that define the tolerance by limiting the allowed deviation of a constituency's size from the average/targeted size (where the size is measured in the number of voters). Setting this tolerance was the field of the most intensive political debates. The international suggestions (The Venice Commission; Delimitation Equity Project Resource Guide; The ACE Electoral Knowledge Network), and also a strict understanding of even representation of the population by individual Member of the Parliament keep the tolerance as low as possible, e.g. up to 5%. A bigger tolerance allows building geographically more homogenous constituencies, although only when this is locally feasible (from the existing administrative units). But it allows also more gerrymandering, and obviously, leads to solutions that are questionable from the point of equal, fair electoral representation. The Working Group designed several versions of the constituencies, using tolerances from 5% up to 25%, but some of the political parties demanded even bigger tolerances, up to 50% - which would actually lead to the unconstitutional solutions, resembling those that caused the demand to redefine the constituencies in the first place.

The toughest empirical challenge for the experts designing constituencies often emerges when finalising the last one or two constituencies of the 11 within a particular electoral district. It may be feasible to propose one "ideal" constituency, but it takes a lot of trial-and-error attempts to come up with a solution for an electoral district where all 11 constituencies consisting it fulfil both criteria, geographical homogeneity and the uniform size measured in the number of voters or population. And in some occasions this may not be feasible at all, leading to "exceptions to the rules". All of the divisions into constituencies proposed by the project have solved the main problems of the current division which have been (and are still) the reason to be declared unconstitutional by the Constitutional Court in 2018. Figure 1 and Table 1 illustrate the overall and local efficiency of one of the proposals, based on the tolerance of up to 15% deviation from the average number of voters in constituencies.

Defining constituencies is not only an empirical challenge for the experts who design them, but also for politicians. Potential Members of Parliament need to be flexible in order to appeal to approximately the same number of voters, but who live in areas of very different sizes, sometimes composed of very different geographical sub-areas, with specific problems and sometimes conflicting development interests (Figure 2). Constituencies made up of low-density rural areas can be particularly challenging for politicians. Such constituencies are often geographically heterogeneous, e.g. valleys from different watersheds, hinterlands of different local centres, with different commuter gravities and weak economic ties – and consequently with little common interest or cooperation.

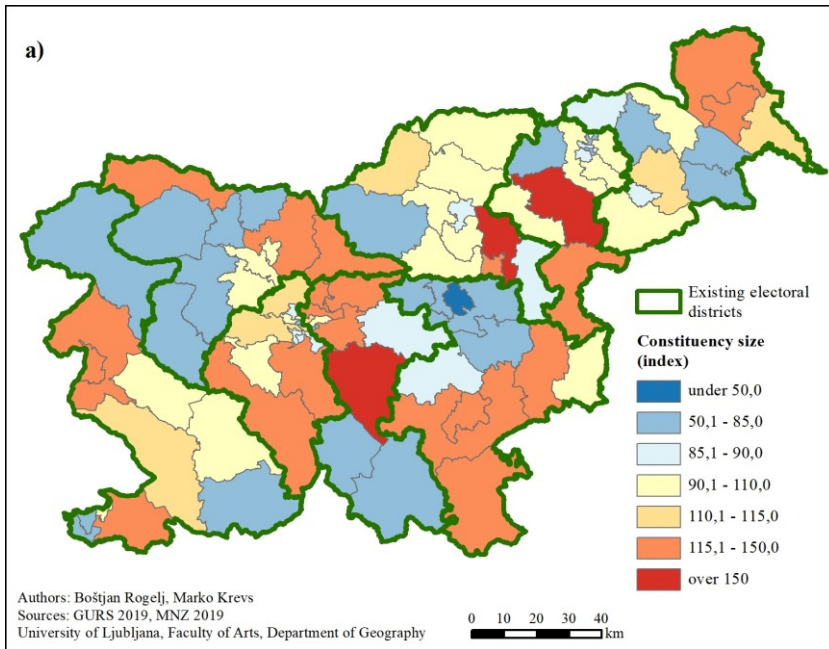


Figure 1: Deviations in the size of the constituencies (number of voters) under the current (a) and one of the proposed (b) constituency plans (a version of the proposal that allows a tolerance of up to 15% deviation from the average number of voters in a constituency).

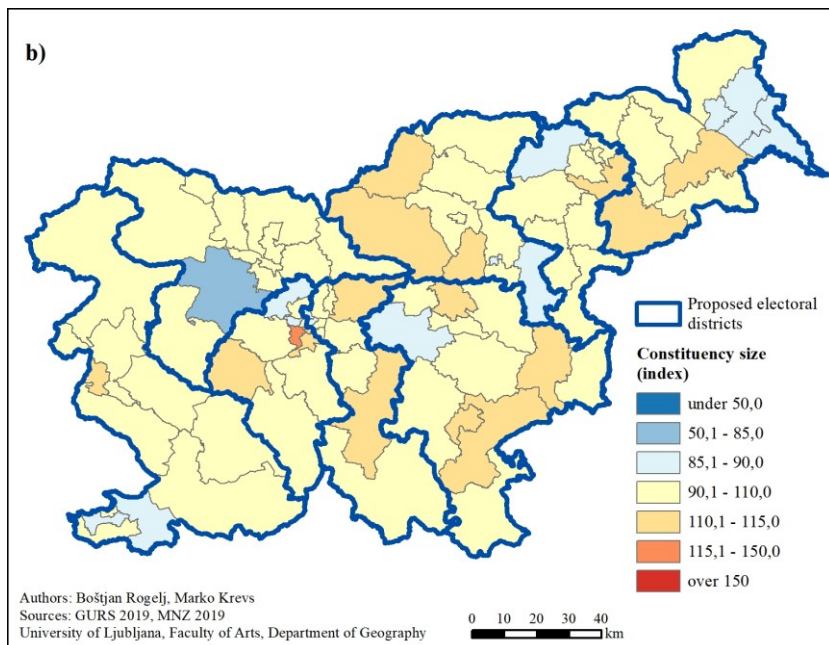


Table 1: Comparison of the selected constituency characteristics between the current and proposed constituency plans (a version of the proposal that allows for a tolerance of up to 15% deviation from the average number of voters in a constituency, which is 19.358).

	Existing division	Proposed division
Number of constituencies	88	88
Biggest constituency size	31.694 (+64%)	22.268 (+15%)
Biggest constituency	Grosuplje	Ljubljana Vič
Deviation of biggest constituency from average	+12.336	+2.910
Smallest constituency size	7.945 (-59%)	16.454 (-15%)
Smallest constituency	Hrastnik	Železniki
Deviation of smallest constituency from average	-11.413	-2.904
Difference between the biggest and the smallest constituency	23.749	5.814

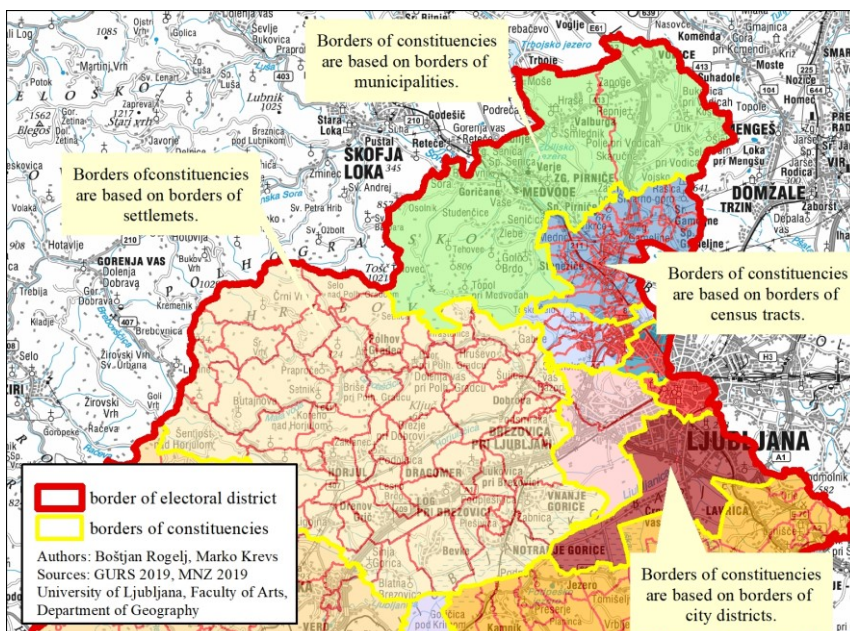


Figure 2: Electoral districts (red borders) with approximately the same number of voters consisting of very different geographical units. The presented area includes the urban areas – the western part of Ljubljana (the upper right side of the graphics) – and the suburban and rural areas towards the north, west and south.

#### 4. Geoinformatic support to solve empirical problems

The development of geoinformation technologies over the past three decades has had a significant impact on the process of electoral districts design. Technological developments have enabled electoral cartographers to incorporate a wide range of information into the process, based on which they can develop solutions (electoral district plans) that optimize previously accepted values and principles of the electoral system (Eagles, Katz, and Mark, 1999; 2000). Proponents of geoinformation technologies believed that they would enable the creation of impartial solutions, independent of human factors, or that they would become a tool for perceiving and evaluating electoral geometry. The use of advanced geoinformation technologies has greatly facilitated, expedited, and reduced the cost of electoral districts design, but-at least so far-full automation of the process has not been shown to yield satisfactory results due to mathematical, computational, and philosophical limitations (Altman and McDonald, 2010).

Political elites quickly became aware of the power of new technologies and their applicability in fulfilling particular interests. However, some saw them as a tool that ruling political elites could use to achieve their political goals with relative ease (Altman, MacDonald, and McDonald, 2005). It is important to remember that until recently geoinformation technologies were only accessible to a relatively narrow range of users due to their high price. In the last decade, these technologies have also become more accessible to the general public, leading to the empowerment of civil society movements involved in the building or controlling the process of electoral districts (Crampton 2013).

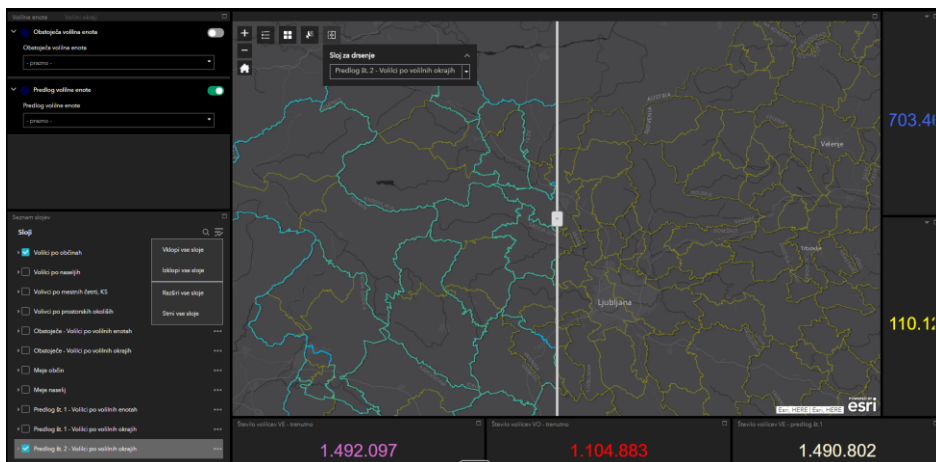
In this project, the geoinformatic support to the solution of the above-mentioned empirical problems in the process of forming new electoral districts and constituencies was mainly contributing to the following:

- versioning the solutions to maximise compliance with the two main principles,
- minimisation of the number and extent of the “exceptions”, the constituencies extremely deviating from the established criteria;
- automation of the geoinformatic procedure of the creation of constituencies, and
- supporting political parties in their own creation of proposals for new constituencies.

Compared to a similar project in 2000 (Ravbar, 2000; Krevs, 2000), geoinformatic support has improved especially for the last two activities. The provision of the geoinformatic tool for political parties to propose their own constituencies (Jelen, Bojc, Veršič, 2019; Veršič, Jelen, 2019; Figure 3) is a novelty that is still being used, as the final decision on the new electoral division



of Slovenia has not yet been accepted. The existence of this tool solves an important empirical problem – it allows political parties to actively engage in the process of forming constituencies. However, it can easily give political parties a false sense of professional (geographical) competence, and in the circumstances of current political instability, this can only be a step away from gerrymandering. Given that the two principles are so vaguely defined, this seems a realistic outcome.



*Figure 3: An online geoinformatic tool to create new constituencies proposal by the political parties – one of many possible views on the proposal.*

The automated method of creating constituencies in the project (Plestenjak, Trunkl, Šević, 2019) provided some promising results, but remained in a pilot phase of development due to the limited timeframe for development and implementation. Although the automating the process seems to be an important opportunity to increase the potential extent of the empirical trial-and-error (machine-) learning, the Working Group believes that the lack of objective criteria for geographic homogeneity remains a major obstacle to obtaining measurable control over the efficiency of the solutions.

## 5. Conclusion

Some of the empirical challenges faced by the project are very similar to those that can be expected in procedures for creating other kinds of administrative units. Consequently, some of the solutions we offer with respect to constituencies may also be applicable to the creation of other administrative units. This paper examines a seemingly controversial situation where the most ambiguous and elastic rules are applied in the most politically sensitive procedure where one

would expect the simplest and most transparent principles and empirical criteria/rules. We can take this as evidence that the creators of the law anticipated the propensity of political parties to such blurred circumstances in the electoral districting process. What these creators probably did not foresee is that such rules would not make political agreement on constituencies easy, perhaps impossible, especially in the current politically unstable situation. Based on the experience gained in this project, we can therefore only warn against the elasticity of such rules/definitions.

But for some political parties currently in power, the existing electoral system is very suitable, and they continue to seek proposals for the electoral division of Slovenia, using the tool provided by our project: the process is still ongoing, only the experts have been replaced by politicians. In the atmosphere of general mistrust (about the possible use of gerrymandering to influence elections), this seems to be an example of geoinformatics being used to support more political problems, instead of approaching the solutions. So again, the original problem is not the use of the technology or its use by politicians, but the fact that the rules for determining constituencies are vaguely defined.

Automation of procedures has a promising future, but only if the basic criteria (in the present situation, these are geographic homogeneity and equal representation of the population) are clearly defined and democratic and neutral expert control of implementation is guaranteed. Until then, a combination of expert design of constituencies and good geoinformation support is still the best solution in the formation of constituencies in Slovenia. The advantage of the “expert method”, carried out e.g. by experienced geographers, is that it solves complex local empirical problems based on their knowledge, taking into account various local factors (e.g. transport accessibility, historical, cultural or everyday connections, central places/functional gravity) that are not explicitly expressed in the legal definitions of constituencies.

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