

Border and border region: theoretical aspects, identification and determination

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Abstract:

Article define the terms of border and border region, explain the influence of border on the regional development of a border region and find the criteria how to identify and determine a border region. The issue of border and border region is extensively discussed in the political geography, the regional geography addresses the border issue in relation to the region characteristic. The regional research of high quality must respect several differential aspects when studying borders and borders region.

Keywords: border, border region, border effect, theory Czechia

Theoretical aspects

Geography, in particular the political geography, has dealt with the issue of border and border effect in the long term, and the related issues appear in many geographical studies. These studies are (among others) aimed to define in general the concept of *border and border region*, and specifically to describe and explain the border effect on regional development of a border region, and the meaning of border providing a barrier, or a bridge for migration border flows. These definitions clearly feature different aspects – geographical, economic, social, legal, political, financial, military, or cultural, etc.

At this point, we should stop to explain the concept of border region, that is how and whether there is any difference between the terms of “border” or “frontier” region. For the Czech language, those are synonyms where “the frontier” is a later and modern concept having spread recently (Czech Language Institute). This particular topic is discussed in more detail by K. Heffner (1998) who analyses some of the related terms such as border, frontier, boundary or border line. K. Heffner is also trying to find a distinction between those concepts using English (border, frontier), French (cisfrontaliere, transfrontaliere) or German (Grenzregion, Grenzräume, Grenzgebiet) terminology, however, identifies the ambiguity of using the terms of frontier or border within the largely quoted literature. After all, the author himself refers to his own studies where to identify the transition stage from peripheral to integrating regions, he perceives as “border” region an area spread on both sides of a border line whiles

“frontier” being an area spread on one side of a border line. The Czech geographical community is also inclined to ambiguous use of both the terms whereas the “border” is often perceived due to the experience prior to the velvet revolution to define the area located on one side of the border line.

Border

In the most common sense, the concept of border is linked with the existence of living organism since there exist more or less obvious boundaries for any living organism to interact with neighboring living organisms as well as boundaries of its impact on the non-living vicinity. P. Hagget (1975) uses the word “border” to describe the circumference of territories where the territory means an area which is under some exercise of proprietary rights. The surface of the Earth is covered with a complex nest of borders. The issue of border region is discussed by Hagget (1975) claiming that “each border creates a pressure zone around” whereas such pressure zone dies away with the distance from the border.

The most frequent conceptual use of border in geography is the concept of *state territory determined by the state border*. The state border is defined as “a conventional (contractual) determined line on the maps and in the field used to separate the territory of one sovereign state from the territory of another sovereign state, or from another area not being under sovereign power of any state (free sea)” (Šindler 1996). The same authors also explain that the idea of a border being just a line is misleading and insufficient. In fact, a border may be visualized as a sort of bounding surface starting in mid-earth and penetrating through its surface to separate the airspace of a sovereign state. For a general perception of border, the evaluation of the above mentioned authors may be completed so that the very penetration of the mentioned “bounding surface” and the ground surface, including its map projection illustrates the border as a line.

The concept of border region and border is understood by J. Prescott (1965) to be zones or lines separating out the territories between different estates, and P. Meusburger (1975) characterizes those territories by a different policy of space layout and subsidy, tariff policy, different social and tax law, different economic relations, living standard, and purchasing power, or wages.

A very detailed definition of border, also in the view of its functionality, is provided by F. Heigl (1978) who perceives a border as the legally fixed and/or naturally determined line connecting those homogenous and/or heterogenous regions providing for administrative and/or economic and/or political unity.

A border may be closed, partially open or open, thus providing for specific administrative and/or economic and/or political caesura. Figuratively, a border line creates a frontier zone. It may be characterized by similar or entirely different attributes on both sides of the border line.

The aforementioned definitions see the border as a dividing line between state formations / estates. However, a border also means a dividing line between two space units. You may speak about human space boundaries defined by social activity, or a space with a specific scope depending on the nature of a given social activity (e.g. language, religious, cultural, or social boundaries ...).

In a more general point of view, a border means a line which separates neighboring territories / regions where those regions may be defined with an imaginary line (physical and geographical regions, stream territories), or a fixed line – formerly landmarks, and nowadays notice boards (state formations). While in the former case, the border results from using typical geographical methods (regionalization), in the latter case the border results from a legal act. Here we speak about *political boundaries* that are sufficiently addressed in the geographical literature (Prescott 1987, Schwind 1981, Ante 1981, Bösl 1983, Barbag 1987, Šindler 1984, 1996).

Borders in political geography

In respect to politico-geographical definition, many authors are moreless in agreement about the typology of borders. The basic classification defines natural and artificial borders. *The natural borders* (physical and geographical) are created with natural elements of the landscape (most often water streams or watersheds, and the relief such as lows or peaks). *The artificial borders* (anthropogenic) do not respect natural elements, they are defined using cultural elements – national (ethnic) boundaries, historical aspects – historical boundaries or geometrical approach; geometrical border with direct link of contractual determined points or astronomical border using the geographical net (meridians and parallels). However, the geographers by tradition do not classify borders only based on their “quality” of demarcation (natural and artificial), but also based on “the scope” of demarcation, that is *line boundaries* (physical and geographical or anthropogenic) and *zone boundaries* (e.g. ethnic boundaries separating the territorial entities occupied by members of different ethnic groups) (Siwek 1996).

By genetic factors, many authors (Schwind 1972, Ante 1981, Šindler 1984, 1996) classifies four types of political borders:

- Subsequent – Border defined subsequently to differentiation of neighboring regions,
- Antecedent – Border defined prior to actual differentiation of territories,
- Overlapping – Political measures meant to overlap the original territories, or
- Relict – Border no longer in place, however still visible from the previous period.

Relict borders constitute a specific group of borders defined by the aspect of “time”. Those are *historical and geographical borders* being the marginal areas of a historical and geographical region and having been at some time in the past functional borders between different economic systems, different cultural traditions and features, etc. They are either visible in the landscape (in the cultural land), or recorded in archival sources. An example of a historical and geographical border may be “the iron curtain” 1947(1948)–1989, or the ethnic Czech-German boundary, or the border from post-Munich occupation of the borderland, or the borders of historical land, or possibly former neighboring districts which have also defined the great majority of natural stream microregions valid until now (Chromý 2000). The borders between sovereign territories may be demarcated very often “*de iure*”, but they are not

respected “*de facto*” in the country. While the borders across Europe are established both “*de jure*” and “*de facto*” by the Vienna Congress, it may not apply to remote and unapproachable areas of Africa or Latin America.

By the permeability, J. Maier (1990) defines *closed, partially open or open borders*. The border permeability has an impact on the cultural, social and economic development of border regions. A closed and impermeable border with a strict military regime tends to change the territory structure as needed for national defence, and this tendency often results in social and economic devastation of the territory (Strassoldo-Graffenberg 1974). On the other hand, however, the former military zone in the border region of South-West Bohemia made it possible to save some precious natural values. Based on the border permeability, the author distinguishes four typical situations in a border region. An *open* border region being oriented out of the region itself. The border shows higher permeability, however, one-sided orientation. The above model may be substantiated for historical constitution of states and their expansion efforts to extend their own territory. A *closed* region being a centralized system with an impermeable border. There is an effort to accumulate the stock, population and power in the central areas on the account of peripheral, marginal territories which consequently means to boost the differences between the center and periphery. In the functional respect, this system often has a closed border. Both the illustrated systems show extreme functioning of border regions. The following two systems are mixed forms of the original systems. A border region providing a *bridge (system)* between neighboring countries. The border in-between is partially open, the society would provide connection – build crossings (bridges) in a few locations. The goods and persons are being exchanged while the identity, independence and certain isolation are maintained for the neighboring regions. A border region providing a *contact territory (system)* where moreless higher integration or fusion of both communities would occur while a new multinational society prevails over the Unitarian tendency. The border functions as an open border (Maier 1990).

Borders in regional geography

While the border issue has a specific and pragmatic dimension in political geography, you may study borders in regional geography as related to the region features, and the border issue may be derived from the region. The border in the above meaning is referred to by S. Řehák as *discontinuity* and the territories that may be separated in theory due to discontinuities as *regional entities* (Řehák 2000). What is the relationship between discontinuity and regional entities? Many examples show that the relationship may be more open where, for example, even an explicitly defined discontinuity does not have to be a closed line where the development stages of discontinuity do not have to correspond exactly to the development stages of regional entities. More examples document that a clearly defined region does not need to have a clearly developed boundary discontinuity, and that a similar form of discontinuity may even include more regions (regional entities), thus it may delimit a heterogenous region. S. Rehak infers from the above that no symmetry applies to the relation of

a clearly defined regional entity – clearly defined boundary discontinuity. In theory, you must admit that a certain number of discontinuous features do exist inside a regional entity. The above statements do not deny a generally perceived existence of borders between regions, but imply that the existence of regions may, in the extreme, be only considered a factor which extremely reinforces or stabilizes the existence of discontinuity.

The typology of regions as generally accepted shows that discontinuities do not always have to result from the actual region bound, and on the other hand a clear discontinuity (border) may stabilize spatial formation of at least certain part of a specific region. Thus it proves that the discontinuity issue may partially be separated from its solely regional mission and predetermination. Thus even a discontinuity (border) may be viewed as a relatively stand-alone issue. An important conclusion by S. Rehak is that the study of borders may be derived straight from the space attributes without any need to study the very regional aspect of the space initially, that is without the border being a direct attribute of a region(s).

Should we perceive the border as explained above, that is a line consisting of interlinked boundary points, we definitely have to study in detail the meaning and geographical nature of a *border crossing*. A border crossing is a point which appears to maintain the features of a single point in a certain section of the border, however, it is a point with permeability more related to both separated regional entities than being an immanent feature of the given linear discontinuity. The nature of a crossing point with permeability requires to evaluate difference in the background of such point out to both sides of the border, that is towards diverse regional entities. This brings up the meaning of a border crossing for study of the border effect since a border crossing is, in parallel, an impulse, change, variability point and a local diffusion focus point. Then it rather depends on the specific phenomena used to study the above attributes, and whether the diffusion is strictly connected to the territory, or the diffusion is bound with the area, but with a different distance dimension. In the former case, however, in addition to the phenomenon nature it also depends on the territory characteristics (regional entity) directly neighboring with the crossing point as well as the asymmetry level of the given phenomenon.

The nature of a border line (a set of border points), however, varies by the level of closeness, or permeability of the border. For an opened border, the permeability would necessarily increase at the border crossing point as well as the number of such points on the border line. The neighboring regional entities do materially effect one another as units as well their elements close to the border are mutually affected (at a different level). Only secondary and indirect would be the effect on the characteristics of a border discontinuity. For a closed border, the process is different where the former continuum is reduced to a set of border crossings on the new border being the only points to retain permeability. In the first place, this creates the actual border discontinuity, and therewith the autonomy features of the neighboring regional entities are forced to originate on both sides of the new border.

In the methodology aspects, the following differential aspects must be respected when you study borders and border regions (Hampl 2000):

- a) Two mutually penetrating aspects are dominant for the issue of border regions. Those may be identified as *border effect and peripheral position*. While in the former case, it is important who is separated with the border, in the latter case it depends on for whom the border region is a periphery.
- b) The situation of border regions always depends on the combination of both the *position* and *local* factors. Here you must differentiate between the space and socio-economic periphery.
- c) It is justified to even emphasize the importance of *proportional* differences / hierarchy of regions and their position relations. The status of border regions does not depend on the position in a single hierarchy, but actually in a (integral) hierarchical system of partial hierarchies.

By formulating the differential aspects, M. Hampl identifies the basic attributes of border regions as the object of interest for scientific disciplines. In that respect, you may perceive a border defining a border region as the point of change, difference, discrepancy of the neighboring socio-economic systems, and the border may create a separation and isolation tool for the neighboring systems, and the border may provide a relationship barrier. But on the other hand, you may see the border, or border region as the zone of exposition, comparison, confrontation of the neighboring socio-economic systems where the border may perform a contact zone.

The level, and in particular the polarity of border relations would depend on the economic maturity of the neighboring regions. Where such maturity is comparable, we refer to the border as *symmetrical*. In this respect, the basis for mutually oriented (parity) border relations would be, in terms of the socio-economic expansion and completion of the range of goods and services in the neighboring regions, the knowledge of natural or cultural potential of the neighboring region aimed to maintain a good neighborhood based on health competition, with the objective of frontier co-operation and regional development. Where the economic maturity of regions is dissimilar, we refer to the border as *asymmetrical*. In this case, the border relations may vary in nature. The level as well as direction of relations may be comparable as for the symmetrical border, and even higher intensity may be expected. However, what is different in these conditions is the goals of border relations based on the utilization and benefit from the economic misbalance (referred to as the effect of Mexican border). Even in this case, there is an effort to establish frontier co-operation, including mutual regional development, but the aforementioned economic misbalance makes it more difficult to achieve such goals. The above conclusions are based on the objective facts, although the situation is often complicated by subjective aspects.

The border may also be seen as a historical category, that is a category which is developed in time. The time factor brings certain dynamics to the above described typologies which not only changes the actual functionality of border, but even the mutual relationship of neighboring regions. Thus the barrier function of a border slowly becomes a contact function (or, vice versa) (Fig. 1); when the border is opened, the bridge system gradually becomes a contact zone, and the asymmetrical border becomes a symmetrical border.

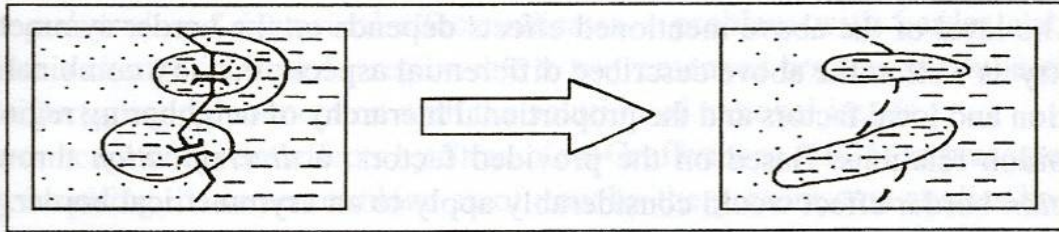


Fig. 1 Functional Change of Neighboring Regions Based on Change in Border Characteristics (Dokoupil 1996a, 1996b)

Border effect

The term of border (frontier) region has existed in Europe since the constitution of modern states and being “pressure zones”, the border regions would feature political and military deployment (Maier 1990). Unlike other regions, the border influence is typical for a border region, that is it shows a *border effect*. To describe and explain the border effect is important from the theoretical point of view while it also supports the regional geography as a discipline, but there is even practical meaning for planning of the regional development of border regions.

What do the strength and pattern of the border effect come from? While it applies to a border region, it primarily depends on the border type, function and permeability, and the last but not least it is closely related with the nature of neighboring regions, that is the regions separated with the border.

The provided models by R. Strassoldo-Graffenberg show that border effect would increase under extreme conditions. For a closed border region, the *barrier* border effect would be more important, that means a stronger one-sided inland orientation of a border region, thus in fact reinforcement of the *peripheral* effect in the border area at the core-periphery level. By contrast, for an open border region the *contact* border effect would be more important, that means a weaker *peripheral* effect at the core-periphery level since the relations would be developed in a new hierarchical system (border relations). By the same token, the *diffusion* and *potentially differential* border effects would be strengthened here. The above mentioned types of border effect have an influence on the regional development of a border region where diffusion of new ideas, different methodology or approaches, and different social behavior would potentially stimulate future development.

For a border region, the border *permeability* effect has the greatest importance. Based on the border permeability effect, we categorize as mentioned above a closed, partially open, or open border. Whether the border is open or closed would establish a very marked *filtration* border effect which regulates “human” flows toward border crossings. For lesser border permeability, a *concentration* border effect would be added (Dokoupil 2001) to concentrate the flows to selected directions only. Both the named effects have positive as well as negative influence on the border region. The positive aspect is that a traffic and service infrastructure is built along the roads which helps to strengthen the geographical potential of a border region while the adverse impact is associated with frequent transit function of border regions where the concentration border effect would deteriorate the environment along the roads in road

traffic. The level of the above mentioned effects depends on the border symmetry, or asymmetry as well as the above described differential aspects, that is a combination of the position and local factors and the proportional hierarchy of neighboring regions, or their position relations. Based on the provided factors, a *diversification* through to *polarization* border effect would considerably apply to an asymmetrical border.

New analysis approaches to border regions are presented by O. J. Martinez (1994). Based on his models, a border region may show an *estrangement* effect for a closed border and the absence of border interaction, or a *co-existence* effect when the border is opened for limited contacts, or a *co-operation* border effect when the economic and social complementation is established between the neighboring regions, or an *integration* effect when the border is removed as a customs zone line with fiscal consequences.

Border effects were also discussed by M. Seger and P. Beluszky (1993). In principle, there are some border effects again even though the emphasis here is rather laid on the contradiction of pair categories (models)

The above named authors formulated an area versus continuous effect for neighboring border regions. For the *area* effect, the border is a line separating different functional areas. There are, for example, different socio-political systems, unlike population, or different use of the land, etc. In the process of harmonizing the standardized conditions, the border will become more permeable and larger functional regions will be established. The *continuous* effect shows that a border does not mean a separation line primarily for physical and geographical objects (geospheres). There is a great opportunity for frontier co-operation (in particular, the environmental issues).

Furthermore, the authors formulated a peripheral effect and a skip effect. The *peripheral* effect is typical of such border regions that become more or less handicapped and damaged areas due to their distance from central points, difficult access, and very often imperfect infrastructure. However, you should note the conclusions by M. Hampl (2000) here who does not only distinguish between the area and socio-economic peripheries, but he says that "the actual differences in position appeal may not only be presented using the polarity of core and periphery, or levels of such polarity, but also using forms reflecting both the influence of lower centers in the hierarchy and the influence of major development axes" (Hampl 2000). The *skip* effect implies that human or material flows crossing the borders do originate and finish in the regional centers, and the border regions are kind of skipped, thus they cannot profit adequately from those economic activities. In this case, the border features a certain discontinuity.

The potentially differential effect and diffusion effect primarily show if the border has a contact function. A *potential difference*, that is the difference between neighboring regions would stimulate border interaction, contacts, passenger and freight traffic despite of a diverse level of price and quality of goods, services and opportunities on both sides of the border. It is obvious that the development of frontier co-operation brings along / initiates a simple *diffusion* effect, and processes resulting in diffusion of neighboring cultures, so called pull effect, that is development affected (pulled) by the neighboring region.

The *political and historical* effect indicates a problem with border stability, in particular a change in a border region due to movement of borders in connection with power efforts, e.g. in connection with the solution of national issues.

The concept of border effects by Strassoldo-Graffenberg (1974) as presented above is truly inspiring, however, outdone as of now by the present area studies because in the first place, it assumes symmetrical relations on the border, and furthermore it ignores the time factor.

Identification and determination of border region

Borders and border effect underlie the origin of a border area. A large diversification of state formations and the associated borders and border effect between politically unified units also result in quite considerable quantitative as well as qualitative differences between the individual border areas. Each border region is unique (Anderson & O'Dowd 1999) and one of the tasks for border geography¹ should be the efforts to describe such diversification and try to find some phenomena and processes related with the presence of border that are reoccurring, that is similarly happen in multiple border areas. The very monitoring and summarization of those processes play an important role for identification and determination of a border region. Is there any measurable difference between inland and borderland? What methods and views are adequate? Does a border region show its own identity? Is there at all an objective definition of border area?

The geography disciplines (and not only) often use the term of border region or border area even though it appears very difficult to determine such a territory exactly, that is separate it from the inland. For example, a town/city may be quite easily identified and distinguish from rural area as it most often shows, for example, clearly defined administrative boundaries. For a border region, this task is far more complicated because there is no exact delimitation / boundary. The literature provides a number of different views of this phenomenon (Leimgruber 1980, Kastner 1996, Jeřábek 1999), and there are no unified criteria how to determine a border region. When the historical science discusses the concept of border region, it refers to a different border region than, for example, ethnologists, economists, politicians, or geographers. The reason is that each discipline uses different criteria while only concerning "their own" to be relevant and of the essence. And there, geography as a complex science may play the leading role.

The major processes used to identify and determine a border region should include:

- a) Incorporate a border region theoretically in the concept of geographical thinking,
- b) Define the major attributes of identity of a border region,
- c) Identify the opportunities, or criteria to determine a border region in the geography disciplines, and
- d) Provide a simple synthesizing indicator.

¹ A geography discipline which primarily deals with the issue of borders and border/frontier area.

The key assumption for the given topic is that *the border characteristics* play the major role for identification and determination of a border region. The more permeable the border is, the larger area would be affected by the diffusion border effect, that is also a larger border region. A similar hypothesis may be provided for the barrier effect. The more closed the border is, the larger area would be affected by the barrier effect. At the same time, two significant views (corners) of border area must be taken into account. At first, it is *the inland view*, and second *the view from the other side of the border*.

The most attention in respect to identification and determination of border region will be paid to the diffusion border effect and the barrier effect will not be considered due to currently unavailable materials.

In particular, the geographical literature provides a wide range of definitions for the border region. "The border region is a territory immediately neighboring / adjacent to the international borders the economic and social structures of which are fully determined by the proximity to the border" (Hansen 1981). This definition, however, clearly lacks the relationship between local population and the given area being affected and affecting one another. *The border region is withal an area close to the state border subject to frequent border effects and/or even a territory perceived as border by most of the involved population.* The actual definition is discussed, for example, by Leimgruber (1980) who defines the border region as a territory in the sphere of influence by the political boundary without any clear determination of this region toward the inland. Leimgruber also explains that "an important criterion for definition may be so called *functional relations* outside of the border region, both absolutely and relatively". Thus the border region becomes an international region which, however, must overcome certain difficulties. The centralized state power which determines on the international agreements perceives the border, or international co-operation (important determination factor) with partial disbelief as they suspect some decline of the state territorial integrity. Thus the centripetal forces of the political power of the state counteract the centrifugal forces of economic influence in the border region (Fig. 2).

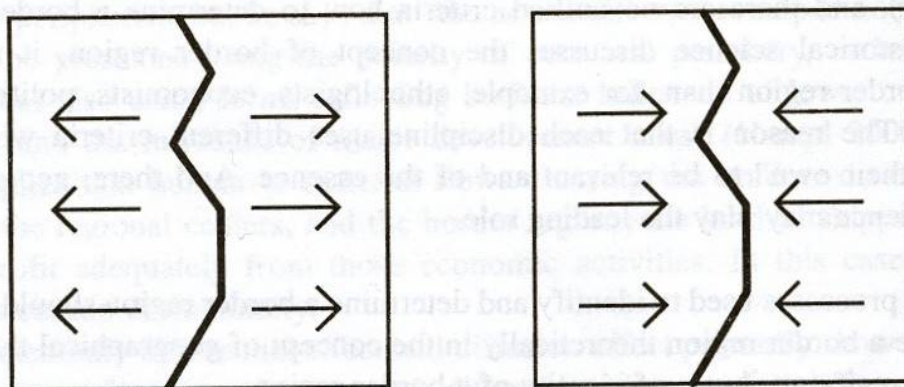


Fig. 2 Centrifugal and Centripetal Forces in Border Region (Havlíček 2004)

Where the centrifugal forces prevail in the border region, this area becomes an important link element for integration. For example, border territories across the European Union are those very important integration elements.

Furthermore, M. Lezzi (1994), for example, applies the assumption that each border line overlaps the actual state, thus separating the given structures. There the border area is often seen as the region separated by the border. A single border then houses two border areas. This fact is mainly obvious in the national and solely administrative point of view. And by contrast, the multinational population views *the border region as a zone* penetrated on both sides. The penetration level then relies on the level of frontier co-operation and the number of interactions. In the functional point of view, M. Arnold-Palussiere (1983) defines the border region as a zone where the influence of border (thus even the neighboring country) is visible/noticeable.

The space layout of a border region then features some of the specific aspects:

- a) Disparity of economic development on both sides of the border,
- b) Confrontation of different national area frameworks,
- c) Border crossing environmental stress as result of the economic development.

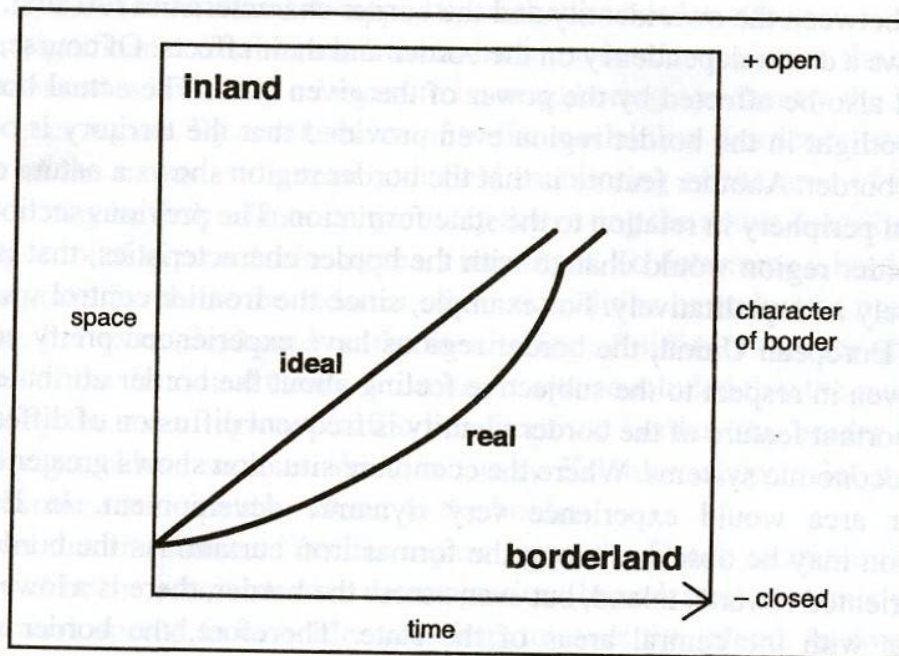


Fig. 3 Theoretical Development of Space Polarization (Inland/Borderland) for Integrated State Formation Depending on Border Characteristics (Havlíček 2004)

Considering a defined state formation, then its territory may be divided from the very origin (in the framework of this topic) into borderland and inland. Moreover, the development of such a space polarization (inland/borderland) which may even feature a very dynamic form would largely depend on the border characteristics. As mentioned above for so called diffusion border effect, the more open, or more permeable the border is, the larger is the border area and vice versa (Fig. 3). At the beginning of statehood, the border would rather be closed since the political power is trying to stabilize a newly originated state. As the economics becomes more open, there is a pressure to gradually open the border, that is also an increase of border

effects which consequently result to extend the border area at the expense of inland. Ideally, the immediate change effects will appear in the polarization development, but in the real world always with a certain delay. This development remains open in time and space because it largely depends on the information and traffic availability which is hard to predict / estimate in future with the current trend of development. Of course, there is even the contrary development but the border was not fully closed even in the period of iron curtain in Europe, and the border region took up a zone of different width and no entry as the protection area of the state power. The below simple model illustrates the space polarization as a dual principle of interaction between objective and subjective aspects of the diffusion quality of the border region studied as variable in time.

As mentioned hereinabove, the own identity, or internal homogeneity of the border region appears to be very important to determine a border area. The term of identity mainly refers to recognition of certain features or phenomena typical of the border region. What are then the main identity features of the border region? What is the difference between the own identity and the border characteristics? At first, the border region shows a direct dependency on the border and their effects. Of course, the border area would also be affected by the power of the given state. The actual border line is also the spotlight in the border region even provided that the territory is only on one side of the border. Another feature is that the border region shows a nature of so called geometrical periphery in relation to the state formation. The previous section indicated that the border region would change with the border characteristics, that is even both quantitatively and qualitatively. For example, since the frontier control was cancelled across the European Union, the border regions have experienced pretty considerable changes, even in respect to the subjective feeling about the border attributes.

An important feature of the border identity is frequent diffusion of different ethnics as well as economic systems. Where the economic situation shows greater differences, the border area would experience very dynamic development. In Europe, this phenomenon may be observed along the former iron curtain. As the border region is not only oriented towards inland, but even across the border, there is a lower frequency of contacts with the central areas of the state. Therefore, the border region may relatively be quite independent of the state center and the state structures.

In Czechia, the border region has mainly been determined until now based on the administrative determination by the districts located right on the border (Jeřábek 1999), or based on the relict border of the Protectorate of Bohemia and Moravia (Kastner 1996).

Based on the above mentioned assumptions, in particular the border effect acting on the border area, a methodology may be determined that would only monitor the view, or effects on the other side of the border. Similar to the fact that each state formation is specific, each border region is specific too and one of the tasks for border geography would be to identify the regularities and common features within determination. The Czechia was selected as an example area for the methodology used to determine a border region within the diffusion characteristics of the border where an extensive field survey was completed at the microregional level in 2000 for 16 areas directly located on the state border.

The determination methodology uses the assumption that the border region means an area:

- a) Cross-border relations with the neighboring state,
- b) Continuation with the territory connected with the border line,
- c) Availability for daily border commute to work,
- d) Offer of special services for the population on the other side of the border, and
- e) Identification with the border area as such.

These badges were then examined at the local or community level. It has proved that traffic availability is critical for the own determination, and not the direct distance or position of an administrative territory (district) along the border. Thus, border crossings appear to be the key focus, both quantitatively and qualitatively. The Czech Republic also comprises areas nearby the state border which may not be considered as border regions due to poor access to the neighboring state. The larger and more important the border crossing is and the better quality and more efficient the associated traffic line is, the farther inland do apply the diffusion border effects.

Another significant criterion used to determine a border region is the presence of a major settlement with strong relations to its neighboring and nearby the border even the cross-border region. By combination of traffic availability (border crossings), push-pull-effects of the major settlements and field monitoring of the area of interest, the border region may be defined more objectively than using the above described methods.

The proportional approach also appears important. To determine a border region at the microregional level, the boundaries of municipalities or cadastres must be taken into account. For example, based on the monitoring of diffusion border effects in the selected area of the district of Cesky Krumlov, it was concluded that the municipalities located nearby the main regional traffic line from the border (the border crossing of Studanky/Weigetschlag) such as Vetrni a Cesky Krumlov show a lot more border effects than some municipalities closer to the border.

For model determination of border region using the Czech example (Fig. 4), the basis used will be the administrative determination (boundaries) of municipalities and the road network spread from border crossings towards the inland. In doing that, the decisive factor will be road distance, not direct distance.

Using this method and considering the diffusion border effect on the Czech territory, the following municipalities would fall into the border region:

- a) Municipalities located within 5 km from the state border,
- b) Municipalities located within 50 km from/nearby the roads of European importance (e.g. E55) leading from the border crossing,
- c) Municipalities located within 30 km from/nearby the main roads (highways) leading from the border crossing, or a road of European importance leading from the border crossing,
- d) Municipalities located within 15 km from/nearby the secondary or tertiary roads leading from the border crossing, or a road of European importance or a highway leading from the border crossing, and
- e) Any former district towns until 1960 of the very districts adjacent to the state border that would not otherwise be included using the above determination criteria.

Fig. 4 clearly shows quite uneven determination of the border region. The main European roads leading from border crossings are very markedly identified (e.g. E67 from the border crossing with Poland through Hradec Kralove), or even the areas nearby/along the main approach roads leading to the frontier district towns. Using this methodology, some inland territories “originated” as “islands” in the actual border region (e.g. the western part of Krusne Hory or the foreland of Novohradske Hory). Those areas are very scarcely populated with low border effects. This rather distance and cartography based method is derived from research data for the Czech border region, and of course, it may hardly / to a very limited extent / be applied to other territories. For example, a different method of determination must be used for the barrier border effect that would require a field survey of the range of border effects towards the inland, however, completed only for a limited scope in the Czech Republic during the iron curtain period (1948–1989).

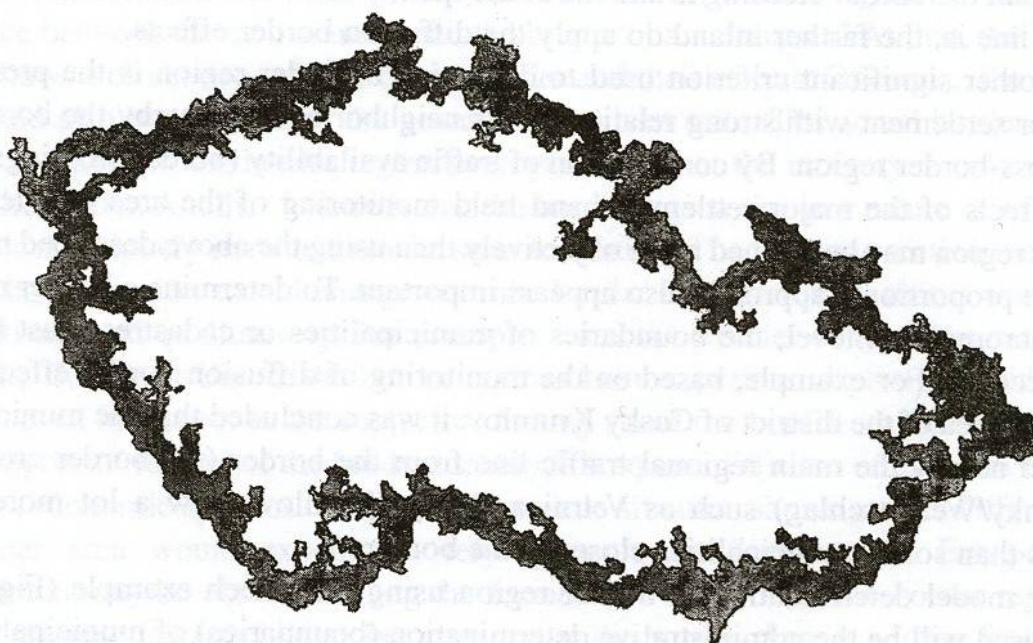


Fig. 4 Model Determination of Czech Border Region in Respect to Border Effect Penetrability

Conclusion

It is necessary to define the terms of border and border region both at the theoretical level to upgrade the knowledge system in the regional geography and at the application level to resolve the specific issues of those specific regions. At both the levels, the point is to explain the influence of border on the regional development of a border region, and the recognition of border as a barrier, or a bridge for cross-border relations. The concept of border is linked with the existence of living organism since there exist more or less obvious boundaries for any living organism to interact with neighboring living organisms as well as boundaries of its impact on the non-living vicinity. The area determined by the above mentioned interactions may be considered a border region.

In the literature, the issue of border and border region is extensively discussed in the political geography. Here you may find a number of definitions, typologies that are more or less concurrent or overlapping. The regional geography addresses the border issue in relation to the region characteristics. You may study a border directly based on the area attributes without any need to study that area in the regional point of view at first, that is without the border being a direct attribute of a region or regions. Here comes up the importance of a border crossing for study of border effects since the border crossing is by the same token an impulse, change, variability point and a local diffusion focus.

The regional research of high quality must respect several differential aspects when studying borders and border regions. The proportional aspect is very important because the position of border regions does not depend on their position in a single hierarchy, but in a hierarchical system. The situation of a border region then relies on a combination of position and local factors. The position is often peripheral in case of a border region. The development of a border region may be stimulated, or hindered with a border effect. This reflects the territories in-between the border is stretched. The situation of both the neighboring regions would be reflected in terms of border relations in the level of symmetry, or asymmetry of the border, thus even in the quantity and quality of border relations. The border effect is the very spotlight for many geographers as it provides a catalyst of the above mentioned quantity and quality of border relations.

Table 1 List of Border Effects and Their Influence on Neighboring Socio-Economic Systems Based on Border Permeability (Jeřábek, Dokoupil, Havlíček 2003)

Effect	Closed Border	Partially Open	Open Border
<i>Border Function</i>			
Barrier	Yes	Yes	No
Contact	Yes	Yes	No
<i>Border Open-Closed</i>			
Permeability	Yes	Yes	Yes
Filtration	No	Yes	No
Concentration	No	Yes	No
<i>Border Symmetry</i>			
Peripheral	Yes	Yes	Yes
Diversification	Yes	Yes	No
Polarization	Yes	Yes	No
<i>Relationship between Neighboring Regions</i>			
Estrangement	Yes	No	No
Co-existence	No	Yes	No
Co-operation	No	Yes	Yes
Integration	No	No	Yes
<i>Border Relations (Contradiction of Pair Categories)</i>			
Area	Yes	Yes	No
Continuous	No	No	Yes
Skip	No	Yes	Yes
Potential.Differential	No	Yes	Yes
Diffusion	No	Yes	Yes
Political and Histor.	Yes	Yes	Yes

Even though each border region is unique, the effort of regional geographers has been to find the criteria how to identify and determine a border region. The major criterion appears to be mainly the border characteristics affecting its permeability. The more permeable the border is, the larger area would be affected by the diffusion border effect. A similar hypothesis can be stated for the barrier effect. The more closed the border is, the larger area would be affected by the barrier effect. In many definitions of a border region, the diffusion, or barrier effect plays the major role although they often clearly lack a relationship between the local population and the given area being affected and affecting one another. The border region is withal an area close to the state border subject to frequent border effects, or even a territory perceived as border by most of the involved population.

The traffic availability that allows to create border relations proved to be critical for the methodology used to determine a border region as well as the identification of local population with the border area. Also the size and quality of a border crossing is important as well as the presence of a major settlement with strong border relations.

By combination of the above mentioned criteria, the border region was unevenly determined using an original method where the main European roads leading from border crossings are very markedly identified as well as the areas nearby the main approach roads leading to the frontier district towns.

It is obvious that the issue as described in this paper might only partially be resolved to achieve the above mentioned goal, and it is necessary mainly due to high dynamics of the phenomena described herein to continue with field studies and investigation to further clarify the above provided structures and processes.

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HRANICE A POHRANIČÍ TEORETICKÉ ASPEKTY, IDENTIFIKACE A VYMEZENÍ

Résumé

Definice pojmů hranice a pohraniční region je potřebná jak v rovině teoretické pro obohacení systému poznatků v regionální geografii, tak i v rovině aplikační pro řešení konkrétních problémů těchto specifických regionů. V obou rovinách se jedná o vysvětlení vlivu hranice na regionální rozvoj pohraničního regionu, o poznání významu hranice coby bariéry resp. mostu pro přeshraniční vztahy. Pojem hranice je spjat s existencí živého organismu, neboť pro každý živý organismus existují více či méně zřetelné hranice jeho interakcí se sousedními živými organismy i hranice jeho vlivu na neživé okolí. Oblast vymezenou zmíněnými interakcemi můžeme považovat za pohraniční region.

Problematika hranic a pohraničních regionů je v literatuře hojně řešena v politické geografii. Můžeme zde najít řadu definic, typologií, které se více nebo méně shodují či překrývají. Regionální geografie řeší problematiku hranic ve vazbě na vlastnosti regionu. Studium hranice je možno odvozovat přímo z atributů prostoru, aniž by se tento prostor musel nejprve studovat právě jen regionálně, aniž by tedy hranice byla přímým atributem regionu či regionů. Zde vyvstává význam hraničního přechodu pro studium hraničních efektů, neboť hraniční přechod je zároveň bodem impulsu, změny, proměnlivosti, lokálním ohniskem difúze.

Kvalitní regionální výzkum musí při zkoumání hranic a pohraničních regionů respektovat několik diferencujících aspektů. Významná je řádovostní měřítkovost, neboť postavení pohraničních regionů není odvislé od polohy v jediné hierarchii, nýbrž v hierarchickém systému. Situace pohraničních regionů je tak podmíněna kombinací polohových a místních faktorů. Často se v případě pohraničí jedná o polohu periferní. Impulsem resp. brzdou rozvoje pohraničního regionu může být hraniční efekt. Ten je odrazem toho, mezi kým hranice vede. Situace obou sousedních regionů se promítá z pohledu přeshraničních vztahů do míry symetrie resp. asymetrie hranice a tím i do kvantity i kvality přeshraničních vztahů. Právě hraniční efekty jsou mj. také katalyzátorem zmíněné kvantity i kvality přeshraničních vztahů.

Ač je každý pohraniční region unikátní, je snahou regionálních geografů najít kritéria identifikace a vymezení pohraničí. Významným kritériem se jeví především charakter hranice, ovlivňující její propustnost. Čím je hranice propustnější, tím je difúzním hraničním efektem ovlivňováno větší území, tedy je také rozlehlejší pohraničí. Podobně lze vyslovit hypotézu pro bariérový efekt. Čím je hranice uzavřenější, tím je bariérovým efektem ovlivňováno větší území. V mnoha definicích pohraničí má efekt difúze resp. bariéry zásadní význam, často však v nich zdatelně chybí vztah místních aktérů k danému prostoru, který ovlivňuje a jsou jím také ovlivňováni. Pohraničí je přitom prostor při státní hranici, kde se vyskytují časté hraniční efekty a nebo také území, které je jako pohraniční vnímáno většinou zainteresované populace.

Pro metodiku vymezení pohraničí se ukázala rozhodující přeshraniční dopravní dostupnost, umožňující vznik přeshraničních vazeb a dále identifikace obyvatel pohraničí s tímto prostorem. Důležitá je rovněž velikost a kvalita hraničního přechodu a přítomnost významného sídla, mající silné přeshraniční vazby.

Kombinací zmíněných kritérií bylo originálním způsobem nerovnoměrně vymezeno pohraničí, kde zřetelně vystupují hlavní evropské komunikace od hraničních přechodů a oblasti podél hlavních příjezdových komunikací k příhraničním okresním městům.