Accessibility as a major determinant of rural regions

Zoltán Topa1
Szent István University1
Faculty of Economics and Social Sciences, Institute of Regional Economics and Rural Development
Gödöllő, Hungary
e-mail1: topa.zoltan.szie@gmail.com

Abstract
Accessibility and proximity are two of the most important factors of regional development. Without well-developed transport infrastructure, goods, people and capital cannot flow between the elements of the settlement networks.
There have been many studies dealing with the role and importance of motorway networks in regional development. This is an important issue, because government spend large amount of money aiming to improve the situation of both lagging behind and already developed countries. However, there is no clear evidence which would suggest that these financial resources are useful or not (or if so, to what extent?).
This paper aims to present some relationship of lagging behind areas in Hungary, being mostly in the countryside, and their proximity of important spaces, such as the capital city (Budapest) and the centres of NUTS 2 regions.
The paper concludes with evaluation of the research results, which can shed some light on the relationship of motorway infrastructure and regional development.

Keywords: accessibility, rural areas, transport infrastructure

JEL Classification: O10, O18, R10

1. Introduction
Accessibility is one of the major factors of regional development. Countries and regions with not sufficient transport infrastructural endowment and accessibility must face serious difficulties. For instance, people of those areas will not have the means to access to as many services and jobs, reducing their chances to successfully find workplaces or to live a high quality life.

The level of accessibility also determines many other processes and activities. There are significant differences between the regions of the world, and the primary cause is population flows (Káposzta, 2014). Therefore, it is logical to assume that the easier for people to flow from one region to the other, the larger the territorial differences may become. On the other hand, population flow might lead to disparities in one region, but can potentially decrease them in the other one. From a company perspective it is also important to note that firms need to get inputs for their operations and they also need ways to send their outputs to the market, to the customers. Even in the case of services, such as hairdressers, which do not produce physical goods, accessibility is vital so customers can reach the providers.

The case of regions is similar. If there are accessibility problems the certain areas cannot gain profit from tourism, cannot transport their goods to other regions (thus not be able to maintain their export) and the flow of people, goods and services is not ensured. That is one of the main reasons behind the European Union’s transport policy as well. It is among to main priorities of the transportation branch of the Trans-European Networks (TEN-T) is to “ensure the sustainable mobility of persons and goods within an area without internal frontiers under the best possible social and safety conditions, while helping to achieve the Community's objectives,
particularly in regard to the environment and competition, and contribute to strengthening economic and social cohesion” (Eur-Lex, 1996).

Creating pan-European plans for building connections, networks, ensure the development of the Single Market, which is closely linked to spatial equalisation. It is a key issue in the European Union. In the case of the Visegrad countries, for instance, it was proven that their economic situation showed considerable diversity even at the time of their EU accession, which was further amplified by the use of European Union’s Structural and Cohesion funds (Káposzta-Nagy, 2015). This is only one evidence that territorial cohesion is still far from being achieved; however, improving transport infrastructure is one way to support this goal. There are certain resources, such as water, which are difficult to transport and store (Fogarassy et al. 2014). But that makes the role of transport infrastructure even more important.

2. Data and Methods

The paper deals with the importance of transport infrastructure, proximity and accessibility related to regional development. To this end related literature was analysed to create a background for later secondary research.

The secondary research used data from the Hungarian National Spatial development and Settlement planning Information System (TeIR), the EU Statistical Yearbook from 2014 and a study created by the European Observation Network for Territorial Development and Cohesion (ESPON) (2009).

The goal of using these materials is the following: firstly, the author tries to see the relationship between the competitiveness and accessibility of European regions. For this end, road and railway accessibility data was collected. The freshest data, collected by ESPON, was from 2006. This seems to be very outdated, but it must not be forgotten that infrastructure needs a lot of time to change; therefore, we can assume that the data from 2006 may not be perfectly applicable, but is a very good lead on the situation nowadays. The data on competitiveness is from 2014, it can be considered absolutely up-to-date.

The next section deals with the Hungarian situation. For this reason three types of data were collected (the distance of regions from Budapest, from the centres of NUTS 2 regions and from motorways). The newest available data was from 2010, but similarly to the previous case, transport infrastructure needs a great deal of time to change, so it can be considered punctual. The abovementioned three data are presented on maps, which are then compared to a map of the most-lagging behind rural areas of Hungary, to see if which regions are the most accessible and which can access to other important areas.

3. Results and Discussion

3.1 The relationship between accessibility and competitiveness in Europe

In many countries, for example, in Hungary, it was found that there is a strong correlation between the motorways and high development level of the centre areas (Péli, 2013). This seems to be true in global scale as well. We can observe the relationship between competitiveness and accessibility by examining Figures 1 and 2, comparing them with the data of Figure 3. Figure 1 demonstrates the potential accessibility (an indicator created by ESPON) of European NUTS 3 regions by roads.
The darker the regions’ colours are, the better their accessibility is. The figure clearly shows that some German, Belgian, Dutch, Austrian, Swiss and French regions are the most accessible. This result is not surprising, them being among the most developed countries in the world.

**Figure 1: Potential accessibility by roads, 2006**

![Figure 1: Potential accessibility by roads, 2006](image)

Source: ESPON, 2009

Figure 2 shows similar results, this time, about railways: regions which are economically more developed (according to, for example, their GPD or GDP per capita) have better accessibility.

**Figure 2: Potential accessibility by railways, 2006**

![Figure 2: Potential accessibility by railways, 2006](image)

Source: ESPON, 2009

The competitiveness of European Regions is illustrated by Figure 3. On the figure the blue-coloured regions are the most competitive. We can observe that the most accessible regions (both by road or railways) are typically the most competitive as well.

According to OECD (2003), competitiveness is „a measure of a country's advantage or disadvantage in selling its products in international markets“. Based on that statement it can be assumed that countries with better accessibility (an advantage) can sell their goods more easily on the international market (despite other disadvantages). On the other hand, countries with low accessibility (a disadvantage) will not be able to connect to global or macro-regional trade.
Accessibility and economic development are closely related to each other. The exact correlation is not known (and cannot be/have not been calculated) yet, but it is certain that transport infrastructure is one of the determinant of regional development.

3.2 The accessibility of rural areas in Hungary

From 2013 Hungary adopted the district system (replacing in the micro-regions administratively). It is important to establish that most of the Hungarian districts are rural ones (based on their population density and economic indicators). Figure 4 shows those districts which receive more government support (in the form of special measures and programmes) than the others.

Figure 4: The most lagging-behind districts in Hungary (2014)

There are three categories these districts can be classified to: beneficiary districts, districts to be developed and districts to be developed by complex programmes. This categorisation works like a scale where the first is the most developed one from the three and the last one is the least
developed, based on socio-economic indicators. On the figure the dark colours represent the three abovementioned categories. Also, the darker the colours are, the least developed the districts are. The darkest areas on the map can be found in the North-Eastern, Eastern and South-Western areas of the country. These parts are historically known to be underdeveloped. The North-Eastern part is underdeveloped mostly due to the structural changes in the economy after 1990 (there have high level industrial production concentrated in those parts earlier). The Eastern parts are too far from Budapest and the Western border and the South-Western areas are both far from Budapest and have a unique settlement structure which is difficult to maintain.

We can generally assume the most developed regions in Hungary are those being close to the Capital (that is why all the NUTS 2 regions are Convergence regions, except for the one Budapest is situated in). It is not surprising, therefore, to see that regions which can reach Budapest easily (in a short amount of time). If we compare take a look at Figure 2 it looks obvious that those areas from which Budapest can be reached fast perform better. On the left map of Figure 2 the different colours represent different amounts of time the Capital can be reached in. The darker the colours are the faster it is to get to Budapest from them. There are darker colours at the borders as well, but in their case it means they are even further than the lighter areas (in their case it may take more than three hours to reach Budapest on roads). The next Figures will contain comparisons between maps (an accessibility map on the left and the map of lagging behind rural regions on the right).

**Figure 4: Distance from Budapest (2010) and the lagging-behind areas in Hungary (2014)**

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However, the distance from Budapest is not the only important factor. We can observe that regions coloured yellow on Figure 2 are not necessarily among the weakest-performing areas. For instance, neither Miskolc, nor Debrecen or Nyíregyháza (cities among the top 10 settlements in Hungary based on their population numbers) are all among the underdeveloped regions, even though they are located relatively far from the Capital.

The next figure (Figure 3) is about comparing the position of lagging behind regions with the accessibility of the centres of NUTS 2 regions. The figure below shows similar results to the previous one: areas close to Budapest generally perform better than others. Also, Figure 3 demonstrates that the NUTS 2 region centres have strong gravitation fields, since settlements being close to them also on higher level than others. This statement is not true in every case, though. In the case of Miskolc (North-East) and Pécs (South-West) we can observe that not all the regions are successful from which these cities can be accessed easily.

Based on Figure 3 we can assume that accessing to region centres is a very important factor, but not the only one. Although it is true to every regions of Hungary that the centres of these regions are the most-endowed with jobs and services, there are other factors influencing the position of settlements besides being close to these centres.
Natural resources, human resources and capital are some of the success factors. It is a huge advantage to have a strong community in settlements which is proactive, and willing and able to participate in development activities. Ritter et al (2013) also points out that there is an urgent need for the designing and the implementation of bottom-up local economic development strategies, which are based on the local resources, and which connects and coordinates the local actors. This way the development subsidies will be spent on actions aiming to solve real problems the locals face. Also, it is important to mention knowledge, experience and readiness to learn for the decision-makers (on national, regional and local levels as well), since these are among the most important qualifications of modern managers of municipal partnerships (Lubimow 2014).

Besides the proximity to Budapest and to the regions’ centres, however, there is still at least one factor which is important to investigate, in regard to accessibility: the proximity from motorway hubs.

The motorway network – and generally, the transport infrastructure network – of Hungary is very Budapest-centered. As it is demonstrated on the left map of Figure 4, every motorway is interconnected in Budapest. However, making it easier for people to reach Budapest is not the only importance of the network: it helps reaching region centres, micro-region or district centres, tourist spots, other settlements with jobs and services etc. Therefore, the proximity from motorways is a very general and important advantage (or, if being far from it, a disadvantage) for settlements. This phenomenon is clearly demonstrated by Figure 4.

The darker the areas are on the left map the closer they are to motorways. By comparing the two maps on the figure above, we can establish that districts with good motorway accessibility do generally perform better than other ones. Motorway infrastructure, similarly infrastructure generally, has long-term effects on the regions it crosses. This phenomenon can be observed in
Hungary too. Motorway M1 is the oldest one in Hungary, connecting Budapest to the North-Western border, Austria, since the 1980s, and it could successfully induce economic growth in its area. On the other hand, motorway M6 (towards South-East) only reached the Southern border in 2006. Figure 4 clearly shows that districts along the Southern part of the motorway are underdeveloped compared to the Northern ones, which were reached by the motorway already in 1997.

4. Conclusion

Although nowadays – due to technological advancement – the role of proximity has been decreasing compared to some other factors in economic activities, such as industrial production (Enyedi, 2011; Tiner, 2011), it is still a very important factor of regional development.

It was demonstrated that there is a relationship between motorways and regional development, since both in Hungary and Europe as a whole the regions with the best accessibility are also the best-performing/most competitive as well. There are some further questions, however.

One question could be that which one was first? Economic development or good accessibility? In other words: have the regions developed well because of their high accessibility (well-developed transport infrastructure), or could build good quality and numerous motorways due to their high levels of development?

Also, it is not clear whether the rural regions perform lower economically due to the lack of good transport/low accessibility, or it is only a coincidence. It should be noted at this point, however, that it is commonly agreed that transport infrastructure is one factor of competitiveness (for example, in the competitiveness report of the World Economic Forum). It means that even though the extent how much it influences economic development is not known exactly, it is certain that it is one of the bases of development. Therefore, and this study supports this theory well, it is an efficient way to develop rural areas by improving their accessibility.

References


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