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The relationship between public transport and the progressive development of rural areas

Milada Šťastná*, Antonín Vaishar

Mendel University in Brno, Department of Applied and Landscape Ecology, Zemědělská 1, 61300 Brno, Czech Republic

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ABSTRACT

In a consequence of the economic transformation, transport companies compete for the most profitable lines of public transport whereas the wide countryside remains of a little interest. As a solution, integrated systems of public transport could play an important role in the development of rural areas, especially in post-communist countries. Such a system in the South Moravian Region connects 24 state, municipal and private transport companies in a unified mode. It includes unified tariff, operation management from one place, and creation of a skeleton of high capacity (train) lines with transfer traffic nodes, creation of nodes on the city fringe for the change from buses to electric vehicles and release of capabilities for tangential lines. The system competes mainly with the individual car transport by its increasing comfort and extension of services. The annual performances have increased from 118 to 829 million of passengers-kilometers in the regional transport and from 344 to 396 million passengers in the city during the period 2004–2015. The relation between accessibility and rural development, particularly depopulation trends, was investigated. It was found that the frequency of connections is sufficient throughout the territory, which is one of main reasons inhabitants should remain in the countryside. Moreover, this frequency contributes positively to rural tourism, prevents social exclusion and stimulates progressive rural development throughout the whole territory.

1. Introduction

The accessibility of transport options and a shortened commute time between and among villages, towns and cities are the main factors emphasized in the recent situation regarding the rural areas, i.e., the countryside. Rural employment in the primary sectors, namely, agriculture, forestry, and fishery, is traditionally extremely low given the Czech conditions. Therefore, the primary objective for the development of the Czech countryside and its agriculture is aimed at ensuring constant, sustainable growth and employment (Vošta, 2010). The share of people actively engaged in economic agriculture within municipalities of less than 2000 inhabitants is 5.8% (Population Census 2011). Although commuting to an industrial sector job was common even before WWII, in 2011, 35.6% of the economically active populations in rural municipalities commuted to work. Moreover, because small and extremely small rural settlements (< 200 people) have few if any available social services, the residents of these settlements must commute to attend school, visit physicians, shop for necessities, attend cultural events, etc.

Under such conditions, the method of transport to micro-regional urban centres is crucial for the rural development of Czechoslovakia (Boruta and Ivan, 2010). While the use of private cars is a possibility, a portion of the commuters are either unable to drive or do not have cars, as much of this population is composed of children, teenagers, seniors, disabled people, people on parental/maternity leave, etc. This is especially the case when there is only one car in the family, and this car is used by the economically active member for work. Accordingly, this problem could lead to the social exclusion of a part of the rural population (Lucas, 2012; Delbosc and Currie, 2011; Wee and Geurs, 2011; Stanley et al., 2011).

Many of the vehicles in use are second-hand cars, which is one of the reasons why the age structure of the Czech car park is one of the oldest in Europe (8.5 years on average, 2010[1]). That, combined with the environmental consequences, suggest that the issue of public transport is an emerging problem. Thus, the question arises whether, and under what conditions, public transport can ensure, at least partly, the accessibility of jobs and services to rural settlements and whether such services can compete with individuals' personal vehicles.

The paper discusses theoretical backgrounds, presentations of the integrated transport system of the South Moravian Region as a case

* Corresponding author.
E-mail addresses: stastna@mendelu.cz (M. Šťastná), antonin.vaishar@mendelu.cz (A. Vaishar).

[1] Directory of Roads and Motorways of the Czech Republic; the data are calculated for the cars recorded during the 2010 transport census.

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study, and an analysis of the relation between public transport and rural development, especially the relationship between transport accessibility and depopulation tendencies of rural communities.

Public transport and rural areas

The problem of public transport accessibility is perceived as one of the crucial issues of rural development. Farrington and Farrington (2005) consider such accessibility as one of the most urgent challenges of the contemporary rural development policy. Such an approach suggests that public transport accessibility is not only an economic problem (Button, 2010) but also a political and social issue (Masoumi, 2013). Whereas Velaga et al. (2012a,b) highlight that transport accessibility is one of the decisive disparities between urban and rural communities, Gray et al. (2006) extend this argument by putting it in the context of mobility, accessibility and social capital given that mobility is a necessary pre-condition of social capital. More specifically, with respect to the investigation of transport accessibility, the work of Nieto Masot and Cárdenas Alonso (2015), which focuses on health and educational services in Extremadura, is of particular interest. Vanderbulcke et al. (2009) compare the spatial structure of car accessibility to towns and railway stations during peak and off-peak hours in Belgium for the country's 2616 municipalities. Currie (2010) identifies spatial gaps in public transport provision for people who are socially disadvantaged. Mavoa et al. (2012) highlight the importance of including measures of transit frequency when investigating public transit access. Commins and Nolan (2010) and Salon (2009) focus on the determinants of car ownership and car use for commuting. Lei and Church (2010) discuss the measurement of transit accessibility.

In developed countries, public transport in rural areas is perceived as an alternative to private car use, for example, with a goal to save the environment in protected areas (e.g., Eaton and Holding, 1996). However, such efforts are not always successful. In the post-communist countries, the changes in rural public transport are one of the side effects of the rural and agricultural transition (see Rey and Bachvarov, 1998), which Pucher and Buehler (2005) characterize as the dramatic growth of private car ownership and a corresponding decline in public transport. Taylor (2006) illustrates this by noting the example of the closed railways in Poland.

Experts in developing countries most often discuss the problem of public transport in quickly developing cities and/or its (i.e., public transport's) connection with peri-urban areas. Public transport in rural areas is rare because these areas are often extremely poorly connected to transport infrastructure (Santos et al., 2010). Furthermore, the density of rural roads, which is the basic condition for public transport, is sometimes problematic in these areas, which include the lowest regions in sub-Saharan Africa, the Middle East and North Africa, although the length of the rural roads even in these areas has been substantially increased in the recent years (Faiz, 2012). Accordingly, there are only a few studies that have analysed rural public transport in developing countries (Yukawa et al., 2014).

2. The situation in the Czech Republic

Ivan et al. (2013) investigated the accessibility of peripheral regions in Czechoslovakia by public transport using the developed software TRAM (VŠB-TU Ostrava) (Fojtík et al., 2011) to evaluate time-tables and examine the possible use of a massive data source developed by Marada and Hudeček (2006). Ivan et al. (2013), upon finding that public transport in Moravian districts is used more frequently than it is in Bohemian regions, deduce that the difference is the result of the different lifestyles of the two groups. However, the cause could be grounded in better functioning systems of public transport that are pre-conditioned by a different settlement structure, such as larger rural settlements in Moravia.

Before the transition, Czech public transport was organized by the Czechoslovak State Railways, Czech state car transport and municipal transport enterprises of individual cities and towns. All transport services were publicly owned, and the economy of the traffic played only a limited role. This situation substantially changed after 1990 (Tomeš et al., 2014), however, especially in peripheral rural areas where public transport is now being limited due to market conditions. Considering that former Czechoslovakia had one of the densest networks of public transport in Europe and one that completely ensured commuting opportunities for work and education, this limitation was probably the first substantial impact of the political change on rural settlements. Private companies competed for the most profitable lines and times among towns and large villages, whereas the peripheral areas were of little interest to these companies.

Although the situation was partially stabilized during the second half of the 1990s, the decline in public transport in peripheral settlements has remained an issue (see Marada and Květoň, 2010). At the same time, the Czech Republic was fully open to general European trends. For example, the abolishment of rural schools in small villages (Hudečková and Husák, 2014) was due to the lack of pupils, a situation that resulted from a decreasing fertile population and an increasing ageing population (Kučerová and Kučera, 2009). Furthermore, the meteoric rise of hypermarkets and supermarkets on the city fringes provided strong competition for the small rural shops, a European problem solved by different measurements of market, state and citizen's powers (Küpper and Tautz, 2015). Thus, the demand for public transport has increased.

In general, the Czech countryside experienced the same evolution as the entire society, which was characterized by a significant differentiation between winners (large villages and car owners) and losers (small villages and disabled people). In this situation, the regions, i.e., those established in 2000, faced a decision: let the accessibility of rural seats run its course and consequently solve emerging problems such as social exclusion, unemployment, etc. (Sálus et al., 2014) or proceed with a non-market solution that supports public transport in rural areas.

3. Integrated transport system of the South-Moravian Region

The original idea to establish an integrated transport system was developed in German speaking countries, such as Germany, Switzerland and Austria. For instance, the first integrated system of public transport (Hamburger Verkehrsverband) was established in Hamburg in 1965, whereas an innovative fare system was introduced in Basel in 1984 (Schley, 2001). The majority of these integrated transport systems, however, were radially oriented, meaning that they solved the transport problem between the main city and its hinterlands or they served as extensions of the municipal transport to the surrounding areas.

Whereas the concept of radial transport is important also for the South-Moravian region, its goal is to ensure the accessibility of the whole area, including the rural seats, to public transport. The Integrated Transport System of the South-Moravian Region (IDS JMK) is organized by the joint stock company, KORDIS JMK, which is owned by the South-Moravian Region (51%) and the city of Brno (49%). It was established in 2002 with the capital of one million CZK (approximately 37,000 €) and 35 employees. The South-Moravian Region expected quality public transport coverage for the whole territory that would satisfy the maximum demands of the inhabitants. Similarly, Brno expected a decrease in individual transport coming to the city, a coordination of metropolitan and suburban public transport and an improvement in conditions for its citizens travelling to surrounding areas.

The standards ensured by the IDS JMK are as follows: each settlement should be served by public transport a minimum of six times on work days and three times on weekends and holidays, the accessibility of the closest stop is a maximum of two km from each residential area in the region (with respect to local conditions), the maximum waiting time of transfers is ten minutes (including walking time between stops), and passengers can use a uniform ticket or a seasonal ticket regardless of the manner of transport or the company.

Formerly, all the transport companies competed for the most