THE PROTECTION OF TRAIN CREWS DURING THEIR WORK IN THE AGGLOMERATION OF BUDAPEST

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Abstract

A peaceful, prosperous era for Hungary began with the Compromise of 1867. Especially the development of Budapest was impressive at the turn of the 19th and 20th centuries, which made the capital a real metropolis in the heart of the Carpathian-Basin. At this time, the establishment of the proper railway network and railway connections gave the basis of the economic prosperity of the country. Development of railway had not only positive, but also negative effects, such as the emergence of dangerous criminals, robbers, thieves, violent people who harmed the passengers and threatened the safety of rail transport. In the recent years, the number of violence attacks increased against the train-crew members (e. g. ticket inspectors, train drivers). Especially trains running in the agglomeration of Budapest have required police actions. The study consists of three main parts. The first part contains a brief presentation of the Hungarian railway system, the second part presents the suburban and local railways (HÉV) in the agglomeration of Budapest, and the third part presents the nature and number of crimes committed against the train crew members and the security regulations against attacks.

Keywords: *train, abuse, law, transportation, railway*
JEL classification: *R41*
LCC code: *TF 501-668*

Introduction

In the more than 150 years since the handover of the first Hungarian railway line (Pest-Vác) in 1846, the continuously expanding Hungarian railway network was able to follow the needs of industrializing economy, while being the engine of the development of modern society. Following the Compromise of 1867, the state played an increasingly important role in the development of the railway network, and for this, it sought and received authorization to take out a significant amount of state loan for the development of the railway. Hungarian State Railways (MÁV) is one of the oldest transport companies in Hungary. In 1869, the Ministry of Public Works and Transport decided to purchase the privately owned Pest-Hatvan- Lučenec (Losonc)-Banská Štiavnica (Selmecbánya) railway line from the bankrupt owner. The company operating this line and the soon-to-be-handed Zákány-Zagreb line has been named the Hungarian Royal Railways. This year is considered to be the founding year of MÁV, and the purchased line became MÁV's first railway line. The era of the Hungarian railways up to World War I coincided with the intensive integration of the country into the European economic system and the booming pace of rail transport as a developing transport sector in an international context. During this period, one of the basic conditions for the economic recovery of the country, individual regions and settlements was the construction of an adequate railway network and the establishment of a railway connection (Erdeiné Késmárki - Gally-Fenyvesi, 2012). In response to this need, one of the most dynamically developing railway networks in contemporary Europe was created in a few decades (Köller, 2003). The largest extent of the

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Hungarian railway network was reached by the beginning of World War I, when 21,200 km of normal track gauge and approx. 1,600 km narrow-gauge railway line was built (Figure 1). By then, a significant part of the Hungarian railway lines, about 19,000 km, were owned or operated by MÁV, only a fraction of them were managed by private companies (for example, the Danube-Sava-Adriatic Railway Company, whose lines were nationalized only in 1932). An important part of this railway network was the local railway network. The main aspects of the construction of local railways were savings, the involvement of local materials, assets, capital and labour, as well as the low-cost level of the operation in line with the small turnover (Tisza, 1996, Áldorfai et al. 2017). Such were, for example, the local railways from Budapest to Esztergom and from Budapest through Lajosmizse to Kecskemét, which are now part of the MÁV line network. Figure 1 shows a map of the Hungarian royal state railways and the local railways under their management from 1914. The map showed 138 local railway lines, of which 129 were normal gauge and 9 were so-called narrow-gauge. MÁV's branch network later developed from most of these lines. In 1918, 57% (approximately 13,000 km) of the 23,000-kilometer Hungarian railway network was in the hands of HÉV companies (Wettstein -Szabó, 2005).

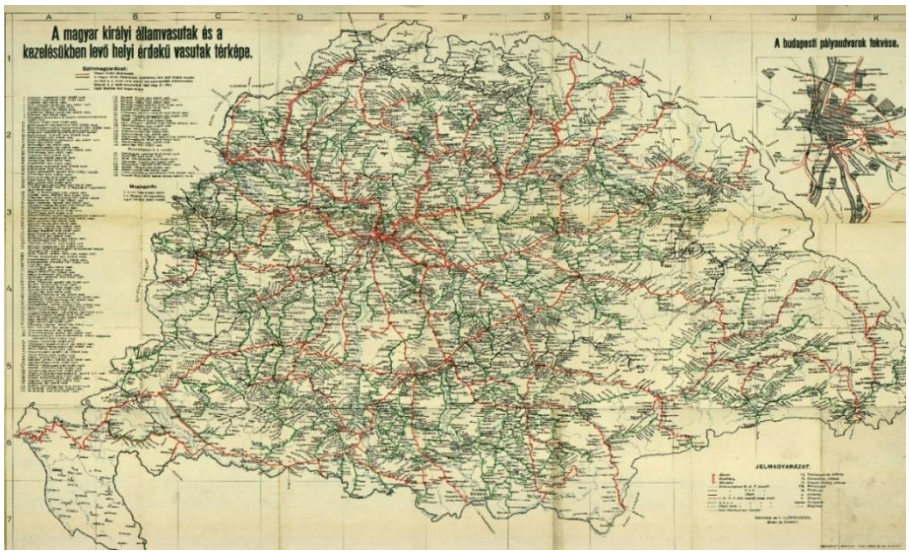

Figure 1: Map of the Hungarian royal state railways and the local railways under their management in 1914

Source: (MMKM, 1914)

Territorial changes following World War I marked a significant transformation in the company's life, as most of the line network became the property of other countries (Péli - Neszmélyi, 2015). The Hungarian railway network was established in sync with European development and until the World War II it was able to keep pace with technical developments (network density, proportion of double-track lines, proportion of electrified lines, speed allowed on the track, proportion of seamless superstructure, proportion of bulky rails, number of stations, level crossings, structures, interlocking, etc.). Today, the MÁV Group is Hungary's largest and most important fixed-track transport service provider. The responsibilities of the 30 member companies of the company group include, among other things, the operation of the track network, passenger transport, traction, maintenance and vehicle production. On July 1, 2007, the passenger transport subsidiary, MÁV-START Zrt. was established, which serves passengers on the Hungarian 7,273 km railway network at a total of 1,344 points (railway stations, stops) every day, with thousands of trains a day. The company currently operates 1863 passenger cars, 467 motor cars and 976 (diesel / electric) locomotives (MÁV-START, 2020).

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The changes in recent decades (such as motorization, the development of transport, changes in travel habits and needs, digitalisation, environmental protection, etc.) are having an impact on the environment and challenging the railways to respond. Examining the passenger transport data (Figure 2) it can be identified that the measured data has been a steady decline the 1970s, and with the development of motorization, the railways have been gradually pushed out of the traditional transport market. With the emergence of the market economy in the 1990s, and the disappearance of the previously artificially maintained economic environment, the railways collapsed as the adverse effects on rail transport occurred simultaneously. After the low point of 2010, due to developments and railway renovations, the decline has stopped, and the number of passengers has even increased by about 10 million in the last 10 years. This promising trend was broken by the downturn caused by the Covid-19 epidemic in 2020.

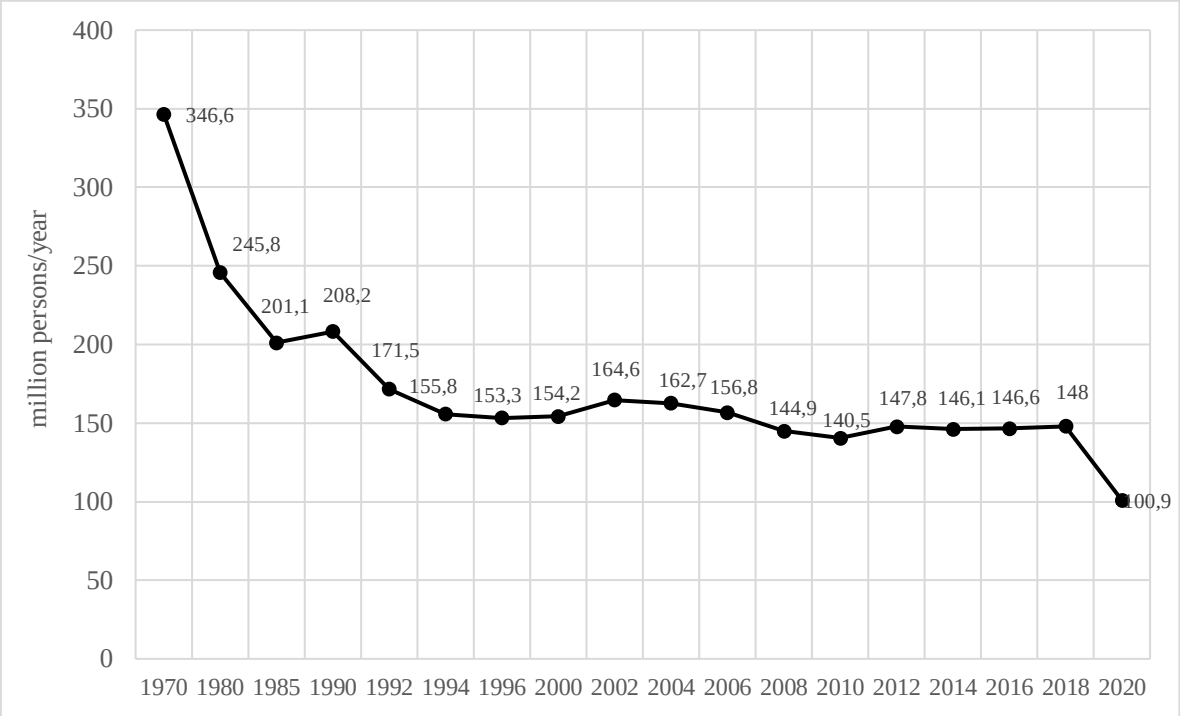

Figure 2: Statistics on rail passenger transport (1970–2020; million persons / year)
Source: (Köller, 2003, KSH, 2021.)

After the unification of the capital in 1873, the number of people, who worked in Budapest, but built houses and lived in cheaper areas of the surrounding settlements, increased rapidly. There was a growing demand from commuters to travel in increasing numbers between their place of residence and their place of work. Today, the Hungarian railway network is characterized by a central layout that follows the centrality of Budapest arising from historical and economic conditions of the country. A significant proportion of the transit and long-distance segments of rail passenger and freight transport affects the capital. The national network structure has a positive effect on the direct provision of agglomeration and long-distance connections for Budapest. The central role of the capital culminates in commuting among employees and students. More than 50% of the domestic railway passenger traffic appears on the railway network of Budapest and its surroundings. Figure 3 shows the railway network map of the Budapest area and the year of construction of the railway line.

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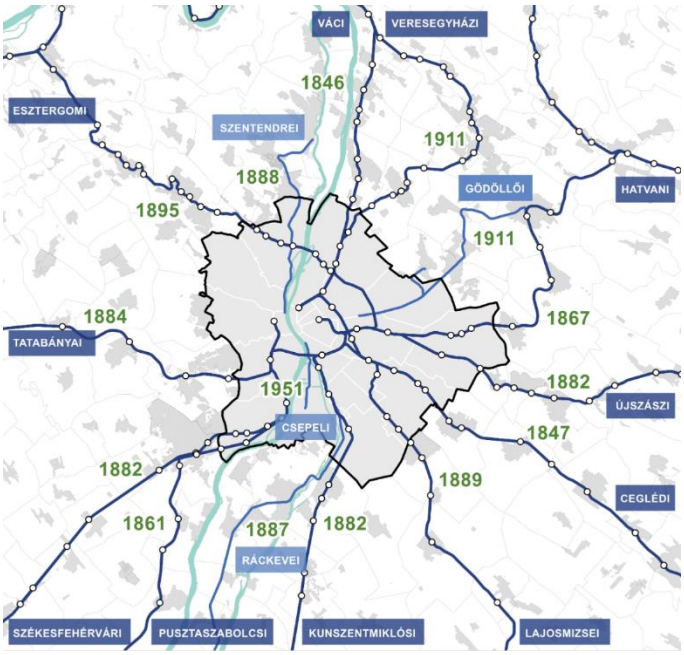

Figure 3: Budapest suburban railway network

Source: BFK (2021)

The largest railway traffic in the agglomeration of Budapest is handled by lines 100a (Budapest – Cegléd – Szolnok), 70 (Budapest – Vác – Szob) and 30a (Budapest – Székesfehérvár). Lower traffic can be measured on lines 142 (Budapest – Lajosmizse), 150 (Budapest – Kunszentmiklós – Tass) and 71 (Budapest – Veresegyház – Vác) (Table 1.). Due to the poor condition of the railway infrastructure on these lines, the lower level of service seems to be a significant influencing factor. According to surveys, the busiest railway stations in Budapest are the main railway stations (Budapest Nyugati, Budapest Keleti, and Budapest Déli railway stations), as well as Budapest-Kelenföld and Kőbánya-Kispest stations (MÁV-START, 2020).

Table 1: Daily number of passengers on suburban or local rail lines in the Budapest agglomeration

Line number (Start and end station)	Daily number of passengers (persons)	Percentage distribution (%)	Service provider
H5 (Batthyány square – Szentedre)	116 000	25%	MÁV-HÉV
H7 (Boráros square – Csepel)	59 000	13%	MÁV-HÉV
H8-H9 (Örs vezér square – Gödöllő/Csömör)	43 000	9%	MÁV-HÉV
70 (Budapest – Vác – Szob)	42 000	9%	MÁV-START
100a (Budapest – Cegléd – Szolnok)	42 000	9%	MÁV-START
30a (Budapest – Székesfehérvár)	31 000	7%	MÁV-START

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120a (Budapest – Újszász – Szolnok)	27 000	6%	MÁV-START
H6 (Közvágóhíd – Ráckeve)	27 000	6%	MÁV-HÉV
1 (Budapest – Tatabánya)	16 000	3%	MÁV-START
80a (Budapest – Hatvan)	15 000	3%	MÁV-START
2 (Budapest – Esztergom)	13 000	3%	MÁV-START
40a (Budapest – Pusztaszabolcs)	12 000	3%	MÁV-START
71 (Budapest – Veresegyház – Vác)	10 000	2%	MÁV-START
150 (Budapest – Kunszentmiklós – Tass)	6 000	1%	MÁV-START
142 (Budapest – Lajosmizse)	5 000	1%	MÁV-START
Total	464 000		

Source: Self-editing based on BFK (2021)

The lines of fixed-track transport (railway, HÉV) densely network the agglomeration of Budapest. As can be seen from Table 1, the local railways operated by the MÁV-HÉV can be considered as an important pillar in the transport of Budapest and the agglomeration. Today, 892 trains run daily on five lines of the HÉV, on a network of barely 100 kilometres, on a track length of 174 kilometres, with an outstanding schedule on school days (MÁV-HÉV, 2019). The daily number of passengers is approx. 245 thousand people (Table 1).

The construction fever of local railways did not escape Budapest in the 19th century. As the first swallow, the Budapest – Szent-Lőrinci Local Interest Railway Co. handed over the narrow-gauge tracks built between Üllői út and the Lőrinc Brick Factory in April 1887. However, the line did not become part of the later core network, its HÉV nature ceased in a short time and it became part of the tram network, so it has not be considered a real, classic HÉV line. The first ten-kilometer HÉV line between Budapest Közvágóhíd and Soroksár was handed over on August 7, 1887, and in the same year it was extended to Haraszti, and then in 1892 to Ráckeve. The first section of the Gödöllő line (from the Keleti Railway Station to Cinkota) was handed over to traffic on July 20, 1888, while the Filatorigát – Szentendre line was handed over to traffic on August 17, 1888. The first HÉV in Csepel was opened as the wing line of the Ráckeve HÉV in 1912, then the Csepel high-speed railway was built to Boráros Square in 1951. These HÉV lines still work today, albeit on some slightly changed routes. The Vác – Budapest – Gödöllő line was built as a local railway line outside of Budapest, but it is definitely worth mentioning. When the line was handed over in October 1911, it was the first electrified railway line in Hungary. It was connected to MÁV's track network at all three endpoints of the track. In Rákospalota and Vác, it had a direct connection with the MÁV main line in the direction of Szob, in Gödöllő with the Budapest – Hatvan – Miskolc MÁV main line, and with the Budapest – Gödöllő BHÉV line. The two parts of the electrified line were the 41-kilometer main line

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between Rákospalota – Veresegyház – Vác and the 11-kilometer wing line branching from Veresegyháza to Gödöllő (Lovas, 1999). The line was operated by MÁV. Following the post-World War II reconstruction, traffic began with steam traction on both the main and side lines. In 1970, MÁV closed the Veresegyház – Gödöllő line. Currently, the Vác – Veresegyház – Budapest line is MÁV's electrified line 71.

More than 80% of the passengers on the lines operated by MÁV-HÉV travel within the administrative boundaries of Budapest. The traffic of Békásmegyer, Kaszásdűlő, Csepel would be unsolvable without the HÉV lines operating here. At the same time, the biggest problem of HÉV is that the stops and tracks have remained almost unchanged since their construction, they did not follow the change of travel habits and the development of the city. In order to deal with the situation, we can consider the development of the 11 suburban MÁV and the five MÁV-HÉV lines as the Government Decision of 1563/2018., 1564/2018. and 1565/2018. (XI. 10.), which formulate the intention to create a well-thought-out, uniform fixed-track networks in order to provide a suitable alternative to private transport.

Material and method

Tens of thousands of passengers take part in rail traffic every day, unfortunately, as in other areas of life, there are passengers who do not take into account other passengers or the train staff employed by MÁV-START Zrt. Both passengers and traveling crew are regularly abused by aggressive passengers, who may be drunk or under the influence of a mind-altering substance. The railway company shall take all possible measures to guarantee the safety of on-board ticket inspectors. In recent years, MÁV has concluded a number of police and civil guard agreements, ordered security personnel, railway escorts, and implemented security investments. The railway company pays special attention to assisting in criminal proceedings for crimes against workers.

According to Act C of 2012 on the Criminal Code, ticket inspectors are persons performing public duties, therefore attacks against them are considered as criminal offenses and must be severely punished. According to Section 310 of Act C of 2012 on the Criminal Code:

„Assault on a Public Official

(1) Any person who:

a) attempts to prevent a public official or a foreign public official in his lawful proceedings by force or by threat of force;

b) takes certain action to compel a public official or a foreign public official to do, or to refrain from doing, some act;

c) assaults a public official or a foreign public official during or because of his proceedings; is guilty of a felony punishable by imprisonment between one to five years.

(2) The penalty shall be imprisonment between two to eight years if the assault against a public official is committed in a gang, by displaying a deadly weapon or by carrying a deadly weapon.

(3) The organizer or head of the gang referred to in Subsection (2) shall be punishable with imprisonment between five to ten years.

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(4) Any person who participates in a gang arranged to commit assault against a public official is guilty of a misdemeanor punishable by imprisonment not exceeding two years, while the organizer and the head of the gang shall be punishable for a felony by imprisonment not exceeding three years.

(5) The person who assaults a public official or a foreign public official because of his proceedings shall be punished according to Subsections (1)-(4), even if the assaulted person is no longer a public official or foreign public official at the time the criminal act was committed.

(6) Any person who engages in preparations to commit assault against a public official is guilty of a misdemeanor punishable by imprisonment not exceeding one year.

(7) A person participating in the above-specified gang shall not be prosecuted under Subsection (4) if he leaves the gang voluntarily or by order of an authority."

Research results

With the help of the Security Directorate of MÁV-START Zrt., I conducted a research to determine the number and typical location of such crimes (Figure 4) (MÁV-START, 2020).

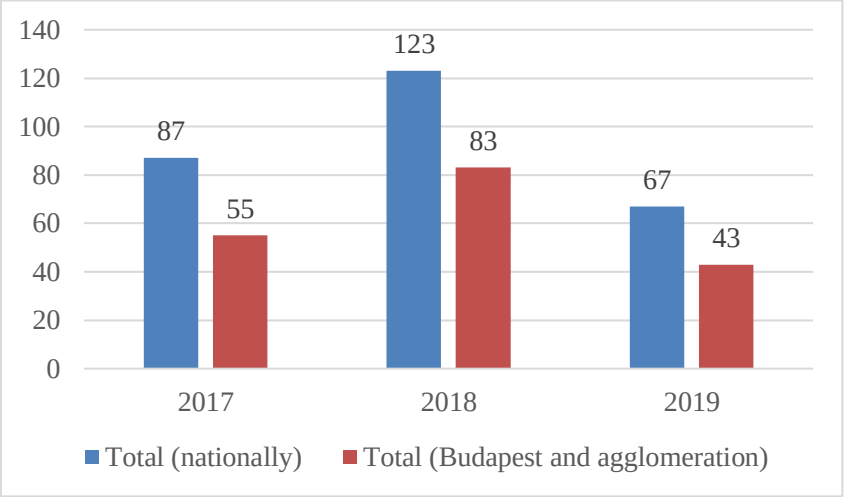

Figure 4: Number of abuses against train crew on the lines of MÁV-START Zrt. (2017–2019)

Source: Self-editing based on MÁV-START (2020) data

In 2017, there were 86 attacks on train crew. Typically, they were punched in the face, spit out, or subjected to verbal aggression. There were also cases where the perpetrators threatened them with knives, kicks, punches, obstructed their free movement. The vast majority of offenders (more than 3/4) wanted to travel without a ticket or with an invalid or transferred ticket. In 2017, 75 complaints were filed and one court judgment was rendered (other proceedings are pending). In the following year (2018), there were already 123 cases of abuse on ticket inspectors. In 2019, there were 67 attacks on ticket examiners, of which 32 degenerated into acts (punches, jolts, scratches, kicks), and in one case there was more than eight days of injury. According to the data of the railway company (MÁV-START, 2020), in the three years examined, almost 70% of the abuses took place on the busiest suburban railway lines in Budapest (Figure 4).

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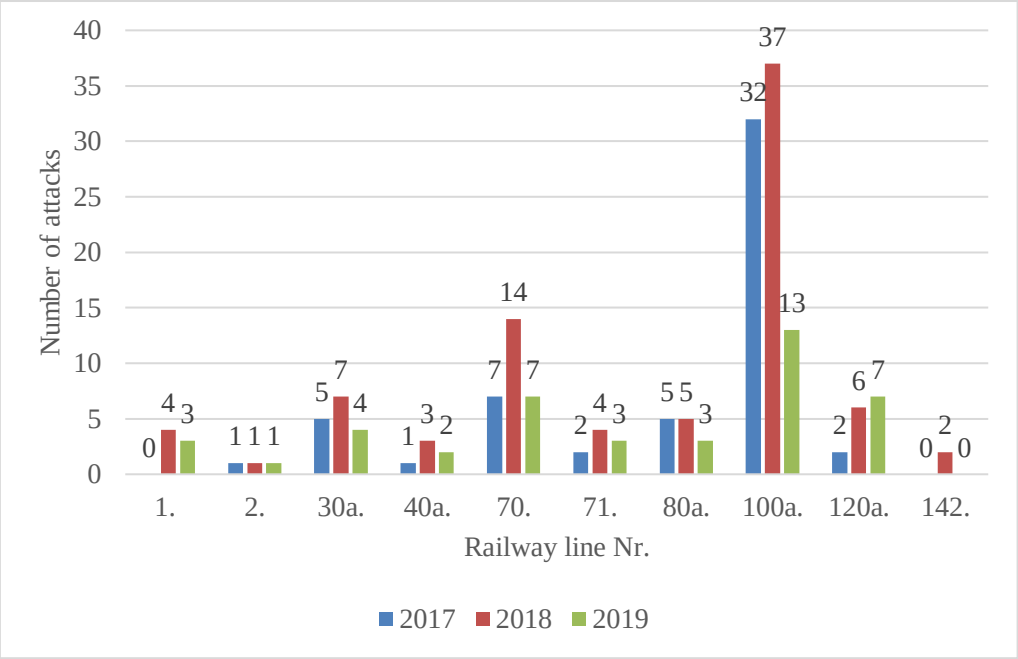

Figure 5: Number of abuses of train crew on the Budapest suburban lines of MÁV-START Zrt. (2017–2019)

Source: Self-editing based on MÁV-START (2020) data

Figure 5 shows that the most problematic line of suburban traffic in Budapest is the line 100a (Budapest – Cegléd – Szolnok) from a safety point of view, where the number of abuses against train crew members was exceptionally high in all three years compared to other suburban lines.

To address the unsustainable situation, the railway company has introduced a package of measures (MÁV-START, 2020):

- An awareness campaign was also launched as part of the package.

  - Passengers are reminded through loud passenger information devices that violence against public officials always involves police action and has criminal consequences.
  - Warning stickers were placed on the windows of the cash registers of the stations and in the interior of the vehicles.

- On some lines, at certain times, ticket inspectors check tickets in pairs and put a railway guard or standby police officer next to those who work alone between six in the evening and six in the morning.

- To prevent attacks, almost 80,000 trains a year escorted by security staff and 8,000-8,500 by police.

- From 2017, the railway company carried out practical testing of a new camera system. In 2018, the system was extended to certain parts of the Budapest agglomeration. Construction of a nationwide mobile camera recording system has begun.

- From September 2019, in addition to the previous ones, the company's ticket inspectors received an additional 103 body cameras and docking stations were installed at 12 sites.

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- As more appropriate conflict management methods can often be used to prevent a more serious stroke, the affected employees participate in special conflict management trainings in order to develop their skills.

- From August 2020, the company's ticket inspectors received an additional 66 body cameras. Experience has shown that the use of a body camera is a very effective tool in preventing the abuse of ticket inspectors. In order to avoid incidents, unlike the previous voluntary practice, from August 2020, ticket inspectors serving on designated trains will be required to use a body camera in Budapest-Esztergom, Budapest-Pusztaszabolcs, Budapest-Cegléd-Szolnok, Budapest-Újszász-Szolnok, on the Budapest-Göd-Vác-Szob, Budapest-Veresegyház-Vác and Budapest-Lajosmizse-Kecskemét railway lines.

Conclusions

In addition to the growing demand for mobility, transport safety is an increasing challenge both internationally and domestically. Rail transport and safety are inseparable concepts: without strict rules ensuring a high level of safety, rail transport would not have been able to develop, as neither passengers nor staff would have travelled by train. Railway safety can be divided into two closely related areas: to reduce operational safety or the risk of accidents, and to increase the safety of property. The MÁV Group can feel the positive effect of property protection expenses. In the field of property security, the greatest challenge for the railway company is the occurrence or prevention of damage and theft related to track, structure, telecommunications, insurance and power equipment, material theft and other acts against property. The measures introduced by the railway company showed tangible results already in 2019. The number of crimes has decreased significantly in the last year, for example, the number of abuses against ticket inspectors has almost halved compared to the previous year, in which increased control by the authorities shall felt.

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