

Beatrix Király¹⁴ – Zoltán Musinszki¹⁵ – Katalin Lipták¹⁶

The impact of environmental changes on the revenues and costs of Hungarian CEP companies

The emergence and steady growth of e-commerce and its impact are of particular importance for many sectors of the Hungarian economy. One such sector is CEP, i.e., Courier, Express, Parcel. CEP is one of the sectors which, in addition to e-commerce, have been positively affected by the measures taken under COVID-19. In our research, we are looking at the impact of environmental changes in recent years on the revenues and costs of three leading Hungarian companies with an international background. The aim of the research is to describe the changes in the financial situation of these Hungarian companies. We have used publicly available financial data. The CEP market is characterised by the outsourcing of services. This is confirmed by their cost structure. Due to this high level of outsourcing, changes in the global market (such as the increase in fuel prices or the EU's 2019 motor vehicle regulation) have not directly affected companies' costs. It was also found that companies were able to be very flexible in their pricing relative to their costs.

Keywords: Courier, Express, Parcel, DHL, UPS, GLS, Profitability
JEL code: G23

<https://doi.org/10.32976/stratfuz.2023.15>

Introduction

The coronavirus epidemic in spring of 2020 had a significant impact on the situation of mail order companies, with consumers increasingly opting for online solutions and increased e-commerce increasing their turnover and thus their revenues (Lipták - Musinszki, 2022).

The conceptual definition of courier, express and parcel services (Courier, Express, Parcel, CEP) is not a simple task, its sub-domains are not always clearly distinguishable. The most commonly used concept is that courier, express and parcel services are logistics channels that are capable of delivering relatively small and lightweight shipments in a timely and reliable manner and are characterised by the service provider's commitment to the sender to deliver the shipment within a specified timeframe or at a specified time (Okholm et al., 2013; Kawa and Różycki, 2018, World Economic Forum, 2018).

The courier service is characterised by the fact that no transshipment or processing takes place, the same person delivers the consignment to the consignee as received from the sender. The delivery is made either personally or by car or van. Same day delivery is agreed. The size, weight and nature of parcels are limited differently by the service providers.

In the case of express services, the mail is collected from the sender, processed and then forwarded from a central transshipment point to the addressee. Delivery times are fixed, and typically smaller unit loads (i.e. not freight) can be moved. Road and/or air transport is the most common. The service provider provides accurate information on the route, location and delivery of the shipment (Szegedi - Perzenszki, 2017, Okholm et al., 2013; Kawa and Różycki, 2018,)

¹⁴ economist, University of Miskolc

¹⁵ associate professor, University of Miskolc

¹⁶ associate professor, University of Miskolc

Parcel delivery services cannot be sharply separated from express services (often, they are operated by the same organisations). They are characterised by normal delivery times, with stricter restrictions on the size and weight of the items (Szegeci - Perzenszki, 2017).

CEP in the international and Hungarian economy

The number of parcels delivered globally has increased 2.6 times in the last six years (Figure 1), and market analysts expect a further doubling by 2026, with 131 billion parcels delivered every second in 2020, or 4,160 parcels.

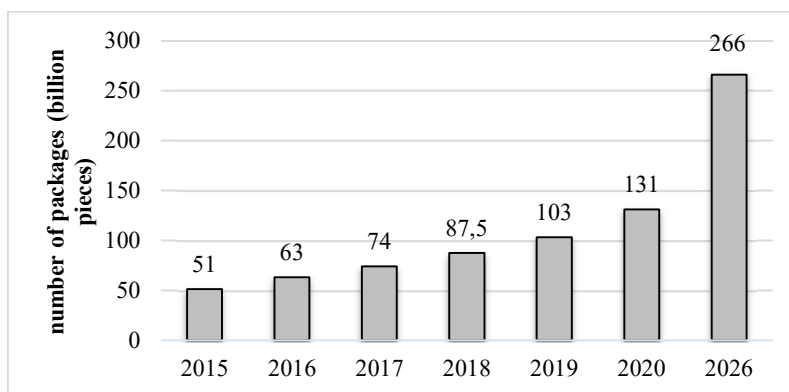


Figure 1: Number of packages delivered worldwide (2015-2026)
Source: based on research by Pitney Bowes (2021) and Statista

In terms of the number of deliveries, China is the leader with 83.4 billion shipments per year, followed by the United States with 20.2 billion and Japan with 9.1 billion. The three countries thus account for 87% of the world parcel delivery market. In Europe, Germany is the "top" with 4.1 billion shipments, followed by France (1.6 billion), Italy (1.3 billion), Norway (98.5 million), Sweden (170 million) and the United Kingdom (Pitney Bowes, 2021).

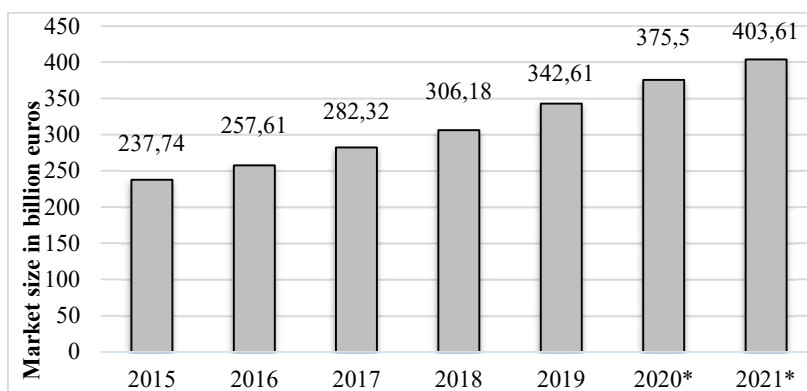


Figure 2: Global CEP market value (2015-2021)
Source: own editing based on Statista research¹⁷







This increase in parcel volumes has led to a 44% growth in the market from 2015 to 2019, rising to \$394 billion by 2021 (Courier, Express and Parcel (CEP) Market, 2022). Some estimates

¹⁷ <https://www.statista.com/statistics/723986/cep-market-total-revenue-worldwide/>

suggest that this market is expected to reach \$676 billion by 2027, while others suggest that it will be "only" \$591 billion by 2028. Whichever way you look at it, analysts are certainly optimistic about the growth of the CEP markets and the picture is certainly one of a dynamic industry (Mazur et al., 2019, Esser - Kurte, 2021)

Globally, the largest players in the market are led by UPS with a capital value of €162.7 billion, followed by Germany-based DHL with nearly half that value, then FedEx and China's SF Express (Table 1). The first five columns of the table show the top five players by capital value. GLS, in the sixth column, is one of the subjects of our analysis. It is not in the top 10 in terms of capital value, but it is very popular in parcel delivery in Europe and therefore in our country.

Table 1: Emerging global players in parcel services (2020-2021)

Title	UPS 	DHL 	FedEx 	SF Express 	Japan Post 	GLS 
Market capitalisation (billion dollars)	162,7	83,1	60,8	47,9	33,9	n.a.
Revenue (2020-2021)	97,3 billion USD	66,8 billion EUR	84 billion USD	24 billion USD	109,9 billion USD	4,5 billion EUR
Number of employees (headcount)	534 000	400 000	600 000	121 925	194 842	21 000
Coverage (number of countries)	220	220	220	78	50	41
Date of incorporation	1907	1969	1971	1993	1885 /2007	1989
Headquarters	USA	Germany	USA	China	Japan	Netherlands

Source: Research by Statista¹⁸ and based on company websites, business reports, own editing

In most European countries, however, global players compete with one or two large domestic players in terms of service offerings and costs. For example Post NL (Netherlands), Le Groupe La Poste (France), Royal Mail (UK), Grupo Correos (Correos Express) in Spain and Hermes Logistik Gruppe (B2C segment) in Germany. This is "competition", i.e. mostly from large domestic postal operators (Kiss et al., 2014)

In Hungary, the parcel and courier market was dominated by Magyar Posta until the mid-1990s, and then, after the opening of the market, new operators entered the market. TNT, UPS, DHL, FedEx were the first to emerge, followed by GLS, DPD, Trans-o-flex after the 2000s. Finally, there were Hungarian-owned companies specialising in the B2B sector and working only with domestic orders, such as Sprinter. Since the 2010s, specialisation has become the dominant factor, alongside acquisitions and changes of ownership (Diófási-Kovács - Szilágyi, 2019).

Activity and expansion of the companies in Hungary

DHL Express classifies its principal activity in the Supplementary Annex under Other postal and courier activities, which includes: road freight transport, other supporting transport services, customs clearance and cargo handling. It also offers a choice of export, import and domestic services for private individuals, with a choice of Same Day delivery, for less urgent parcels

¹⁸ <https://www.statista.com/chart/25845/market-capitalization-of-biggest-courier-companies>

between 1 and 3 days, or next day delivery for time-sensitive parcels. Next day deliveries, with a specific time interval, are not specified as being only available in Hungary.¹⁹

For business customers, the **Globalmail Business service** is available, under which DHL Express delivers large volumes of envelopes and parcels to its partners. It does this through its own network and in cooperation with local postal partners. This service is ideal for companies that want to reach a large number of people with a minimum of effort.

DHL Express also handles **Medical Express shipments**, i.e. medical and clinical shipments, which means the delivery of various samples to hospitals, laboratories, clinics or clinics for research and analysis. As I explained in the previous chapter, it makes sense to transport such shipments by air, and I think it would be possible, for example, to have a concept whereby DHL has a permanent customer base for this special service, for example, even in a German-Hungarian transport relationship.

Table 2. Key data on enterprises

Title	DHL	UPS	GLS
Time of foundation (Hungary)	December 1987	June 2010	April 1998
Ownership structure	German parent company	Belgian parent company	German parent company
Registered office	Budapest	Vecses	Budapest
Company form	Ltd.	Ltd.	Ltd.
Air transport from Budapest airport (group of companies)	yes	yes	no
Number of parcel points	14	1	1030
Share capital (thousand HUF)	4 000	4 510	30 000
Number of employees (persons)	258	141	473
Balance sheet total (thousand HUF)	4 990 2020	6 234 094	41 027 250
Turnover (thousand HUF)	19 855 870	30 977 165	57 609 882
Profit after tax (thousand HUF)	744 780	427 517	15 443 862

Source: Based on DHL Express, UPS and GLS annual reports 2015-2020, own editing

The following activities are listed in the UPS Supplementary Annex: courier and other services; non-scheduled air transport; freight forwarding, data processing; other wholesale trade; other non-store retail trade; accounting, auditing and tax consultancy activities. UPS provides solutions for individuals and small businesses. By mode of delivery, it differentiates its services by volume, i.e. there are small-volume or occasional, large-volume and Freight deliveries. Freight services mean the transport of shipments over 70 kg by sea, air and land.²⁰ This factor should be taken into account in the analysis of the accounts, since while GLS and DHL are in fact only active in the CEP market, UPS does not only or does not separate its activities, as DHL does, where DHL Freight prepares its annual accounts separately. This is also important because the transport of parcels is at a higher price than that of individual parcels, for reasons that can be attributed to the mode of transport, the weight of the shipment, the type of shipment and any additional special permits required for its transport.

¹⁹ <https://mydhl.express.dhl/hu/hu/ship/delivery-services.html#/domestic>

²⁰ <https://www.ups.com/hu/hu/services/shipping.page?>

A specialised division of UPS can provide global transport and storage of medicines, medical devices, vaccines and medical equipment, for which UPS Healthcare was created²¹, which in Hungary, for example, provides warehousing and storage services, and its annual report is prepared separately, but UPS Hungary can provide the transport.

GLS's main activities are: parcel delivery in the Netherlands and abroad; freight forwarding, customs clearance; and other services related to freight forwarding, typically for domestic partners. With a network of 85 depots and a parcel control centre, GLS Hungary is available to customers throughout Hungary. The well-established network enables fast, seamless parcel delivery. Parcels are delivered the working day after dispatch. The centre, located near Budapest, also serves as an international parcel hub.²² Individuals and companies can also send shipments to GLS. For business shipments, domestic parcel delivery is also an option, where you can choose how quickly you want your shipment delivered. Interestingly, since GLS focuses on the European market, there is a separate business package for export deliveries to Europe, and there is also the SlovakiaExpressParcel service specifically for business customers who regularly ship in Slovakia.²³ This suggests that it is possible that GLS has a larger customer with business interests in Slovakia. Of course, this does not exclude that GLS will continue to deliver or receive parcels in third countries.

Revenue and expenditure structure

The evolution of the net sales revenue of all three companies shows some growth between 2015 and 2020, averaging 12% per year for DHL, only 7% for UPS and the highest growth for GLS, averaging 30% per year, almost equal to the 40% growth of the domestic parcel volume, so GLS is definitely the biggest domestic winner of the three companies in the e-commerce and parcel market. Of course, while volumes have increased, prices for services have also risen, but the industry-wide price increase has not been so large (0.67% on average per year) as to explain such a large increase in revenues alone. Again, the industry average should be used only as a guide.

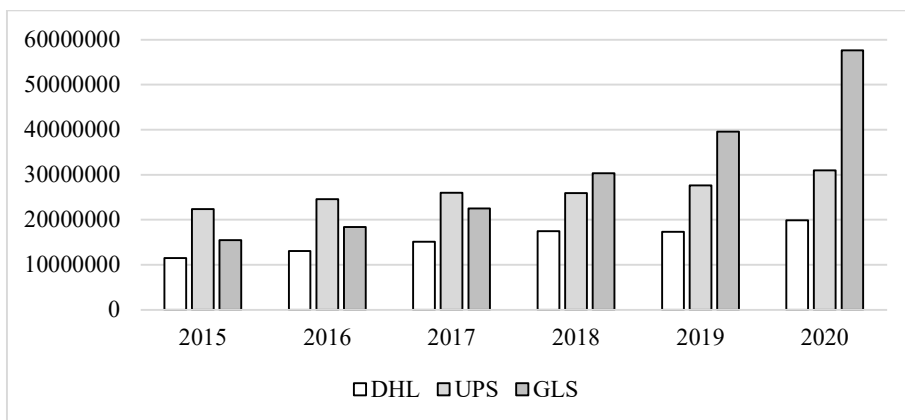


Figure 3: Evolution of net sales revenue for DHL, UPS and GLS (2015-2020)

Source: Based on DHL Express, UPS and GLS annual reports 2015-2020, own editing
We have further examined the composition of net sales of sales. In the case of DHL, this composition is fairly stable, with net sales of 86% and 87% in each year, with the only decrease

²¹ <https://www.ups.com/hu/hu/healthcare/Home.page>

²² <https://gls-group.eu/HU/hu/vallalat/gls-hungary>

²³ <https://gls-group.eu/HU/hu/rendszeres-csomagfeladas/szallitas-menete/csomag>

in 2016 to 84%. This could also mean, for example, that there is a higher proportion of domestic partners who deliver parcels to private individuals, or to companies or foreign companies.

This stability of composition is less pronounced for UPS than for DHL. The first key observation is that UPS in Hungary, for example, had a very dominant share (more than 40%) of export sales until 2018. By 2020, it will represent only 26%. The increase in turnover was mainly due to an increase in domestic sales, i.e. it may have been possible to gain new business contacts at home. The most dramatic change in the sales ratio started in 2017-2018, when not only did export sales fall by 14%, but they also fell in the following years and did not increase in 2020.

GLS, like DHL, has the largest share of domestic sales, with 70% in 2015 and a steadily increasing trend to 81% of exports in 2020. However, other factors may dominate here compared to DHL. As we have seen before, its sales revenues have grown in direct proportion to the growth in parcel volumes in Hungary, and it also has a lot of domestic parcel points. This may imply that its partners are domestic business partners that deliver parcels to private individuals (i.e. the B2C sector). Another major business group is domestic companies that send parcels to Slovakia through the Slovakia express service, as mentioned in the previous chapter.

For export sales, both DHL and GLS highlight that most of their export sales are to EU partners in Europe, while UPS has links to several continents, with EU sales and post-import parcel compensations adding to their revenues. All this is an indicator that UPS's business model may involve processing orders through the parent company and its subsidiaries, who receive the full delivery charge for the package abroad and then remit UPS's share of the price, where it continues to deliver, to the domestic partner or private individual. DHL also separately accounts for the costs of its global network in Hungary that are incurred after the shipments transported by the Company leave the country (e.g. air freight costs, loading, delivery abroad) and for which there is no direct carrier obligation, but which are provided for by DHL's operations in Hungary.

Table 3: Expenditure structure for DHL, UPS and GLS (2015-2020)

Company	Title	2015	2016	2017	2018	2019	2020
DHL	Material expenditure	80%	83%	82%	83%	82%	82%
	Personnel costs	15%	13%	12%	11%	13%	12%
	Depreciation and amortisation	1%	1%	1%	2%	2%	2%
UPS	Cost of materials	96%	96%	96%	95%	96%	96%
	Expenditure on staff	3%	3%	3%	3%	3%	3%
	Depreciation and amortisation	0%	0%	0%	1%	1%	0%
GLS	Cost of materials	85%	84%	84%	84%	83%	83%
	Personnel costs	10%	10%	11%	10%	11%	10%
	Depreciation and amortisation	2%	3%	3%	3%	3%	4%

Source: Based on DHL Express, UPS and GLS annual reports 2015-2020, own editing

The CEP market is a service-type market, where the presence of a subcontracting system and the outsourcing of services are particularly prevalent. On this basis, if we look at the above graph, we can see that for all three companies, the largest share is accounted for by material costs, although the composition of these costs varies: for DHL, 81% of costs are material and 12% are personnel costs, for GLS the same proportion is 84% and around 10% respectively, while for UPS, material costs have averaged around 95% over the years. The fact that this is higher at UPS, and that both depreciation (around 0%) and the ratio of personnel costs to total costs are around 3%, may also suggest that outsourcing of some work plays a greater role than at other companies.

On this basis, it is worth looking further at the material costs, the composition of which also confirms the fact that the three companies do not mainly operate with their own fleet and couriers. If this were the case, the cost of materials would be much higher, since, for example, the cost of fuel would be directly accounted for here. However, as the graph below shows, most of the costs are accounted for in the services used for DHL (98.44% on average), in the services sold (96.56%) for UPS and slightly split between the two types of services for GLS (84.7%-12.54%). This means that the impact of environmental factors affecting the sector (e.g. fuel price evolution) can be identified in the profit and loss accounts as indirect rather than direct influences.

Table 4: Structure of material costs for DHL, UPS and GLS

Company	Title	2015	2016	2017	2018	2019	2020
DHL	Cost of materials	1,43%	1,11%	1,06%	1,13%	1,33%	1,11%
	Value of services required	98,06%	98,48%	98,61%	98,56%	98,33%	98,47%
	Value of other services	0,51%	0,41%	0,34%	0,30%	0,34%	0,42%
UPS	Cost of materials	0,31%	0,29%	0,21%	0,25%	0,16%	0,19%
	Value of services purchased	2,19%	2,27%	3,56%	3,47%	3,80%	3,34%
	Value of other services	0,07%	0,07%	0,07%	0,05%	0,05%	0,05%
	Value of services sold (supplied)	97,43%	97,38%	96,16%	96,22%	95,98%	96,42%
GLS	Cost of materials	2,09%	2,02%	1,77%	1,74%	1,77%	1,78%
	Value of services purchased	12,32%	13,04%	12,66%	12,55%	12,46%	12,42%
	Value of other services	0,61%	0,56%	0,54%	0,46%	0,45%	0,40%
	Value of services sold (indirectly supplied)	84,65%	83,85%	84,62%	84,79%	84,86%	84,87%

Source: Based on DHL Express, UPS and GLS annual reports 2015-2020, own editing

How can we determine, or to what extent can we show, the impact of changes in various environmental factors on the performance of a company? How can companies be compared if they have very different revenue and expense structures in relative terms? For the three companies, we compared the change in revenue in the previous year with the change in the most typical type of expense (i.e. services purchased for DHL, while for UPS and GLS it was services sold through intermediaries).

Table 5: Year-on-year change in net sales and service charges

Company	Results category (change compared to previous year)	2015/2016	2016/2017	2017/2018	2018/2019	2019/2020
DHL	Net turnover from sales	13%	16%	16%	-1%	15%
	Services purchased	12%	16%	15%	-1%	13%
UPS	Net revenue from sales	10%	6%	0%	7%	12%
	Sales of services supplied	10%	5%	-2%	7%	12%
GLS	Net turnover from sales	19%	22%	35%	31%	46%
	Sales of indirect services	22%	22%	37%	31%	40%

Source: Based on DHL Express, UPS and GLS annual reports 2015-2020, own editing

If we look at the data in Table 5, we can see that the three companies have flexibility in their costs relative to their turnover. There is little difference (0% or 1-2% difference) between the percentage change in turnover and the percentage change in expenditure. The second most striking point is

that there was a big "dip" first at UPS from 2017 to 2018 and then at DHL from 2018 to 2019. Here, it is likely that there was a drop in turnover due to indirect effects, mainly due to a decline in automotive deliveries and production.

From 2015 to 2016, for all three companies, turnover did not increase very much and even though fuel prices decreased. Moreover, in the case of GLS, expenses were even 3% higher. One of the likely effects could have been the "extra workload" and the extra expenditure that came with the introduction of the new EKAER system.

In 2017-2018, DHL's revenue is also up by "only 16%", while UPS's is stagnating. GLS, on the other hand, has seen a further increase of 2% in expenditure compared to revenue. These years have seen a sharp rise in the price of kerosene and car fuel, which may be reflected in these figures. There was also a spectacular increase in labour costs. Interestingly, though, in the case of UPS, another factor that may also have had an impact is the fact that from 2016 they started a major investment, the construction of a new logistics centre in Vecsés, the idea being to have the UPS Hungary small package business and the freight business centres in a single facility. This was handed over in 2019. One positive outcome of this could be a 7% increase in revenue by 2019.

2019 was also a "weaker" year, particularly for DHL, where revenue fell by 1% year-on-year, and GLS, which grew by "only" 31%. This year, the environmental classification of vehicles has been tightened and the carbon dioxide emissions of a vehicle have been defined, which may have led to higher vehicle prices.

For 2020, DHL and GLS are also experiencing an increase in revenue and interestingly, this is followed by a much smaller increase in expenditure (although UPS also had a "revenue increase", but as I mentioned earlier, this was more from assets sold rather than the number of packages sold) This could be the opposite of two strong effects, as what we do know is that postal service prices increased by 9% this year and average fuel prices were also lower than the previous year.

Of course, the wage increase could also have contributed to the extent of the increase in the cost of services in an indirect way, but we thought it interesting to analyse its direct form separately because personnel costs are the second largest cost factor that weighs on sales revenue.

Although most of the activities are outsourced by the three companies, we cannot ignore the fact, for example, that they may have their own couriers and that they must have sufficient human capital to ensure that the service is provided and that the processes are of high quality. This is key for human resource management (Csehné et al, 2021). For all three companies, the wage ratio is low, below 10%, and the lowest is for UPS, where it is only 2% in any given year. The data are quite stable, with no real outliers or different values in any of the years. This could mean that CEP providers have a low contribution of their own labour to the generation of revenue, i.e. the nature of the service is not directly labour intensive.

Table 6: Payroll to revenue ratio for DHL, UPS and GLS (2019-2020)

Company	2015	2016	2017	2018	2019	2020
DHL	10%	9%	8%	8%	9%	9%
UPS	2%	2%	2%	2%	2%	2%
GLS	5%	5%	6%	6%	6%	5%

Source: Based on DHL Express, UPS and GLS annual reports 2015-2020, own editing

As average monthly wages within the industry have also increased year on year, we calculated the average per capita wages for each of the three firms for each year, based on various headcount and wage cost information.

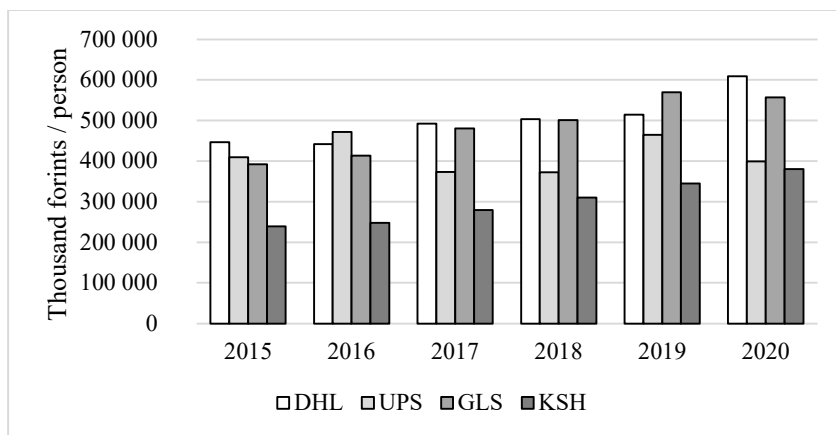


Figure 4: Evolution of average monthly wage per capita (2015-2020)
Source: Based on DHL Express, UPS and GLS annual reports 2015-2020, own editing

While for DHL and GLS we see average monthly per capita wages increasing almost in line with the industry average, for UPS in 2017 and 2018 they are "dramatically" lower than in 2015 or 2016. And yet, if we take the average of the five years, we cannot even say that this is due to a change in the proportion of manual workers, since at GLS, for example, the number of manual workers is around 50%, while at UPS it has been around 30% over the years.

Conclusions

Domestic parcel delivery companies are mainly subsidiaries of a global company, ensuring both international and domestic parcel traffic. As such, their receivables and payables include a large share of those of their affiliates and their ability to pay is highly dependent on the performance of these companies. This also provides stability, because debt settlements can be resolved within the company, which also gives these companies a degree of flexibility.

The CEP market is characterised by the fact that they outsource their services to other companies and do not mainly operate with their own fleet but subcontract, as evidenced by the structure of the expenses and the composition of the assets side of the balance sheet (not analysed in this study) of the profit and loss accounts of all three companies. Thus, changes in the global market (such as the increase in fuel prices or the EU motor vehicle regulation in 2019) are not directly reflected, but were an indirect effect on the evolution of the expenses. In addition, however, it was also found that they were able to be very flexible in their prices in relation to their costs, as revenues and expenses moved proportionally for all three companies.

In the case of the CEP market, the ability to react quickly to the market and thus to time an appropriate investment is of particular importance. We saw this already in 2015 with GLS, followed by DHL and UPS in 2016, with GLS continuing its major investments even further from 2018. These are mostly aimed at increasing efficiency by reducing costs or further expansion, for example when GLS started to further increase the number of its parcel points. In terms of a positive change in profitability, both UPS and DHL have seen successful investments in previous years. Although the three companies are engaged in the same activities, the structure of their expenditure differs greatly. In other words, the different customer base, customer mix, service mix and types of delivery have an impact on the structure of costs. DHL and UPS have a higher ratio of expenses to revenues, which also keeps their profitability levels lower than GHL. The reasons for this are likely to be that DHL and UPS may have a higher proportion of air shipments, which have higher costs, and UPS is further exacerbated by the existence of Freight services, because the cost of trucking freight is higher than, for example, multiple packages, especially

internationally, where freight rates may be even higher due to distances or compliance with various international regulations.

Wage-related trends have an impact on the three companies mainly indirectly, due to the nature of the service itself, it can be said that it is not a labour-intensive sector in a direct way (Lipták - Musinszki, 2021). Wage increases within the industry can be observed in all three companies directly in the case of wage-related expenditures, and could also be obviously involved in the development of intermediated/other services.

Acknowledgement

Prepared in the "National Laboratory for Social Innovation" project (RRF-2.3.1-21-2022-00013), within the framework of Hungary's Recovery and Resilience Plan, with the support of the Recovery and Resilience Facility of the European Union.

References

- Courier, Express and Parcel (CEP) Market (2022): Global Industry Trends, Share, Size, Growth, Opportunity and Forecast 2022-2027.
<https://www.researchandmarkets.com/reports/5547114/courier-express-and-parcel-cep-market-global>
- Csehné Papp, I., Nagy, Cs., Karácsony, P. (2021): Az emberi erőforrás menedzsment szerepe a fenntartható fejlődésben. Észak-magyarországi Stratégiai Füzetek, 18(3), pp. 103-112.
<https://doi.org/10.32976/stratfuz.2021.45>
- Diófási-Kovács, O., Szilágyi, S. (2019): A Magyarországon működő CEP szolgáltatók széndioxid kibocsátásának komparatív elemzése. Műhelytanulmány (176.). Budapest: Budapest Corvinus Egyetem Vállalatgazdaságtan Intézet. http://unipub.lib.uni-corvinus.hu/4157/1/Diofasi_Szilagyi_176.pdf
- Esser, K. Kurte, J. (ed.) (2021): Analyse des Marktes in Deutschland : Möglichmacher in bewegten Zeiten. Bundesverband Paket und Expresslogistik e. V.
<https://www.biek.de/files/biek/downloads/papiere/BIEK KEP-Studie 2021.pdf>
- Kawa, A., Rózycki M. (2018): CEP market in Poland.
https://www.researchgate.net/publication/329519151_CEP_market_in_Poland
- Kiss, K. M. et al. (2014): Piacnyitás, piaci verseny és piaci stratégiák – Az inkubens postai szolgáltatók stratégiaiválaszai az egyetemes postai szolgáltatások liberalizációjára. Budapest: MTA KRTK KTI Kutatási jelentés.
https://www.gvh.hu/data/cms1029375/Vkk_palyazat_2013_6_tanulmany.pdf
- Lipták, K., Musinszki, Z. (2021): Local employment development and sustainable labour market in Northern Hungary since the regime change. VISEGRAD JOURNAL ON BIOECONOMY AND SUSTAINABLE DEVELOPMENT 10(2), pp. 56-61.
- Lipták, K., Musinszki, Z. (2022): Impact of teleworking on shopping habits during the COVID-19 pandemic in Hungary. JOURNAL OF INTERNATIONAL STUDIES 15(3), 186-200.
- Mazur, M. et al. (ed.) (2019): Five Forces Transforming Transport & Logistics PwC CEE Transport & Logistics Trend Book 2019.
<https://www.pwc.com/hu/hu/kiadvanyok/assets/pdf/transport-logistics-trendbook-2019-en.pdf>
- Okholm, H. B. et al. (2013): E-commerce and delivery - A study of the state of play of EU parcel markets with particular emphasis on e-commerce.
<https://www.copenhageneconomics.com/dyn/resources/Publication/publicationPDF/8/238/0/E-commerce-and-delivery.pdf>

- Pitney Bowes (2021): Parcel shipping index 2021. 3. pitneybowes.com:
<https://www.pitneybowes.com/content/dam/pitneybowes/us/en/shipping-index/parcel-shipping-index-ebook.pdf>
- Szegedi, Z., Prezenszki, J. (2017): Logisztika-Menedzsment. Budapest: Kossuth Kiadó.
- Szemán Judit - Pleszkó Renáta (2021): Tőkeszerkezeti kérdések a magyarországi vállalatok esetén 2015-2018 között. Észak-magyarországi Stratégiai Füzetek, 18(különszám), pp. 116-125. <https://doi.org/10.32976/stratfuz.2021.10>
- World Economic Forum (2018): Delivering the Goods: E commerce Logistics Transformation.
http://www3.weforum.org/docs/WEF_Delivering_Goods_E_commerce_logistics_transformation_report_2018.pdf
- <https://gls-group.eu/HU/hu/vallalat/gls-cegcsoport>
- <https://www.statista.com/chart/25845/market-capitalization-of-biggest-courier-companies>
- <https://www.gep.com/blog/mind/european-cep-market-and-carriers-pricing-trends>
- <https://mydhl.express.dhl/hu/hu/ship/delivery-services.html#/domestic>
- https://mydhl.express.dhl/hu/hu/ship/delivery-services.html#/business_solutions
- https://mydhl.express.dhl/hu/hu/ship/delivery-services.html#/business_solutions/medical_express
- <https://www.ups.com/hu/hu/services/shipping.page?>
- <https://www.ups.com/hu/hu/healthcare/Home.page>
- <https://gls-group.eu/HU/hu/vallalat/gls-hungary>
- <https://gls-group.eu/HU/hu/rendszeres-csomagfeladas/szallitas-menete/csomag>