Alpek, B. L., M. Császár, Zs., Dobos, G., Izmindi, R., & Tarrósy, I. (2025). The economic impact of international student mobility – the volume and structure of expenditure in Hungary. *Journal of International Studies, 18*(4), 65-85. doi:10.14254/2071-8330.2025/18-4/4

Journal of International Studies

Centre of Sociological Research

Scientific Papers

The economic impact of international student mobility – the volume and structure of expenditure in Hungary

Levente Alpek B.
Department of Human Geography and Urban Studies,
Faculty of Sciences, University of Pécs, Hungary
alpeklevente@gmail.com
ORCID 0000-0001-9637-3693

Zsuzsanna M. Császár
Doctoral School of Earth Sciences,
University of Pécs;
Budapest Metropolitan University, Hungary
mcsaszarzsuzsa@gmail.com
ORCID 0000-0002-8472-5468

Gábor Dobos
Doctoral School of Earth Sciences,
University of Pécs, Hungary
gabordobos7@gmail.com
ORCID 0000-0002-5745-4332

Richárd Izmindi
Institute of Social Sciences and International Studies,
Faculty of Business, Communication and Tourism,
Budapest Metropolitan University, Hungary
izmindi@gmail.com
ORCID 0009-0003-7047-8560

István Tarrósy
Department of Political Science and International Studies,
Faculty of Humanities and Social Sciences,
University of Pécs, Hungary
tarrosy.istvan@pte.hu
ORCID 0000-0002-0054-6295

Abstract. International student mobility has a significant socio-economic impact in various respects, particularly within the economic subsystem. Foreign students contribute to local economies by consuming goods and services during their stay, thus driving demand. This study explores the economic impact of foreign

Received: March, 2025
1st Revision: September, 2025
Accepted: December, 2025

students participating in Hungary's Stipendium Hungaricum government-financed scholarship programme. It is based on a comprehensive survey conducted in 2024, which gathered responses from 1,769 students. The analysis includes both descriptive statistical methods and cluster analysis. The findings reveal students' average monthly and annual expenditures, encompassing their tourism-related activities, incidental costs, and the consumption patterns of their guests. According to the survey, the total expenditure of Stipendium Hungaricum students is estimated at nearly HUF 36.6 billion annually. The paper also outlines the evolution of students' consumption structure, highlighting housing, food, luxury goods, hygiene products, and tourism as the primary expenditure categories. In addition, the analysis identifies three dominant consumer segments and three smaller ones based on their spending behaviour. The results of this study provide valuable insights for policymakers, educators, and researchers interested in understanding the economic effects of international student mobility and the characteristics of student consumption.

DOI: 10.14254/2071-8330.2025/18-4/4

Keywords: Stipendium Hungaricum scholarship programme, international students, economic impact, student mobility, consumption patterns

JEL Classification: I22, I23, I28

1. INTRODUCTION

Higher education mobility – particularly in Hungary – is a highly topical and, at times, politically contentious issue. This is especially true in light of the exclusion of two-thirds of Hungarian university students from the Erasmus+ programme due to the Council Implementing Decision (EU) 2022/2506 of 15 December 2022. Student mobility can – and should – be examined from multiple perspectives, depending on whether it is outward (outbound) or inward (inbound), short- or long-term, and in terms of its motivations, objectives, and impact. These impacts may be observed at the individual level, on their competences, skills, and career trajectory, as well as at the level of the institution, including its student community, teaching staff, and internal processes. Furthermore, one must consider international cooperation, "soft" or public/media diplomacy, the perceived or actual intentions of both sending and receiving countries, and the broader effects on their labour markets and economies.

This research examines the economic impact of a Hungarian government-funded higher education scholarship – the Stipendium Hungaricum (SH) programme. It may also be viewed as a continuation of an earlier study conducted in 2019–2020. The novelty of the present study lies in its programme-specific focus, which allows the findings to be interpreted not only as academic research but also as a form of programme or policy evaluation. In addition to assessing the programme's direct objectives and impacts, such as contributions to diplomacy, export support, the quality of higher education, and the promotion of the country, its language, and culture, this study also evaluates its indirect effects at national, regional, and local levels.

Over the past 50 years, the number and composition of international students in Hungary have consistently evolved in line with the country's foreign policy. During the socialist period, the increase in international students was initially driven by decolonization efforts in Africa and Asia, followed by collaborations with "friendly" European countries. In the 1980s, the introduction of German- and later English-language medical training programmes responded to market demands, with a predominantly European focus. In the decades following the fall of communism, the emphasis shifted to educating ethnic

Hungarians from neighbouring countries. Subsequently, EU programmes facilitated the expansion of foreign language courses across various fields of study. Structurally, however, the past decade, supported by the Stipendium Hungaricum programme, has demonstrated that Hungarian higher education now has both a European focus and a global perspective. The present research aims to explore the expenditure patterns of students participating in the Stipendium Hungaricum programme, both at an individual and group level, and to provide a detailed overview of the spending structure. This will contribute to a deeper understanding of its impact on the national economy.

2. LITERATURE REVIEW

There is extensive literature on the internationalisation of higher education (e.g. Teichler, 2004; Knight, 2007; Samoliuk et al., 2024; Stukalova et al., 2015), and in this section, we explore studies related to the economic impact of Stipendium Hungaricum scholarship students in Hungary, which directly informs our recent large-sample study. The rapid increase in the number of international students has contributed to a growing body of research on international student migration (Kehm & Teichler, 2007; Kichurchak et al., 2024; Gürüz, 2008; Solimano, 2008; Findlay et al., 2012; Brooks & Waters, 2013).

Some studies examine mobility through the lens of individual decision-making and the various factors influencing these choices, including gender (Kofman et al., 2001; Moskal, 2016), economic conditions (Aliyev et al., 2023; Beine et al., 2017; Krieger & Lange, 2010; Kabanbayeva et al., 2019; Tutar et al., 2024), employment perspectives (Kochaniak et al., 2024), and cultural and social dimensions (King & Raghuram, 2013; Beech, 2015). Another strand of research situates student mobility within the broader frameworks of globalisation and internationalisation (Teichler, 2004). These perspectives highlight issues such as the intensifying competition for cultural capital (Murphy-Lejeune, 2003; Waters, 2006), the influence of university and host country branding strategies (Joseph et al., 2012; Lomer et al., 2018), and the growing significance of university rankings (Jöns & Hoyler, 2013; Lacmanović & Škare, 2024). Critical perspectives also address the neoliberal corporatisation of universities (Castree & Sparke, 2000).

A substantial body of research addresses international student mobility and the economic impact of universities. Existing studies consistently demonstrate that international students generate economic benefits not only for the universities they attend but also for their host cities and, more broadly, for the destination countries. These benefits can also be indirect, such as when establishing economic linkages between institutions in different countries (Brooks & Waters, 2011). Moreover, international students may become part of the host country's labour market and, in doing so, contribute as taxpayers (Bleaney et al., 1992). While students incur costs for the host country, these are typically outweighed by the expected revenues (Vickers & Bekhradnia, 2007).

Many studies aim to quantify the economic impact of foreign students in a given country (Montanari & Staniscia, 2014; Bergerhoff et al., 2013; Yao & Bai, 2008; Ortiz et al., 2015; Butcher, 2002; Infometrics, 2016; Oxford Economics, 2007; Münch & Hoch, 2013; Australian Government, 2016; Grasset & Menédez, 2017; London & Partners, 2008; London Economics, 2018). Frequently, case studies utilise mobility data from various countries or higher education institutions. For example, Bleaney et al. (1992) analysed the economic multiplier effects of higher education using the University of Nottingham as a case study, while Butcher (2002) examined the social and economic contributions of international students in North Shore City.

In the context of student migration to the United Kingdom, Vickers and Bekhradnia (2007) explored student mobility's immediate and long-term impacts, including effects on the labour market. Their findings support the view that further student migration should be actively encouraged - a position echoed by Pinfold (2018) and Grasset and Menéndez (2017). Beyond the host country, international student mobility can also

affect sending countries' economies. Mantong (2017), for instance, concludes that when more developed countries host students, the resulting knowledge transfer and connections can yield positive economic impacts for their countries of origin.

In Hungary, the first study measuring the impact of international students on the national economy was conducted in 2020. Prior to this, research had focused on individual regions, such as the studies by Berács (2008), Füzesi and Tistyán (2013), M. Császár and Alpek (2018), and M. Császár et al. (2019). The results of the 2020 research were reported by Császár et al. (2023) and Alpek et al. (2022), while its implications for tourism were explored by Csapó and M. Császár (2021).

Although Hungarian higher education boasts a history spanning more than six and a half centuries, with the university founded by King Louis I the Great in Pécs (1342-1382) regarded as the first university in Hungary, it was the large universities established in the late 19th century that formed the core of Hungary's higher education network. However, most of these institutions were situated outside Hungary's new borders after World War I. Consequently, one of the key political objectives following the defeat in World War I was to strengthen the country's cultural influence (Kollega & Tarsoly, 2000). Following the territorial losses after the war, the relocation of universities to Hungary laid the foundations for several university centres that continue to operate today.

From the 1920s onward, Hungary, constrained by its neighbouring countries, also faced growing isolation in foreign policy. In response, the country sought to create an image of openness by promoting Hungarian culture throughout Europe and maintaining a structured, controlled framework for Hungarian students who had received scholarships abroad. This was one of the key objectives behind establishing and re-establishing the Collegium Hungaricum in Rome and Vienna. However, cultural policy during this period did not prioritize the importation of international cultural values, leading to a relatively low number of foreign students studying in Hungary, even by the modest standards of the time. The student population, which had numbered around 14,000 post-World War I, declined steadily, and by the outbreak of World War II (academic year 1937/38), only 13,000 students were enrolled in higher education institutions in Hungary (Romsics, 2017). After the Second World War, Hungary's education system underwent significant disruption. In addition to developing a new public education structure, higher education experienced a complete ideological and structural overhaul (Kollega & Tarsoly, 2000). From the late 1940s, Hungary's foreign policy – having fully separated from the Western world – was almost exclusively aligned with the socialist bloc and the countries that maintained friendly relations. This shift was mirrored in the international relations of Hungary's academic institutions and higher education system (Kollega & Tarsoly, 2000).

Much like the economy and other social subsystems, the forced restructuring of higher education was driven by the targets set within the planned economy. For example, the 1950–1954 Five-Year Plan outlined specific enrolment targets for higher education. According to this plan, the number of students, which stood at just over 23,000, was to be gradually but rapidly doubled by the end of the period. By 1952, the target was 45,000, and in September of that year, nearly 46,000 students were admitted to Hungarian colleges and universities (Keresztes, 2020). This rapid expansion slowed down with the consolidation of the Kádár regime in the early 1960s. Hungarian higher education did not experience significant growth until the fall of the socialist system. The student population remained relatively stable for several decades, hovering around 100,000, with only minor fluctuations. It was only after the regime change that Hungarian higher education opened up to a broader range of social groups. Under socialism, higher education in Hungary remained a closed, elitist system. Alongside the stabilisation of the Kádár era, Hungarian higher education began to open up. Starting in the 1970s, during the more balanced phase of the regime, Hungary's foreign policy priorities began to influence the countries from which students came significantly. In many cases, the varying presence of students from different friendly nations was directly tied to the evolution of international relations.

The number of foreign students in Hungary has grown exponentially over a prolonged period. There was a sharp increase in enrolment for about a decade and a half, reaching its peak just before the establishment of the Kádár era. Hungary's involvement in Africa and Asia also presented opportunities for higher education, as student exchange programmes allowed specialists and managers from countries with limited or non-existent higher education traditions to be trained, largely in socialist countries, including Hungary. In return, Hungarian academics and researchers had the opportunity to engage with these partner countries and contribute to their reconstruction efforts (Horváth, 2023). This high momentum began to slow in the second half of the 1970s, and by the early 1980s – a first in the entire Kádár era – the trend reversed, with the total number of foreign students declining. However, the proportion of foreign students relative to the total student population in Hungarian higher education remained stable, at around 2.5–2.7%, from the 1970s until the end of the socialist regime. A significant shift occurred in the early 1990s, during the period of political transition, when the number of non-Hungarian citizens in higher education suddenly increased. Notably, in the early 1980s, German-language medical education was introduced at Semmelweis University. By the decade's end, English-language courses were launched at all major medical universities, including Semmelweis, Pécs, Szeged, and Debrecen.

The decolonial struggles in Africa and Asia, which gained momentum from the 1950s, contributed to the increase in foreign students during the 1960s and 1970s. Meanwhile, the introduction of German- and later English-language medical training courses in the 1980s addressed market demands, particularly in Europe. By the 1990s, ethnic Hungarian students from neighbouring countries also began to enter Hungarian higher education. Until the 2010s, international students in Hungary were predominantly either ethnic Hungarians studying in Hungarian or medical students enrolled in English- or German-language programmes (mainly from Europe, but also including a significant number of Iranian and Israeli students). Following Hungary's accession to the European Union, international students from predecessor Erasmus+ programmes (such as Socrates, LLP-Erasmus, Erasmus Mundus, and Tempus I-IV) as well as other support initiatives, started to join the academic landscape. It is clear, however, that neither the ethnic Hungarian students nor the foreign medical students in English-language courses brought about fundamental structural changes in Hungarian higher education, although the latter did contribute visible income and the transfer of best practices to some universities and colleges.

The development of foreign language training and related services across most disciplines in Hungary is primarily linked to European funding. While there were only a few dozen international students in 2000, by 2015, over 4,000 Erasmus international students were participating in study mobility in Hungary, which peaked at nearly 5,000 in 2019. However, short-term exchanges have not led to systemic changes in higher education institutions. These developments were largely isolated within individual universities and colleges, often lacking connection to each other or a coherent national strategy (Kovács & Tarrósy, 2015). A significant breakthrough in the number of international students came with the launch of the Stipendium Hungaricum (SH) programme in 2013. Initiated by the government and coordinated by the Tempus Public Foundation, the Ministry of Foreign Affairs managed the program starting in 2015 (except for the period between 2015 and 2019, when the ministry responsible for higher education oversaw the programme). SH was established as part of Hungary's eastern and southern opening policy (its original working title was the Global Opening Scholarship Programme) and entered the international arena at a time when the global market for international students was becoming increasingly diversified.

In its first ten years, the Stipendium Hungaricum programme has expanded bilateral cooperation to include 95 partner countries, international organizations, and regional or local governments, covering most of South America, Africa, and Asia. The programme has supported 30,000 fellows, funded the training of 15,000 graduates, and had a total enrolment of 11,611 in the academic year 2023/2024. Key achievements of the programme over the past decade include providing stable support for the operation of foreign

language courses and related services (with nearly HUF 300 billion allocated over ten years, roughly equivalent to one full year of public funding for all higher education in that period) and launching English-language doctoral programmes. While only 13 foreign doctoral students were enrolled in foreign-language programmes in 2013, by 2023, this number had increased to 2,589. The programme has also contributed significantly to the international visibility of Hungarian higher education – not only in terms of the number of international students (20,694 in 2013, 43,137 in 2023) but also in the geographic origins of incoming students. While Hungarian higher education was predominantly European-centred in 2013, by 2023, most international students came from Asia. The share of Asian students increased to 42.8%, while the share of European students decreased to 40.8% (from 72% in 2010). Detailed data are shown in Figure 1.

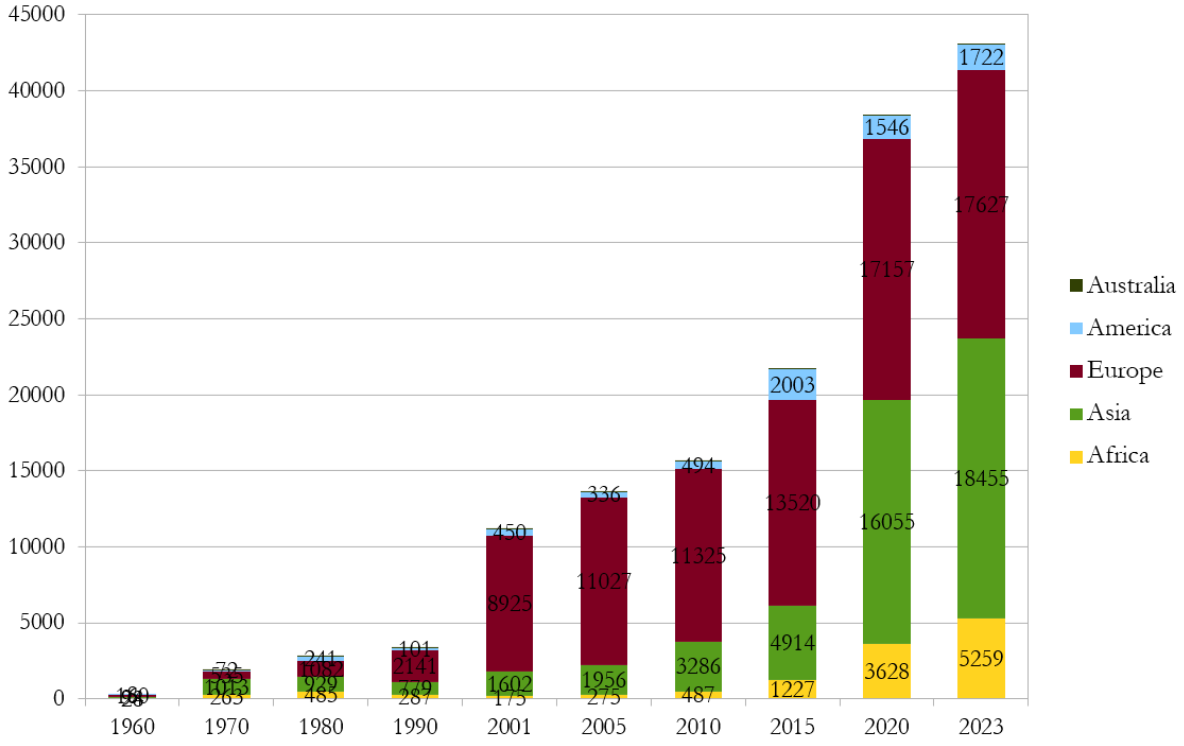

Figure 1. International students in Hungary by continent of origin 1960-2023

Source: Nemzetközi hallgatók Magyarországon [International students in Hungary], 1960-2023.

Source: Statisztikai Évkönyvek [Statistical Yearbooks] 1965-1990, FIR OSAP, UNESCO 2024

3. METHODOLOGY

This analysis draws on various primary and secondary sources and different methodological approaches to assess the economic impact of students enrolled in the Stipendium Hungaricum programme. The primary data source for this study is a survey conducted between 15 May and 30 June 2024, using a questionnaire format. The survey targeted self-financing students currently studying under the Stipendium Hungaricum programme, as well as graduates who had previously participated in the programme.

The questionnaires were distributed electronically to members of the target population. The survey was self-administered, anonymous, and voluntary, with the questionnaires sent to all eligible students. Only completed questionnaires containing relevant information for all the questions necessary for the model were included in the analysis. Incomplete responses were filtered out at the outset of the research. The final sample consisted of 1,769 valid responses. The average age of the respondents was 26.7 years. The gender

distribution was 52.9% male, 46% female, and 1.1% did not answer the gender question. The sample was diverse in terms of institutional representation, with 27 Hungarian universities included. The largest proportion of respondents came from the University of Debrecen (20.2%), followed by Eötvös Loránd University (14.4%) and the University of Pécs (12.2%). These institutions represented over 10% of the sample, with the Budapest University of Technology and Economics closely following at 9.7%. The sample was also differentiated by educational level: 39.4% of respondents were at the bachelor's level, 27.4% at the master's level, 3.8% at the undivided master's (5 years) level, 0.4% at the preparatory level, and 29% at the PhD level. The questionnaire contained several sets of questions, the demographic and study-related parameters section being closely related to the subject of the present study, followed by questions on spending volumes and structures. There was also a set of questions focusing on tourism expenditure.

The questionnaire section relevant to the present study comprised three principal groups of questions. The first block addressed a range of demographic variables alongside information pertaining to the respondents' academic background – such as the type and level of study programme, the nature of the educational institution, country of origin, and place of residence. The second block concentrated on expenditure-related items, inviting participants to specify the amounts they typically spent across a broad spectrum of product and service categories. These data were further disaggregated into monthly and occasional expenditures to allow for a nuanced understanding of spending patterns. Special emphasis was placed on tourism-related expenses: in addition to capturing students' total expenditure volumes, this section explored their travel behaviour, including the frequency and duration of trips, as well as the spending habits and visitation frequencies of their guests.

Respondents reported all monetary values in Hungarian forints (HUF). For the purposes of cross-national comparability, these figures were subsequently converted into euros (EUR) using the official exchange rate issued by the Hungarian National Bank on 3 September 2025 (Hungarian National Bank, 2025). The conversion applied an exchange rate of 394.34 HUF per EUR, as published on the Bank's official website (https://www.mnb.hu/arfolyamok).

As the first step in analyzing the economic impacts, it was necessary to organize the database based on the survey responses. The data was cleaned to eliminate distortions caused by potential data recording errors (e.g., incorrect data formats, text entries where numbers were expected, zero values in various forms, or improperly punctuated numbers), while retaining as much information as possible. In cases of missing or incorrectly recorded data, values were replaced with averages for the relevant expenditure categories during the later stages of analysis. Any other dimensions with missing data were treated accordingly.

In cases where response errors were detected, mean substitution was applied, contingent upon clear evidence that the respondent had incurred expenditure within the respective product and/or service category. This imputation procedure was adopted to preserve data integrity while minimising the loss of valid observations. The incidence of such imputations proved negligible: expenditure-related items required adjustment in only 0.2% of cases within the total sample.

The analysis was conducted on a refined sample to identify the most representative subgroups within each student category for cluster analysis and to mitigate the distorting effects of outliers. This sample included only individuals whose expenditure values for aggregated product and service groups fell within three standard deviations of the mean, as outlined below. The proportion of students fitting this criterion was very small, approximately 0.07% of the total sample.

One of the challenges in this research was that, in many cases, due to the nature of the expenditure items, students could only estimate or report some of their expenses in aggregate, along with other items. The following steps were taken to allocate these costs by sector and product/service group. Where students' responses provided clear information for identifying specific expenditure items, this data was used to calculate and pro-rate the corresponding costs. In cases where the responses did not allow for proportional

allocation – for example, due to missing data – the averages and proportions for the entire sample were applied. An equal split was used as a default if these could not be determined. For expenditure items where no spending was reported and where no other allocation method was applicable, the missing data entries were set to zero. Conversely, the average expenditure for that variable was substituted for categories where expenditure was typically expected.

Another task was to standardize the student expenditure data to a consistent time frame, as the data was presented across various dimensions. The following procedures were applied to handle the three different types of expenditure. No further action was required for items presented in monthly amounts. For ad hoc expenditures, the rate was adjusted based on the expected annual length of the student's stay. Finally, for expenditure items linked to a specific natural base (e.g., travel-related expenses), the data was adjusted to a monthly rate, using the average number of trips per year. In addition to previous literature and research experience, the results from the focus group study were used to standardize expenditure items on a monthly basis. Once the database was organized in this way, it was necessary to categorize the expenditure items across several dimensions to clarify the study's results. Expenditure items were separated by their frequency and primary source. This approach allowed us to identify spending directly linked to students on a monthly basis, for tourism, ad hoc spending, tuition fees, and the expenditure of guests hosted by students. This categorization was essential for estimating each expenditure type's relative weight, volume, and economic impact on the overall student spending portfolio. Therefore, the total student expenditure (whether for an individual student or a group) over a given period was calculated using the following formula:

Total expenditure = Regular expenditure + Tourism expenditure + Ad hoc expenditure

This total could be further supplemented by the spending of students' guests, based on their hosting habits.

Based on the above, the following expenditure breakdowns have been made. Relevant spending categories have been grouped into thematic product and service categories, which are as follows:

- Housing: This category includes utilities, rent, and dormitory fees.
- Food and Hygiene: This encompasses food and drink consumption both inside and outside restaurants, alcohol and tobacco consumption, purchases of toiletries and beauty products, as well as hairdressing, beauty, and laundry services.
- Leisure Activities: This includes culture, sports, and wellness activities.
- Transport: This category includes public and private transport expenditures.
- Tourism: This covers spending on accommodation, travel, meals, and entertainment.
- Other Goods and Services: This includes telecommunication services and clothing purchases.

The expenditure categories were constructed on the basis of a broad spectrum of products and services, with the objective of achieving the widest possible coverage of student consumption behaviour. Accordingly, the questionnaire encompassed items pertaining to everyday living – including nutrition, transportation, and personal hygiene – as well as housing-related costs such as rental fees and utilities. Additional categories captured expenditure on hospitality consumption, cultural and sports activities, wellness, durable goods (e.g., clothing, furniture), telecommunication, personal care and laundry services, and study-related items.

In relation to tourism activities, the instrument also included categories for travel, accommodation, on-site consumption, and entertainment. When designing these categories, the aim was to balance detail and parsimony, allowing for a nuanced yet interpretable depiction of students' typical consumption patterns.

Expenditures were subsequently aggregated along two principal dimensions:

- by frequency, distinguishing between regular monthly and occasional expenses; and
- by function, differentiating between tourism-related and everyday living expenditures.

In addition, a separate category was established for guest-related expenses, representing costs incurred indirectly through students' visitors. A further dimension of classification was based on product and service groups, developed with reference to their relative weight within respondents' expenditure portfolios. Consistent with the findings detailed in this study, housing-related expenses (rental or dormitory fees and utilities) emerged as a distinct and quantitatively significant group, reflecting their strong internal correlation and substantial share in total spending. A second major category encompassed food, beverages, and hygiene products, representing essential goods with high purchase frequency, often on a daily basis. Given the markedly different nature of mobility-related expenditures, these were isolated as a separate category, as their patterns of consumption diverged from those associated with housing, food, and hygiene. Tourism expenditures, by contrast, exhibited optional and preference-driven characteristics, differing fundamentally from basic subsistence categories. This justified their independent treatment within the analytical framework. Finally, two distinct categories were created for leisure-related spending, reflecting the influence of individual preferences on both participation and expenditure levels. Occasional technical or technological purchases, which did not fit neatly into the foregoing categories, were consolidated into a single residual group.

The primary objective of the research was to determine the average expenditure levels across the defined categories. Consequently, the analysis relied extensively on descriptive statistical measures, including the mean, trimmed mean, and standard deviation. To enhance interpretive robustness, these were supplemented in several cases by point estimates with 95% confidence intervals. Beyond descriptive analysis, the study examined the structure of consumption, assessing not only the distribution of expenditure volumes but also the relative weight of each category within individual students' expenditure baskets. Subsequently, aggregate measures of the main expenditure parameters were derived at the group level, thereby enabling a comprehensive assessment of consumption patterns across the student population.

Additionally, cluster analysis was conducted as part of the study. A detailed account of the cluster analysis is presented in the following section. Building upon the data organisation process described earlier, the initial step involved the identification of the variables serving as input indicators for the analysis. Without exception, these were metric variables, each measured on a continuous scale and developed according to the following procedure. Within the framework of the questionnaire survey, respondents reported the amounts they spent across different product and service categories. After conversion of these values to monthly equivalents, the expenditures were aggregated into the previously defined groups: Housing, Food and Hygiene, Leisure Activities, Transport, Tourism, and Other Goods and Services.

To ensure the identification of meaningful and statistically robust subgroups of students, and to mitigate the distorting influence of extreme values, the cluster analysis was performed on a reduced dataset. This subsample comprised only those respondents whose estimated expenditures across the product and service groups fell within three standard deviations of the mean. Consequently, the final analytic sample consisted of 1,652 respondents, which thus represented the set of objects subjected to cluster formation. Given that all variables were measured on the same metric scale, standardisation of input data was deemed unnecessary.

Prior to cluster generation, a correlation analysis was conducted to detect potential multicollinearity among the variables. Strong intercorrelations (i.e., $r > 0.90$) were considered grounds for exclusion or further adjustment; however, the analysis revealed no such cases, as the highest observed correlation coefficient only marginally exceeded 0.40.

Subsequently, the distance metric was selected. The squared Euclidean distance was adopted because, as noted by Sajtos and Mitev (2007), this measure accentuates larger distances while down-weighting smaller ones, thereby facilitating the emergence of well-differentiated clusters. Consistent with this choice, Ward's hierarchical clustering method was employed as the clustering algorithm. This approach was justified by the

metric nature of all variables, the absence of extreme outliers, and the lack of very high correlations among variables – conditions under which Ward's method yields particularly stable and interpretable results.

Determining the optimal number of clusters constituted a crucial stage of the analysis. Multiple diagnostic tools were examined, including the agglomeration schedule, dendrogram, icicle plot, and coefficients of agglomeration change, along with a review of cluster sizes to prevent the formation of trivial clusters containing only one or two cases. The primary analytical objective was to delineate typical consumption patterns rather than to isolate exceptional or marginal cases. Several alternative solutions, ranging from two to ten clusters, were compared. Based on the convergence of statistical indicators and interpretive considerations, the six-cluster solution was ultimately selected as the most appropriate representation of the underlying data structure.

A further challenge in the estimation process was that for some expenditure items, due to very few students spending significant amounts on them, the traditional t-distribution estimation procedure was not applicable. For these cases, estimation was performed using a non-parametric bootstrap technique (Efron, 1979; Paneru et al., 2018), and adjusted bootstrap confidence intervals (BCa) were calculated. Literature indicates that confidence intervals generated using the bootstrap technique consistently capture the actual population mean in simulation studies (Paneru et al., 2018). The questionnaire survey was analyzed using SPSS 22, R4.4.1 statistical software, and Excel spreadsheet software. Visualization was an important consideration during the processing stage; thus, the data were presented in graphs, tables, and, where appropriate, thematic maps. Results were visualized using Excel and QGIS 3.30.1 geographic information software. After assessing multiple options for representing the clusters, we concluded that – consistent with the overall methodological approach of the study – the findings are most appropriately displayed in tabular form, presenting the mean values of the clusters, their proportional distribution, and the relevant analytical categories.

4. EMPIRICAL RESULTS AND DISCUSSION

4.1. Individual spending by foreign students

To analyse the impact on the national economy, it was first necessary to determine the average expenditure of a student participating in the Stipendium Hungaricum programme. This value not only served as the basis for subsequent structural analysis but also played a key role in assessing the overall impact at the group level. The expenditure structure of Stipendium Hungaricum students is analysed in terms of volume, beginning with everyday consumption items, followed by tourism-related expenditure, and the spending of their guests. These are examined across major expenditure categories and grouped into product and service types, both at the individual and group levels. Every month, the average regular expenditure per student, excluding tourism-related spending and thus reflecting everyday consumption, ranges between EUR 665 and EUR 715. The mean value is EUR 690, and the 5% trimmed mean is EUR 653, within a 95% confidence interval. The standard deviation is EUR 536, resulting in a relative standard deviation of 78%. When personal tourism expenditure is added to the above, the 95% confidence interval increases to between EUR 774 and EUR 835 (mean: EUR 804; 5% trimmed mean: EUR 752; standard deviation: EUR 659). If the expenditure of students' guests is also included, the interval shifts to between EUR 799 and EUR 863 (mean: EUR 831; 5% trimmed mean: EUR 777; standard deviation: EUR 682). The average monthly personal tourism expenditure for students in the Stipendium Hungaricum programme was EUR 114, while the average guest-related expenditure was EUR 27.

The above expenditure items are complemented by occasional spending by students, which ranges from EUR 380 to EUR 598 per student (mean: EUR 489; trimmed mean: EUR 304; standard deviation:

EUR 2,340). For a 10-month stay, this corresponds to a monthly average of EUR 49. In terms of structure, two areas clearly dominate occasional expenditure: retail trade and travel (land and air transport), with 80.3% and 78.6% of respondents, respectively, reporting such expenses. These are followed by human healthcare services (49.6%). Less frequent categories include real estate (4.9%) and the purchase of motor vehicles or motorcycles (4.1%). Renting represented a slightly higher share, at 10.1%. Occasional travel includes segments of the journey home during which students used car-sharing services, public transport, or airport shuttles. Among those who incurred such costs, the average expenditure for the entire stay was EUR 192. The retail sector showed greater diversity, with occasional spending including purchases of entertainment or household electronics, furniture, other furnishings, and study-related materials. The average expenditure was EUR 250 per stay among respondents who made such purchases. Specifically, 33.8% of the sample spent on electronics, 26% on furniture and other furnishings, and 69.1% on study-related equipment.

Overall, a student participating in the Stipendium Hungaricum programme spends, on average, between EUR 710 and EUR 767 per month, based on regular monthly expenditure and the monthly share of occasional expenditure (mean: EUR 739; 5% trimmed mean: EUR 692; standard deviation: EUR 607). When tourism-related expenditure is included, the monthly total increases to between EUR 819 and EUR 887 (mean: EUR 853; 5% trimmed mean: EUR 792; standard deviation: EUR 723). If guest-related expenditure is also taken into account, monthly spending reaches between EUR 845 and EUR 915 (mean: EUR 880; 5% trimmed mean: EUR 816; standard deviation: EUR 751). Occasional spending demonstrates a highly specific consumption pattern, as it varies significantly in both frequency and volume across categories and individual students, particularly when compared to regular monthly expenditures (e.g., property purchases, where only a few students spend substantial amounts). Another important aspect of occasional expenditure, as defined in this analysis, includes only those categories that occurred among 50% or more of the target population. In this case, these categories were retail purchases and travel-related transport. Assuming a 10-month stay, the 95% confidence interval for this narrower definition of occasional spending ranges from EUR 312 to EUR 392 (mean: EUR 352; 5% trimmed mean: EUR 262; standard deviation: EUR 855). The values change slightly if human healthcare expenditure – which nearly 50% of respondents reported – is included in the calculation. The resulting 95% confidence interval ranges from EUR 342 to EUR 435 (mean: EUR 388; 5% trimmed mean: EUR 289; standard deviation: EUR 989).

Summarising the averages of the aforementioned expenditure items in a summary table reveals that spending is primarily dominated by regular monthly expenses, followed by tourism-related expenditures, and then occasional spending. The contribution of guest-related spending is comparatively lower on a monthly basis, which is understandable given that such expenditures occur in the context of visits and are not necessarily incurred every month (see Table 1).

Table 1

Students' spending patterns by individual and population

Cost item	Average spending (monthly, ind.)
Regular monthly spending:	EUR 690
+ Tourism spending:	EUR 114
+ Occasional spending:	EUR 49
Spending for a month with tourism, occasional spending:	EUR 853
+ Guest spending:	EUR 27
Total monthly expenditure per student and guests combined:	EUR 880

*calculated on the basis of a 10-month stay

Source: own calculation

4.2. Group spending by foreign students

Based on the values presented above, it is possible to estimate the total expenditure over the full length of stay for the target group, including both regular and ad hoc costs. During the period under study, 10,536 students in the Stipendium Hungaricum programme were enrolled in Hungarian higher education institutions. Excluding tourism-related expenses, the total estimated expenditure of this group for the academic year ranges from EUR 70,042,733 to EUR 75,313,686 (mean: EUR 72,678,209; 5% trimmed mean: EUR 68,785,434). When tourism-related expenditures are included, the estimated total increases, with a lower bound of EUR 81,499,953 and an upper bound of EUR 87,977,744 (mean: EUR 84,738,848; 5% trimmed mean: EUR 79,278,839). In addition to the above, guest expenditures also contribute to the economic impact. When these are factored in, the total estimated expenditure for the academic year ranges from EUR 84,214,781 to EUR 90,916,856, with a 95% confidence interval. The mean for this estimate is EUR 87,565,818, and the 5% trimmed mean is EUR 81,867,340.

Given that occasional expenditure in the group under study generally falls into the category of lower financial investment, it can be observed that their annual contribution to total student expenditure ranges between EUR 3,998,966 and EUR 6,298,387, with a 95% confidence interval. The mean is EUR 5,148,676, and the trimmed mean at 5% is EUR 3,200,962. This includes possible but higher volumes of expenditure, which are less typical for the target group based on the sample. If only the items in which at least 50% of the sample is involved are estimated, the total expenditure (taking into account monthly regular and ad hoc expenditure per academic year) is estimated to be between EUR 3,288,288 and EUR 4,128,605. In this case, the average is EUR 3,708,446, with the 5% trimmed average being EUR 2,763,302. Including the expenditure on human health services, the estimate ranges from EUR 3,607,008 to EUR 4,578,453, with an average of EUR 4,092,731 and a 5% trimmed average of EUR 3,048,381. For group expenditure, we can also summarize the items in tabular form. This does not alter the structure of the order but provides more comprehensive information on the volumes. Monthly regular expenditure is the largest contributor to the total student expenditure, amounting to nearly EUR 93,000,000 (Table 2). This item is followed by individual tourism expenditure, ad hoc annual expenditure, and guest expenditure.

Table 2

Students' spending patterns by individual and population

Cost item	Average spending (monthly, ind.)
Regular monthly spending:	EUR 72,678,209
+ Tourism spending:	EUR 12,060,639
+ Occasional spending:	EUR 5,148,676
Spending for a month with tourism, occasional spending:	EUR 89,887,525
+ Guest spending:	EUR 2,826,970
Total monthly expenditure per student and guests combined:	EUR 92,714,495

*calculated on the basis of a 10-month stay

Source: own calculation

4.3. The consumption structure across different dimensions

To gain a more comprehensive understanding of the impact of spending, the second crucial aspect, alongside the total expenditure volume, is the structure of that spending. This is especially important because the amounts spent in each category do not necessarily have the same multiplier effect on the national economy. The largest portion of student expenditure is allocated to food and hygiene (41%), followed by housing (32.1%). Together, these two categories account for 73.1% of total expenditure (Figure 2).

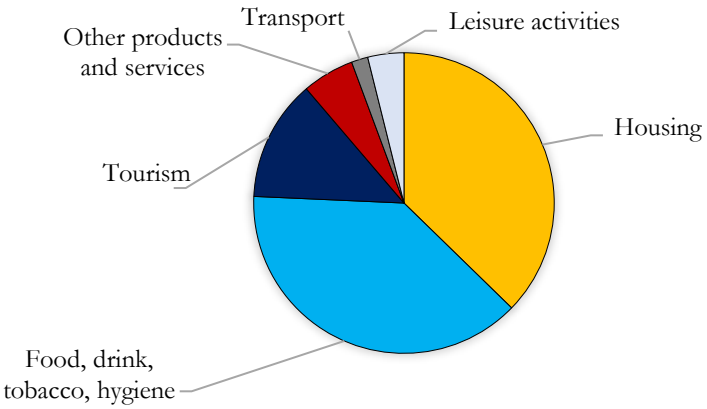

Figure 2. Distribution of student expenditure by aggregate product and service category
Source: own calculation

The remaining 26.8% is primarily dominated by tourism expenditure (14.2% of the total expenditure structure), followed by spending on other goods and services (6.5%), leisure activities (4%), and transport (2.1%). In total, approximately 78.8% of student expenditure is allocated to basic needs, including transport. Another important aspect of the expenditure structure is the position of each expenditure item within the students' overall spending portfolio. This provides insight into the relative ranking of each item in terms of its contribution to the total expenditure (Figure 3).

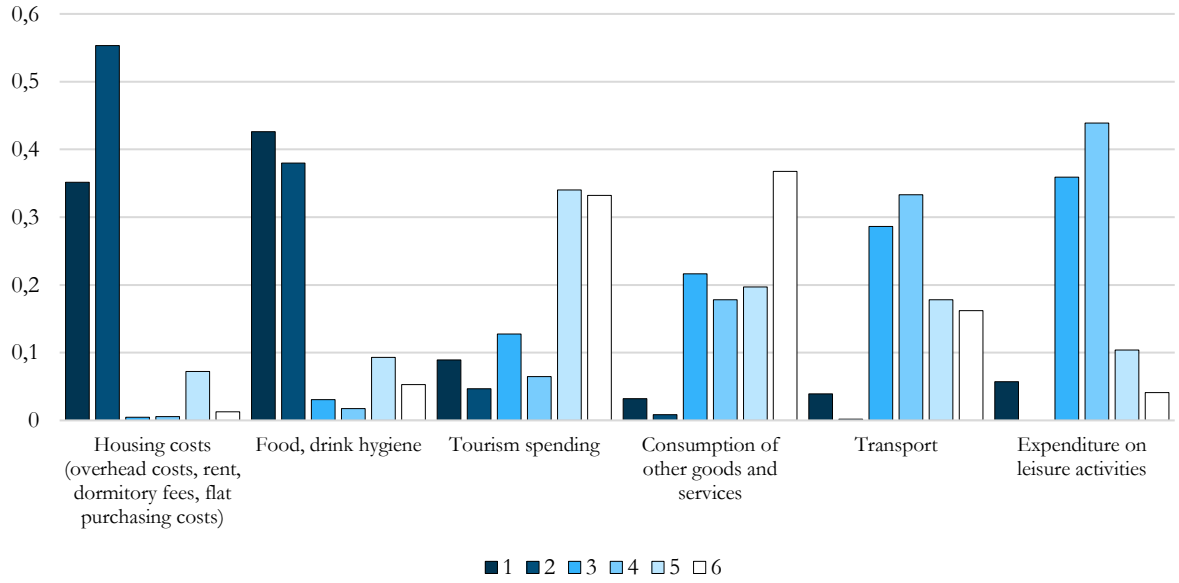

Figure 3. Focus of each expenditure item in the students' spending portfolio
Source: own calculation

The weight of housing, food, and hygiene in consumption is clearly evident, as both occupy a prominent place in students' spending portfolios, typically accounting for the highest or second-highest expenditure items. On the other hand, spending on tourism and additional goods and services represents a smaller share of total spending. This is partly due to the inherent characteristics of the product and service groups in question, where a determining factor is the ease with which a student can avoid spending on a particular item, as well as the cost of the product in relation to its typical unit price. Transport and leisure

activities fall between these two extremes in terms of expenditure weight, with a nearly identical distribution. However, leisure activities hold a slightly more dominant position. In addition to the relative weight and position, the mean of each item, its confidence intervals, and the 5% trimmed mean provide further insight into the volume of expenditure. This enables us to estimate the weight of each expenditure item and its average size (at both the individual and group level), giving us a clearer picture of the differences in expenditure volumes, alongside their ranking (Table 3).

Table 3

Student expenditure by products and services (in EUR)

Expenditure	Lower margin	Mean	Upper margin	5%-trimmed mean
Monthly/pp				
Housing	243	258	274	235
Food and hygiene	317	330	343	309
Leisure activities	30	32	35	27
Transport	16	17	19	14
Tourism	99	114	130	82
Other goods and services	49	52	55	46
Yearly/population				
Housing	25,561,220	27,221,633	28,882,047	24,751,660
Food and hygiene	33,392,704	34,769,614	36,146,524	32,523,704
Leisure activities	3,129,869	3,392,494	3,655,118	2,832,513
Transport	1,682,622	1,818,677	1,954,731	1,506,146
Tourism	10,466,363	12,060,639	13,654,914	8,630,103
Other goods and services	5,126,209	5,475,792	5,825,375	4,875,921

Source: own calculation

The ranking is led by food and drink consumption and hygiene (standard deviation: EUR 280, relative standard deviation: 85%), followed by housing (standard deviation: EUR 258, relative standard deviation: 131%). Three other categories can be identified in terms of spending volume. Tourism expenditure accounted for the third-largest average (standard deviation: EUR 114, relative standard deviation: 283%). A separate volume is represented by the pair of categories with average monthly expenditure in the range of EUR 25 to EUR 51: additional goods and services (standard deviation: EUR 71, relative standard deviation: 137%) and leisure activities (standard deviation: EUR 53, relative standard deviation: 166%). Finally, the smallest average expenditure was in the transport category, with a figure of less than EUR 25 (variance: EUR 28, relative variance: 160%). The largest relative variance is in tourism, leisure activities, and transport, reflecting the students' varying consumption patterns. At the same time, given that students participating in the Stipendium Hungaricum programme are spread across many regions of the country, the dispersion in housing expenditure is not significantly smaller. Expenditure on food and hygiene can be further differentiated, with two sub-categories. Expenditure on food was significantly higher, averaging EUR 289 per individual, while hygiene expenditure averaged EUR 41.

About 45% of the students participating in the Stipendium Hungaricum programme studied in Budapest, 20% in Debrecen, 11% in Pécs, 7% in Gödöllő, and 6% in Szeged. Housing and rental conditions in these areas thus have a significant impact on the volume and structure of students' spending. The average dwelling size for those living in Budapest is approximately 20 m², considering only respondents who lived in rented accommodation, based on 2024 prices per square metre (https://negyzetmeterarak.hu/, 2024). The same value is 17 m² in Debrecen, 28 m² in Pécs, 43 m² in Gödöllő, and 25 m² in Szeged, based on the average expenditure of the corresponding portion of the sample and the local average price per square

metre. These values are influenced by the local average price per square metre and the average housing expenditure in each settlement. Housing expenditure was highest in Gödöllő, with an average of EUR 380, followed by Budapest at EUR 277, Pécs at EUR 262, Debrecen at EUR 226, and Szeged at EUR 212. In terms of housing market values, taking into account the above expenditure, it can be inferred that students make considerable use of dormitories, as well as room rentals or shared rentals with fellow students. The sample distribution strongly confirms this: 29.9% of respondents reported using residence halls, and an even higher proportion (38.5%) rented a room. This aligns with the 0.68% of students sharing a room, slightly increasing the overall proportion.

The data suggest that dormitories may be a relevant means of reducing housing costs. Based on the responses, the estimated amount spent on residences by students who incurred this expense, with a 95% confidence interval, ranged on average between EUR 98 and EUR 116 (mean: EUR 107, 5% trimmed mean: EUR 100, standard deviation: EUR 94). In contrast, for students who rented, the expenditure on average ranged between EUR 248 and EUR 289 (mean: EUR 268, 5% trimmed mean: EUR 244, standard deviation: EUR 356). If we consider the expenditure items that students cannot avoid, or can only avoid to a very limited extent – such as housing, food, hygiene, and local transport in a broader sense – we find that the share of students' expenditure that can be allocated more freely is 26.8% and 24.7%, respectively. Another aspect of the elasticity associated with each expenditure item is the proportion of the sample that reported spending zero forints on certain main expenditure categories. Approximately 6.27% of the sample reported zero expenditure on housing and utilities, while only two students indicated zero spending on food, drink, and hygiene. Similarly, the proportion of students who could or would completely do without transport expenses is low, at just 4.8%. For items assumed to offer greater flexibility in student spending, zero expenditure was reported by 2.71% of respondents for other goods and services, 11.87% for tourism, and 33.3% for leisure activities. The relatively low zero spending on other goods and services may be linked to the necessity of equipment for studies.

4.4. Groups of students by their spending structure

Based on the expenditure items outlined above, it is possible to identify several sub-groups of students within the Stipendium Hungaricum programme. These sub-groups can be categorized according to their consumption volumes and respective shares. The students in the Stipendium Hungaricum programme can be classified into seven categories based on their spending structure. Among these, three categories represent a larger proportion of the sub-sample, while the remaining three represent a smaller proportion (Table 4).

Table 4

Groups of students by spending structure (in EUR)**

Expenditure	Consuming more locally (20.1%)	Lower demand (35.4%)	Average demand, those spending more on housing (26.6%)	Spending less on tourism (9.3%)	High demand, with high tourism consumption (5%)	High demand, with moderate tourism consumption (3.6%)
Housing	224	96	286 *	550 *	322 *	400 *
Food and hygiene	477 *	168	221	347 *	383 *	865 *
Leisure activities	41 *	17	17	30 *	39 *	53 *
Transport	17 *	11	12	17 *	17 *	21 *
Tourism	82	36	72	60	531 *	140 *
Other goods and services	60 *	34	39	48 *	63 *	84 *

* Higher than average for the students included in the clustering.

** Prior to clustering, students who scored above three standard deviations above the mean in a category were excluded from the sample; in this respect, they were considered outliers. The number of elements in the clustered sample was 1,652.
Source: own calculation

The two groups with the most homogeneous demand (those with lower standard deviations in all spending categories compared to the overall standard deviation) are the lower demand group (35.4% of the sample) and the average demand group, which spends more on housing (26.6% of the sample). Expenditure in all categories was below the overall sample average for the former group. The most significant differences were observed in housing (-EUR 141), food and drink, and hygiene (-EUR 129). On average, members of this group also spent about EUR 49 less on tourism. When examining the categories in more detail, housing expenditure accounted for only 40% of the sample's average, while the corresponding proportions for other categories were: 42% for tourism, 57% for food and drink, hygiene, 66% for leisure activities, 76% for other products, and 78% for transport. The lower volume of housing expenditure may be explained by the fact that this subgroup had the highest share of college students (55.9%), and the second most common housing type among respondents was rented rooms (26.3% of the cluster).

The second-largest group consists of those with average demand, who spend more on housing. Their main characteristic is that, while they spend on average more than the sample average on housing (around 121% of the sample average), they spend less in other categories. The largest negative absolute deviation from the sample average in the expenditure averages for this group was observed in food and drink consumption and hygiene (-EUR 75), representing about 75% of the average expenditure in this category. In the other categories, the group's consumption reached 69% of the sample average for leisure activities, 84% for tourism, 87% for other goods and services, and 92% for transport. The higher expenditure on housing may be partly explained by the marked shift in the housing situation of this group, with 58.4% of respondents living in rented rooms and 31.4% in flats. Only 10.2% of students in this group lived in residences.

The third-largest group, comprising 20.1% of the sample, spends more locally. Their main characteristic is that they are below or close to the sample average for housing and tourism. They spent EUR 13 less on housing and EUR 4 less on tourism, reaching 95% and 96% of the sample average, respectively, while exceeding the sample average in all other areas. The largest positive deviation occurred in food and drink consumption and hygiene, where their average expenditure was EUR 181 more than the sample average. The categories with the largest variations were the use of local restaurant services, food and drink consumption, and spending on hygiene, beauty, and cleaning products. In these areas, the subgroup spent on average EUR 95, EUR 66, and EUR 10 more per month than the sample average. The variance for this group exceeded the sample average in three categories: leisure activities, transport, and other goods and services.

The fourth-largest group is made up of those who spend less on tourism. This group's average expenditure across all categories is above the sample average, except for tourism. The largest differences in positive amounts were found in housing (EUR 314 more), followed by food and drink (EUR 51 more). In terms of percentages, the expenditure breakdown was as follows: housing (233%), leisure activities (119%), transport (122%), food and drink (117%), hygiene (117%), and other goods and services (107%). However, for tourism, their expenditure was EUR 26 below the sample average, representing only 70% of the average. This group's higher housing expenditure is particularly notable, as it had the highest proportion of respondents living in rented accommodation, with 77.8% living in their own homes, followed by 21.6% living in rented rooms. The lower tourism expenditure may be partly explained by the fact that this group reported the lowest average number of nights spent per trip (1.55, compared to the sample average of 1.92)

and the lowest number of trips per year (2.9, compared to the sample average of 4.58). No significant pattern emerged in other tourism indicators, suggesting that the frequency of travel influenced the lower average spending volume more than the consumption per trip. This group's variance exceeded the sample average in leisure activities and transport.

The other two groups identified share the characteristic of spending above the sample average in all categories. However, while the high demand group with high tourism consumption (5%) spends significantly more on tourism, the high demand group with moderate tourism consumption (3.6%) allocates more to food and drink, hygiene, and leisure activities, although their tourism expenditure is still notably above average. In terms of specific figures, the additional expenditure size and share in the overall sample average for the high demand subgroup with high tourism consumption are as follows: EUR 445 (619%) for tourism, EUR 86 (129%) for food and drink, hygiene, EUR 85 (136%) for housing, EUR 18 (139%) for other goods and services, EUR 14 (155%) for leisure, and EUR 4 (128%) for transport. The tourism activity of this group stands out in several respects compared to the other groups. For instance, regarding the number of nights spent per trip and the number of trips per year, they report the highest averages: 2.99 nights per trip (compared to the sample average of 1.92) and 10.22 trips per year (sample average: 4.58). Similarly, their averages for tourism-related expenditure are much higher across all categories, with the average expenditure on accommodation being EUR 274 (sample average: EUR 71), on travel EUR 336 (sample average: EUR 89), and on food and entertainment EUR 227 (sample average: EUR 63). However, this cluster exhibits the highest internal heterogeneity, with standard deviations higher than the overall sample in all cases except for food and drink consumption and hygiene.

The cluster with the smallest share was the group with high demand and moderate tourism consumption. In this group, the largest positive deviation from the sample average was seen in food and drink consumption, hygiene (EUR 568, 292% of the sample average), followed by housing (EUR 164, 169%), tourism expenditure (EUR 54, 163%), other goods and services (EUR 39, 187%), leisure activities (EUR 28, 210%), and transport (EUR 8, 157%). In terms of housing, the proportion of individuals renting their own homes (50.8%, the second highest among the clusters) and those renting rooms (32.2%) was also higher. Regarding food and drink consumption and hygiene, the largest difference was in spending on local restaurants (surplus of EUR 279), followed by food and drink (surplus of EUR 243). In general, this group spent the highest average in all subcategories, with an average of EUR 25 for toiletries, beauty, and cleaning products, EUR 13 for cigarettes and tobacco products, EUR 6 for beauty services, hairdressing, and cosmetics, and EUR 2 for laundry and dry cleaning services - each exceeding the sample average.

5. CONCLUSION

This study analyzed the expenditure patterns of students participating in the Stipendium Hungaricum programme, focusing on individual and collective regular monthly expenditures, with supplementary analysis on tourism and occasional expenditure. The study also considered the economic impact of students' guests and examined the structural characteristics of their expenditure and consumption patterns.

The findings reveal that the average monthly expenditure per student is EUR 853, which increases to EUR 880 when accounting for guests' consumption. This corresponds to an annual expenditure of EUR 89,887,525 per person across the entire group, and EUR 92,714,495 when guests are included. In terms of expenditure structure, the two largest categories – food, hygiene, and luxury goods (41%) and housing (32.1%) – accounted for 73.1% of total consumption. Specifically, the average monthly expenditure on food and hygiene was EUR 330 (totaling EUR 34,769,614 annually), housing amounted to EUR 258 (EUR 27,221,633 annually), tourism expenditure was EUR 114 (EUR 12,060,639 annually), other goods and

services totaled EUR 52 (EUR 5,475,792 annually), leisure activities were EUR 32 (EUR 3,392,494 annually), and transport expenditure was EUR 17 (EUR 1,818,677 annually).

The study identified six distinct consumer groups among the students, in order of prevalence: lower demand (35.4%), average demand with higher housing expenditure (26.6%), local spenders (20.1%), lower tourism spenders (9.3%), high demand with high tourism consumption (5%), and high demand with moderate tourism consumption (3.6%).

These findings are valuable for stakeholders involved in attracting foreign students, enhancing the effectiveness of the Stipendium Hungaricum programme, and for those interested in understanding the program's economic impact. Based on the results, future research will focus on identifying the multiplicative and spill-over economic effects of students' consumption across different sectors.

REFERENCES

Aliyev, K., Abbasova, A., Alishzada, R., & Jafarova, A. (2023). Expatriation and permanent emigration intention among youth in Azerbaijan. *Journal of International Studies, 16*(4), 153-165. https://doi.org/10.14254/2071-8330.2023/16-4/10

Alpek, B., Császár, M., Tóth, Á. D., & Czimre, K. (2022). Impacts of the international students' consumption expenditures on the national economy in Hungary (2020). *Regional Statistics, 12(4)*, 176–199. https://doi.org/10.15196/RS120408

Andrés Solimano (Ed.) (2008). The International Mobility of Talent: Types, Causes, and Development Impact. *Human Resource Management. 49*. https://doi.org/10.1002/hrm.20344.

Australian Government. (2016). *The value of international education to Australia.* Australian Government Department of Education, https://internationaleducation.gov.au/research/research-papers/Documents/ValueInternationalEd.pdf

Beech, S. E. (2015). International student mobility: the role of social networks. *Social & Cultural Geography, 16(3)*, 332-350. https://doi.org/10.1080/14649365.2014.983961

Beine, Michel & Noel, Romain & Ragot, Lionel. (2012). The Determinants of International Mobility of Students. *Economics of Education Review. 41*. https://doi.org/10.1016/j.econedurev.2014.03.003.

Berács, J. (2008). Tudásexport a felsőoktatásban: Egy hierarchikus megközelítés. *Competitio, 7(2)*, 35–48. https://doi.org/10.21845/comp/2008/2/2

Bergerhoff, J., Borghans, L., Seegers, P. K., & van Veen, T. (2013). International education and economic growth (*IZA Discussion Paper No. 7354*). https://docs.iza.org/dp7354.pdf

Bleaney, M. F., Binks, M. R., Greenaway, D., Reed, G. V., & Whynes, D. K. (1992). What does a university add to its local economy. *Applied Economics, 24(3),* 305–311. https://doi.org/10.1080/00036849200000143

Brooks, J. (2018). Higher education mobilities: A cross-national European comparison. *Geoforum, 93*, 87–96. https://doi.org/10.1016/j.geoforum.2018.05.009

Brooks, Rachel & Waters, Johanna. (2011). *Student Mobilities, Migration and the Internationalization of Higher Education.* 10.1057/9780230305588.

Butcher, A. (2002). A report on the demographic, social and economic impact of international students on North Shore City. Massey University.

Castree, N. and Sparke, M. (2000), Introduction: Professional Geography and the Corporatization ofthe University: Experiences, Evaluations, and Engagements. *Antipode, 32*, 222-229. https://doi.org/10.1111/1467-8330.00131

Csapó, J., & Császár, Z. (2021). A Magyarországon tanuló külföldi egyetemi hallgatók turisztikai fogyasztási szokásainak elsődleges elemzése. *Turizmus Bulletin, 21(2),* 15–23. https://doi.org/10.14267/TURBULL.2021v21n2.2

Császár, Z., Tarrosy, I., Dobos, G., Varjas, J., & Alpek, L. (2023). Changing geopolitics of higher education: Economic effects of inbound international student mobility to Hungary. *Journal of Geography in Higher Education, 47(2),* 285–310. https://doi.org/10.1080/03098265.2022.2045572

Déri, M. (1972). Külföldi hallgatók Magyarországon. *Felsőoktatási Szemle, 1.*

Efron, B. (1979). Bootstrap methods: Another look at the jackknife. *The Annals of Statistics, 7(1)*, 1–26.

Erasmus Statisztikák. (n.d.). Erasmus statisztikák. Retrieved September 20, 2024, from https://erasmus-plus.ec.europa.eu/resources-and-tools/statistics-and-factsheets

Findlay, Allan & King, Russell & Smith, Fiona & Geddes, Alistair & Skeldon, Ronald. (2011). World Class? An Investigation of Globalisation, Difference and International Student Mobility. *Transactions of the Institute of British Geographers. 37*. 118-131. https://doi.org/10.1111/j.1475-5661.2011.00454.x.

FIR-OSAP (2024). Educational database provided by the Educational Authority, Hungary.

Földes, I., Szőőr, Á., Szegedi, G., & Zajácz, M. (1982). Külföldi hallgatók képzésének 20 éves tapasztalatai. *Felsőoktatási Szemle, 7-8,* 457–458.

Füzesi, Z., & Tistyán, L. (2013). Külföldi diákok egy egyetem és város életében. *Területfejlesztés és Innováció, 3,* 11–17.

Gardner Pinfold Consultants Inc (2018). *The Economic Impact of International Students in Atlantic Canada.* Halifax, NS: Garnder Pinfold. https://immediac.blob.core.windows.net/camet-camef/images/2018-02-20_EconomicImpactofInternationalStudents-WEB.PDF

Grasset, D. C., & Menédez, G. B. (2017). *The economic impact of international students in Spain.*

Gürüz, Kemal (2008). *Higher Education and International Student Mobility in the Glob-al Knowledge Economy.* Albany: Albany, State University of New York Press.

Gyenes, T. (1971). Hatvanhat ország fiataljai a BME-n. *Jövő Mérnöke, 18*.

Hajnal, L. (1986). Ismerjék meg az embert először – akik a hazájukban még nem hallottak a számítástechnikáról. *Jövő Mérnöke, 33*.

Horváth, B. Z. (2023). Kézi vezérelt nemzetköziesítés: A Magyar Népköztársaság nemzetközi törekvéseinek hatása a magyar felsőoktatásra az Eötvös Loránd Tudományegyetem példáján. *Múltunk, 2023*(2), 61–87.

Infometrics. (2015). The economic impact of international education in New Zealand 2015/2016. Retrieved September 20, 2024, from https://www.enz.govt.nz/assets/Uploads/The-Economic-Impact-of-International-Education-in-New-Zealand-2015-2016.pdf

Jöns, Heike, & Hoyler, Michael. (2013). Global geographies of higher education: The perspective of world university rankings. *Geoforum. 46*. 45-59. https://doi.org/10.1016/j.geoforum.2012.12.014.

Joseph, Matthew & Mullen, Eileen & Spake, Deborah. (2012). University Branding: Understanding Students' Choice of an Educational Institution. *Journal of Brand Management. 20*. https://doi.org/10.1057/bm.2012.13.

Kabanbayeva, G., Gureva, M., Bielik, P., & Ostasz, G. (2019). Academic mobility and financial stability: A case of Erasmus student exchange program. *Journal of International Studies, 12(1)*, 324-337.

Kehm, Barbara, & Teichler, Ulrich. (2007). Research on Internationalisation in Higher Education. Journal of Studies in *International Education. 11*. 260-273. https://doi.org/10.1177/1028315307303534.

Keresztes, C. (2020). „Összeforrni a dolgozó néppel" – A felsőoktatás helyzetének elemzése 1952ből. *Archivnet, 5–6*.

Kichurchak, M., Paslavska, I., Hrynkevych, O., Mishchuk, H., & Bilan, Y. (2024). Examining Tertiary Education Amid the War in Ukraine: A Synthetic Control Approach. *European Journal of Interdisciplinary Studies, 16*(2). https://doi.org/10.24818/ejis.2024.13

King, Russell & Raghuram, Parvati. (2013). International Student Migration: Mapping the Field and New Research Agendas. *Population Space and Place. 19*. 127-137. https://doi.org/10.1002/psp.1746.

Knight, J. (2007). Internationalization brings important benefits as well as risks. *International Education, 46*, 8–10.

Kochaniak, K., Huterska, A., Kwiatkowski, J., & Błażejowski, M. (2024). Threat to life or livelihoods - employment attitudes of Ukrainian war immigrants. *Economics and Sociology, 17*(2), 224-240. https://doi.org/10.14254/2071-789X.2024/17-2/11

Kofman, Eleonore & Phizacklea, Annie & Raghuram, Parvati & Sales, Rosemary. (2001). *Gender and International Migration in Europe: Employment, Welfare and Politics.*

Kolléga-Tarsoly, I. (2000). *Magyarország a XX. században*, V. kötet, Tudomány 2: társadalomtudományok. Babits Kiadó.

Kovács, I. V., & Tarrósy, I. (2015). *A felsőoktatási nemzetköziesítése: Kézikönyv a felsőoktatási intézmények nemzetközi vezetői és koordinátorai számára.* Tempus Közalapítvány.

Központi Statisztikai Hivatal, *Statisztikai Évkönyv. (1966).* Statisztikai Kiadó Vállalat.

Központi Statisztikai Hivatal, Statisztikai Évkönyv. (1971). Statisztikai Kiadó Vállalat.

Központi Statisztikai Hivatal, Statisztikai Évkönyv. (1976). Statisztikai Kiadó Vállalat.

Központi Statisztikai Hivatal, Statisztikai Évkönyv. (1981). Statisztikai Kiadó Vállalat.

Központi Statisztikai Hivatal, Statisztikai Évkönyv. (1986). Statisztikai Kiadó Vállalat.

Központi Statisztikai Hivatal, Statisztikai Évkönyv. (1991). Statisztikai Kiadó Vállalat.

Krieger, Tim & Lange, Thomas. (2010). Education Policy and Tax Competition with Imperfect Student and Labor Mobility (Revised Version, Feb. 2010). *International Tax and Public Finance. 17*. 10.2139/ssrn.1133436.

Lacmanović, S., & Škare, M. (2024). The comparative analysis of B Corp Impact Report results in higher education organizations. *Journal of International Studies, 17*(4), 255-277. https://doi.org/10.14254/2071-8330.2024/17-4/15

Lomer, S. (2018). UK policy discourses and international student mobility: the deterrence and subjectification of international students. *Globalisation, Societies and Education*, *16*(3), 308–324. https://doi.org/10.1080/14767724.2017.1414584

London & Partners. (2008). *The economic impact of London's international students.* Retrieved September 20, 2024, from https://files.londonandpartners.com/l-and-p/assets/media/students_impact_report.pdf

London Economics. (2018). *The costs and benefits of international students by parliamentary constituency – Report for the Higher Education Policy Institute and Kaplan International Pathways.* Retrieved October 24, 2019, from https://londoneconomics.co.uk/wp-content/uploads/2023/05/LE-Benefits-and-costs-of-international-HE-students-Summary-Report-2.pdf

M. Császár, Z., & Alpek, L. (2018). A nemzetközi hallgatók vidéki egyetemvárosokra gyakorolt gazdasági szerepe Magyarországon Pécs példáján. *Közép-Európai Közlemények, 11(2)*, 30–41.

M. Császár, Z., Terepics, K., Wusching, Á. T., Győri, F., Alpek, L., Czimre, K., Sályi, A., & Koltai, A. (2019). The impact of the spending habits of international students on the economy of university cities: Case study Hungary. *Interdisciplinary Management Research, 15*, 562–585.

Mantong, G. (2017). *The economic impact of international students on their countries of origin.* Thesis, Faculty of Graduate School of Arts and Sciences, Georgetown University.

Montanari, A., & Staniscia, B. (2014). International tertiary students: Is Rome an attractive destination*?. Eurolimes, 17*, 169–183.

Murphy-Lejeune, E. (2002). *Student Mobility and Narrative in Europe: The New Strangers* (1st ed.). Routledge. https://doi.org/10.4324/9780203167038

Nafsa. (2019). *The economic value of international student enrollment to the U.S. economy – A methodology.* Retrieved September 20, 2024, from www.nafsa.org/sites/default/files/media/document/isev-methodology-2019.pdf

Ortiz, A., Chang, L., & Fang, Y. (2015). International student mobility trends 2015: An economic perspective. *WES Research & Advisory Services.*

Ortiz, A., Chang, L., & Fang, Y. (2015). *International Student Mobility Trends 2015: An Economic Perspective*. WES Research & Avisory Services. https://wenr.wes.org/2015/02/international-student-mobility-trends-2015-an-economic-perspective(open in a new window)

Oxford Economics, (2007). The economic impact of London's international students. available at ‹https://www.oxfordeconomics.com/my-oxford/projects/129046(open in a new window)› accessed 24 October 2019

Paneru, K., Padgett, R. N., & Chen, H. (2018). Estimation of zeroinflated population mean: A bootstrapping approach. *Journal of Modern Applied Statistical Methods, 17(1),* eP2557. https://doi.org/10.22237/jmasm/1525133460

Pfeiffer, I., Münch, C., Hoch, M., & Böhmer, M. (2013). *The financial impact of crossborder student mobility on the economy of the host country*. Prognos AG.

Rachel Brooks and Johanna Waters (2011): Student mobilities, migration and the internationalization of higher education. *Higher Education, 66*. 10.1007/s10734-013-9644-6.

Romsics, I. (2017). *Magyarország története*. Kossuth Kiadó.

Samoliuk, N., Hrynkevych, O., Mishchuk, H., & Bilan, Y. (2024). Ukrainian students on the global map of academic migration. *Problems and Perspectives in Management, 22*(4), 558-575. https://doi.org/10.21511/ppm.22(4).2024.42

Stukalova, I., Shishkin, A., & Stukalova, A. (2015). Internationalization of higher education: A case of russian universities. *Economics and Sociology, 8*(1), 275-286.

Szemerszki, M. (2005). Külföldi hallgatók Magyarországon. *Educatio*, 2.

Teichler, U. (2004). The changing debate on internationalisation of higher education. *Higher Education, 48,* 5–26.

Tutar, H., Mutlu, H. T., & Kantarcıoğlu N., Łakomy-Zinowik, M. (2024). Analysis of migration to Turkey through macroeconomic indicators: Evidence from the period 2004-2024. *Economics and Sociology, 17*(4), 257-271. https://doi.org/10.14254/2071- 789X.2024/17-4/14

UNESCO. (2024). UNESCO data. Retrieved September 20, 2024, from

Vickers, P., & Bekhradnia, B. (2007). *The economic costs and benefits of international students*. Higher Education Policy Institute, 24.

Waters, J.L. (2006), Emergent Geographies of International Education and Social Exclusion. *Antipode, 38*, 1046-1068. https://doi.org/10.1111/j.1467-8330.2006.00492.x

Yao, L., & Bai, Y. (2008). The sustainability of economic and cultural impacts of international students to regional Australia. *Humanomics, 24*(4), 250–262.