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Evidence-Based Public Policy: How to Reveal Preferences of Youth Regarding Housing and Urban Mobility?

Abstract: - In Slovakia (and probably in whole Europe), there is very little to no data available on the preferences of young people that would help to form an evidence-based policy in the areas of housing and commuting to work (urban mobility). Suburbs and adjacent urban areas represent another housing option that is neither urban nor rural. Suburban living has become a real alternative to a small town or urban environment. Commuting to work is not about distance (number of km), but about time (hours spent commuting). Moreover, COVID-19 and home office fundamentally changed preferences about housing, employment and mobility. No preference can be precisely quantified when assessing young people's ideas about their future lives. In such a situation, it is difficult to create a test that measures preference based on an action. To circumvent this problem, the knowledge of behavioral economics can be used. Behavioral economics focuses on individuals with limited rationality, revealing what really influences their decisions and actions. This paper provides bibliometric analysis on employing methods of behavioral economics in revealing young people´s preferences.

Keywords: bibliometric analysis, youth preferences, housing, transportation, behavioral economics, public policies.

I. INTRODUCTION

The COVID-19 pandemic allowed for the adoption of the so-called "home office mode," in which working from home became commonplace and the number of days that people commuted to work decreased from five to three or four. The amount of time spent commuting to work determines how far one must travel (in kilometres) and working from home significantly alters one's preferences for housing, work, and commuting. It is impossible to measure preferences when evaluating young people's aspirations for their futures. It is challenging to design a test, questionnaire or survey that determines preference based on an action in such a circumstance. The understanding of behavioral economics can be applied to get around this problem. Behavioral economics focusses on people with limited rationality and exposes the true factors influencing their choices and behavior.

Before behavioral economics, there was a number of classical economic theories that dealt with human decision-making and behavior, such as the subjective expected utility model introduced by Leonard J. Savage, an American mathematician and statistician, in 1954 [1]. These theories looked at humans as rational decision makers who objectively and logically weigh all options. Most of them were based on the assumption that people, when making decisions, try to maximize their gains and utility of a given decision and minimize losses. However, as behavioral economic research shows, this image of the "purely rational" person is unsustainable. Behavioral science suggests that people are more humane and less homo economicus and thus that their decision-making is also influenced by emotions and intuition [2]–[6].

The core value of BE is found in its ability to help identify the factors that lead to people acting irrationally and find strategies to encourage people to make better decisions. The goal of behavioral economics is to give economics a psychological component. There are two ways of thinking that affect how someone makes decisions and assesses the circumstances in which they find themselves. They are referred to as System 1 and System 2 in psychology. Key attributes were assigned to these systems [7]. System 1 is an automated system that thinks quickly. A person follows innate skills, acts quickly and instinctively, and bases decisions on experience. Although our instincts are usually pretty accurate, we frequently make mistakes by depending too much on them. The second system is rule-based, reflexive, and slower than automatic. Its mission is to subdue System 1's impulses. The task of System 2 is also the continuous monitoring of our behavior - the control that allows us to maintain politeness even when we are angry, or to be alert when driving at night [4]. Tversky and Kahneman [8] noted that humans make decisions based on approximations of rules.

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These thoughts led us to the idea to explore the use of behavioral economics in identifying the decision-making of individuals. The paper aims to conduct a bibliometric analysis of applying behavioral economics in revealing young people´s preferences for housing and transportation between 2010 and 2023.

II. Literature Review

Behavioral economics (BE) differs from classical economic theories in two ways. First, it does not assume that people are good at judging utility and maximizing profits. The main reason is that they have only limited cognitive resources (such as attention or memory) and are often subject to so-called cognitive biases that can influence their decisions. The second way in which BE differs from classical theories is that it is built on empirical knowledge of how people make decisions in everyday life. Classical theories were mainly theoretical models, which researchers only subsequently tried to prove in everyday life [9].

There are two methods to ascertain consumer preferences Aab [10]. The first approach, indirect, is based on observing consumer's market behavior. Economic models are used to determine the value of non-market goods as well as to explain how consumer behavior, i.e. their revealed preferences, relate to these values. This approach can be thus used only with already revealed preferences of individuals. Questioning individuals is the second, direct method of revealing the preferences. In this method, the individual states, or conditionally values, their stated preferences on the hypothetical market, i.e., the willingness to accept compensation for the loss resulting from the production of a certain good (determines the minimum compensation due to the impossibility of consuming the given good - willingness to accept - WTA) or the willingness to pay for the good (determining the maximum price that one is willing to pay for the good - willingness to pay - WTP).

Chetty [11] further argues that BE has implications for public policy in three domains. The first is that BE provides new tools to influence the actions of individuals. These tools are not based on do's and don'ts but, for example, on using defaults or framing. The second and third domains are related to the use of the methodological apparatus of behavioral science (e.g., experiments) that allow better estimation of the effects of interventions (public policies) not only in terms of effectiveness but also in terms of impacts on individuals' well-being. More precise estimation of effects naturally has the potential to improve the ability of policymakers to identify optimal public policies. BE also has an impact on public policy because of its ability to change behavior at a very cost-effective rate [12]. On the other hand, [13] warns that whilst significant contributions of BE to housing economics have taken place, clear distinctions are needed to prevent policymakers' inadvertently misapplying incompatible approaches to behavioral economics and to prevent inappropriate synthesis in academic theorization.

Knowledge about how individuals make decisions and what influences them will allow policymakers to direct and adjust the behavior of individuals (the regulated) towards decisions that will bring them greater well-being. Therefore, it is interesting as well as important to apply principles of behavioral economics in policy making, namely, to collect data and reveal preferences for evidence-based policy. However, the research in this area is rather scarce. There are few studies documenting the use of behavioral economics in revealing young people´s preferences for housing and transportation. For instance, [14], investigated the social-economic phenomena of loss aversion and risk aversion using behavioral experiments in sustainable travel behavior. The problem is, these authors did not focus on real life situations, but used BE in a laboratory experiment focused on departure time choice. However, they simulated results indicate that the theoretical optimal penalty scheme performs better in general in congestion alleviation, while a more reasonable reward scheme that considers psychological factors can achieve the same effectiveness in terms of total system travel time reduction. Similar to this research, there are several studies that document behavioral experiments in transportation, mostly in urban mobility, e.g. to promote public transportation use [15] or use the role of social influences and provision of information in transport behavior [16]. Some authors map the different risks of morbidity and mortality in different transport modes using the effects of BE incentives [17], analyze transport expenditure or the time spent travelling within a particular period [18], focus on transport and climate change mitigation behavior or linking transport behavior with the care about other people [19]. But none of the studies really uses to measure the preferences of young people in real life.

Using the revealed-preference approach and WTP, [20] found out that individuals in Ohio, the USA, value relative house size, that contrasts with the stated preference literature, which frequently find individuals to be willing to forgo absolute well-being in exchange for relative status gains. Murray Svidroňová *et al.* [21] attempt to identify the preferences of university students in Slovakia using System 1 and System 2. In a ten-year study, they discovered that a large portion of Gen Z's preferred living location is outside of a major city. Gen Z no longer shares the same need to travel, at least temporarily, with the previous generation of millennials, who frequently expressed this need.

Many students show their preferences of working in the city centre, but they also have homes in small towns or the suburbs. When owning a car is required, driving is not seen as a bad thing. Only a tiny percentage of students (about 5%) expressed a preference for living in a luxury or loft apartment in the middle of a large city.

III. MATERIAL AND METHODS

Objective of this paper is to conduct a bibliometric analysis of applying behavioral economics in revealing young people´s preferences for housing and transportation between 2010 and 2023. The following research questions (RQ) were developed in order to achieve the set objective:

RQ1: How many articles have been published on the specified topic?

RQ2: What categories and research areas fall under the specified topic?

RQ3: How often does the keyword appear in the articles that were examined?

The Web of Science Core Collection (WoS) from Clarivate is the primary database used in this research. WoS is a scientific database that researchers use because of its broad coverage of scholarly literature across many disciplines. We used WoS Core Collection to filter the submissions in order to guarantee a representative and relevant sample. To do so, we use the WoS filters to search in the article title. The data used in this analysis were collected on April 5, 2024. Table 1 presents the data collection procedure based on specified criteria.

Table 1: Criteria for data collection

Criteria	Results from the Web of Science Core Collection
Keywords in the Title of the article	"Behavioral economics" or "behavioral economics methods" or "behavioral economics methodology" or "experimental research" or "preferences of young people" or "housing preferences" or "living preferences" or "transport preferences" or "mobility preferences" or "preferences of generation" or "generation behaviors" or "generation preferences" or "generations differences" **Total number of documents: 11,102**
Criterium 1 Time span	Years 2010-2023 **Total number of documents: 7,825**
Criterium 2 Language	"English" **Total number of documents: 7,375**
Criterium 3 Type of document	" Article" **Total number of documents: 4,202**
Criterium 4 WoS categories	"Economics", "Business", "Management", "Urban Studies", "Regional Urban Planning", Transportation", "Transportation Science Technology", "Public Administration", "Political Science", "Family Studies", "Demography", "Psychology Social", "Psychology Multidisciplinary", "Psychology Experimental", "Behavioral Sciences", "Social Issues", ""Multidisciplinary Sciences", "Social Sciences Mathematical Methods", "Mathematics Interdisciplinary Applications" AND exclude all others **Total number of documents: 477**

Source: own.

Bibliometric analysis is the main method used due to its increasing popularity among the researchers [22]-[24]. Truc [25] using bibliometric analysis has shown that while individual articles dealing with behavioral economics have become less intensely related to psychology, the growing number of articles in economics has intensified the overall interdisciplinarity between economics and psychology. There has been a rise in the importance of management studies, as well as a variety of other disciplines in the social and natural sciences, as behavioral economists have diversified their interdisciplinary relationships since the 2000s. In 2008, behavioral experiments started to use incentives for individuals' choices with foreseeable outcomes but without exclusion of alternative choices (preferences). The first relevant papers in this field started to occur in 2010, which is the first year we set for our analysis. The last year of the analyzed period is 2023, as papers published in 2024 are not likely to be indexed in the WoS Core Collection database yet.

The software VOSviewer, a free program for creating and displaying bibliometric networks from journals or individual publications, was utilized to conduct bibliographic analyses. Co-authorship, bibliographical links, citation relationships, and co-citations can all be used to build data. With the software's text mining feature, significant information from scientific literature can be visualized as co-occurrence networks. By default, this software uses associative power to link keywords. The strength of links between items is normalized using association strength [26], [27].

IV. Results And Discussion

First results that can be noted from the table 1 is that the field of employing behavioral economics methods in revealing young people´s in areas as housing and transportation is rather scarce. However, in the analyzed years of 2010-2023 we can observe an increasing number of publications dealing with this topic with a slight decrease in 2019-2021, followed by raise in 2022. Another drop in 2023 can be explained by a fact that not all articles published in 2023, have been indexed in the WoS Core Collection yet.

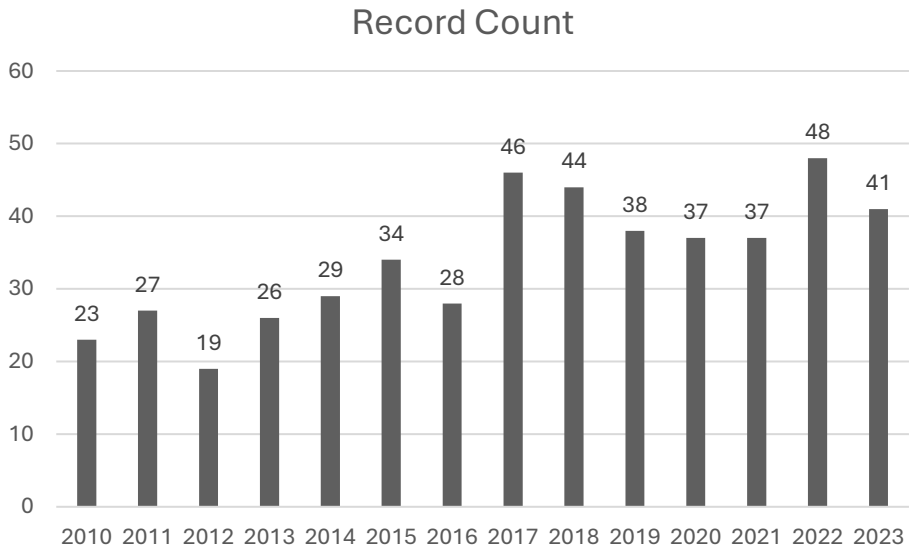

Figure 1: Record count based on publication years
Source: own

The most active researchers in applying behavioral economics in revealing young people´s preferences for housing and transportation are summarized in figure 2 below.

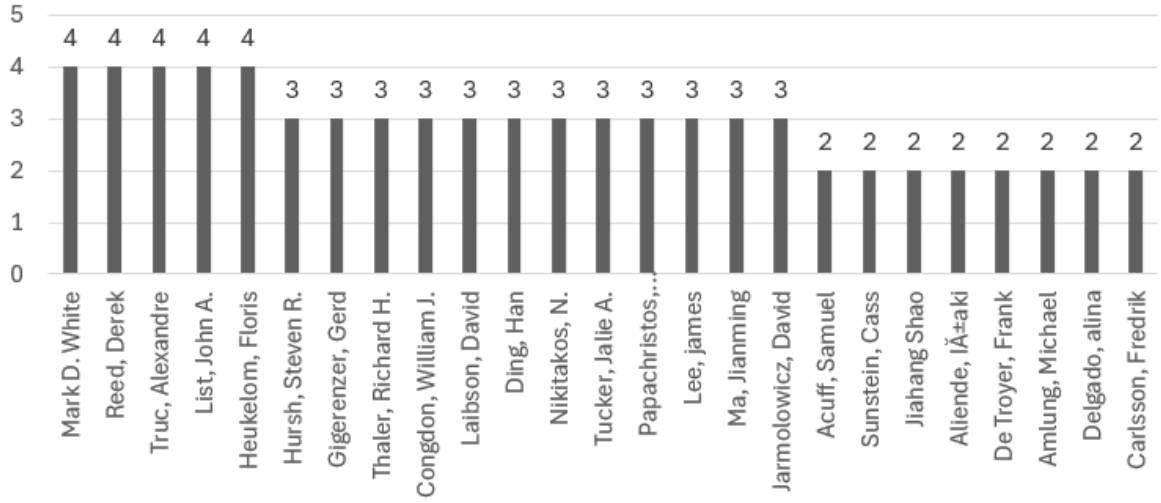

Figure 2: Top 25 most active authors in the field of behavioral economics use for revealing the preferences
Source: own

Based on the WoS categories, the analyzed publications cover the following research areas (figure 3). The most research is published in the categories: Economics, Multidicsiplinary Sciences, Management. Based on this results, we can already see that research criterium 4 should have contained also WoS categories: Environmental Studies, Engineering Multidisciplinary, Engineering Mechanical (probaly includes articles on tranportation – ecological and constrcution issues of preferred types of urban mobility), Health Policy Services and Psychology Biological (probably contains articles dealing with the impact of preferences on health and general well-being of individuals).

Figure 3: Top 15 Web of Science Categories
Source: own

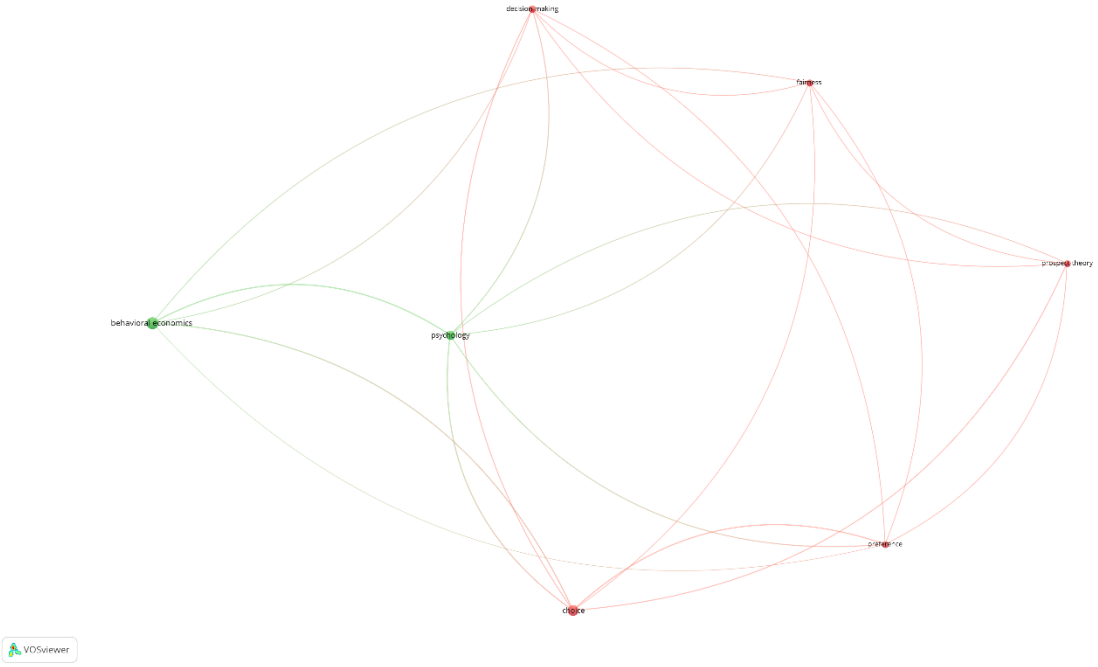

Figure 4: Keyword occurrence analysis
Source: own
Note: Minimum number of occurences of a keyword set to 5

For further analysis, we used the VOSviewer software to perform the co-occurrence analysis (figure 4). The keywords were divided by VOSviewer into 2 clusters, which represented 20 links and a total link strength of 52. Given a rather small number of articles in the topic, these clusters are small, and no in-depth findings can be derived from the analysis. However, the analyzed studies strongly link behavioral economics and psychology, decision-making, choice and preference. A keyword fairness occurs in the analysis, indicating that the BE aims not only to reveal the preferences but also achieve changes in public sector areas towards fairer distribution of the services. A prospect theory also appears among clusters. This theory describes how people evaluate risk in experimental settings, and some argue that it is less relevant outside the laboratory. Over the past decade, scholars in the field of BE have put a lot of effort into applying the prospect theory in economic settings [28].

The further research shall focus on the use of behavioral economics in identifying living (housing) and transportation preferences of (young) people in real life, not just experiments, to collect data necessary for evident-based public policies. To do so, a scoping review can be conducted - the relevant articles identified by the bibliometric analysis will be downloaded, read and categorized using more sophisticated method, e.g. PRISMA [29, 30].

In 2019, [31] researched behavioral studies using behavioral experiments in public policy. According to his findings, behavioral interventions associated with public policy have withheld any overhauling changes to the existing setup. Rather, they have focused on the salience of the information, how it is presented to the actors (individuals), how convenient the various options are, and what the actors know about the decisions made by others. This is also evident in academic writing on the topic; our bibliometric analysis revealed that there are very few articles on methodology using behavioral economics to map individual preferences in housing (living) and transportation (commuting). This is confirmed by [32] who find out that there are some experiments done in the areas of housing, employment or commuting, but there is very little documented on methodology based on behavioral economics to reveal the preferences of young people in these areas.

V. Conclusion

This paper present results of bibliometric analysis of applying behavioral economics in revealing young people´s preferences for housing and transportation between 2010 and 2023. For mapping we used VosViewer and data from the WoS Core Collection database. Results indicate that even there are some experiments done in the areas of housing or transportation, there are very few attempts to build a methodology based on behavioral economics principles, to reveal the preferences of young people in these areas.

There are limitations to this research as well. Although the WoS database is extensive, not all published research on behavioural economics in selected public sector domains (housing, transportation) is included. Our findings may not apply to other databases, but they do apply to articles indexed in WoS Core Collection. Furthermore, since the bibliometric analysis method only examines the titles, keywords, and abstracts of published studies rather than the complete texts, one should avoid extrapolating the results.

Despite the limitations, bibliometric analysis offers a comprehensive overview of the field of interests (in our case it is the possible use of behavioral economics to create a methodology for revealing preferences of young people in selected areas of public sector). The analysis has shown current trends in research that can be inspirational for other scholars. Based on bibliometric analysis, we have identified gaps that we shall cover in future research. We plan to use also other databases, e.g. SCOPUS and Science Direct, and possibly complement these with databases of other renown publishers like Sage, Emerald and Wiley. Also, based on the analysis, we need to include WoS categories/research areas Environmental Studies, Engineering Multidisciplinary, Engineering Mechanical, Health Policy Services and Psychology Biological, since these were not included in the original criteria for bibliometric analysis. Next, the research will be done in-depth by using the method of scoping review, that analyzes full texts, not only abstracts.

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