

## Contents

EXPLORING CONSUMER INTENTION FOR FUNCTIONAL FOOD PRODUCTS IN HUNGARY: THE ROLE OF HEALTH CONSCIOUSNESS, NUTRITIONAL KNOWLEDGE AND ATTITUDES <i>Abrar Ghaiith</i> .....	5
THE ROLE OF INNOVATION IN THE SUCCESSION OF FAMILY BUSINESSES <i>Boglárka Tóth</i> .....	19
HOW TO INCREASE WORKFLOW EFFICIENCY FOR MICRO AND SMALL BUSINESSES WITH A CUSTOM-BUILT MOBILE APP IN HUNGARY - A CASE STUDY FOR A LANGUAGE LEARNING SCHOOL <i>Ádám Péntek – Anita Pierog – Tamás Kovács</i> .....	29
TODAY'S CONSUMERS ON THE MARKET IN CSÍKSZEREDA (MIERCUREA CIUC) <i>Emőke Katalin Péter – László Illyés</i> .....	39
KNOWLEDGE AND PERCEPTION OF LIBERIAN AGRIBUSINESSES IN THE AFRICAN CONTINENTAL FREE TRADE AREA (AFCFTA) <i>Jacqueline Ninson – Maame Kyerewaa Brobbey – Andrews Aidoo</i> .....	47
LAND CONTROL AND POVERTY STATUS OF FARMING HOUSEHOLDS IN NIGERIA <i>Olubunmi O. Alawode</i> .....	55
PROMOTING COCOA EXPORT FOR TRANSFORMATIVE AND SUSTAINABLE AGRICULTURAL GROWTH IN NIGERIA <i>Udeme Henrietta Ukpe – Iheanyi Onuigbo</i> .....	65
DETERMINING TYPES OF CONSCIOUS CONSUMERS WHO PREFER NUTRITION LABELING <i>Ildikó Tóth – Zoltán Szakály</i> .....	73
GREEN SPORTS PRODUCT CONSUMPTION <i>Emese Makara – Kinga Ráthonyi-Ódor</i> .....	83
BRAIN DRAIN AND ITS REPERCUSSIONS ON THE NEEDS OF THE PALESTINIAN LABOR MARKET: A STUDY OF THE CAUSES AND CONSEQUENCES OF MIGRATION AMONG EDUCATED YOUTH <i>Manal Mohammad Hamarsha</i> .....	93
ANALYSIS OF SOCIAL AND ENVIRONMENTALLY CONSCIOUS BEHAVIOR AS PART IN COMPANIES <i>Maryam Alhassan Talatu – Viktória Vida</i> .....	105



**Applied Studies in Agribusiness and Commerce**

# APSTRACT

Official Periodical of the International MBA Network  
in Agribusiness and Commerce AGRIMBA

Vol. 18. Number 2. 2024



Editor in Chief:  
**Dr. Johan van Ophem**, Wageningen University, The Netherlands

Deputy Editors:  
**Prof. Dr. dr. Hc. András Nábrádi**, University of Debrecen, Hungary, **Prof. Dr. Hc. Wim Heijman**, Wageningen University, The Netherlands

Executive Editorial Board:  
**Dr. Adrián Nagy**, University of Debrecen, Hungary, **Prof. Dr. Agata Malak-Rawlikowska**, Warsaw University of Life Sciences, Poland,  
**Dr. Andrey Babenko**, Tomsk State University, Russia, **Dr. Aurelia Litvin**, Technical University of Moldova, Moldova,  
**Prof. Dr. Bruce Ahrendsen**, University of Arkansas Fayetteville, USA, **Prof. David McKenzie**, Scotland Rural College, Scotland,  
**Prof. Dr. Dragoljub Janković**, Mediterranean University, Montenegro, **Prof. Dr. Edward Majewski**, University of Life Sciences Warsaw, Poland,  
**Prof. Dr. Elena Horská**, Slovak University of Agriculture, Nitra, Slovakia, **Dr. Elena Kovtun**, National University of Life and Environmental Sciences, Kiev, Ukraine,  
**Dr. Erdenechuluun Tumur**, Mongolian State University, Mongolia, **Dr. Forest R. David**, University of Debrecen, Hungary,  
**Prof. H.C. Prof. Dr. Fred R. David**, Francis Marion University, Florence, South Carolina, USA,  
**Dr. Guzalia Klychova**, Kazan State Agrarian University, Russia, **Prof. Dr. Harry Bremmers**, Wageningen University, The Netherlands,  
**Dr. Ivana Ticha**, Czech University of Life Sciences Prague, **Prof. Dr. Jan Hron**, Czech University of Life Sciences Prague, Czech Republic,  
**Dr. Josip Juracak**, University of Zagreb, Croatia, **Dr. Kalna Dubinyuk Tetyana**, NULES Kiev, Ukraine,  
**Dr. Ksenia Matveeva**, Kazan State Agrarian University, Russia, **Dr. László Kárpáti**, California Consulting, Ltd. Hungary,  
**Prof. Dr. Marija Cerjak**, University of Zagreb, Croatia, **Dr. Mario Njavro**, University of Zagreb, Croatia,  
**Dr. Meredith E. David**, Baylor University, Waco, Texas, USA, **Prof. Dr. Michal Pietrzak**, Warsaw University of Life Sciences, Poland,  
**Dr. Olena Slavkova**, Sumy National Agrarian University, Ukraine, **Dr. Olga Lisova**, Stavropol State Agrarian University, Russia,  
**Prof. Dr. Peter Bielik**, Slovak University of Agriculture, Slovakia, **Dr. Rico Ihle**, Wageningen University, the Netherlands,  
**Dr. Shamil Validov**, Kazan Federal University, Russia, **Dr. Svyatoslav Serikov**, Stavropol State Agrarian University, Russia,  
**Dr. Tatiana Litvinenko**, Belgorod State Agricultural Academy, Russia, **Prof. Dr. Zorica Vasilević**, University of Belgrade, Serbia

#### Honorary Editors:

**Prof. Dr. Ajay Kr. Singh**, Delhi School of Professional Studies and Research Delhi, India, **Dr. Akimi Fujimoto**, Tokio University of Agriculture, Japan,  
**Prof. Dr. Alina Badulescu**, University of Oradea, Romania, **Prof. Dr. Anu Singh**, Guru Gobind Singh Indraprastha University, India,  
**Dr. Beáta Bittner**, University of Debrecen, Hungary, **Prof. Dr. Csaba Csáki**, Corvinus University, Hungary,  
**Prof. Dr. Csaba Forgács**, Corvinus University, Hungary, **Prof. Dr. Danilo Tomic**, Serbian Association of Agricultural Economists, Belgrade, Serbia,  
**Prof. Dr. Drago Cvijanović**, Balkan Scientific Association of Agricultural Economists, Serbia, **Dr. Edit Veres**, Partium Christian University, Oradea, Romania,  
**Prof. Dr. Elena Botezat**, University of Oradea, Romania, **Dr. Elisabeta Ilona Molnár**, Partium Christian University, Oradea, Romania,  
**Dr. Ferenc Szilágyi**, Partium Christian University, Oradea, Romania, **Dr. Garth Entwistle**, Scotland Rural College, Aberdeen, UK,  
**Prof. Dr. Govinda Prasad Acharya**, Tribhuvan University Kathmandu, Nepal, **Dr. Gyula Flórián**, Partium Christian University, Oradea, Romania,  
**Dr. Hajnalka Madai**, University of Debrecen, Hungary, **Prof. Dr. dr. Hc. Harald von Witzke**, Humboldt University, Berlin, Germany,  
**Prof. Dr. István Kapronczai**, OTP Bank, Hungary, **Prof. Dr. József Fogarasi**, Partium Christian University, Oradea, Romania,  
**Prof. Dr. dr. Hc. József Popp**, John von Neumann University, Hungary, **Prof. Dr. K.V. Bhanu Murthy**, University of Delhi, India,  
**Prof. Dr. Mária Vincze**, Babes Bolyai University, Romania, **Prof. Dr. Dr. Hc. Mark Cochran**, University of Arkansas, Fayetteville USA,  
**Dr. Marko Jeločnik**, Institute of Agricultural Economics, Serbia, **Dr. Mary McCarthy**, University College Cork, Ireland,  
**Prof. Dr. Mieczysław Adomowicz**, Pope John Paul II State School of Higher Vocational Education in Białą Podlaską, Poland,  
**Prof. Dr. Nebojsa Novković**, University of Novi Sad, Serbia, **Prof. Dr. Patrick De Groote**, Hasselt University, Belgium,  
**Prof. Dr. Qin Fu**, Chinese Academy of Agricultural Sciences, Beijing, China, **Prof. Dr. Ramesh B.**, Goa University, India,  
**Dr. Ranjith Ithalanayake**, Victoria University Melbourne, Australia, **Prof. Dr. Reiner Doluschitz**, Hohenheim University Stuttgart, Germany,  
**Dr. Robert Kowalski**, University of Wolverhampton, UK, **Dr. Tünde Zita Kovács**, Partium Christian University, Oradea, Romania,  
**Dr. Simon Heath**, ICA, Gent, Belgium, **Prof. Dr. Slobodan Ceranić**, University of Belgrade, Serbia, **Dr. Viktória Vida**, University of Debrecen, Hungary,  
**Prof. Dr. Vlade Zaric**, University of Belgrade, Serbia, **Prof. Dr. Xavier Gellynck**, University Gent, Belgium,  
**Prof. Dr. Zoltán Lakner**, Hungarian University of Agriculture and Life Sciences, Hungary, **Prof. Dr. Zoltán Szakály**, University of Debrecen, Hungary

#### Associate Editors:

**Dr. Krisztián Kovács**, University of Debrecen, Hungary  
**Dr. László Szöllősi**, University of Debrecen, Hungary

#### Junior Editors:

**Boglárka Nagy-Tóth**, University of Debrecen, Hungary  
**Dejsi Qorri**, University of Debrecen, Hungary

APPLIED STUDIES IN AGRIBUSINESS AND COMMERCE  
Official Periodical of the International MBA Network in Agribusiness and Commerce:

APSTRACT®  
©AGRIMBA

Editor in Chief: Dr. Johan van Ophem, Wageningen University, The Netherlands  
Editorial office: University of Debrecen, Faculty of Economics and Business,  
APSTRACT Ed.office Debrecen, Böszörményi út 138. H-4032  
Phone/Fax: (36-52) 526-935

Executive publisher: University of Debrecen, Faculty of Economics and Business, Hungary

HU-ISSN 1789-221X – Electronic Version: ISSN 1789-7874

Home Page: <http://www.apstract.net> • E-mail: [editor-apstract@agr.unideb.hu](mailto:editor-apstract@agr.unideb.hu)

# Contents

EXPLORING CONSUMER INTENTION FOR FUNCTIONAL FOOD PRODUCTS IN HUNGARY: THE ROLE OF HEALTH CONSCIOUSNESS, NUTRITIONAL KNOWLEDGE AND ATTITUDES <i>Ábrar Ghaith</i> .....	5
THE ROLE OF INNOVATION IN THE SUCCESSION OF FAMILY BUSINESSES <i>Boglárka Tóth</i> .....	19
HOW TO INCREASE WORKFLOW EFFICIENCY FOR MICRO AND SMALL BUSINESSES WITH A CUSTOM-BUILT MOBILE APP IN HUNGARY - A CASE STUDY FOR A LANGUAGE LEARNING SCHOOL <i>Ádám Péntek – Anita Pierog – Tamás Kovács</i> .....	29
TODAY'S CONSUMERS ON THE MARKET IN CSÍKSZEREDA (MIERCUREA CIUC) <i>Emőke Katalin Péter – László Illyés</i> .....	39
KNOWLEDGE AND PERCEPTION OF LIBERIAN AGRIBUSINESSES IN THE AFRICAN CONTINENTAL FREE TRADE AREA (AFCFTA) <i>Jacqueline Ninson – Maame Kyerewaa Brobbey – Andrews Aidoo</i> .....	47
LAND CONTROL AND POVERTY STATUS OF FARMING HOUSEHOLDS IN NIGERIA <i>Olubunmi O. Alawode</i> .....	55
PROMOTING COCOA EXPORT FOR TRANSFORMATIVE AND SUSTAINABLE AGRICULTURAL GROWTH IN NIGERIA <i>Udeme Henrietta Ukpe – Iheanyi Onuigbo</i> .....	65
DETERMINING TYPES OF CONSCIOUS CONSUMERS WHO PREFER NUTRITION LABELING <i>Ildikó Tóth – Zoltán Szakály</i> .....	73
GREEN SPORTS PRODUCT CONSUMPTION <i>Emese Makara – Kinga Ráthonyi-Ódor</i> .....	83
BRAIN DRAIN AND ITS REPERCUSSIONS ON THE NEEDS OF THE PALESTINIAN LABOR MARKET: A STUDY OF THE CAUSES AND CONSEQUENCES OF MIGRATION AMONG EDUCATED YOUTH <i>Manal Mohammad Hamarsha</i> .....	93
ANALYSIS OF SOCIAL AND ENVIRONMENTALLY CONSCIOUS BEHAVIOR AS PART IN COMPANIES <i>Maryam Alhassan Talatu – Viktória Vida</i> .....	105





# EXPLORING CONSUMER INTENTION FOR FUNCTIONAL FOOD PRODUCTS IN HUNGARY: THE ROLE OF HEALTH CONSCIOUSNESS, NUTRITIONAL KNOWLEDGE AND ATTITUDES

Abrar Ghaith

University of Debrecen, Faculty of Business Economics

E-mail address: a.ghaith@outlook.com

## Abstract:

**Background:** The potential health advantages of functional food products have increased their appeal. Their reception and implementation are greatly influenced by consumer attitudes and purchasing intentions. The Theory of Planned Behavior (TPB) is used in this study to examine how attitudes toward and intentions to buy functional food products in Hungary are influenced by health consciousness (HC) and nutritional knowledge (KN).

**Methods:** From March to May 2023, 396 adult Hungarian volunteers took part in an online survey. The poll measured respondents' intentions to buy functional food products as well as their health consciousness, nutritional knowledge, attitudes, and subjective norms (SN). Through pilot research, the questionnaire's reliability and validity were determined. Multiple regression analyses, one-sample t-tests, and Cronbach's alpha were all included in the statistical analysis.

**Results:** The majority of participants were female, working students. In support of hypotheses H1 and H2, health consciousness significantly influenced attitudes and purchase intentions. H3 and H4 are supported by the findings that nutritional knowledge strongly influenced attitudes and purchase intentions. Both perceived behavioral control and subjective standards had a beneficial impact on purchase intentions supporting H5 and H6.

**Conclusion:** This study provides important insights into Hungarian consumers' preferences for functional food items. It highlights the beneficial effects of health awareness, information, attitudes, arbitrary standards, and perceived behavioral control on buying intentions. It was discovered that attitudes play an important role in mediating the link between nutritional knowledge, health consciousness, and purchase intentions. It was discovered that attitudes play an important role in mediating the link between nutritional knowledge, health consciousness, and purchasing intentions. The dynamic functional food market's marketers and legislators should take these findings seriously. The subtleties of these attitudes and their implications for promotional tactics can be explored in greater detail in future research. Promoting healthier food options and informing policy and marketing decisions require an understanding of consumer perceptions and behaviors.

**Keywords:** Functional food products, Theory of planned behavior, Health consciousness, Nutritional knowledge, Hungary  
(JEL code: M31)

## INTRODUCTION

The growing interest in functional food products stems from their potential health advantages beyond essential nutrition (Baker et al., 2022). These products are fortified with specific ingredients or formulated to offer additional benefits such as improved digestion, enhanced immunity, and reduced chronic disease risks (Daliri & Lee, 2015; Das et al., 2016; Butnariu & Sarac, 2019). Consumer perceptions and behaviors toward functional food products are pivotal in their acceptance and

adoption since growing consumer awareness of these products' health benefits is driving the global market for functional food products (Daliri & Lee, 2015). Discoveries and results of recent research confirm that nutrition has a significant impact on human health. In Hungary, an increasing number of consumers have recently recognized the significance of healthy eating habits in disease prevention (Nagy, 2010). In their research, Szakály and his colleagues concluded that there is no other choice than to drive the public's attention to food products that possess a nutritional advantage (Szakály et al., 2014). Also, they result

that Hungarians would choose to use functional food products over medication (Szakály et al., 2010). Functional foods are foods that have health benefits and convey a favorable effect on the general state of health. Health is one of the most important values of Hungarian consumers (Nagy, 2010). Functional foods are likely to have a brilliant future and their market is expected to grow remarkably in the coming years. Therefore, comprehending the factors influencing consumer attitudes and purchase intentions towards these products is vital for fostering healthier food choices and guiding policymaking and marketing strategies. The Theory of Planned Behavior (TPB) is a comprehensive framework for comprehending and predicting human behavior (Ajzen, 1991; Conner & Sparks, 2005; Armitage & Conner, 2001; Ajzen, 2011). TPB postulates that an 'individual's Intention to act is shaped by three core factors: attitude toward the behavior, subjective norms, and perceived behavioral control (Ajzen, 1991). Attitude signifies an 'individual's overall evaluation of the behavior (Ajzen, 2011), while subjective norms encompass the perceived societal pressure to engage or abstain from the behavior (Armitage & Conner, 2001), and Perceived behavioral control represents the 'individual's perception of the ease or difficulty of performing the behavior (Conner & Sparks, 2005).

In the context of food products, particular attention is given to the impact of nutritional knowledge about these products and health consciousness on attitudes toward them (Hoque et al., 2018; Nguyen et al., 2019). Nutritional Knowledge of functional food products pertains to an 'individual's grasp of their benefits, constituents, and uses. Conversely, health consciousness reflects an 'individual's awareness and concern for their health through dietary choices (Nguyen et al., 2019).

This study hypothesizes that nutritional knowledge about functional food products and health consciousness positively influence attitudes toward these products. Moreover, it is anticipated that attitudes towards functional food products will mediate the association between nutritional knowledge of functional food products, health consciousness, and purchase intentions. This mediating effect implies that attitudes are an intermediate psychological process through which nutritional knowledge and health consciousness influence consumer purchase intentions.

### *Literature review and hypothesis development*

Numerous studies have scrutinized factors impacting consumer attitudes and purchase intentions using the Theory of Planned Behavior (Echchad & Ghaith, 2022). More specifically, the influence of consumers' attitudes toward functional food products on purchase intentions has been firmly established (O'Connor & White, 2010; Bakti et al., 2020; Salmani et al., 2020). While attitude, subjective norms, and perceived behavioral control have been extensively explored within the Theory of Planned Behavior, their application to functional food products remains limited. Further inquiry is required to gauge the extent of their impact on 'consumers' intentions to purchase such products.

To address this research gap, the current study explores the influence of nutritional knowledge about functional food products and health consciousness on attitudes toward these

products. Additionally, the study aims to investigate the mediating role of attitude in the connection between nutritional knowledge, health consciousness, and purchase intentions. The outcomes of this investigation will enrich the existing understanding of consumer behavior towards functional food products and offer valuable insights to policymakers and marketers aiming to promote healthier dietary selections.

### **Functional food products**

In pursuing advancing human health beyond rudimentary nutritional needs, the notion of functional foods has emerged as a prominent avenue for research and development. These foods are purposefully formulated to confer supplementary benefits that go beyond conventional nutritional value, to enhance health outcomes (Urala & Lähteenmäki, 2003) and mitigate the risk of diseases (Diplock et al., 1999). It is worth noting that functional foods maintain their identity as consumable items and are integral to customary dietary patterns (Diplock et al., 1999). In light of the contemporary prevalence of conditions such as metabolic syndrome and cancer, addressing health challenges has become imperative in the twenty-first century, resulting in substantial attention directed toward creating and promoting functional foods (Bultosa, 2016).

In essence, the positive impact of functional foods on health is achieved by reducing disease-related factors and augmenting immune function and other physiological processes (Bultosa, 2016). This category encompasses various bioactive components with varying pharmacological properties, encompassing immune modulation, anti-inflammatory effects, lipid regulation, and ergogenic capabilities (Galland, 2013). Moreover, the spectrum of functional ingredients extends from phenolic compounds derived from plants and probiotics to non-plant sources like peptides, colostrum, and egg yolk (Galland, 2013).

### **Theory of planned behavior:**

Comprehending the determinants of human behavior, particularly dietary preferences, has been a fundamental pursuit in behavioral science. Introduced by Ajzen in 1991, the Theory of Planned Behavior (TPB) furnishes a comprehensive framework for comprehending behavioral intentions. It posits that the behavioral intentions of individuals are molded by their attitudes towards the behavior, subjective norms linked to the behavior, and their perceived control over executing the behavior (Ajzen, 1991). The TPB has found widespread application in various facets of dietary behaviors and intentions (Riebl et al., 2015), Halal food consumption (Bonne et al., 2007; Shah Alam & Mohamed Sayuti, 2011; Aditami, 2016), food choices prediction (Nardi et al., 2019), and even niche areas such as intentions to purchase organic foods (Arvola et al., 2008; Dean et al., 2012; Al-Swidi et al., 2014; Yazdanpanah & Forouzani, 2015; Scalco et al., 2017; Iqbal et al., 2021; Echchad, 2023; Khan et al., 2023), as well as the narrower context of functional food purchase intentions (Bakti et al., 2020).

With this context in mind, the present study adopts the theory of planned behavior (TPB) as its conceptual framework to elucidate and elucidate the purchasing intentions for functional food products. TPB is an effective tool for understanding behavior across diverse domains, notably within functional



food products. Previous studies that have successfully explained purchase intentions for functional food products have harnessed the TPB framework (Urala & Lähteenmäki, 2004; Landström et al., 2007; Ring et al., 2010; Chen, 2011; Hacıoglu & Kurt, 2012; Cazacu, 2015; Cavaliere et al., 2015; Nguyen et al., 2019; Sadhukhan & Khanolkar, 2021; Karellakis et al., 2020). Despite cultural variations in explaining food choices (Stephens et al., 1995), relationships between attitudes, norms, and control have been substantiated cross-culturally. Early studies have broadly validated these constructs across various domains (Armitage and Conner, 2001).

While meta-analyses affirm TPB's predictive efficacy, it's acknowledged that supplementary factors like habits and emotional responses can enhance explanatory power (Cooke & Sheeran, 2004). Nevertheless, understanding the factors influencing purchase intentions is crucial to decipher consumer behavior toward functional food products. Against this backdrop, this study aspires to delve into the intricate interplay between health consciousness, nutritional knowledge of functional foods, attitudes towards functional foods, and the pivotal role of attitude, subjective norms, and perceived behavioral control in shaping the purchase intentions of functional foods. By investigating these dynamics within the established framework of the TPB, this research endeavors to uncover the multifaceted determinants steering individuals' propensity to adopt functional foods into their dietary practices.

### Attitude toward functional food products

The term "attitude" describes the inherent bias, whether positive or negative, toward an individual, object, or issue (Cachero-Martínez, 2020). In addition, it describes an individual's positive or negative evaluation of an item (Ajzen & Madden, 1986). This assessment is a result of attitudes, sentiments, and behavioral tendencies toward a certain product (Vaughan & Hogg, 2005; Bettiga et al., 2017). Through a process of evaluation that can be either positive or negative, attitude depicts what customers like or dislike (Amoako et al., 2020). One of the most important factors influencing behavior concerning functional food products is attitude; the more positive one's attitude, the more likely one is to purchase the product (Nystrand & Olsen, 2020).

### The Influence of Attitude on the Functional Food Products Purchasing Intention:

It became apparent that attitude was one of the most significant predictors of intention, and numerous studies supported the significance of attitude in increasing the purchasing intention for functional food products (Salmani et al., 2020; Ahmed et al., 2021). However, there has been a paucity of research on attitude as a mediator between health consciousness and intention to purchase functional food products.

### Health Consciousness:

The definition of health consciousness is the growing attention given to well-being, self-care, and environmental sustainability, which results in the formation of consumer groups that prioritize their health (Su et al., 2022). According to Hansen et al. (2018), it also takes into account how willing customers

are to adopt and identify with health-related behaviors. Within the framework of this study, "health consciousness" refers to the level of concern that consumers show for their health as well as the process of using healthy habits and self-awareness to motivate their health and quality of life (Pahrudin et al., 2021). Health consciousness reflects motivations like longevity and disease prevention vs. Treatment (Gould, 1990). It affects dietary choices like reduced fat intake (Moorman & Matulich, 1993). Health Consciousness as an integral aspect of individual awareness, has been extensively explored in the literature as an individual's propensity to undertake health-related actions (Becker et al., 1977), and has garnered substantial attention due to its association with self-care, wellness, and environmental sustainability, consequently fostering consumer segments that prioritize their health (Su et al., 2022). This phenomenon also encompasses consumers' willingness to embrace health-related behaviors (Hansen et al., 2018). The present research takes a holistic approach to the concept of health consciousness, characterizing it as a combination of consumer concern for their health, which encourages people to participate in health-promoting activities, and self-awareness of their medical condition (Pahrudin et al., 2021). Unlike conventional demographic attributes, health-conscious consumer identification is better accomplished through lifestyle analysis (Parashar et al., 2023), a stance reinforced by previous research indicating the inadequacy of demographics for such categorization.

### The influence of health consciousness on functional food products purchasing Intention:

Research has shown that health-conscious consumers can be distinguished by their lifestyles rather than by their demographic traits, which are useless for characterizing this type of consumer (Parashar et al., 2023). Health consciousness has been observed to correlate positively with dietary choices (Gould, 1988, 1990). Diverse levels of health consciousness and corresponding health-oriented lifestyles result in varying attitudes toward functional foods, influencing their adoption (Chen, 2011a; 2013). Extensive investigation has validated the affirmative influence of health consciousness on attitudes toward functional foods (Chen, 2013; Papp-Bata & Szakály, 2020). Consumers exhibiting higher health consciousness tend to perceive functional foods as beneficial due to their awareness of the health-enhancing properties inherent in such products (Labrecque et al., 2006; Chen 2011a; 2013). This construct, notably linked to perception of health, has been explored in depth, and empirical findings indicate that health consciousness significantly contributes to consumers' intentions to purchase functional food (Nguyen et al., 2019). Consumers will view functional meals differently and be less or more willing to use them depending on their level of health consciousness and lifestyle choices (Chen, 2011b). Customers are more likely to plan to buy functional foods if they believe they would improve their health (Rezai et al., 2014; Temesi et al., 2019; Siegrist et al., 2022). Thus, it was hypothesized that:

H1: Attitude towards functional food products is positively impacted by health consciousness.

H2: Functional food products purchase intention is positively impacted by health consciousness.

### Nutritional knowledge:

Nutrition educators have described nutritional knowledge as a scientific concept that reflects an individual's cognitive processes regarding food and nutrition-related information (Axelson & Brinberg, 1992).

### The Influence of Nutritional Knowledge on the Functional Food Products Purchasing Intention:

A sufficient understanding of nutrition may alter eating attitudes and practices, which in turn may affect the acceptability of the changes (Labrecque et al., 2006; Bhaskaran & Hardley, 2002). An analysis of customer expectations and motives regarding functional foods indicates that the most significant element impacting consumer adoption of these foods is nutritional knowledge (Topolska et al., 2021). Furthermore, a study indicated that consumers' frequency of consuming functional foods was positively impacted by higher levels of nutritional knowledge of health information (Jaeger, 2006). According to La Barbera et al. (2016), customers who possess greater nutritional knowledge regarding functional foods tend to pay higher premium prices for them. This finding is consistent with prior research conducted on the subject. Additionally, several research supported the beneficial impact of nutritional awareness on consumers' acceptance of functional meals (De Jong et al., 2003; Brečić et al., 2014; Schnettler, et al., 2015). Thus, it was hypothesized that:

H3: Attitude towards functional food products is positively impacted by nutritional knowledge.

H4: Functional food products purchase intention is positively impacted by nutritional knowledge.

### Subjective norm

One of the key ideas in the theory of planned behavior is the subjective norm, which describes how people believe their peers would evaluate a particular course of action (Hameed et al., 2019). As a result, how someone perceives social pressures affects how they carry out particular activities (Teixeira et al., 2021). According to Verbeke and Vermeir (2006), consumers frequently purchase goods to fulfill other social obligations, preserve their social connections, or respond to peer pressure. People thus develop opinions about what their reference groups will think of them if they engage in particular behaviors, and these beliefs have a big impact on whether or not they intend to buy functional food products. Subjective norm is one of the variables influencing the intention to behave. Ajzen (1991) asserts that a consumer's sense of peer pressure to act or refrain from acting constitutes a subjective norm. We defined subjective norm as Hungarians' impression of functional food consumption based on the reference group that they deem significant, based on the definitions. TPB states that when there was a subjective norm in favor of the intake of functional foods, people would be willing to eat them. Subjective norms and behavioral intention have been shown to positively correlate in several research (Shah Alam & Mohamed Sayuti, 2011; Ajzen, 2015; Bakti et al., 2020). O'Connor and White (2010) have demonstrated the impact of subjective norms on behavioral intention in the context of

functional eating. According to Nguyen et al. (2019), one important factor influencing customers' intentions to purchase functional yogurts is the subjective norm.

### The Effect of Subjective Norms on Functional Food Products Purchasing Intention:

Subjective norms hold a significant sway over consumer behavior in the realm of food product purchase, with distinct implications for functional food products. Subjective norms, as a construct within the theory of planned behavior, refer to 'individuals' perceptions of how others, particularly their social circles, view a specific behavior. In essence, these norms encapsulate the perceived societal expectations and pressures surrounding a particular action. The influence of subjective norms on food product purchase intention is well-documented in research (Al-Swidi et al., 2014). Individuals often make purchasing decisions based on their desire to conform to the perceived expectations of their peers and social networks. This phenomenon is particularly relevant in the context of functional foods, where perceived social approval can shape 'consumers' willingness to adopt these specialized products into their diets. For instance, a study investigating consumer attitudes and intentions toward functional foods found that subjective norms played a pivotal role in predicting purchase intentions (Hsu et al., 2017). The study demonstrated that individuals who perceived greater social encouragement and approval for consuming functional foods were more inclined to express a positive intention to purchase them. This underscores the importance of social influences in shaping consumer preferences within the functional food domain. Furthermore, subjective norms can also motivate consumers to align their behaviors with societal values and expectations. In the context of functional foods, where adopting these products might be seen as a health-conscious and responsible choice, the influence of subjective norms can be particularly potent. Consumers who perceive that their social circles value the consumption of functional foods are more likely to develop positive attitudes and intentions toward purchasing these items. To illustrate, a study focusing on the Intention to purchase local food products extended the theory of planned behavior to include moral considerations. The study found that subjective norms and other factors significantly influenced 'consumers' intentions to purchase local food (Shin & Hancer, 2016). This reinforces the idea that 'consumers' perception of what their peers deem acceptable or desirable can sway their purchase decisions.

In conclusion, subjective norms wield substantial influence over 'consumers' intentions to purchase food products, including the distinctive category of functional foods. The societal pressures and perceived expectations surrounding these products can mold 'consumers' attitudes and behaviors, making them a critical factor to consider when designing strategies to promote the adoption of functional foods. Thus, it was hypothesized that:

H5: Functional food products purchase intention is positively impacted by subjective norms.

### The Effect of perceived behavioral control on functional food products Purchasing Intention:

Consumer intentions to purchase food products, including functional foods, are evident. It mirrors 'individuals' evaluation of their capacity to surmount challenges and enact the desired behavior. Notably, this significance is amplified in the context of specialized goods like functional foods. Recognizing the impact of perceived behavioral control on consumer behavior can guide strategies aimed at promoting the adoption of functional foods and other health-enhancing products (Nguyen et al., 2019).

Furthermore, empirical investigations within the framework of the theory of planned behavior have consistently supported the importance of perceived behavioral control in determining consumer intentions. For instance, a study aimed at examining the factors influencing the Intention to purchase local food expanded upon the theory of planned behavior, incorporating moral considerations. The 'study's findings demonstrated that attitude, subjective norms, perceived behavioral control, and moral norms all directly or indirectly influenced 'consumers' Intention to purchase local food (Shin & Hancer, 2016). The findings highlight the relevance of perceived behavioral control in shaping consumer choices within the domain of functional foods.

Thus, it was hypothesized that:

H6: Functional food products purchase intention is positively impacted by perceived behavioral control.

### Intention

Intention plays a central role in understanding and predicting human behavior, particularly when it comes to consumer decisions related to food product purchases. Intention, as defined by the literature, embodies the plan, commitment, or decision of an individual to engage in a particular action. This action may involve making a purchase, adopting a behavior, or pursuing a specific goal (Madden et al., 1992).

In the realm of consumer psychology, Intention is recognized as a critical precursor to future behaviors. It serves as the bridge between a 'person's thoughts and their actions, reflecting their resolve to carry out a planned behavior. This concept is deeply embedded within the framework of the theory of planned behavior (Ajzen, 1991), where Intention is positioned as a key determinant that directly shapes an 'individual's subsequent behaviors.

### Functional food products purchase intention:

Specifically, when considering the purchase of food products, including functional food products, the notion of purchase intention gains prominence. Purchase intention, in the context of this study, is defined as the determination to engage in a specific action with the ultimate goal of making a purchase. It is the conscious decision and willingness of individuals to perform the act of buying a particular product (Ajzen, 1991).

Importantly, purchase intention holds a unique place in the realm of consumer research, as it serves as a direct precursor to the actual act of purchasing. It encapsulates 'consumers' mental commitment to buy a product and signifies their

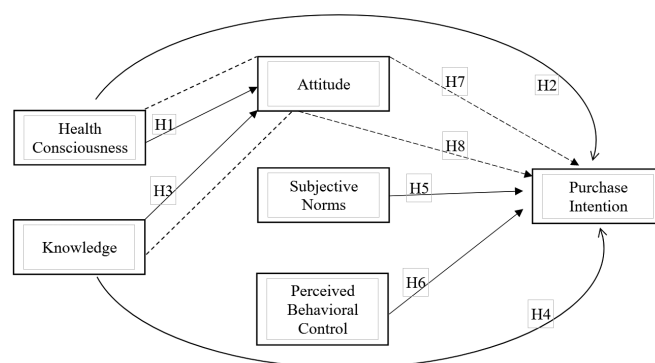
readiness to take that step. In the theory of planned behavior, purchase intention is considered a strong indicator of the likelihood of actual purchase, as it reflects 'individuals' deliberate planning and motivation to engage in the buying process. For instance, a study investigating consumer attitudes and intentions toward functional foods found that purchase intention was significantly influenced by factors such as attitude and subjective norms (Hsu et al., 2017). This highlights the pivotal role of Intention in driving consumer behavior within the domain of functional food products. In conclusion, Intention represents the focal point where cognitive processes and future actions converge. Within the context of a food product purchase, and more specifically functional food products, purchase intention encapsulates 'individuals' conscious decision to engage in the act of buying. Recognizing the power of Intention as a precursor to purchasing behavior can provide valuable insights for marketers and policymakers seeking to understand and influence consumer choices.

Thus, it was hypothesized that:

H7: Functional food products purchase intention is mediated by the health consciousness impact on attitudes.

H8: Functional food products purchase intention is mediated by the nutritional knowledge impact on attitudes.

Figure 1. Study conceptual mode



## MATERIALS AND METHODS

### Participants

The research was based on information gathered online through a survey that was issued between the first of March 2023 and the first of May 2023. Adults in Hungary made up the target population. The study sample consists of 396 participants (n = 396).

### Data collection

A structured survey that was created following a thorough examination of the relevant literature was used to gather the data online (by posting in Facebook groups). The variables identified in the study model were included in the questionnaire, including health consciousness, nutritional knowledge, attitude, subjective norms, perceived behavioral control, and intention to purchase functional food products. Scales with several items



were created to measure the variables highlighted by this research, grounded on recommendations made by (Ajzen, 2002).

A group of statements measuring the variables of this research are presented on a 5-point Likert scale, with 1 representing strongly disagree and 5 representing strongly agree. The constructs of the current investigation were measured using statements from other studies. Thirty people took part in a pilot study to evaluate the 'questionnaire's reliability and validity. Furthermore, reliability was shown to be good and excellent by the Cronbach alpha.

RESULTS

Characteristics of study participants

The study included 396 participants. Most of them were females (n= 319, 80.6%), more than half of the study participants were employed (n= 224, 56.6%), and most were undergraduates (n= 329, 83.1%). The participant's characteristics are displayed in Table 1.

Table 1. Characteristics of study participants

Variable		Frequency	Percent
Gender	Male	77	19.4
	Female	319	80.6
Employment status	Employed	224	56.6
	Unemployed	172	43.4
Educational level	High school graduate	46	11.6
	Undergraduate	329	83.1
	Postgraduate	21	5.3

Based on their responses to the scale's questions, Table 2 illustrates how the study's participants were split up. Using a one-sample t-test, this table shows the mean, standard deviation, and standard error of the mean for each scale item. Item (4) scored the highest overall, according to the results. The statement "I take responsibility for the state of my health," with a mean score of 4.20. The item with the lowest mean score (9) was "I want to buy functional food products in the next two weeks." The dependability of the scale items (Cronbach's alpha) is 0.863.

Table 2. Scale items' scores

Item		Mean	SD	SD error of mean	t	P value	Rank
1	I reflect on my health a lot	3.96	1.029	.052	76.523	<0.001	4
2	I am very self-conscious about my Health	3.85	1.007	.051	76.017	<0.001	7

3	I am alerted to changes in my health	4.07	.984	.049	82.239	<0.001	3
4	I take responsibility for the state of my health	4.20	1.007	.051	83.100	<0.001	1
5	I think money spent on functional food products is worthwhile	3.58	1.146	.058	62.146	<0.001	9
6	It is important to consume functional food products	3.88	1.073	.054	71.876	<0.001	6
7	It is useful to consume functional food products	4.11	.955	.048	85.603	<0.001	2
8	I know that functional food products are beneficial	3.83	1.135	.057	67.199	<0.001	8
9	I want to purchase functional food products within the next two weeks	2.77	1.412	.071	38.979	<0.001	12
10	I intend to purchase functional food products within the next two weeks	2.88	1.447	.073	39.558	<0.001	6
11	If I wanted, it would be easy for me to buy functional food products	3.89	1.274	.064	60.744	<0.001	5
12	Most people who are important to me think I should purchase functional food products	3.26	1.362	.068	47.650	<0.001	11
13	People whose opinions I value would prefer me to purchase functional food products	3.36	1.286	.065	52.006	<0.001	10

Participants’ detailed responses are presented in Table 3.

Table 3. Responses of participants to scale items

Item		Strongly disagree	Disagree	Neutral	Agree	Strongly agree
1	HC1	11, 2.8%	15, 3.8%	107, 27%	110, 27.8%	153, 38.6%
2	HC2	7, 1.8%	27, 6.8%	112, 28.3%	123, 31.1%	127, 32.1%
3	HC3	8, 2%	14, 3.5%	89, 22.5%	118, 29.8%	167, 42.2%
4	HC4	9, 2.3%	19, 4.8%	57, 14.4%	108, 27.3%	203, 51.3%
5	ATT1	21, 5.3%	43, 10.9%	123, 31.1%	104, 26.3%	105, 26.5%
6	ATT2	12, 3%	27, 6.8%	102, 25.8%	112, 28.3%	143, 36.1%
7	ATT3	5, 1.3%	19, 4.8%	74, 18.7%	128, 32.3%	170, 42.9%
8	KN1	22, 5.6%	24, 6.1%	89, 22.5%	124, 31.3%	137, 34.6%
9	PI1	105, 26.5%	71, 17.9%	97, 24.5%	58, 14.6%	65, 16.4%
10	PI2	98, 24.7%	70, 17.7%	88, 22.2%	63, 15.9%	77, 19.4%
11	PBC1	33, 8.3%	27, 6.8%	66, 16.7%	95, 24%	175, 44.2%
12	SN1	58, 14.6%	54, 13.6%	111, 28%	73, 18.4%	100, 25.3%
13	SN2	42, 10.6%	56, 14.1%	114, 28.8%	85, 21.5%	99, 25%

Note: HC1 for health consciousness question 1, HC2 for health consciousness question 2, HC3 for health consciousness question 3, HC4 for health consciousness question 4 ATT1 stands for attitude question 1, ATT2 for attitude question 2, ATT3 for attitude question 3, KN for knowledge question 1, PI for purchase intention question 1, P2 for purchase intention question 2, PBC1 for perceived behavioral control question 1, and SN1 stands for subjective norms question 1 and SN2 stands for subjective norms question 2.

A statistical correlation between the characteristics of the participants and the scale items is shown in Table 4. The table shows a statistically significant correlation between gender responses to scale items (9) P= 0.017, (10), P= 0.001, (12) P= 0.039, and (13) P= 0.044. Also statistically significant were the scale items (1) P= 0.044 and (4) P= 0.031 for educational level. However, none of the scale items' correlations with employment status were statistically significant.

Table 4. Statistical relationship between participants’ characteristics and scale items

Item		Gender		Employment		Education	
		X <sup>2</sup>	P-value	X <sup>2</sup>	P-value	X <sup>2</sup>	P-value
1	HC1	3.274	0.513	9.294	0.054	15.883	0.044

2	HC2	2.699	0.609	7.837	0.098	13.617	0.092
3	HC3	2.561	0.634	4.201	0.379	12.448	0.132
4	HC4	1.143	0.887	8.127	0.087	16.929	0.031
5	ATT1	6.43	0.169	4	0.406	10.94	0.205
6	ATT2	6.218	0.183	4.697	0.320	8.212	0.413
7	ATT3	5.063	0.281	5.552	0.235	7.068	0.529
8	KN1	2.188	0.701	6.074	0.194	7.913	0.442
9	PI1	12.009	0.017	4.605	0.330	8.453	0.391
10	PI2	19.128	0.001	6.958	0.138	1.471	0.993
11	PBC1	2.436	0.656	3.666	0.453	4.235	0.835
12	SN1	10.067	0.039	5.478	0.242	13.2	0.105
13	SN2	9.792	0.044	2.176	0.703	12.084	0.147

Note: HC1 for health consciousness question 1, HC2 for health consciousness question 2, HC3 for health consciousness question 3, HC4 for health consciousness question 4 ATT1 stands for attitude question 1, ATT2 for attitude question 2, ATT3 for attitude question 3, KN for knowledge question 1, PI for purchase intention question 1, P2 for purchase intention question 2, PBC1 for perceived behavioral control question 1, and SN1 stands for subjective norms question 1 and SN2 stands for subjective norms question 2.

Cronbach's alpha was used to analyze the constructs' dependability. Cronbach's alpha for each construct was higher than the necessary 0.700 threshold. The results for the factor loadings, and validity of the items are shown in Table 5. The Fornell-larker criterion was used to assess discriminant validity (Table 6). The table (Table 7) shows that for the construct, the square root of AVE was greater than the correlations between the constructs. The discriminant validity was also evaluated using the Heterotrait-Monotrait Ratio of Correlations (Henseler et al., 2015), with values below the cutoff of 0.90. As a result, the discriminant validity is acknowledged (see Table 5).

Table 5. loadings and validity

	Loadings	Cronbach's alpha	AVE
HC1	.404	0.841	0.174
HC2	.447		
HC3	.426		
HC4	.391		
ATT1	.746	0.864	0.573
ATT2	.769		
ATT3	.756		
KN1	.709	-	0.167
PI1	.765	0.919	0.385
PI2	.756		
PBC1	.436	-	0.063

	Loadings	Cronbach's alpha	AVE
SN1	.619	0.902	0.276
SN2	.668		

Note: HC1 for health consciousness question 1, HC2 for health consciousness question 2, HC3 for health consciousness question 3, HC4 for health consciousness question 4 ATT1 stands for attitude question 1, ATT2 for attitude question 2, ATT3 for attitude question 3, KN for knowledge question 1, PI for purchase intention question 1, P2 for purchase intention question 2, PBC1 for perceived behavioral control question 1, and SN1 stands for subjective norms question 1 and SN2 stands for subjective norms question 2.

**Table 6. Fornell-Larker Criterion**

	ATT	HC	KN	PI	PBC	SN
ATT	0.757*					
HC	0.868	0.417*				
K	0.832	0.769	0.408*			
PI	0.541	0.668	0.589	0.620*		
PBC	0.488	0.436	0.720	0.777	0.251*	
SN	0.969	0.447	0.641	0.735	0.821	0.525*

\*Square root of average

**Table 7. HTMT ratio**

	ATT	HC	KN	PI	PBC	SN
ATT	1					
HC	0.171	1				
K	0.586	0.206	1			
PI	0.518	0.235	0.491	1		
PBC	0.228	0.157	0.255	0.257	1	
SN	0.333	0.093	0.334	0.438	0.252	1

Note: ATT stands for attitude, HC stands for health consciousness, KN stands for knowledge, PI stands for purchase intention, PBC for perceived behavioral control, and SN for subjective norms.

### *Assessment of the structural model*

The structural model shows the directions that the research framework has hypothesized. On the basis of the R<sup>2</sup>, Q<sup>2</sup>, and significance of routes, a structural model is evaluated. The attitude toward functional food products, nutritional knowledge of functional food products, subjective norms, and perceived behavioral control are all responsible for the 37% shift in purchasing intention. The increase in health consciousness and un-

derstanding of functional food products is responsible for a 39% change in perception of these goods. According to Falk & Miller (1992), both R<sup>2</sup> values are higher than 0.1. As a result, the ability to predict is established. The model has predictive relevance if Q<sup>2</sup> for attitude toward functional food items and Q<sup>2</sup> for intention to purchase functional food products is greater than 0. The SRMR value was 0.036, which is less than the necessary value of 0.20 and indicates a good model fit (Hair et al., 2017).

To determine the significance of the association, hypotheses were tested and the goodness of fit was further evaluated. H1 determines whether HC significantly affects ATT. According to the findings, HC has a significant effect on ATT (= 0.122, t = 1.640, p 0.001). H1 was approved as a result. H2 evaluates whether HC significantly affects PI. According to the findings, HC has a significant effect on PI (= 0.170, t = 2.370, p 0.001). H2 was consequently approved. H3 investigates if KN significantly affects ATT. The findings demonstrated that KN has a significant impact on ATT (= 0.592, t = 14.362, p 0.001). H3 was therefore approved. H4 investigates if KN significantly affects the PI. The findings showed that KN has a positive impact on PI (= 0.351, t = 4.518, p 0.001). H5 determines whether SN significantly affects PI. The findings showed that SN affects PI positively (= 0.329, t = 5.741, p .001). H5 was consequently approved.

H6 evaluates whether PBC significantly affects PI. The findings showed that PBC has a positive effect on PI (= 0.228, t = 4.647, p .001). H6 was approved as a result. H6 determines whether SN significantly affects PI. The findings showed that SN effects PI positively (= 0.329, t = 5.741, p .001). As a result, H6 was approved.

Table 8 displays the 95% confidence intervals that the study's 5000 resamples produced. When the confidence interval is not zero, there is a meaningful association.

**Table 8. Hypothesis testing results**

	B	SD	T	P value	95% CI lower limit	95% CI upper limit
SN>ATT	0.333	0.04	7.019	<0.001	0.202	0.359
HC>ATT	0.122	0.087	1.640	<0.001	-0.028	0.312
KN>ATT	0.592	0.041	14.362	<0.001	0.511	0.673
PBC>PI	0.228	0.044	4.647	<0.001	0.118	0.292
HC>PI	0.170	0.101	2.370	<0.001	0.041	0.436
KN>PI	0.351	0.085	4.518	<0.001	0.218	0.553
SN>PI	0.329	0.071	5.741	<0.001	0.267	0.544
	R <sup>2</sup>	Q <sup>2</sup>				
ATT	0.370	0.363				
PI	0.397	0.389				

### **Mediation analysis**

The mediating effect of attitudes toward functional food products was evaluated by mediation analysis. The findings (see Table 9) showed that ATT played a mediating function in two different instances: (= 0.157, t = 3.150, p = 0.002) and (=



Table 9. Mediation results

	Total effect	T	Sig	Direct effect	Sig		Effect	T	P value
HC>PI	0.168	2.282	0.023	0.114	<0.027	HC>ATT>PI	0.157	3.150	0.002
KN>PI	0.536	9.200	<0.001	0.421	<0.001	K>ATT>PI	0.607	15.181	<0.001

0.607,  $t = 15.181$ ,  $p 0.001$ ). As a result, attitudes toward functional foods effectively moderated the link between health consciousness and purchase intent as well as the link between nutritional knowledge of functional foods and the intention to buy them. H7 and H8 were confirmed as a result.

DISCUSSION

Demographic characteristics of respondents and their relationship with functional food purchase intention

The objective of the current study was to look at the features and viewpoints of 396 consumers of functional foods, which have health benefits in addition to their nutritional value (AT & Action, 1999). The results showed that most of the participants were employed women with college degrees. The participants' levels of agreement on several aspects of health consciousness and intended purchases of functional foods were likewise varied. The statement "I take responsibility for the state of my health" had the highest mean score, indicating a high level of personal agency. The response "I want to purchase functional food within the next two weeks" had the lowest mean score, indicating a low tendency for quick use of functional food.

Gender may affect attitudes about functional food intake, according to research that demonstrated statistically significant relationships between gender and several scale items (Landström et al., 2007; Annunziata et al., 2014; and Demir & Karakaya, 2019). Additionally, it was discovered that items 1 and 4 had a substantial link with educational level, suggesting that education may influence health consciousness and individual responsibility for health.

However, there was no statistically significant correlation between work status and the scale items, indicating that employment had little to no influence on the 'participants' opinions regarding consuming functional foods.

The findings of this study provided insight into the personalities and beliefs of the participants regarding the consumption of functional foods.

Future studies could examine the factors affecting these beliefs and what it really means to promote a healthy diet. It would also be advantageous to research any gender disparities in attitudes toward and behaviors linked to functional foods in larger and more diverse populations, given the predominance of women.

Overall, this study contributes to the body of nutritional knowledge by shedding light on the variables influencing "people's attitudes about functional food intake." Additionally, it offers helpful information for medical procedures and initiatives aimed at promoting health and promoting healthy eating habits.

Women are more likely than males to take functional meals, and may even compromise their taste for health, according to

past research (Urala & Lahteenmaki, 2007; Büyükkaragöz et al.; 2014; Bimbo et al.; 2017; Kraus et al., 2017). Young guys are less concerned with functional foods and psychological effects, according to a different study (Kraus et al., 2017). According to Bärebring et al. (2020), gender disparities in health attitudes, motivations, and preferences for functional meals may be the cause of this.

Women might view functional foods as having greater health benefits than men do, or they might be more concerned about their overall health, weight, and looks than men do (Childs & Poryzees, 1998), as well as being more health-conscious (Landström et al., 2007). The results of the current study are consistent with earlier studies that revealed that the consumption of functional foods is positively correlated with education (Demir & Karakaya, 2019). This may be due to the correlation between greater education levels and functional food knowledge, health literacy, and awareness (Büyükkaragöz, 2014).

In addition, those with higher levels of education may be better able to comprehend and assess health claims made on the labels of functional foods or may have greater access to sources of knowledge on these foods (Annunziata, 2014); The results of a study also showed that customers who were least aware of nutrition showed the least acceptance of consuming functional foods. These results suggest that the consumption of functional meals may be constrained by a lack of nutritional awareness. In order to ensure that consumers are aware of the positive health impacts of functional meals, it may be required to apply health claims (Ares et al., 2008). However, none of the scale items' correlations with employment status were statistically significant. This might be because of methodological issues with how employment status and functional food consumption are defined and measured, or with the size and makeup of the sample. For instance, some studies might have used different categories of employment status, such as full-time, part-time, self-employed, or unemployed.

The association between health consciousness, nutritional knowledge, attitude, subjective norms, and perceived behavioral control and the purchase intention of functional food products

In the current study, it was found that the purchasing intentions (PI) of functional food products were positively correlated with health consciousness (HC), nutritional knowledge (KN), attitude (ATT), subjective norms (SN), and perceived behavioral control (PBC). There was also evidence of a mediation effect, where health awareness and nutritional knowledge had a major impact on attitudes toward functional food items and consequently on purchase intentions. This is consistent with the Theory of Planned Behavior (Ajzen, 1991) and previous studies (Chen, 2011a; Dean et al., 2012; Cava-

liere et al., 2015; Sadhukhan & Khanolkar, 2021; Hacıoglu & Kurt, 2012; Landström et al., 2007; Karelakis et al., 2020; Nguyen et al., 2019; Urala & Lähteenmäki, 2004).

The results confirmed earlier studies' findings (Huang et al., 2019; Jung et al., 2020) that attitudes and purchase intentions toward functional food products were positively influenced by health consciousness. According to a study (Huang et al., 2019), health consciousness influences buying intention favorably through attitude. Purchase intentions were also influenced by perceptions of the health benefits of functional foods (Siegrist et al., 2008; Rezaei et al., 2014; Temesi et al., 2019). Gould (1990) underlined the importance of health consciousness in raising people's knowledge of their health state, even to the point of consuming novel functional foods (Ares et al., 2008). Given that buying attitude is positively impacted by health consciousness when it comes to purchasing intention (Huang et al., 2019).

Interesting findings revealed that attitudes mediate the link between health consciousness, nutritional knowledge, and intention to purchase functional foods. This finding supports earlier research (Verneau et al., 2019; Lu, 2015) that indicated health-conscious people were more likely to learn about functional foods, which altered their attitudes and ultimately affected their intention to purchase. Similar to this, nutritional knowledge attenuated the impact of perceived fit on purchase intention (Lu, 2015). According to Menrad (2003), knowledge and awareness are key factors in consumers' favorable assessments and acceptance of new products. However, a conflicting study discovered that consumer awareness, necessity, and safety had a detrimental impact on the intention to purchase functional food (Rasanjalee, 2021).

The study's findings support earlier research (Ahmed et al., 2021; Chen, 2007; Grankvist & Biel, 2007) that shows a favorable association between attitude and the intention to buy food products. The purchase intention of functional food products was also demonstrated to be influenced by subjective standards, and an earlier study supports this finding (Nguyen et al., 2019). Last but not least, perceived behavioral control was identified as one of the factors influencing the intention to buy functional food products, which is similar to findings from earlier studies (Shin et al., 2016).

## CONCLUSION

This study looked closely at the traits of consumers of functional food products. It thoroughly evaluated the impact of health consciousness and nutritional knowledge on attitudes toward functional food items in addition to looking at the mediating role of attitudes toward functional food products. Additionally, the effects of subjective norms and perceived behavioral control on purchase intentions were extensively examined. The survey, which was administered in English to 396 adult Hungarian respondents, was completed by them. The study produced a number of important findings. The majority of the participant population consisted of working, college-educated women, necessitating a thorough understanding of the demographic characteristics of the sample. The study found statistically significant connections between a few scale items and gender, which may show that attitudes toward purchas-

ing functional food products are influenced by people's gender. Additionally, this study discovered correlations between particular categories and educational levels, suggesting that education may have an impact on health awareness and individual responsibility for health. Notably, the results showed how attitudes toward functional food products were crucial in mediating the connection between nutritional knowledge and purchase intentions, replicating a relationship between health consciousness and the intention to buy functional food products. The outcomes also demonstrated how attitudes have a big influence on buying intentions. The study also showed that subjective norms and perceived behavioral control influenced purchasing intentions. In conclusion, this study solidly supports the positive influence of health consciousness, nutritional knowledge, attitude, subjective norms, and perceived behavioral control on purchase intentions regarding functional food products, harmonizing with other research. The mediating function of attitudes emphasizes how crucial these categories are in determining consumer behavior. These profound findings greatly advance our understanding of consumer preferences in the dynamic functional food market, which has broad ramifications for marketers and policymakers. This study also provides insightful information on how people feel about consuming functional meals. Future studies could look into the intricate influences of these attitudes and how they impact the promotion of healthier eating habits.

## IMPLICATIONS FOR THE FUNCTIONAL FOOD PRODUCTS INDUSTRY AND MARKETERS

1. Understanding the influence of nutritional knowledge on consumer attitudes can help marketers develop effective educational campaigns and provide clear information about the health benefits of functional food products.
2. Recognizing the role of health consciousness in shaping attitudes toward functional food products allows marketers to tailor marketing strategies that appeal to health-conscious consumers.
3. The mediating effect of attitudes emphasizes the importance of cultivating positive attitudes toward functional food products, as it positively influences purchase intentions. Marketers can focus on building favorable attitudes through targeted messaging and product positioning.
4. Considering the impact of subjective norms and perceived behavioral control on purchase intentions, marketers can leverage social influence and emphasize the ease of incorporating functional food products into consumers' daily lives.
5. The findings highlight the significance of gender and education in attitudes toward functional food product consumption. Marketers should consider these demographic factors when developing marketing campaigns and targeting specific consumer segments.
6. The study provides valuable insights into consumer preferences and beliefs regarding functional food consumption, aiding marketers in understanding the complex influences and designing strategies to promote healthier eating habits.

## REFERENCES

- Aditami, S. (2016). *The analysis of halal product purchase intention using Theory of Planned Behavior (TPB): An application on bakery product consumption* (Doctoral dissertation, Universitas Muhammadiyah Surakarta).
- Ahmed, M. H., Akbar, A., & Sadiq, M. B. (2021). Cross sectional study on food safety knowledge, attitudes, and practices of food handlers in Lahore district, Pakistan. *Heliyon*, 7(11).
- Ajzen, I. (1991). *The theory of planned behavior: Organizational behavior and human decision processes*, 50(2), 179-211.
- Ajzen, I. (2002). *Sample TPB questionnaire*. Retrieved October, 14, 2005.
- Ajzen, I. (2011). *The theory of planned behaviour: Reactions and reflections*. *Psychology & health*, 26(9), 1113-1127.
- Ajzen, I. (2015). *Consumer attitudes and behavior: the theory of planned behavior applied to food consumption decisions*. *Italian Review of Agricultural Economics*, 70(2), 121-138.
- Ajzen, I., & Madden, T. J. (1986). *Prediction of goal-directed behavior: Attitudes, intentions, and perceived behavioral control*. *Journal of experimental social psychology*, 22(5), 453-474.
- Al-Swidi, A., Mohammed Rafiul Huque, S., Haroon Hafeez, M., & Noor Mohd Shariff, M. (2014). *The role of subjective norms in theory of planned behavior in the context of organic food consumption*. *British food journal*, 116(10), 1561-1580.
- Amoako, G. K., Dzogbenuku, R. K., & Abubakari, A. (2020). *Do green knowledge and attitude influence the youth's green purchasing? Theory of planned behavior: International Journal of Productivity and Performance Management*, 69(8), 1609-1626.
- Annunziata, A., Mariani, A., & Vecchio, R. (2014). *Consumer understanding and use of health claims: the case of functional foods*. *Recent Patents on Food, Nutrition & Agriculture*, 6(2), 113-126.
- Ares, G., Giménez, A., & Gámbaro, A. (2008). *Understanding consumers' perception of conventional and functional yogurts using word association and hard ladderling*. *Food quality and preference*, 19(7), 636-643.
- Armitage, C. J., & Conner, M. (2001). *Efficacy of the theory of planned behaviour: A meta-analytic review*. *British journal of social psychology*, 40(4), 471-499.
- Arvola, A., Vassallo, M., Dean, M., Lampila, P., Saba, A., Lähteenmäki, L., & Shepherd, R. (2008). *Predicting intentions to purchase organic food: The role of affective and moral attitudes in the Theory of Planned Behaviour*. *Appetite*, 50(2-3), 443-454.
- AT, D., & Action, E. C. (1999). *Scientific concepts of functional foods in Europe consensus document*. *Br. J. Nutr*, 81, S1-S27.
- Axelson, M. L., & Brinberg, D. (1992). *The measurement and conceptualization of nutrition knowledge*. *Journal of Nutrition Education*, 24(5), 239-246.
- Baker, M. T., Lu, P., Parrella, J. A., & Leggette, H. R. (2022). *Consumer acceptance toward functional foods: A scoping review*. *International Journal of Environmental Research and Public Health*, 19(3), 1217.
- Bakti, I. G. M. Y., Sumaedi, S., Astrini, N. J., Rakhmawati, T., Yarmen, M., & Damayanti, S. (2020). *Applying the theory of planned behavior in functional food purchasing: a young consumers perception*. In *IOP Conference Series: Materials Science and Engineering* (Vol. 722, No. 1, p. 012024). IOP Publishing.
- Bärebring, L., Palmqvist, M., Winkvist, A., & Augustin, H. (2020). *Gender differences in perceived food healthiness and food avoidance in a Swedish population-based survey: A cross sectional study*. *Nutrition journal*, 19, 1-8.
- Becker, M. H., Haefner, D. P., Kasl, S. V., Kirscht, J. P., Maiman, L. A., & Rosenstock, I. M. (1977). *Selected psychosocial models and correlates of individual health-related behaviors*. *Medical care*, 15(5), 27-46.
- Bettiga, D., Lamberti, L., & Noci, G. (2017). *Do mind and body agree? Unconscious versus conscious arousal in product attitude formation*. *Journal of Business Research*, 75, 108-117.
- Bhaskaran, S., & Hardley, F. (2002). *Buyer beliefs, attitudes and behaviour: foods with therapeutic claims*. *Journal of Consumer Marketing*, 19(7), 591-606.
- Bimbo, F., Bonanno, A., Nocella, G., Viscecchia, R., Nardone, G., De Devitiis, B., & Carlucci, D. (2017). *Consumers' acceptance and preferences for nutrition-modified and functional dairy products: A systematic review*. *Appetite*, 113, 141-154.
- Bonne, K., Vermeir, I., Bergeaud-Blackler, F., & Verbeke, W. (2007). *Determinants of halal meat consumption in France*. *British Food Journal*, 109(5), 367-386.
- Brečić, R., Gorton, M., & Barjolle, D. (2014). *Understanding variations in the consumption of functional foods—evidence from Croatia*. *British Food Journal*, 116(4), 662-675.
- Bruno, E. J. (2016). *The prevalence of vitamin k deficiency/insufficiency, and recommendations for increased intake*. *J Hum Nutr Food Sci*, 4(1), 1077.
- Bultosa, G. (2016). *Functional foods: overview*.
- Butnariu, M., & Sarac, I. (2019). *Functional food*. *International Journal of Nutrition*, 3(3), 7-16.
- Büyükkaragöz, A., Bas, M., Sağlam, D., & Cengiz, Ş. E. (2014). *Consumers' awareness, acceptance and attitudes towards functional foods in Turkey*. *International Journal of Consumer Studies*, 38(6), 628-635.
- Cachero-Martínez, S. (2020). *Consumer behaviour towards organic products: The moderating role of environmental concern*. *Journal of Risk and Financial Management*, 13(12), 330.
- Cavaliere, A., Ricci, E. C., & Banterle, A. (2015). *Nutrition and health claims: Who is interested? An empirical analysis of consumer preferences in Italy*. *Food Quality and Preference*, 41, 44-51.
- Cazacu, S. (2015). *Greek Consumers' Purchase Intentions towards Dairy Functional Foods*.
- Chen, M. F. (2007). *Consumer attitudes and purchase intentions in relation to organic foods in Taiwan: Moderating effects of food-related personality traits*. *Food Quality and Preference*, 18(7), 1008-1021.



- Chen, M. F. (2011). The joint moderating effect of health consciousness and healthy lifestyle on consumers' willingness to use functional foods in Taiwan. *Appetite*, 57(1), 253-262.
- Chen, M. F. (2011). The mediating role of subjective health complaints on willingness to use selected functional foods. *Food Quality and Preference*, 22(1), 110-118.
- Chen, M. F. (2013). Influences of health consciousness on consumers' modern health worries and willingness to use functional foods. *Journal of Applied Social Psychology*, 43, E1-E12.
- Childs, N. M., & Poryzees, G. H. (1998). Foods that help prevent disease: consumer attitudes and public policy implications. *British Food Journal*, 100(9), 419-426.
- Conner, M., & Sparks, P. (2005). Theory of planned behaviour and health behaviour: Predicting health behaviour, 2(1), 121-162.
- Cooke, R., & Sheeran, P. (2004). Moderation of cognition-intention and cognition-behaviour relations: A meta-analysis of properties of variables from the theory of planned behaviour. *British journal of social psychology*, 43(2), 159-186.
- Daliri, E. B. M., & Lee, B. H. (2015). Current trends and future perspectives on functional foods and nutraceuticals. *Beneficial microorganisms in food and nutraceuticals*, 221-244.
- Das, R., Biswas, S., & Banerjee, E. R. (2016). Nutraceutical-prophylactic and therapeutic role of functional food in health. *J Nutr Food Sci*, 6(4), 1-17.
- De Jong, N., Ocke, M. C., Branderhorst, H. A., & Friele, R. (2003). Demographic and lifestyle characteristics of functional food consumers and dietary supplement users. *British Journal of Nutrition*, 89(2), 273-281.
- Dean, M., Raats, M. M., & Shepherd, R. (2012). The role of self-identity, past behavior, and their interaction in predicting intention to purchase fresh and processed organic food 1. *Journal of applied social psychology*, 42(3), 669-688.
- Demir, H., & Karakaya, B. (2019). Comparison of the Functional Food Knowledge-Awareness Levels and Consumption Frequencies of University Students. *International Journal of Medical Science and Clinical Invention*, 6(8), 4530-4538.
- Diplock, A., Aggett, P., Ashwell, M., Bornet, F., Fern, E., & Roberfroid, M. (1999). The European Commission concerted action on functional foods science in Europe (FUFLOSE). Scientific concepts of functional foods in Europe. Consensus document. *Br J Nutr*, 81, 1-27.
- Echahad, M., & Ghaith, A. (2022). Purchasing Intention of Green Cosmetics Using the Theory of Planned Behavior: The Role of Perceived Quality and Environmental Consciousness. *Expert Journal of Marketing*, 10(1).
- Echchad, M. (2023). The influence of social media usage and health consciousness on the purchasing intention of organic products: the mediating role of attitude. *IROCAMM: International Review of Communication and Marketing Mix*, 6 (1), 88-103.
- Falk, R. F., & Miller, N. B. (1992). *A primer for soft modeling*. University of Akron Press.
- Galland, L. (2013). Functional foods: health effects and clinical applications.
- Gould, S. J. (1988). Consumer attitudes toward health and health care: A differential perspective. *Journal of Consumer Affairs*, 22(1), 96-118.
- Gould, S. J. (1990). Health consciousness and health behavior: the application of a new health consciousness scale. *American Journal of Preventive Medicine*, 6(4), 228-237.
- Grankvist, G., & Biel, A. (2007). Predictors of purchase of eco-labelled food products: A panel study. *Food quality and preference*, 18(4), 701-708.
- Hacioglu, G., & Kurt, G. (2012). Consumers' Awareness, Acceptance and Attitudes Towards Functional Foods: A Research in Izmir City. *Business and Economics Research Journal*, 3(1), 161-161.
- Hair, J. F., Hult, G. T. M., Ringle, C. M., Sarstedt, M., & Thiele, K. O. (2017). Mirror, mirror on the wall: a comparative evaluation of composite-based structural equation modeling methods. *Journal of the academy of marketing science*, 45, 616-632.
- Hameed, I., Waris, I., & Amin ul Haq, M. (2019). Predicting eco-conscious consumer behavior using theory of planned behavior in Pakistan. *Environmental Science and Pollution Research*, 26, 15535-15547.
- Hansen, T., Sørensen, M. I., & Eriksen, M. L. R. (2018). How the interplay between consumer motivations and values influences organic food identity and behavior. *Food policy*, 74, 39-52.
- Henseler, J., Ringle, C. M., & Sarstedt, M. (2015). A new criterion for assessing discriminant validity in variance-based structural equation modeling. *Journal of the academy of marketing science*, 43, 115-135.
- Hoque, M. Z., Alam, M. N., & Nahid, K. A. (2018). Health consciousness and its effect on perceived knowledge, and belief in the purchase intent of liquid milk: Consumer insights from an emerging market. *Foods*, 7(9), 150.
- Hsu, C. L., Chang, C. Y., & Yansritakul, C. (2017). Exploring purchase intention of green skincare products using the theory of planned behavior: Testing the moderating effects of country of origin and price sensitivity. *Journal of Retailing and Consumer Services*, 34, 145-152.
- Huang, L., Bai, L., Zhang, X., & Gong, S. (2019). Re-understanding the antecedents of functional foods purchase: Mediating effect of purchase attitude and moderating effect of food neophobia. *Food Quality and Preference*, 73, 266-275.
- Iqbal, J., Yu, D., Zubair, M., Rasheed, M. I., Khizar, H. M. U., & Imran, M. (2021). Health consciousness, food safety concern, and consumer purchase intentions toward organic food: The role of consumer involvement and ecological motives. *Sage Open*, 11(2), 21582440211015727.
- Jaeger, S. R. (2006). Non-sensory factors in sensory science research. *Food Quality and Preference*, 17(1-2), 132-144.
- Jung, S. E., Shin, Y. H., Severt, K., & Crowe-White, K. M. (2020). Determinants of a consumer's intention to consume antioxidant-infused sugar-free chewing gum: Measuring taste, attitude, and health consciousness. *Journal of Food Products Marketing*, 26(1), 38-54.

- Karelakis, C., Zevgitis, P., Galanopoulos, K., & Mattas, K. (2020). Consumer trends and attitudes to functional foods. *Journal of International Food & Agribusiness Marketing*, 32(3), 266-294.
- Khan, Y., Hameed, I., & Akram, U. (2023). What drives attitude, purchase intention and consumer buying behavior toward organic food? A self-determination theory and theory of planned behavior perspective. *British Food Journal*, 125(7), 2572-2587.
- Kraus, A., Annunziata, A., & Vecchio, R. (2017). Sociodemographic factors differentiating the consumer and the motivations for functional food consumption. *Journal of the American College of Nutrition*, 36(2), 116-126.
- La Barbera, F., Amato, M., & Sannino, G. (2016). Understanding consumers' intention and behaviour towards functionalised food: The role of knowledge and food technology neophobia. *British Food Journal*, 118(4), 885-895.
- Labrecque, J., Doyon, M., Bellavance, F., & Kolodinsky, J. (2006). Acceptance of functional foods: A comparison of French, American, and French Canadian consumers. *Canadian Journal of Agricultural Economics/Revue canadienne d'agroeconomie*, 54(4), 647-661.
- Landström, E., Hursti, U. K. K., Becker, W., & Magnusson, M. (2007). Use of functional foods among Swedish consumers is related to health-consciousness and perceived effect. *British Journal of Nutrition*, 98(5), 1058-1069.
- Lu, J. (2015). The effect of perceived carrier-ingredient fit on purchase intention of functional food moderated by nutrition knowledge and health claim. *British food journal*, 117(7), 1872-1885.
- Madden, T. J., Ellen, P. S., & Ajzen, I. (1992). A comparison of the theory of planned behavior and the theory of reasoned action. *Personality and social psychology Bulletin*, 18(1), 3-9.
- Menrad, K. (2003). Market and marketing of functional food in Europe. *Journal of food engineering*, 56(2-3), 181-188.
- Moorman, C., & Matulich, E. (1993). A model of consumers' preventive health behaviors: The role of health motivation and health ability. *Journal of consumer research*, 20(2), 208-228.
- Nagy, S. (2010). Functional Food Marketing: The Hungarian Market Case. *Theory Methodology Practice: Club of Economics In Miskolc* (ISSN: 1589-3413) V:(1) pp, 43-51
- Nardi, V. A. M., Jardim, W. C., Ladeira, W., & Santini, F. (2019). Predicting food choice: a meta-analysis based on the theory of planned behavior. *British Food Journal*, 121(10), 2250-2264.
- Nguyen, N., Nguyen, H. V., Nguyen, P. T., Tran, V. T., Nguyen, H. N., Nguyen, T. M. N., ... & Nguyen, T. H. (2019). Some key factors affecting consumers' intentions to purchase functional foods: A case study of functional yogurts in Vietnam. *Foods*, 9(1), 24.
- Nystrand, B. T., & Olsen, S. O. (2020). Consumers' attitudes and intentions toward consuming functional foods in Norway. *Food Quality and Preference*, 80, 103827.
- O'Connor, E. L., & White, K. M. (2010). Willingness to trial functional foods and vitamin supplements: The role of attitudes, subjective norms, and dread of risks. *Food Quality and Preference*, 21(1), 75-81.
- Pahrudin, P., Chen, C. T., & Liu, L. W. (2021). A modified theory of planned behavioral: A case of tourist intention to visit a destination post pandemic Covid-19 in Indonesia. *Heliyon*, 7(10).
- Papp-Bata, Á., & Szakály, Z. (2020). The relationship between the motivators and barriers of health behaviour and consumer attitudes towards functional food. *Acta Alimentaria*, 49(3), 287-294.
- Parashar, S., Singh, S., & Sood, G. (2023). Examining the role of health consciousness, environmental awareness and intention on purchase of organic food: A moderated model of attitude. *Journal of Cleaner Production*, 386, 135553.
- Rasanjalee, R. M. K. S. (2021). Antecedents of Functional Food Purchase Intention of Sri Lankan Consumers: The Mediating Effect of Consumer Attitudes.
- Rezai, G., Kit Teng, P., Mohamed, Z., & Shamsudin, M. N. (2014). Structural equation modeling of consumer purchase intention toward synthetic functional foods. *Journal of Food Products Marketing*, 20(sup1), 13-34.
- Riebl, S. K., Estabrooks, P. A., Dunsmore, J. C., Savla, J., Frisard, M. I., Dietrich, A. M., ... & Davy, B. M. (2015). A systematic literature review and meta-analysis: The Theory of Planned Behavior's application to understand and predict nutrition-related behaviors in youth. *Eating behaviors*, 18, 160-178.
- Ring, E., & Mitchell, C. (2010). Swedish Consumers' Attitudes and Purchase Intentions of Functional Food: A study based on the Theory of Planned Behavior.
- Sadhukhan, S., & Khanolkar, V. (2021). Consumer awareness and perception of functional food usage: A study of Hooghly district, West Bengal. *Turkish Journal of Physiotherapy and Rehabilitation*, 2332-2339.
- Salmani, F., Norozi, E., Moodi, M., & Zeinali, T. (2020). Assessment of attitudes toward functional foods based on theory of planned behavior: validation of a questionnaire. *Nutrition journal*, 19(1), 1-9.
- Scalco, A., Noventa, S., Sartori, R., & Ceschi, A. (2017). Predicting organic food consumption: A meta-analytic structural equation model based on the theory of planned behavior. *Appetite*, 112, 235-248.
- Schneittler, B., Miranda, H., Lobos, G., Sepulveda, J., Orellana, L., Mora, M., & Grunert, K. (2015). Willingness to purchase functional foods according to their benefits: consumer profiles in Southern Chile. *British Food Journal*, 117(5), 1453-1473.
- Shah Alam, S., & Mohamed Sayuti, N. (2011). Applying the Theory of Planned Behavior (TPB) in halal food purchasing. *International journal of Commerce and Management*, 21(1), 8-20.
- Shin, Y. H., & Hancer, M. (2016). The role of attitude, subjective norm, perceived behavioral control, and moral norm in the intention to purchase local food products. *Journal of foodservice business research*, 19(4), 338-351.
- Shin, Y. H., Hancer, M., & Song, J. H. (2016). Self-congruity and the theory of planned behavior in the prediction of local food purchase. *Journal of International Food & Agribusiness Marketing*, 28(4), 330-345.

- Siegrist, M., Bearth, A., & Hartmann, C. (2022). The impacts of diet-related health consciousness, food disgust, nutrition knowledge, and the Big Five personality traits on perceived risks in the food domain. *Food Quality and Preference*, 96, 104441.
- Siegrist, M., Stampfli, N., & Kastenholz, H. (2008). Consumers' willingness to buy functional foods. The influence of carrier, benefit and trust. *Appetite*, 51(3), 526-529.
- Septoe, A., Pollard, T. M., & Wardle, J. (1995). Development of a measure of the motives underlying the selection of food: the food choice questionnaire. *Appetite*, 25(3), 267-284.
- Su, Y., Khaskheli, A., Raza, S. A., & Yousufi, S. Q. (2022). How health consciousness and social consciousness affect young consumers purchase intention towards organic foods. *Management of Environmental Quality: An International Journal*, 33(5), 1249-1270.
- Szakály, Z., Berke, S., Biacs, P., Szakály, S., Széles, G., Szente, V., & Szigeti, O. (2010). Funkcionális élelmiszerek piaci helyzetének vizsgálata= Market analysis of functional foods. OTKA Kutatási Jelentések| OTKA Research Reports.
- Szakály, Z., Kiss, M., & Jasák, H. (2014). Functional foods, consumer attitudes and personalized nutrition. *The Hungarian Journal of Nutrition Marketing*, 1, 1-2.
- Teixeira, S. F., Barbosa, B., Cunha, H., & Oliveira, Z. (2021). Exploring the antecedents of organic food purchase intention: An extension of the theory of planned behavior. *Sustainability*, 14(1), 242.
- Temesi, Á., Bacsó, Á., Grunert, K. G., & Lakner, Z. (2019). Perceived correspondence of health effects as a new determinant influencing purchase intention for functional food. *Nutrients*, 11(4), 740.
- Topolska, K., Florkiewicz, A., & Filipiak-Florkiewicz, A. (2021). Functional food—Consumer motivations and expectations. *International journal of environmental research and public health*, 18(10), 5327.
- Urala, N., & Lähteenmäki, L. (2003). Reasons behind consumers' functional food choices. *Nutrition & Food Science*, 33(4), 148-158.
- Pliner, P., & Chaiken, S. (1990). Eating, social motives, and self-presentation in women and men. *Journal of Experimental Social Psychology*, 26(3), 240-254.
- Urala, N., & Lähteenmäki, L. (2004). Attitudes behind consumers' willingness to use functional foods. *Food quality and preference*, 15(7-8), 793-803.
- Urala, N., & Lähteenmäki, L. (2007). Consumers' changing attitudes towards functional foods. *Food Quality and Preference*, 18(1), 1-12.
- Valls, J., Pasamontes, N., Pantaleón, A., Vinaixa, S., Vaqué, M., Soler, A., ... & Gómez, X. (2013). Prospects of functional foods/nutraceuticals and markets. *Natural products*, 2491-2525.
- Vaughan, G., & Hogg, M. A. (2005). *Introduction to social psychology*.
- Vermeir, I., & Verbeke, W. (2006). Sustainable food consumption: Exploring the consumer "attitude-behavioral intention" gap. *Journal of Agricultural and Environmental ethics*, 19, 169-194.
- Verneau, F., La Barbera, F., & Furno, M. (2019). The role of health information in consumers' willingness to pay for canned crushed tomatoes enriched with Lycopene. *Nutrients*, 11(9), 2173.
- Yazdanpanah, M., & Forouzani, M. (2015). Application of the Theory of Planned Behaviour to predict Iranian students' intention to purchase organic food. *Journal of Cleaner Production*

# THE ROLE OF INNOVATION IN THE SUCCESSION OF FAMILY BUSINESSES

Boglárka Tóth

University of Debrecen, Faculty of Economics and Business, Institute of Applied Economics Studies

E-mail address: toth.boglarka@econ.unideb.hu

**Abstract:** *Generational change and innovation are at the heart of the future success of a family business. Therefore, it is clear that the generational change of family firms should be considered from an innovation perspective. Despite this, there is no research in the literature that examines the importance of innovation in succession. In this article, the role of innovation in the succession process is examined by surveying 76 Hungarian family business owners and their potential successors. The aim of the article is to explore whether innovation plays a role in the life of the business and, if so, whether it can make succession more successful. In addition, whether the willingness of the successor to innovate is more important than the choice of successor within the family, and whether potential successors have innovative ambitions. Results include that family business owners who consider innovation important can be considered as partially conscious generational succession planners, as they are more likely to already have a potential successor than owners who do not consider innovation important. Overall, the family business owners surveyed do not consider it more important that the successor be a family member or that the successor have an innovative approach, but first and second-generation owners have different views. Second-generation family business owners now place much less importance on having a successor from the family than founders, and all second-generation completers placed the highest value on the successor's willingness to innovate, while founders placed significantly lower value on this. Nevertheless, none of the owners surveyed had a potential successor outside the family. Finally, innovation plays an important role in the future goals of successors. They consider continuous improvement and innovation to be the most important goal after stable and profitable operation of the company and the realisation of their own career and prefer to implement business process innovations rather than product innovations.*

**Keywords:** *successor selection, second generation of family businesses, succession planning*  
(JEL code: M12, M21)

## INTRODUCTION

Family businesses have always played an important role not only in the world economy, but also in the Hungarian economy, "considered the backbone of the economy in many countries of the world" (KÁSA et al. 2019). Besides their significant contribution to GDP, they also play a major role in employment and contribute to economic stability (TOBAK et al. 2018 a). According to OPTEN (2020), the number of family businesses in Hungary exceeds 200,000 in terms of volume, representing 40% of the total number of family farming enterprises. This share is already more significant, at 58%, when looking at the SME sector (BUDAPEST LAB, 2020). In Hungary, most family businesses were established during the regime change, and since a period of a generation passed, most of these enterprises reached the pressure of generational change by the 2010s, being

in their third "Learner's track" stage (TOBAK et al. 2018 b). This led to an increase in the number of studies and articles on this topic (RADÁCSI et al., 2022).

Over the years, the authors have defined the definition criteria in different ways, for example, some have focused on ownership ratios or even family ties. Most, however, use a combination of criteria (BAROS-TÓTH, 2022). Possible criteria in the definitions include family ownership, family participation, self-identification, multi-generational participation, among others (DE MASSIS et al. 2012).

Criteria can be defined and combined in many different ways. In the international literature, we can find much earlier definitions, such as the 1982 formulation by Allen and Panian, who described firms as family "controlled" if the family owned at least 5% of the shares (BAROS-TÓTH, 2022). The definitions used in the Hungarian literature are presented in Table 1.



Table 1. Definitions of family businesses found in the Hungarian literature

Authors	Year	Definition
Wieszt – Drótos	2018	„at least 50 % family ownership, at least two family members working in the company, at least two generations involved in running the company, and family succession”
Kása – Radácsi – Csákné Filep	2019	„businesses that consider themselves to be family businesses, or where at least 50 % of the business is owned by at least one family, or where the family is involved in the management of the business or family members are involved as employees in the operation of the business, or where the transfer of management and ownership is partly or entirely within the family”
CSAVE	2023	„all businesses, regardless of their size, whose purpose is to operate on a long-term intergenerational basis and whose focus is on the growth and management of family wealth are considered family businesses”
Bánáti – Gólya– Harsch –Páldeák	2023	„there is a blood relationship between the senior management members (i.e. companies owned by spouses if no other relative is a member of the management are not taken into account). In terms of ownership, at least 50 % must be in the hands of one family”

Source: Author’s own construction

Table 1 and previous research show that the most commonly used criterion is ownership (whether other family members should be owners and what percentage should be owned by the family), and this is the most often used criterion to declare a business as "family". In terms of ownership, the co-owner in most family businesses is the spouse, with a smaller but significant proportion of children, while other family members are insignificant (BUDAPEST LAB, 2017).

The three circles model

Family businesses are also unique in the way they operate and should be considered in this way. The culture of the family is the same as the culture of the business (NAGY and TOBAK,

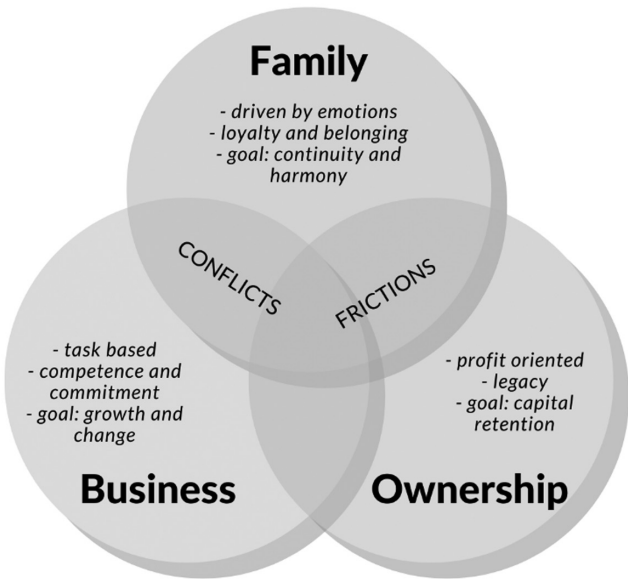
2017), so the life of the business is greatly influenced by the decisions of the family and vice versa. Whereas in a non-family business only the dimensions of business and property are combined, in family businesses the family is included alongside these two dimensions, as illustrated by TAGIURI and DAVIS' (1996) three-circle model, shown in Figure 1.

The "ownership" dimension of the model is clearly profit-oriented, aimed at capital preservation and typically involves ownership by inheritance. The "business" dimension is task-oriented, defined by expertise and commitment, and aims to grow and change. The "family" dimension is driven by emotions. Loyalty and belonging bind the members together, and their aim is to create continuity and harmony (MATSUHASHI, 2013). Family businesses must therefore manage all three of these dimensions simultaneously. Their complexity requires a range of competences from both managers and executives. The family and the corporate system in itself masks a number of trade-offs. In addition to task and emotion-based thinking and divergent goals, the division of roles is a further conflict of interest. While in the family there is equality and a proportional division of labour, in the corporate organisation the competences are determined by competence. Moreover, in the family, the other is accepted unconditionally and relationships are permanent, whereas in business, actors are accepted on the basis of objective performance, with only a temporary, contractual relationship. Another difference is the source of power. In family life, it is the subordination and superiority of generations that is dominant, while in business it is authority and influence (MATSUHASHI, 2013). These differences, especially the high degree of overlap, can lead to friction and conflict within organisations (NÁBRÁDI et al. 2016). It is therefore a challenge in these organizations to manage the inherent dichotomies within them by trying to maximize their positive and minimize their negative consequences (TAGIURI and DAVIS, 1996).

Succession

Succession, generational change or inheritance is a concept often used in family businesses. First of all, it is important to clarify these concepts. Succession is understood as "the transfer of managerial control over the use of assets" (GASSON and

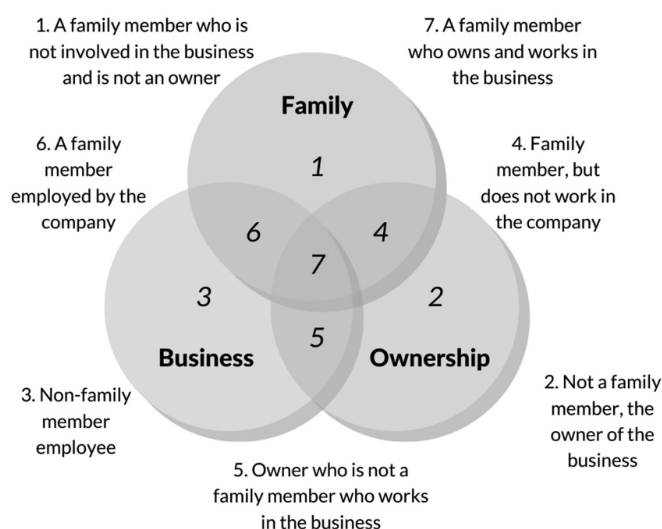
Figure 1. The three circles model



Source: Author’s own construction based on Matsuhashi, 2013; Nábrádi et al. (2016)

ERRINGTON, 1999) to someone from within or outside the family. In succession, the successor has no say in whether he or she wishes to retain ownership of the firm's assets, which is legally transferred to the heir on the death of the owner. The concept of generation change requires first of all a definition of generation. "By generation, we mean the successive family age groups that perform the control and management functions of the firm" (NÁBRÁDI et al. 2016). Therefore, by generation change we mean the alternation of these family age groups in the family firm. Classically, we differentiate seven groups of participants in generational change, based on TAGIURI and DAVIS (1966). The participants are shown in Figure 2, built into the three-circle model described in the previous chapter.

**Figure 2. Potential participants in the three-cycle model of generational change**



Source: Author's own construction based on Tagiuri and Davis (1996) in Nábrádi et al. (2016)

Family businesses make up a significant part of the world economy and generational change is the most critical time in the life cycle of these businesses. Generational change is not just a simple change of leadership, it also determines the future and survival of the business. The best case scenario is when the founder consciously prepares for the generational change and has a successor to whom he or she can hand over the management of the company. On this basis, there are two possible scenarios: there is a successor to whom the business can be handed over, or there is none. But both cases hold a number of other possible outcomes, assumptions and decisions in practice.

Succession is one of the most important issues in the life of a family business, and one that needs to be consciously prepared for. VECSENYI (2017) cites the lack of preparation and involvement of the next generation as one of the most serious threats. Despite this, more than half of the family firms surveyed in BUDAPEST LAB, 2020 do not even have a verbal succession plan or strategy in place.

## Innovation

For business organisations, it is obvious that innovation is a key factor in creating value and maintaining a long-term competitive advantage (DAMANPOUR et al. 2009). A company needs to constantly improve, because if the owners' goal is only to "keep up", sooner or later the company will fall behind the competition and will be at a disadvantage in the market (Nagy et al. 2017). Innovation can be classified into several types based on several aspects. Based on the third edition of the Oslo Manual, four classical innovation categories were still defined: product innovation (qualitatively or technically improved product or service), process innovation (renewed production process), marketing innovation (new marketing strategy/method/concept) and organisational innovation (introduction of new organisational methods) (KSH, 2021). This grouping was valid until 2018, the fourth edition of the Oslo Manual. The new edition divides innovation into only 2 main categories: product innovation and business process innovation. "Product innovation is a new or improved good or service that is significantly different from the company's previous goods or services and that has already been introduced in the market. Business process innovation is a new or improved business process for one or more business functions that is significantly different from the company's previous business processes and that is already in use by the company." (OECD/EUROSTAT, 2018) (KSH, 2021). The second category, business process innovation, now includes organisational innovation and marketing innovation, which were previously listed separately, and has been expanded to include, among others, innovations in logistics, transport, distribution methods, the introduction or improvement of information processing or communication methods and methods of accounting or other administrative activities.

There are also other ways of grouping innovation. According to MAKRAY-RÓZSÁS (2022), we can distinguish three categories: small-scale innovation in the case of small-scale development, radical (breakthrough) innovation in the case of a completely new product, service or process, and finally revolutionary (disruptive) innovation, where the initial breakthrough innovation leads to a majority of customers switching to the innovation and a new market or value network is created (the latter concept only exists since 2021).

The activities that give rise to innovation are R&D and technological innovation. R&D includes basic research, applied research and experimental development. One of the most important differences between R&D and innovation is that, although research and development form the basis of innovation and are associated with high risk, the practical implementation of innovations is much more costly (IVÁNYI and HOFFER, 2010).

## MATERIALS AND METHODS

A quantitative research to map the attitudes, perceptions and expectations of family businesses is presented, through a questionnaire survey. The questionnaire was compiled using Google Forms and the responses were evaluated using IBM

SPSS and visualized using Microsoft Excel and Microsoft Power BI software. The sampling for the questionnaire was not based on representativeness, but on family ownership and the involvement of succession. The non-representative sample is presented in Table 2.

Table 2. Distribution of respondents (N=76)

Distribution of completions by role of transferors and potential successors	Responses	Rate
Transferors	30	39,47 %
Potential successors	46	60,53 %
Distribution of respondents by generation level	Responses	Rate
First generation	20	26,32 %
Second generation	54	71,05 %
Third generation or above	2	2,63 %
Distribution of enterprises by type of company	Responses	Rate
Limited liability company (KFT in Hungarian)	50	65,79 %
Limited Partnership (BT in Hungarian)	26	34,21 %
Distribution of enterprises by number of employees	Responses	Rate
Under 10 people	66	86,84 %
Between 10 and 50 people	6	7,89 %
Between 50 and 250 people	1	1,32 %
Over 250 people	3	3,95 %

Source: Author’s own construction

As regards the distribution of enterprises by type of activity, most of the enterprises surveyed are engaged in agriculture (25%), followed by trade (22.37%), manufacturing (14.47%), other service activities (10.53%), scientific activities (7.89%) and a small number of construction, accommodation, administrative, communication, financial and health activities.

The sample is not representative and is biased in several respects, but it has been possible to gather the views of family businesses with a diverse range of activities, both in terms of size and location. The company name and some other business characteristics were not compulsory, so that some of the entries were not clear whether they were from the same or different enterprises (as they could be filled in by both the owner

and the successor, or by several owners or successors at the same time). It is also important to look separately at how the fillers are distributed by generation, according to the role of current owners and potential successors. This is shown in the stacked bar chart in Figure 3.

The majority (91.3%) of the potential successors of the sampled family businesses represent the second generation of owners, while 60% of the current owners are first generation (founders) and 40% are second generation owners. This suggests that, despite the small sample size, a relatively high proportion of the businesses surveyed have either been in generational change or are in the process of changing ownership and the next generation of owners has been brought in.

The hypotheses formulated for this research have been modified several times, either by finding new literature or by personal experience. The questions in the questionnaire were also built around the hypotheses. A summary of these is presented in Table 3.

Table 3. The hypotheses, related questions and starting points

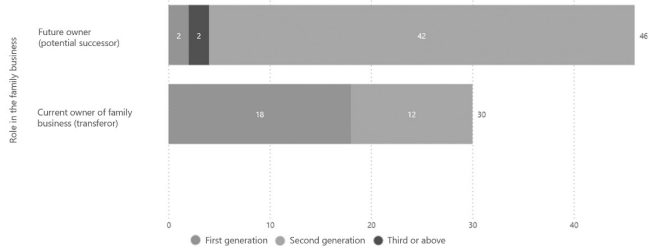
Question	Hypothesis	Starting point	Source	Method
Are firms that make innovation a key success factor more likely to achieve successful generation change?	H1: Firms that consider innovation significant to the long-term success of the firm are more likely to have a successor in sight and a succession plan than those that do not.	„The principles of the business excellence model include [...] exploiting innovation. In the succession process of family businesses, adherence to these principles is of paramount importance.” "the baton should be passed on in good time"	NAGY and TOBAK, 2017	Crosstab analysis, Chi-square test
What is more important for the transferor when choosing a successor, tradition or innovation?	H2: When it comes to succession, leaders consider it more important that the successor comes from within the family than the successor's innovative approach.	"While innovation is the lifeblood of family businesses, succession is the future of family businesses." "89% would hand over ownership and management of a business to a family member" "36% have not made any innovations in the last two years"	BALTAZAR et al. 2023 BUDAPEST LAB, 2020	T-test
Do the successors who want to take over the family business want to innovate in it?	H3: For potential successors who want to take over the business in its entirety, innovation is one of the most important future goals.	"the second generation was motivated to continue the family business, the successors were oriented towards developing an entrepreneurial mindset and created innovation after entering the family business"	TOSKA, et al. 2022	T-test

Source: Author’s own construction

RESULTS AND DISCUSSION

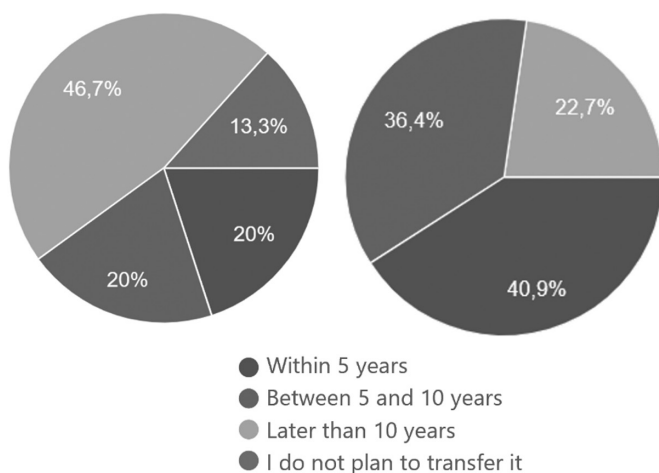
The questionnaire for owners and potential successors contained pairs of questions for comparison. The first pie chart in Figure 4 shows the response of current owners to the question of when they plan to transfer the family business, while the second chart shows the distribution of responses of potential successors to the question of when they plan to take over the business. The colours indicate the same time intervals. Although not necessarily linked to the same firms, it can be seen that the majority of current owners want to take over the business in more than 10 years (if they plan to do so), while an even larger proportion of potential successors (almost 80%) plan to take over within 10 years.

Figure 3. Generational distribution by role in the family (N=76)



Source: Author’s own construction

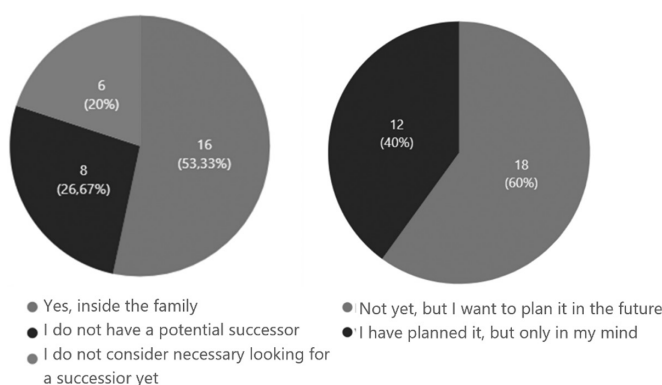
**Figure 4. Distribution of responses from responding owners and potential successors on when they plan to transfer/take over the business (N=76)**



Source: Author's own construction

Awareness and timing of generational change is given much attention in the literature, as we have seen before, and its importance is emphasised. Figure 5 shows the distribution of responses from owners to the question on the existence of a successor and succession plan.

**Figure 5. Distribution of the existence of potential successors and succession plans (N=30)**



Source: Author's own construction

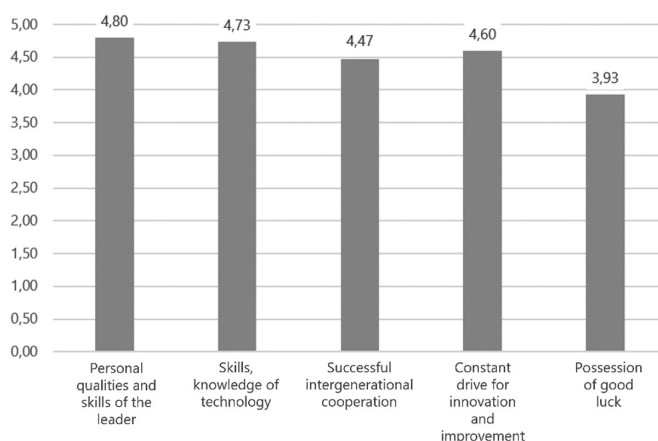
The pie charts show that more than half of the owners already have a potential successor, from within the family. The remainder have not yet found a successor or have not started looking for one. One of the possible answers to this question was that there is a successor from outside the family, but this answer was not chosen by any respondent. When looking at the existence of a succession plan, 40% of the respondents had a succession plan in mind and the remaining 60% had no succession plan at all. The distribution of responses does not exactly indicate awareness of generational change, considering that there was an option to have a written plan, but this was also not chosen by the completing owners.

**The first hypothesis, related to the succession plans of the owners, was the following:**

H1: Firms that consider innovation significant to the long-term success of the firm are more likely to have a successor in place and a succession plan than those that do not.

Here, the article seeks to answer the question of whether there is a link between the innovative approach of owners and succession planning awareness. To do this, it investigated whether owners who assigned a 5 (maximum) on a Likert scale to 'continuous innovation and improvement' as a contributing factor to the success of their business were more likely to have a successor in mind or a succession plan in place. All responses to this question are shown in the following figure (Figure 6).

**Figure 6. Assessment of factors contributing to the long-term success of the business (N=30)**



Source: Author's own construction

The analysis was carried out in SPSS using cross-tabulation analysis and the corresponding Chi-square test. The statement was divided into two parts. For the statistical test, two null hypotheses were formulated based on the alternative hypothesis: 1. There is no relationship between respondents who consider innovation significant and the existence of a successor; 2. There is no relationship between respondents who consider innovation significant and the existence of a successor plan. The summarised cross tabulations of the two studies are shown in Table 4.

The Pearson's Chi-square indicator for the first cross-tabulation, i.e. the existence of a potential offspring, has a value of 4.286, with a significance level (p-value) of 0.038, a p-value that does not reach the significance level of 0.05 (5%) chosen for the analysis, and thus the null hypothesis of the cross-tabulation analysis, that there is no correlation between the two variables, is rejected. Thus, it can be stated that the relationship between the two variables is statistically significant. The second cross-tabulation examined for the succession plan has a Khi squared value of 2.5 and a corresponding p-value of 0.114. This is much higher than the 5% significance level, so the null hypothesis of no relationship with the existence of a succession plan is accepted. To summarise the first hypothesis, it is true that firms that perceive innovation as significant are



Table 4. Cross-tabulation by the importance of innovation and conscious planning

		Potential successor		Total	Potential successor		Total
		have	have not		have	have not	
Considers innovation	significant (N=20)	8 (40%)	12 (60%)	20	10 (50%)	10 (50%)	20
	not significant (N=10)	8 (80%)	2 (20%)	10	2 (20%)	8 (80%)	10
Total		16	14	30	12	18	30

Source: Author’s own construction

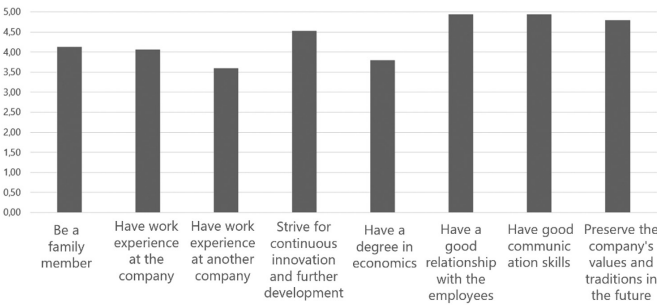
more likely to have a successor, but the part about the succession plan is not confirmed as there is no significant difference between respondents who perceive innovation as significant and those who do not perceive innovation as significant. Overall, therefore, the data partially support the first hypothesis.

The second hypothesis also related to the responses of current owners.

H2: When it comes to succession, managers consider it more important that the successor comes from within the family than the successor's innovative approach.

Here, the study seeks to answer whether, of the two factors, the more important for owners when selecting or planning a successor is that the successor be a member of the family, rather than that the successor have a propensity to innovate. To do this, owners were asked to rate the given criteria on a Likert scale when selecting a successor. The distribution of all criteria is shown in Figure 7.

Figure 7. Importance of successor selection criteria (N=30)



Source: Author’s own construction

To prove the hypothesis, the data were evaluated by T-test, the results are T= -1.293; P= 0.206; Correlation coefficient= -0.333. The significance value of T-test is greater than 0.05, which means that the difference between the two variables is not statistically significant. Based on this, it can be stated that the null hypothesis cannot be rejected based on the sample, i.e. no significant difference can be stated between the managers' responses to the family inheritance and the innovation aspect. The correlation coefficient has a negative sign, suggesting that

the relationship between the two variables is negative, but since the significance value is not low enough, this relationship cannot be considered statistically robust. Based on this, it is not possible at this stage to state unequivocally whether, when it comes to succession, owners consider it more important that the successor comes from within the family than the innovative approach of the successor.

However, with regard to the second hypothesis, the research has revealed that there is a difference between first and second generation owners' views on the importance of innovation in the succession process. The two groups were therefore examined in more detail using an independent T-test method.

For this purpose, the following hypothesis was formulated:

H2/b: Different generations of owners have different views on inheritance within the family and the innovative approach of the successor.

Table 5. Difference in averages between generations

	Factor	Group	Average
How important is it that...	the successor is a member of the family	First generation (N=18)	4,778
		Second generation (N=12)	3,167
	the successor has an innovative approach	First generation (N=18)	4,222
			5,000

Source: Author’s own construction

Already in Table 5, the averages by factor show that there is a contrasting divergence of opinion between the different generations. This finding is confirmed by the summary in Table 6.

Table 6. Results of the independent T-test SPSS

	T-test value	T-test significance (p value)
the successor should be a member of the family	5,018	0,000
the successor should have an innovative approach	-2,526	0,017

Source: Author’s own construction

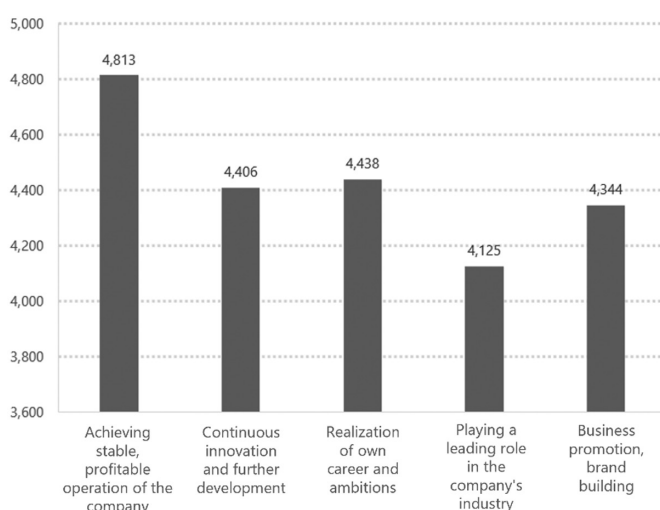
For both questions, significance values are less than 0.05, demonstrating that the difference between the groups is statistically significant. Second generation family business owners are much less likely to consider it important to have a successor from the family, and all second generation respondents gave the highest value to the willingness of the successor to innovate.

The last hypothesis was related to the responses of potential successors.

H3: For potential successors who want to take over the business in its entirety, innovation is one of the most important future goals.

Only the opinion of the descendants who answered yes to the question whether they wanted to take over the family business in the future was needed. Thus, their opinion is more relevant to the importance of future goals and would be more likely to be followed than those who do not plan to take over the business or are not yet sure. Therefore, 32 responses from potential successors were evaluated.

**Figure 8. Average importance of different goals among potential successors who plan to take over the family business (N=32)**



*Source: Author's own construction*

Figure 8 shows the average extent to which potential successors would like to achieve each of the stated future goals. The analysis was evaluated using a one-sample T-test in SPSS at a 5% significance level. Question "22/2" was a question related to innovation. The mean of this question was 4.406, which is high on a scale of 1 to 5. This indicates that innovation is important to the respondents. The t-value for question "22/2" was 3.455 which is significant at the 0.05 level ( $P=0.002$ ). This means that the mean response is significantly different from the test value (4). The difference in mean response is 0.4063 which is positive indicating that the mean response is higher than the test value. The 95% confidence interval is between the lower and upper bounds (0.166 and 0.646), indicating that it is certain that the true mean is within this interval. Based on the hypothesis, the results show that for potential successors who want to take over the business fully, innovation is an important objective for the future. The data confirm the hypothesis. This supports the finding of WIESZT and DRÓTOS (2018), which was found during data collection, that Hungarian family businesses are innovating during the second generation.

Lastly, the successors also answered in which area or areas they would like to be involved, if any. The list of multiple-choice questions is structured according to the types of innovation as defined by OECD (2018). Out of the 46 respondents,

none said they did not want to innovate and only 6 could not say in which area. Most of the responses were for improving marketing and sales methods within business process innovation (87% of responses). By type of innovation, the other responses were also mostly for different business process innovations. Only 16 respondents (a small minority) would introduce a new product or service for their business compared to the other responses.

Based on the responses of current managers and potential successors of the family businesses surveyed, the findings on the role of innovation in succession are summarised:

1. Family business owners who consider innovation important can be considered as partly conscious generational change planners, as they are more likely to have a potential successor than owners who do not consider innovation important.
2. The interviewed owners plan to hand over the family business much later than when the interviewed potential successors would take it over.
3. Overall, the family business owners surveyed do not consider it more important that the successor be a family member or that the successor have an innovative approach.
4. First and second generation owners have different views on the importance of succession within the family and the importance of an innovative attitude of the offspring. Second-generation family business owners place much less importance on the importance of having a successor from within the family than founders, and all second-generation owners placed the highest value on the innovative drive of the successor, while founders placed significantly less value on this.
5. Despite this, none of the owners surveyed had a potential successor outside the family. Either they have a potential successor within the family, or they do not have one at all.
6. Innovation is an important part of the future goals of the successors. After a stable, profitable business and the realisation of their own career, they consider continuous improvement and innovation to be the most important goal.
7. Potential successors prefer business process innovation to product innovation.

By interviewing the businesses, it can be established that Hungarian family businesses do not think sufficiently consciously in the area of succession, they do not devote enough energy to detailed, even written implementation of the plan, in contrast to international companies. We can also say that, despite its importance, the awareness of succession among Hungarian family businesses is still in its infancy. An increasing number of publications deal not only with the relationship between family businesses and innovation, but also with the impact of innovation on succession and vice versa.

In the course of the research, it was identified as a stepping stone to a successful and generational change. We cannot say that prioritizing innovation makes the succession more successful. Only a partial significant relationship was identified among entrepreneurs who consider innovation important for successful operation with whether they consciously plan for succession.

In response to the result that family business owners consider innovation propensity as equally important when choosing a successor, we can say that either family inheritance or innovation propensity is equally important, with no significant difference. However, the complementary analysis shows that second generation owners do, and that they statistically consider the innovative approach of the successor to be more important than the family. This suggests that second-generation owners may not be as emotionally attached to the firm they have taken over as the founders and may be more likely to see the innovative approach of the next leader as more conducive to the long-term success of the business than the potentially traditional approach of a senior family member. This suggests that second-generation managers are more likely to choose a successor from outside the family with a high propensity to innovate than a family member who does not want to innovate. This contrasts with the fact that no respondents to the question on the existence of a successor mentioned the existence of a successor outside the family. Either the owners do not yet have a chosen successor or they already have a chosen successor but within the family. Thus, I conclude that in theory, the owners consider the willingness of the successor to innovate important, especially in the second generation, but in practice the selection of the successor has not yet been based on this (for the family businesses interviewed).

From the responses of potential successors to family businesses, I concluded that they do consider innovation to be important and that, if they were to take over the family business, their future plans would include securing a stable income for the business and, once they have realised their ambitions, continuous innovation and development. This does not necessarily mean that this is what will happen in practice in the future, but the idea of innovation is a positive, conscious initiative. Finally, potential successors presumably preferred to implement business process innovations in the future because they perceived them as less risky than product innovations.

Overall, TAGIURI and DAVIS, as early as 1996, argue that family businesses are characterised by a duality which, as a 'double-edged sword', has both advantages and disadvantages (such as the need for security in research as a barrier to innovation, or the need for cooperation between different generations), and that their duality should be managed in such a way as to maximise the positive and minimise the negative consequences. Innovation (mostly still only in the minds of second-generation managers) is seen as more important than, for example, strict family inheritance, but tradition is essential, not only for the success of family businesses, but also for innovation.

I hope that by providing individual conclusions, this article will contribute to the successful generational change and innovation in family businesses in the future, by enabling owners to consider the importance of certain factors, in particular the innovative approach, when looking for a potential successor.

## REFERENCES

- Baltazar, J. R. – Fernandes, C. I. – Ramadani, V. – Hughes, M. (2023): *Family business succession and innovation: a systematic literature review. Review of Managerial Science*, 1-24. sz.
- Bánáti A. – Gólya Á. – Harsch L. – Páldeák K. (2023): *A legértékesebb családi cégek 2023.* <https://forbes.hu/lists/a-legertekesebb-csaladi-cegek-2023/>, letöltés dátuma: 2023. 09. 09.
- Baros-Tóth Á. (2022): *Mi is az a családi vállalkozás? – A családi vállalkozások meghatározásának problematikája.* *Tudásmenedzsment*, 23. évf. 2. sz., 68-81. DOI: 10.15170/TM.2022.23.2.6
- Budapest LAB (2017): *Az első generációnál még csak nevében „családi” a családi vállalkozás,* <https://budapestlab.hu/index.php/az-első-generacional-meg-csak-neveben-csaladi-a-csaladi-vallalkozas/>, letöltés dátuma: 2023. 09. 19.
- Budapest LAB (2020): *Sokan vannak, de mennyien lesznek a családi cégek?* <https://budapestlab.hu/index.php/sokan-vannak-de-mennyien-lesznek-a-csaladi-cegek/>, letöltés dátuma: 2023. 09. 04.
- CSAVE (2023): *A Családi Vállalkozások Országos Egyesületének hivatalos honlapja,* <https://csave.hu>, letöltés dátuma: 2023. 08. 30.
- Damanpour, F. – Walker, R. M. – Avellaneda, C. N. (2009): *Combinative Effects of Innovation Types and Organizational Performance: A Longitudinal Study of Service Organizations.* *Journal of Management Studies*, 46. évf. 4. sz. pp. 650–675. doi:10.1111/j.1467-6486.2008.00814.x
- De Massis, A. – Sharma, P. – Chua, J. H. – Chrisman, J. J. (2012): *Family Business Studies: An Annotated Bibliography.* Edward Elgar Publishing Inc. pp. 13.
- Gasson, R. – Errington, A. (1999): *Családi farmgazdaság. Mezőgazdasági Szaktudás Kiadó. Budapest. ISBN: 9633562813, pp. 188-202*
- Iványi A. Sz. – Hoffer I. (2021): *Innováció a vállalkozásfejlesztésben.* Aula Kiadó. Budapest. ISBN: 9789639698826. pp. 33.
- Kása R. – Radácsi L. – Csákné Filep J. (2019): *Családi vállalkozások definíciós operacionalizálása és hazai arányuk becslése a kkv-szektoron belül.* *Statisztikai Szemle*, 97. évf. 2. sz. pp. 146 - 174. DOI: <https://doi.org/10.20311/stat2019.2.hu0146>
- KSH (2021): *Kutatás-fejlesztés, innováció.* <https://www.ksh.hu/docs/hun/modsz/modsz34.html>, letöltés dátuma: 2023. 09. 14.
- Makray-Rózsás Á. (2022): *Az innovációs életciklus szakaszai és az innováció érettségi modelljei.* IN: *A kis- és középvállalkozások innovációja.* Szerk.: Stukovszky T – Illyés P. Akadémia Kiadó, Budapest. ISBN: 9789634548348
- Matsushashi, K. (2013): *An introduction to the challenges & rewards of family owned businesses.* <https://www.slideshare.net/kmatsu81/family-business-101> letöltés dátuma: 2023. 09. 19.
- Nábrádi A. – Bárányi L. – Tobak, J. (2016): *Generációváltás a családi tulajdonú vállalkozásokban–Problémák, konfliktusok, kihívások, elméleti és gyakorlati megközelítés.* *GAZDÁLKODÁS: Scientific Journal on Agricultural Economics*, 60. évf. 80. sz. pp. 427-461.

Nagy A. – Tobak J. – Kun G. (2017). Development of a Family Business in a Franchise System. *International Journal of Engineering and Management Sciences*, 2(4), 390-400. <https://doi.org/10.21791/IJEMS.2017.4.31>.

Nagy A. S. – Tobak J. (2017): Családi vállalkozások vezetési és utód-lási kérdései. *TAYLOR*, 9(2), 188–196. <https://ojs.bibl.u-szeged.hu/index.php/taylor/article/view/13116>

OECD/Eurostat (2018): *Oslo Manual 2018: Guidelines for Collecting, Reporting and Using Data on Innovation*, 4th Edition, The Measurement of Scientific, Technological and Innovation Activities, OECD Publishing, Paris/Eurostat, Luxembourg. <https://doi.org/10.1787/9789264304604>

OPTEN (2020): A hazai cégek 40 százaléka családi jellegű vállalkozás. Közlemény. [https://www.opten.hu/kozlemenyek/a-hazai-cegek-40-szazaleka-csaladi-jellegu-vallalkozas?fbclid=IwAR1Elu0SxJd0UAiMFoPPpHihWrEt5W-LlxucnxKgiH\\_L2PgmkytrmiAKIw](https://www.opten.hu/kozlemenyek/a-hazai-cegek-40-szazaleka-csaladi-jellegu-vallalkozas?fbclid=IwAR1Elu0SxJd0UAiMFoPPpHihWrEt5W-LlxucnxKgiH_L2PgmkytrmiAKIw), letöltés dátuma: 2023. 09. 04.

Radácsi L. – Csákné Filep J. – Timár G. (2022): Családi vállalkozások kutatása a Budapesti Gazdasági Egyetemen. In: *BGE Szemelvények. Budapesti Gazdasági Egyetem, Budapest*, pp. 182-189. ISBN 978-615-6342-49-2

Tagiuri, R. – Davis, J. (1996): Bivalent Attributes of the Family Firm. *Family Business Review*, 9. évf. 2. sz. pp. 199–208. doi:10.1111/j.1741-6248.1996.00199.x

Tobak J. – Nábrádi A. – Nagy A. S. (2018) (a): Successful International and Hungarian Family Businesses. *International Journal of Engineering and Management Sciences*, 3(3), 280-287. <https://doi.org/10.21791/IJEMS.2018.3.23>.

Tobak J. – Nagy A. – Pető K. – Fenyves V. – Nábrádi A. (2018) (b): "The main factors determining effective operation in case of a family business", *International Journal of Entrepreneurial Behavior & Research*, Vol. 24 No. 6, pp. 1065-1074. <https://doi.org/10.1108/IJE-BR-04-2018-0203>

Toska, A., Ramadani, V., Dana, L.-P., Rexhepi, G. and Zeqiri, J. (2022): "Family business successors' motivation and innovation capabilities: the case of Kosovo", *Journal of Family Business Management*, 12. évf. 4. sz. pp. 1152-1166. <https://doi.org/10.1108/JFBM-11-2021-0136>

Vecsenyi J. (2017): Kisvállalkozások indítása és működtetése. *Akadémiai Kiadó*. <https://doi.org/10.1556/9789634542254>

Wieszt A. – Drótos Gy. (2018): Családi vállalkozások Magyarországon. In: Kolosi T. - Tóth I. Gy., *Társadalmi riport 2018. TÁRKI Társadalomkutatási Intézet Zrt. Budapest*. pp. 233–247. ISSN 1216-6561





# HOW TO INCREASE WORKFLOW EFFICIENCY FOR MICRO AND SMALL BUSINESSES WITH A CUSTOM-BUILT MOBILE APP IN HUNGARY - A CASE STUDY FOR A LANGUAGE LEARNING SCHOOL

Ádám Péntek<sup>1</sup>, Anita Pierog, Tamás Kovács

University of Debrecen, Faculty of Economics and Business

<sup>1</sup>Corresponding author e-mail address: pentek.adam@econ.unideb.hu

**Abstract:** *The increasing availability of information and communication technology (ICT) has boosted interest in ICT-based microservices. Limited research examines the efficacy of ICT-based microservices and administrative burden-alleviating solutions for small and medium enterprises (SMEs) within a domestic context. This study investigated the potential of such solutions through a case study on a custom language training SME. Key workflows with administrative burdens were identified using an expert interview, leading to the design and development of a custom mobile application. The researchers developed an easily adaptable, general-purpose layer structure during the development process. Results suggest automating essential, low-cost elements of SMEs' internal and external processes through digitalisation and on-demand support can increase competitiveness and employee satisfaction. Further research with a larger sample size could solidify these initial findings and inform broader SME development strategies. Additionally, investigating the long-term impact on factors like employee skill development and customer satisfaction would provide valuable insights for SMEs considering such solutions.*

**Keywords:** *micro-enterprise, SMEs, mobile application, ICT, digital maturity*  
(JEL code: M15)

## INTRODUCTION

### *Underlying the study*

SMEs are the pillars of the economy in many respects (Csordás & Füzesi, 2019), so their position and future prospects are vital. The 21st century has brought decades of digitalisation. ICT's extremely rapid development significantly impacts all aspects of life, including the economy. Researchers have long been concerned about the influence of ICT tools in different areas of life. The advent of mobile technology has generated revolutionary changes. Combining an easy-to-handle, anytime-anywhere digital device with mobile Internet has brought new dimensions to many aspects of life. The potential uses and their impact have been explored in several studies (Hardiyanto et al., 2022; Iakovets et al., 2023; Karar et al., 2021). Iakovets et al. stated that the use of apps has increased employee motivation. According to Adiwijaya et

al. (2022), SMEs should use mobile applications and recommend their regular renewal and new innovative methods. Chiu et al. demonstrated that employees' intentions certainly influence SMEs' adoption of mobile apps (Chiu et al., 2022). Several researchers have also investigated the impact of ICT tools, especially mobile-based ones, on programs. Chiu et al. (2022) found that in addition to functionality and efficiency, a thorough data security and privacy strategy for products and services should be developed. Several studies have also highlighted that many SMEs are adopting information technology to improve their performance, but some research shows that SMEs' performance in this area is still low. These implications prompted our research, which examined the position of SMEs in the economy and also looked at aspects of digital maturity. The factors affecting competitiveness were examined. Among the factors affecting competitiveness, administrative burdens stand out. Reducing these is an ongoing objective of the European Union and national governments. In this paper, the

authors show how the SME sector has the potential to solve specific tasks with high workloads, mainly through simple IT developments, which can be easily adapted to other SMEs, and present a case study of the digitalisation development and impact of a Hungarian micro-enterprise, which aims to show good practice for SMEs.

## LITERATURE REVIEW

### *Evaluation of the position of Hungarian SMEs*

The Hungarian economy is built on two pillars: large multinational companies and domestic small and medium-sized enterprises (SMEs). A key objective is strengthening SMEs and increasing their competitiveness in both domestic and foreign markets (Csordás & Füzesi, 2019). The COVID-19 epidemic has severely affected all actors in the national economy (Dajnoki et al., 2023; Tímár, 2020), but SMEs have been particularly vulnerable. Among other things, they could face supply chain problems and even partial stoppages of activity (Tímár, 2020; Totth et al., 2022). At the same time, it has accelerated the digital switchover and digitisation of businesses. The National Framework Strategy for Sustainable Development (NSDS) calls for development measures to help start-ups to become stronger. It also aims to reduce the administrative burden on companies, which is a significant burden for SMEs due to the complexity and constant changes in rules. The NFK (Móricz, 2022) underlines that businesses contribute to value creation and economic capital by their existence. Their ownership can further improve the sustainability of domestic economic resources. In 2023, 1.2 million SMEs operated in Hungary, accounting for 80% of jobs and 50% of GDP, making them critical players for the stability and growth of the Hungarian economy. The average lifespan of SMEs is 8-10 years, but this can vary by industry and firm. According to HCSO (Hungarian Central Statistical Office) 2021 data, 20% of SMEs have been in business for less than five years, while 10% have been in business for more than 20 years (KSH, 2024; Móricz, 2022).

The SME/MSME sector is a crucial stakeholder in the national and international economy (Lister et al., 2022). Keeping in business for SMEs is crucial because of their importance in the national economy, even though we do not know precisely how their digital development is evolving (Pintér, 2023). They are indispensable participants in industry, production and service provision. Much literature has been devoted to digitalisation and competitiveness in recent decades. Academics and practitioners constantly examine the factors influencing organisations' market presence and competitiveness. In recent years, more and more attention has been paid to the potential of the SME sector, including micro and small enterprises. Given the prominent role of the SME sector in the domestic economy, it is worthwhile to focus on the development of this sector. They face many challenges in their operations. Their competitiveness is affected by many factors. If any of these factors are optimised, they can excel due to a positive influence on their overall operations.

In many cases, this does not happen, so organisations stagnate and either remain stagnant for years or, after a while, de-

cline and possibly disappear. Competitiveness issues have already been discussed much in the last century. A considerable amount of literature has been published on this issue. Surveys in recent years show that the digital maturity of micro and small enterprises lags behind the rest of the SME sector and lags significantly behind large enterprises (Győri et al., 2019). This puts them at a very significant and permanent competitive disadvantage. Even though micro-enterprises are a significant source of employment in the Hungarian economy, they typically suffer from a persistent shortage of financial and human resources that, in many cases, can be alleviated through existing tools or tried and tested "good practices" - also detailed in the Digital Path for Sustainable Development. This document underlines the importance of awareness of the potential of digital solutions for business management and performance. Furthermore, it suggests that competitiveness will depend on the capability to use digital solutions in business processes (Csordás & Füzesi, 2023; Unidas & Nations, 2022).

### *Analysis of the Digital Maturity level of micro and small enterprises*

The use of information and communication technologies is now essential in the life of a business. The move of the business to digital platforms is an inevitable process and is becoming increasingly pronounced in all areas. It is challenging for any business to survive without adapting to a constantly changing world. SMEs, especially micro-enterprises, cannot adapt IT tools and methods to their business processes (Csiszarik-Kocsir et al., 2022). It is worth exploring these reasons and presenting good practices. Smartphones/mobile devices have appeared in all aspects of human life. This has led to an extreme demand for high-quality apps that run on mobile devices. In addition, the SME sector is facing significant labour shortages, while administrative burdens are also increasing (Belas et al., 2019). ICT tools can be a solution if a business wants to fulfil its preferred or mandatory obligations and do so with fewer human resources.

In many cases, this can be done by purchasing free or cost-effective software. If the business has specific needs, no suitable software tool has been developed as yet. Developing and maintaining a unique complex software tool is usually expensive and risky, and most SMEs do not have the risk capital to afford it.

By 2030, more than 90% of SMEs in the EU should reach at least a basic level of digital intensity (NFFT, 2013; Berger, 2022). A basic DII level requires the use of at least four digital tools. There are only four countries in the EU where it exceeds 12%. Hungary has a low level of investment in digital technologies, i.e. very low DII. (European Commission, 2022) The Digital Economy and Society Index (DESI) shows that Hungary has fallen back to 22nd place. (European Commission, 2022) In addition, the proportion of individuals with at least basic digital skills is significantly lower than the EU average, reinforcing the digital maturity gap for domestic SMEs. The figures clearly show that the country's performance in terms of backbone infrastructure is above the EU average, and in some respects, it has a very significant advantage. The SME sector is highlighted in the Going Digital Integrated Policy Frame-

work in the overall aspects of use, innovation and trust. In the 'Use' dimension of the Policy Framework regarding SMEs, enhancing the adoption and use of ICTs is considered a key factor (Mancini et al., 2022).

Nevertheless, Hungarian businesses do not exploit the potential of digital technologies. According to Bánhidi et al., the number of employees in firms will be significant for ICT skills and general, external, specific, and internal applications. At the same time, there is no difference in the use of digital tools and digital public services. The unsurprising result (Bánhidi et al., 2023) is underlined by the fact that only 21% of businesses have an enterprise resource planning system for electronic information sharing, and only 13% send electronic invoices for automatic processing. There has been a welcome improvement in e-commerce, but we are still only at the EU average.

A wide range of social media is available, but only a minority of businesses use them. Using more advanced technologies such as Business Intelligence, Cloud Computing, or Artificial Intelligence is rare. Surveys show that in Hungary's poorly performing SME sector in terms of digital readiness, micro-enterprises are particularly lagging (Lassnig et al., 2018). These IT-supported areas are also a priority for researchers outside Hungary (Barraud, 2009; Kergroach, 2020). Kergroach says using digital technology can help reduce costs. It can save time and accelerate business processes. According to the European Skills and Jobs Survey (Droec et al. 2019), four out of every five new jobs created require a highly skilled workforce. SMEs and micro-enterprises have to cope in this environment, where, in addition, a lack of capital and labour shortages are common problems (Subramaniam et al., 2019).

### Competitiveness as one of the most critical cornerstones for businesses to stay in the market

In the European Union, regional policy, which aims to achieve harmonious and balanced territorial development, considers improving the competitiveness of regions to be one of the most effective means of cohesion (European Parliament, 2023).

The importance of competitiveness was already on the agenda at the Cologne summit in 1999 and has remained there ever since (European Council, 2003). In many ways, the SME sector is the most critical driver of economies. Their competitiveness is the basis for economic development (Hergár, 2021). Facing continuous challenges, the SME sector must invest in developments to survive in the right business environment. In the long term, the SME sector will be self-sustaining if it remains competitive against large companies in the labour market.

Regarding productivity, large Hungarian enterprises are below 60% of the EU average and must increase to 62%. However, competitiveness is a crucial issue for regional SMEs. To catch up with the leading European economies, they need to improve productivity and efficiency, which are lagging seriously behind the competitiveness of SMEs and are affected by many different factors (Figure 1.).

Derived from digitalisation can make a major contribution to further increasing the productivity and efficiency of small and medium-sized enterprises in particular (Hergár, 2021) as "There is hardly a business leader in Hungary who has not faced the biggest problem in the labour market: labour shortage." More efficient economies can produce more added value with fewer work hours. Digitalisation is essential to improve companies' digital readiness. According to Sándor et al., the most essential thing in digitalisation is that companies try to react as quickly as possible to external environmental factors (Sándor & Gubán, 2021) Faster adaptation can bring new opportunities, which can positively impact their competitiveness.

### Administrative burdens

There are several arguments for reducing administrative burdens regardless of company size. Today's digitalisation trends are increasingly moving the simple data recording task towards automated or microservice-enabled systems. It can increase competitiveness through cost savings, increase openness and transparency of markets, promote environmental protection, stimulate market processes and reduce market failures due to information asymmetries (Ntaliani et al., 2012; van der Horst et al., 2017). The European Union is also continuously trying to reduce these burdens on SMEs through the Small Business Act (SBA), the adoption of the Single Tax Act (BEFIT) to reduce administrative burdens, and the determination to harness the power of digital tools and data for SMEs. Digital transformation is significant for SMEs because of their lower adoption rate of digital solutions. Regarding businesses, the overall digital target in the strategy is a higher level usage of not only the basic but also the advanced level technologies available (cloud computing, big data, artificial intelligence) at the enterprises (European Parliament 2022). Research shows that businesses can take advantage of the opportunities offered by digitalisation, but as digitalisation processes evolve, the ethical issues that arise must be regulated, at the same time, tools must be provided to help this development (Obermayer et al., 2023).

According to the "Connected Consumer Study" (Nichifor & Brătuću, 2021), from early 2018, 65% of the Hungarian population had a smartphone. The use of mobile applications (apps), a phenomenon related to the increasing number of smartphone users, has been growing in the world of technology. Since the

Figure 1. The pillars of competitiveness



Source: Own edition, based on (Tarantola & Cooke, 2006)



development of smartphones, our everyday lives have relied mainly on their various functions (Cho, 2016). Mobile apps are handy when business requires the business process to occur outside the office. A business can gain a lot if it can use a mobile app to trigger and simplify a business step. Sometimes, it can save the employees a significant amount of extra work. Thanks to continuous Internet access, the necessary technical and security aspects, such as logging, authentication, etc., can be handled automatically as part of the mobile application. The study by the World Bank (2022) points out the importance of a digital mindset in government services and mentions the reduced need for paperwork and repetitive form-filling due to the application of digital solutions. It may also have the same importance in the business environment, both from the sustainability and competitiveness point of view. Digital solutions can bring greater productivity and efficiency through digital and paperless business transactions and the greater integration of data and business processes (Samia & Astrid Herdis, 2020). It can be seen that these business sizes play a vital role in the life of the domestic economy (Gubán & Sándor, 2021). They recognise that digitalisation can help their operations, in many cases is even indispensable, a tool for survival. The literature review has highlighted a significant gap in these areas in the SME sector, especially among micro-enterprises (Kergroach, 2020). One of our options is to continuously monitor the current situation and propose solutions to reduce it. An interview has been chosen as primary research methodology (Kvale Steinar, 2005), which we hope will produce "good practices" that can guide similar businesses.

## MATERIALS AND METHOD

### *Data and Sampling*

The expert interview was chosen as the data collection method among the qualitative methods, as the authors designed the research objectives to be problem-focused, exploratory firm-specific questions for the given SME. This method allows for a deeper understanding of the research and the opportunity to more accurately explore the motivations of management and employees. This allowed a more accurate assessment of attitudes, opinions and public perceptions of the work processes involved and their real administrative burden. The survey was not designed to be representative but to provide a broader understanding of good practice for a given size category by building and developing a microservices-supported system. The survey was conducted in a face-to-face interview at the company through direct communication and guided interviews. It is important to emphasise that, in addition to the concrete answers, some respondents' gestures and non-verbal communication elements also provided valuable information for the developers. However, this has already been highlighted by Héra in their work (Héra & Ligeti, 2014). The survey was conducted in autumn 2023.

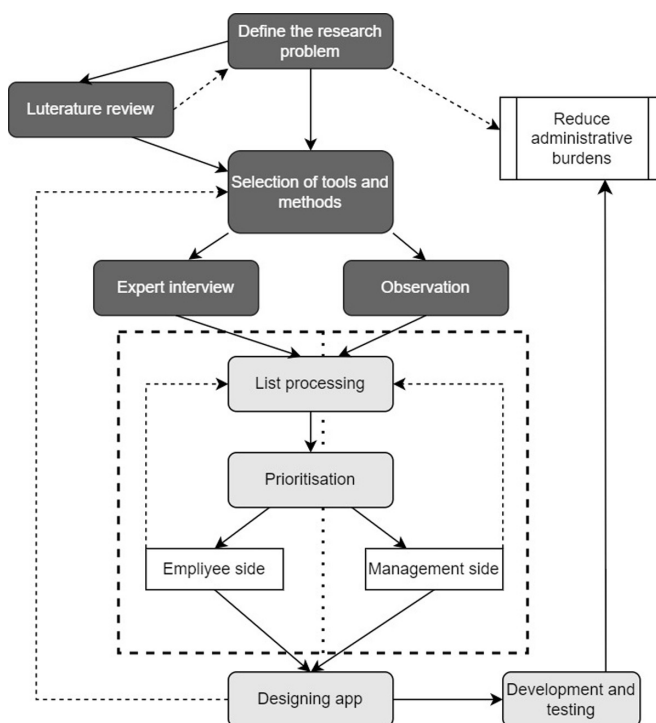
### *Structure of the research and materials*

Prior to the study, three expert interviews were conducted to try to position and understand the situation and ICT readiness of SMEs. Based on these results, a questionnaire survey

was carried out. The results of the analysis showed that there is a gap between their perceived and actual digital maturity, especially for smaller companies. It was also found that many of their operations do not take advantage of ICT. This defined the research problem

This research process is illustrated in the following figure 2. The research started by formulating the research problem and reviewing the relevant literature, as shown in the figure. The arrows show the interconnectedness of the processes, while the dashed arrows indicate cause and effect and continuous feedback. It can be observed that the choice of tools and methods was closely linked to the literature review and contributed significantly to the identification of the main problems. The administrative burden had the most significant negative impact on SMEs, including the case studied by the authors. The figure takes a two-pronged approach: darkgray represents the research results, and lightgray represents the processes involved in programme development. Interview and observation methods were used in the research. The middle part, marked with a dotted line, illustrates the study of the enterprise's processes. The final order of the processes identified as critical was developed through repeated feedback and discussion. Subsequently, during the development phase, the authors developed the program using the RAD methodology and the most commonly used coding techniques. Finally, the testing and use of the finished application successfully reduced the administrative burden for the staff.

**Figure 2. Research design with a two-pronged approach**



Source: Own source, 2024

The developer environment

Regarding methodology, it was necessary to assess what the micro-enterprise, the entrepreneur, needs and the most considerable difficulties. The observation and interview technique, which was presented above, has been chosen. The aim was to see and describe all the activities and their interdependence. This was necessary to develop the most testing solution and application for him. Developing an app is often difficult for the developer, as the developer needs to build the app for at least two platforms (Android and iOS), which requires knowledge of two different development environments (Svensson and Kald, 2021). Several hybrid mobile app development frameworks exist, but the one of the most popular is React-Native (RN). Another advantage is its compact size, with an extensive library of modules for developers' native and non-native components (Bravacz & Krebsz, 2021). Developed by Facebook in 2015, React-Native allows programmers to write code in a single place as a javascript ES6 language and thus build a mobile app for iOS and Android simultaneously, writing a single code for both native platforms. The user experience of the resulting mobile app is essentially the same on both platforms. Maintaining the application is much simpler and more affordable than developing it for separate platforms in separate languages. This programming interface has been used to develop a mobile application for the enterprise.

The app's operating environment

The server-side part of the application was available. Only reporting and security functions and interfaces were added. The database structure had to be modified to accommodate the new features. The server-side program is a web-based application. An application that is accessed by using a web browser via an internet or intranet network. Popular web-based applications use programming languages such as PHP, Javascript (Ayuningtyas & Janah, 2018). Modern web-based applications use frameworks such as Code Igniter, Laravel, and others to accelerate the application creation process. The framework allows programmers to use programming languages such as PHP, JavaScript. These frameworks are a PHP framework with an MVC (Model, View, Controller) structure, which is popular and has many references on the Internet (Sunardi & Suharjito, 2019). In the server-side module, the administration can upload the assignments for each course alongside the students and teachers. This data is used to generate the progress log. The server-side export/import function can provide the report in the correct format as required, and bulk data entry is also possible here. The application relies on a sizeable server-side database, managed primarily through a website.

RESULTS AND DISCUSSION

The literature review also shows the critical role of SMEs and micro-enterprises in the domestic economy. Their survival and development are of vital interest, both at the government and EU level. There are many different ways and means of stimulating entrepreneurship. As Figure 1 shows, many fac-

tors influence the competitiveness of SMEs. Any factor that can be improved in a positive direction can be an essential step. In the next chapter, the authors present a case study that uses a custom-developed tool to achieve this step. After presenting the results, it will be examined whether this custom-developed system can be used in practice and whether it is economically and otherwise viable.

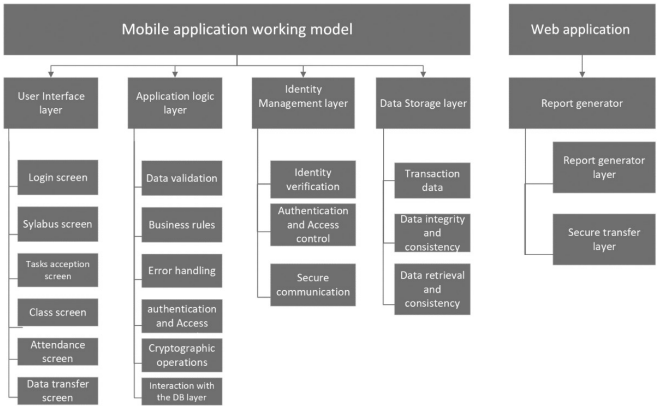
Program development

In this article, the authors present the outsourcing of administrative tasks that arise in the operation of a language-learning school. Their processes have been examined, and some factors that could significantly reduce the administrative burden have been identified.

Several academic articles highlight that repetitive, time-consuming administrative tasks are bad for workers, especially from the generation "Z" (Bencsik et al., 2016). However, regulation requires many administrative processes to be carried out in certain forms of education. It is a requirement to monitor the progress of each course. A breakdown of progress by learner must be kept. The administration of language teachers is also necessary. How many lessons were taught, what tasks were done, when, etc. The various progress schedules, which vary from individual to individual, should be recorded and forwarded to the various official bodies as necessary. This represents a very significant administrative burden. There was no ready-made application to solve the specific task using ICT tools, so we decided to implement the application. Since all teachers have smart devices, it was a reasonable choice to create an application. A microservices application has been developed to replace this. This connects to their existing system, with interfaces created for secure information exchange.

The authors share the view that end-users are key players in the software development process (Hughes, 2016). Therefore, BPMs (Business Process Management) have been created and analysed from the end-user's perspective. Application Development Methodology is a standardised approach to achieve a predefined result within a defined budget (Aleem et al., 2016).

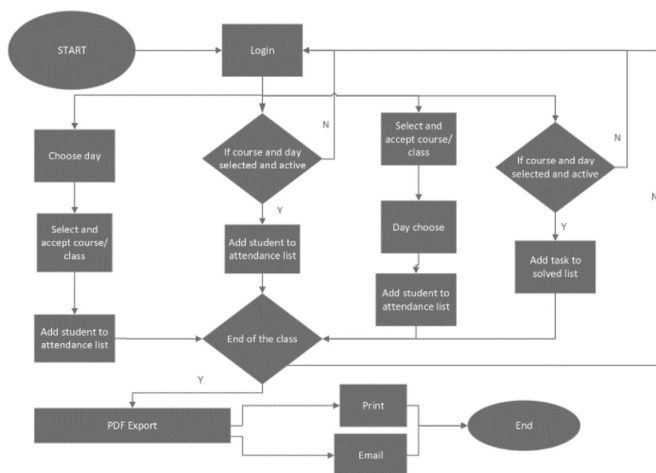
Figure 3. Proposed framework: different functions in different layers



Source: Own source, 2024

Among the different methodologies RAD (Rapid Application Development) was chosen. The RAD approach shortens the development time and facilitates quick initial reviews (Jindal et al., 2015). The model is only applicable to systems that can be built in a modular way. A layered structure was developed in which application parts are divided into separate layers and functions, as shown in Figure 3. The developed layer model takes into account security functions in addition to functional functions. This structure can be easily adapted to any application of similar size.

Figure 4. Client side BPM



Source: Own source, 2024

### Mobile application- operation

After mapping the business processes (Figure 4), it was checked whether there were ready alternatives that could be used. Due to the specific progress diary to be generated and some other specific needs, no ready-made alternative existed at the time of the study. As you can see, the business processes to be automated are not very complex and can be easily implemented; nevertheless, they can save a lot of human resources. There is no ready-made solutions, so the author designed and built this unique application.

Application development uses an open-source platform available on the Internet by considering a limited budget. In addition, choosing the type of programming language considers the availability of reference information on the Internet. For the mobile application, React Native was chosen to create applications on smartphones. It is connected to the web API (Application Programming Interface) on the application server for data processing. The RN community (React Native Community) has developed a number of ready-to-use modules that can be used to build your own ready-to-use application. The database uses the MySQL DBMS (Database Management System). The testing phase is still ongoing. A lot of emphasis were put on testing the completed application from both verification and validation point of view. In addition to the unit, module, and interface testing, we also took care on achieving a consistent look, feel, and functionality (Runeson,

2006). The creation and maintenance of the app are not significant, but in this case, we believe that the primary concern is to reduce the administrative burden. It is about enabling employees to spend their time creating real value. And this is ideally in line with the EU's declared objective. Mandatory reporting without the app creates an administrative overload for employers that could even become an exit point. In this labour-scarce world, this could even put the continued existence of the SME in question (Doblhammer & Spéder, 2024).

During the testing phase, several cases were simulated for students and groups. On the server side, we created the training plan and we created a student groups. We assigned students to groups and teachers to classes. Then we recorded the group activities both ways on paper and with the app. Then we created progress diaries in both 2 ways. It was observed that even when using "templates" for the progress reports, it took about 1.5-2 minutes per person to complete the traditional recording and then the individual and group progress diaries. Increasing the number of groups reduces the preparation time per person, but managing absences requires much attention because many mistakes can be made. However, automation is simplified by the application and the reporting function. Now, it is a few clicks, and the possibility of error is minimised.

### Mobile application- costs and benefits

The programme's costs are essential for implementation and maintenance, as the willingness of small businesses to invest is strongly influenced by costs and returns. As this application was primarily developed to support our research, it was free of charge, but to get the complete picture, it is necessary to know if it is worth building and maintaining. It is essential to see how much to spend and how much return can be generated. For this reason, a cost plan has been prepared for the application. Figure 6 shows the cost plan for the application.

#### Investment and Payback Period:

Implementing the online tools requires an initial investment of ~2200 EUR. However, this cost is projected to be recouped within a relatively short timeframe (3-4 months) based on anticipated time savings for the average number of students and groups within the school. Further research or pilot studies could refine this estimate with more precise data.

#### Ongoing Maintenance Costs:

Maintaining the online tools necessitates regular upkeep, encompassing application maintenance, updates, and server services. These expenses are estimated to require 10-12 person-hours annually for maintenance tasks and 50 EUR per year for server upkeep. This translates to an annual maintenance cost of approximately 500-700 EUR.

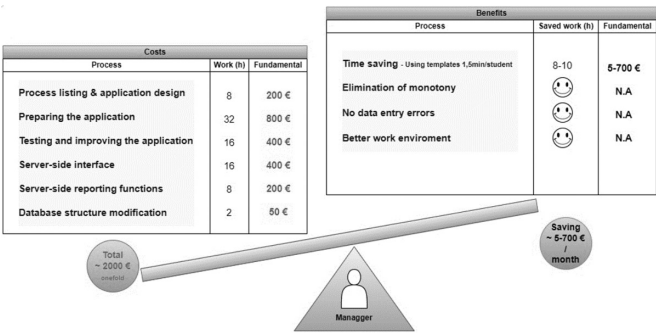
#### Cost Recovery through Time Savings:

The projected time savings achieved through online tools are anticipated to offset the annual maintenance costs. According to preliminary calculations, these time savings are equivalent to approximately 1-2 weeks of working time. More detailed time studies could provide a more accurate quantification of this benefit.



The initial investment appears recoverable within a short timeframe due to projected time savings and associated cost reductions. However, further investigation is recommended to refine the payback period estimate and comprehensively assess the long-term cost-effectiveness of this initiative. Another important aspect is that the employees can perform value-added tasks instead of tedious and highly punctual administration, positively impacting the workplace and employee morale. These elements cannot be measured in money (Figure 5). However, better working conditions significantly increase employee satisfaction. The use of the app has reinforced the impression of an innovative enterprise among employees and students. This can also contribute significantly to the success of SMEs' businesses.

Figure 5. Development costs and benefits



Source: Own calculation, 2023

CONCLUSION, SUGGESTIONS

As the literature chapter explains, SMEs and micro-enterprises are also essential to the domestic economy. Many factors influence their long-term survival. Any progress they make in these areas can greatly increase their competitiveness. Considering EU recommendations, digitisation can be an excellent way to bridge the gaps. The proliferation of modern digital tools now makes it possible to use tools that used to be available only to large enterprises. They can cover an extensive range of business models. Their uniqueness justifies the existence of many SMEs and micro-enterprises, but for this reason, it is impossible to get standardised modules to automate their particular microservices. So, this does not allow them to digitise their processes with template solutions. Fortunately, as our solution suggests, several tools can be used to do this profitably. In this article, the authors have created an application that reduces the administrative burden of a business. The results and the feedback from the entrepreneur show that a relatively small investment can significantly increase the business operations and its metrics. Customised applications can increase micro-enterprises' digital maturity while reducing the administrative burden. By increasing their competitiveness compared to their competitors, they can improve their chances of survival. It is recommended to monitor further and analyse the success of activities and the use of the app, which can provide a basis for future improvements, not

to mention non-monetary benefits such as a positive labour market image, an attractive working environment, attractive non-monotonous workflows and software-supported work. In the course of the research, a layer model was created that takes into account security functions in addition to operational functions. The structure developed can be easily adapted to implement other perceived tasks.

For this reason, the authors recommend digitising these and similar microservices for SMEs, increasing their competitiveness and efficiency in a highly competitive market rather than reducing it. Assessing the usefulness of an app is not just a question of money. Employee retention is also a significant achievement. The possibility to reduce the monotonous workload is not only has a positive effect on the aforementioned generation of the company but is also welcomed by other employees. The IT maturity of the company has increased (leaders notes), and the successful implementation is characterised by the fact that during the testing, individual colleagues were inspired and contributed new ideas to the further development of the application. Among the suggestions for improvement was to allow students to see their progress. Encourage students to attend lessons through various pushup messages. To sum up the authors have observed that there are many other aspects than the financial side, which have a decisive influence of success.

REFERENCES

Adiwijaya, K., Fauzan, R., Rohman, I. K. & Zaber, M. (2022). Do mobile applications give competitive advantage to Small and Medium Enterprises? Lessons from Indonesia. <https://ssrn.com/abstract=4181855>

Ayuningtyas, K. & Janah, N. Z. (2018). Development and UI/UX Usability Analysis Of Pinjemobil Web-Based Application Using User Satisfaction Model2018: Vol. ICAE 2018. <https://doi.org/10.1109/INCAE.2018.8579391>

Bánhidi, Z., Dobos, I. & Nemeslaki, A. (2023). Vállalati digitális fejlettséget jellemző (desi-típusú) mutató megalkotása egy KKV digitális felkészültséget mérő kérdőív alapján. *Vezetéstudomány / Budapest Management Review*, 54(9), 4–15. <https://doi.org/10.14267/vetud.2023.09.01>

Barraud, M. (2009). *Information Society 2010 Convergence of Media IT-Based Public Services Security and Trust High-Tech Strategy ICT in SMEs ICT and Health Consumer-Friendly IT E-Justice Monitoring Report-Digital Germany Nationaler IT Gipfel*. [www.bmw.de](http://www.bmw.de)

Belas, J., Belas, L., Cepel, M. & Rózsa, A. (2019). The impact of the public sector on the quality of the business environment in the SME segment. *Administration and Public Management Review*, 13(32), 18–31.

Bencsik, A., Horváth Csikós, G. & Juhász, T. (2016). Y and Z generations at workplaces. *Journal of Competitiveness*, 8(3), 90–106. <https://doi.org/10.7441/joc.2016.03.06>

Brávác, I. & Krebsz, R. (2021). A magyar kis- és középvállalkozások digitális fejlettsége : Lehetünk-e digitális élvonalasok? *Külgazdaság*, 65(9–10), 60–85. <https://doi.org/10.47630/kulg.2021.65.9-10.60>



- Chiu, C. Y., Chen, C. L. & Chen, S. (2022). Broadband Mobile Applications' Adoption by SMEs in Taiwan—A Multi-Perspective Study of Determinants. *Applied Sciences (Switzerland)*, 12(14). <https://doi.org/10.3390/app12147002>
- Cho, J. (2016). The impact of post-adoption beliefs on the continued use of health apps. *International Journal of Medical Informatics*, 87, 75–83. <https://doi.org/10.1016/j.ijmedinf.2015.12.016>
- Csiszarik-Kocsir, A., Varga, J. & Garai-Fodor, M. (2022). External professional assistance for small and medium-sized enterprises to solving the challenges of the pandemic. 2022 IEEE 20th Jubilee International Symposium on Intelligent Systems and Informatics (SISY), 189–194. <https://doi.org/10.1109/SISY56759.2022.10036255>
- Csordás, A. & Füzesi, I. (2019). Level of Digital Competences and the Examination the Relationship Between Unemployment and in Job-Trainings in the European Union. *International Journal of Engineering and Management Sciences*, 4(3), 197–209. <https://doi.org/10.21791/IJEMS.2019.3.19>
- Csordás, A. & Füzesi, I. (2023). The Impact of Technophobia on Vertical Farms. In *Sustainability (Switzerland)* (Vol. 15, Issue 9). MDPI. <https://doi.org/10.3390/su15097476>
- Dajnoki, K., Pató, B. S. G., Kun, A. I., Varga, E., Tóth, A., Kálmán, B. G., Kovács, I. É., Szabó, S., Szabó, K., Majó-Petri, Z., Dávid, L. D. & Poór, J. (2023). Impact of the three waves of COVID-19 pandemic on the HR practices of Hungarian organizations—Experience from an empirical study. *PLoS ONE*, 18(6 June). <https://doi.org/10.1371/journal.pone.0283644>
- Doblhammer, G. & Spéder, Z. (2024). Editorial on the Special Issue 'Demographic Developments in Eastern and Western Europe Before and After the Transformation of Socialist Countries'. [www.comparativepopulationstudies.de](http://www.comparativepopulationstudies.de)
- Droec, A., Grinberga-Zalite oec, G., Rivza Droec, B., Zvirbule Mg-oec, A. & Tihankova, T. (2019). Promoting digital skills in higher education to strengthen the competitiveness of the EU human capital. *Surveying Geology & Mining Ecology Management*, 19, 259–266. <https://doi.org/10.5593/sgem2019/5.4>
- European Commission. (2022). Digital Economy and Society Index (DESI) 2022.
- European Council. (2003). Az Európai Tanács következtetése (1993–2003). <https://www.Consilium.Europa.Eu/Hu/European-Council/Conclusions/1993-2003/>
- European Parliament. (2022). Decision (EU) 2022/2481 of the European parliament and of the Council: Establishing the Digital Decade Policy Programme 2030.
- European parliament. (2023). GAZDASÁGI, TÁRSADALMI ÉS TERÜLETI KOHÉZIÓ. [www.europarl.europa.eu/factsheets/hu](http://www.europarl.europa.eu/factsheets/hu)
- Gubán, Á. & Sándor, Á. (2021). A kkv-k digitálisérettség-mérésének lehetőségei. *VEZETÉSTUDOMÁNY / BUDAPEST MANAGEMENT REVIEW*, 52(3), 13–28.
- Győri, Á., Czákó, Á. & Horzsa, G. (2019). Innovation, Financial Culture, and the Social-Economic Environment of SMEs in Hungary. *East European Politics and Societies*, 33(4), 976–1004. <https://doi.org/10.1177/0888325419844828>
- Hardiyanto, N., Rafdinal, W. & Gaffar, M. R. (2022). Predicting the Adoption of Mobile Business Applications by Culinary SMEs in Indonesia. *Journal of Management and Entrepreneurship Research*, 3(1), 46–60. <https://doi.org/10.34001/jmer.2022.6.03.1-27>
- Hergár, E. (2021). Versenyképességi jelentés.
- Hughes, T. M. (2016). SAS Data Analytic Development.
- Iakovets, A., Balog, M. & Židek, K. (2023). The Use of Mobile Applications for Sustainable Development of SMEs in the Context of Industry 4.0. *Applied Sciences (Switzerland)*, 13(1). <https://doi.org/10.3390/app13010429>
- Karar, M. E., Alsunaydi, F., Albusaymi, S. & Alotaibi, S. (2021). A new mobile application of agricultural pests recognition using deep learning in cloud computing system. *Alexandria Engineering Journal*, 60(5), 4423–4432. <https://doi.org/10.1016/j.aej.2021.03.009>
- Kergroach, S. (2020). Giving momentum to SME digitalization. *Journal of the International Council for Small Business*, 1(1), 28–31. <https://doi.org/10.1080/26437015.2020.1714358>
- KSH. (2024, 12. February). A vállalkozások teljesítménymutatói kis- és középvállalkozási kategória szerint. A Vállalkozások Teljesítménymutatói Kis- És Középvállalkozási Kategória Szerint. [https://www.ksh.hu/stadat\\_files/gsz/hu/gsz0018.html](https://www.ksh.hu/stadat_files/gsz/hu/gsz0018.html)
- Kvale Steinar. (2005). Az interjú: bevezetés a kvalitatív kutatás interjútechnikáiba.
- Lassnig, M., Müller, J. M., Klieber, K., Zeisler, A. & Schirl, M. (2018). A digital readiness check for the evaluation of supply chain aspects and company size for Industry 4.0. *Journal of Manufacturing Technology Management*, 33(9), 1–18. <https://doi.org/10.1108/JMTM-10-2020-0382>
- Lister, S., Ratray, S., Schoemaker, E., Ergun, D., Casazza, A., Sambuli, N., Thigo, P., Handforth, C., Botezatu, S., Novero, M., Nas-sanga, K., Vasilescu, D., Hildebrandt, L., Ercolani, A., Andreuzzi, F., Otsuka, R., Ramiah, D., Hamon, C., Ng, S., ... Vacarelu, F.-A. (2022). Inclusive by Design: Accelerating Digital Transformation for the Global Goals.
- Mancini, L., Carolina Peláez Peláez, C., Contreras Sanabria, A., Netherlands, the, Raul do Vale Martins, P., Ferreira, D. & Silva, G. (2022). Assessing national digital strategies and their governance. <http://www.oecd.org/termsandconditions>
- Móricz, P. (2022). Digital capabilities of Hungarian companies before the pandemic. *Budapest Management Review*, 53(3). <https://doi.org/10.14267/V>
- Nichifor, E. & Brătucu, G. (2021). How the digital maturity level is shaping the connected consumer future? (Vol. 6, Issue 2). [www.jses.ro](http://www.jses.ro)

Ntaliani, M., Costopoulou, C. & Sideridis, A. B. (2012). *Alleviating SMEs' Administrative Burdens: The Rural Inclusion Initiative*. In C. K. Georgiadis, H. Jahankhani, E. Pimenidis, R. Bashroush & A. Al-Nemrat (Eds.), *Global Security, Safety and Sustainability & e-Democracy* (pp. 237–244). Springer Berlin Heidelberg.

Obermayer, N., Máhr, T. & Banász, Z. (2023). *Examining the social impacts of digitalisation based on the perspective of Hungarian experts*. *Vezetéstudomány*, 54(6), 32–41. <https://doi.org/10.14267/V>

Pintér, R. (2023). *A magyar kis- és középvállalkozások digitális érettsége - A digiméter index: Az eredmények ismertetése*. *Budapest Management Review*, 54(10), 66–76. <https://doi.org/10.14267/V>

Runeson, P. (2006). *Survey of Unit testing practices*.

Samia, M. & Astrid Herdis, J. (2020). *A global study on digital capabilities*.

Sándor, Á. & Gubán, Á. (2021). *Digital maturity lifecycle model for SMEs*. *Budapest Management Review*, 52(11), 57–70. <https://doi.org/10.14267/V>

Subramaniam, M., Iyer, B. & Venkatraman, V. (2019). *Competing in digital ecosystems*. *Business Horizons*, 62(1), 83–94. <https://doi.org/10.1016/j.bushor.2018.08.013>

Sunardi, A. & Suharjo. (2019). *MVC architecture: A comparative study between laravel framework and slim framework in freelancer project monitoring system web based*. *Procedia Computer Science*, 157, 134–141. <https://doi.org/10.1016/j.procs.2019.08.150>

Svensson, O. & Kälde, M. P. (2021). *React Native and native application development*. *Computer Science*, 64.

Tarantola, S. & Cooke, R. (2006). *A New Participatory Framework to Build and Interpret Composite Indicators: An Application to Country Competitiveness*. <http://www.jrc.cec.eu.int>

Timár, G. (2020, 17. June). *Így reagált a magyar kkv-szektor a koronavírus járványra*.

Totth, G., Brávác, I., Harsányi, D., Pacsi, D. & Szabó, Z. (2022). *Kihívások a hazai KKV szektor döntéshozatalában – fókuszban az online kommunikációs megjelenés*. *Marketing & Menedzsment*, 56(2), 5–12. <https://doi.org/10.15170/mm.2022.56.02.01>

Unidas, N. & Nations, U. (2022). *A digital path for sustainable development in Latin America and the Caribbean*. [www.issuu.com/publicacionescapal/stacks](http://www.issuu.com/publicacionescapal/stacks)

van der Horst, R., Nijsen, A. & Gulhan, S. (2017). *Regulatory Policies and Their Impact on SMEs in Europe: the Case of Administrative Burdens*. In *The Blackwell Handbook Of Entrepreneurship* (pp. 128–149). <https://doi.org/https://doi.org/10.1002/9781405164214.ch7>



# TODAY'S CONSUMERS ON THE MARKET IN CSÍKSZEREDA (MIERCUREA CIUC)

Emőke Katalin Péter<sup>1</sup>, László Illyés

Hungarian University of Transylvania, RO-530104, Miercurea Ciuc

<sup>1</sup>Corresponding author e-mail address: peterkatalin@uni.sapientia.ro

**Abstract:** Due to the geographical situation of Harghita County, farming mostly in small agricultural areas encourages farmers to engage in more integrated agricultural activities. As a result, more and more farmers who are open to development are starting to appear on local markets with processed products. The traditional knowledge passed down from generation to generation on small local farms is similar in families living in each area and therefore socially reinforcing. Older farmers in our countryside have mostly shied away from the new knowledge of the mega-manager, but their younger, more highly skilled counterparts are more willing to open up to new knowledge. The demand for local products with a historical basis has been gradually increasing in recent years. To save costs, they also sell their products at the market themselves. In order to meet today's consumer needs, in addition to the production, processing and packaging of raw materials, producers must also think about branding, logistics and design. Customer relations and quality communication are essential for a well-functioning business (PG Balogh et.al, 2021). In Harghita County, farmers running a traditional small-scale farm mostly face marketing problems. At the same time, the demand for high quality products produced in a sustainable way is increasing. The aim of our empirical study is to investigate the expectations of consumers visiting the Traditional Products Fair in Miercurea using artificial intelligence methods. These habits have their origins in the market habits of the past centuries, therefore, our research tries to reveal the atmosphere of the markets of the past.

**Keywords:** local markets, short supply chains, local products, small farms, data mining,  
(JEL code: Q12, Q13)

## INTRODUCTION

The role of short supply chains is manifested in the linking of agriculture, the food processing industry and the distribution sector. Bargaining inequalities within the supply chain can lead to unfair trading practices. Small farms or cooperatives, in the absence of other options, tend to establish economic links with large buyers, but these exert strong downward pressure on prices. It may happen that they can only sell their products at a loss. The European Parliament urges the Commission to bring forward proposals against unfair trade to ensure farmers' incomes and better choice. On average, farms in the EU sell more than directly to consumers. But these are mainly small farms. There are significant differences between countries: the share of farms involved in direct sales is around 25% in Greece, 19% in Slovakia, and around 18% in Hungary, Romania and Estonia, while the share of farms involved in direct sales is less than 5% in Malta, Austria and Spain. In France, 21% of farmers sell their products through short food supply chains (Short food supply chains and local food system in the EU, 2022).

The geographical location of production, manufacture and the origin of the raw materials play an important role in the

definition of local products. A local product can be a product that is produced and manufactured locally using local raw materials. Products that are mostly made on a small-scale basis are produced using locally developed processes. The product carries the characteristics and uniqueness of the place. The local producer meets the needs of people living within a radius of approximately 50 km. Short supply chains promote sustainable development. Products are mostly produced locally, reducing transport distances and costs. By using local resources, the added value of the product is increased, the origin of the product and local characteristics can be identified, and consumer demand for healthier food is increased. Typical local products are foodstuffs and handmade articles, which are mostly traditionally produced products, carrying the characteristics of the region (Dr. Fekete, 2009) (Pigeon Binder, 2023).

At the heart of short food chains is a process and structure whereby producers sell their products directly to consumers, minimising the number and distance of intermediaries in long supply chains. The key benefits of short food chains include supporting the local economy, access to fresh and quality food, and strengthening the link between consumers and producers.



Today's small producers cannot meet the many demands of large retail chains, mainly for reasons of economies of scale.

As a result of globalisation, we are witnessing the concentration of food trade, which is mostly carried out by a small number of economic units that are significantly larger in size. Free trade agreements have enabled the free movement of goods, which has led to the growth of multinational companies (Kiss, 2017).

In contrast, short supply chains involve few economic actors and are based on close geographical and social ties. Cooperation between food producers, processors and consumers is based on reciprocity (Benedek and Balázs 2014, Renting 2003).

## LITERATURE REVIEW

The general perception of consumers is that the harmful substance content of food is extremely high. Consumers perceive local products as having higher quality nutritional biological characteristics and lower carbon footprints. These foods are fresher, cleaner, tastier, healthier and more nutritious than mass-produced foods. This does not mean that they always meet all food safety standards. Official bodies therefore carry out regular product testing. Producers are given training to correct any errors resulting from a lack of knowledge. As small producers sell their products directly on the market, it is important to have supportive legislation to simplify the marketing and sale of products. The effect of buying at local markets will be that the additional income of local, productive households will generate additional consumption, hopefully within the region (Kozák, 2014).

Due to higher product prices, the consumption of organic food is mostly concentrated in the upper and upper-middle classes. Due to their better financial situation, they have the opportunity to buy products with premium quality and special features. In contrast, people with lower incomes are less likely to buy organic products. Due to their financial situation, they tend to shop mostly in supermarkets (Lehota, 2012). For environmentally conscious consumers, it is essential to ensure fairness in the production of the product, paying attention to sustainability and indirect utility. Families with young children pay particular attention to the quality of the food they buy, to protect the health of growing children. When buying organic food, freshness and better quality are important considerations. For rural dwellers, freshness, food safety and helping producers are very important factors (LLazo, 2014). Rural consumers are more environmentally conscious and pay more attention to the seasonality of products, looking at the composition of products (Mancini, Simeone, 2017).

Consumers can only check the quality of the product they have chosen at the end of the purchase process. "When looking at trends in food consumer behaviour, it can be seen that the trends are shifting predominantly from experiential product attributes to trust product attributes." Returning consumers prefer familiar products and rarely try new products. In contrast, the new consumer relies on trust and consciously seeks out a product that is perceived as authentic. Consumption of traditional products increases in proportion to the increase in

consumers' income (Szakály et al 2010, p. 27,92,93). Consumers have more trust in locally produced products and consider them safer. For consumers of regular organic products, an important aspect is the identity of the producer, during which a relationship between producer and consumer can be established. This trust can be long-term (Benedek, 2014) (Szabó 2017)(Csordás,2022) According to the literature (Juhász and Szabó, 2012,2013), the typical buyers of markets are mostly urban, highly educated, family-oriented, economically active consumers over 30 years old (Benedek et. al., 2013). The studies showed that for market buyers, besides product expectations, the direct relationship between producer and consumer plays an important role, which is a key element of direct selling. For buyers, in addition to product quality, reliability, origin and choice, the external appearance of the point of sale, the personal characteristics of the staff, such as kindness and the services provided, all play an important role in customer satisfaction (Csíkné, 2014).

Consumer habits have changed dramatically in a relatively short time since 2000. Campaigns to encourage the consumption of local products and the widespread promotion of products containing local ingredients are not yet working properly. The adjective "traditional" is given a prominent place in the case of local products because it conveys confidence and "a centuries-old history" (Szakály, 2010, p. 151) Families with young children pay special attention to feeding their children, so they tend to buy healthy food. Nowadays, shoppers in traditional markets tend to buy fresh vegetables, fruit, bakery products and processed meat products. The main barriers to healthy food consumption are high prices and low consumer confidence in certification. Local products are generally perceived by consumers as healthier and safer than products sold through wholesale channels (Nagyné, 2019).

Short food chains can be a great opportunity for economic development in less developed regions. These types of supply chains are not only part of the economic life of urban areas, but also of urban areas, thus positively influencing urban and rural areas (Kiss, 2017).

As a result of the epidemic, disruptions have occurred on the supply side of global supply chains. The inadequate supply side changed consumption preferences, which subsequently affected the demand side. Some supermarket chains indicate on the product they sell the distance travelled by the product in km. Operating short food chains can be difficult due to the storage requirements of the products (long-term refrigeration, seasonalisation) (Szabó and Kása, 2022).

If producers/entrepreneurs manage to target a sub-market, short food chains are an advantage. The marketing of local ingredients to health-conscious, sustainability-conscious target audiences may be appropriate. For these customers, it is easier to accept a higher price because of the quality. Public catering businesses based on short food chains, which face price competition, may face long-term economic sustainability problems. The additional costs of purchasing can only be compensated by higher margins, which impose additional marketing costs on the businesses (Török and Agárdi, 2020).

### *Commodity exchange in the market of historic times*

Today's online shopping can take place without the buyer and seller meeting face-to-face, reminiscent of the "silent exchange" known to ethnologists, which was mostly practised by groups of farmers in the tropics and hunting in the forests. Both farmers and hunters deposited surplus products at a pre-determined place and time for the other party, after which they left. During this exchange, which was extremely important for both groups, the seller and the buyer could not even see each other, they may not have known each other's language, and they may even have been at war with each other, but the sellers and buyers tried to satisfy each other's needs in a mutual and fair way. If they had not done so, the next time there would have been no supply.

The farmers of the 20th century did not always buy the most essential goods at the market. When buying animals (as is still the case today), they personally visited the animal to be sold, its ancestors and the farmer's entire livestock. The sale was conducted in a relaxed atmosphere, without any hurry. The hawkers also sold their wares mostly from carts, mostly for produce. Similarly, in the villages of Transylvania (Harghita, Covasna and Mures counties), people nowadays also sell fruit, bakery products and processed meat products in converted commercial vehicles. In the last years of the 20th century, grapes, wine and cooking oil were exchanged for potatoes. The markets and fairs were attractive not only for the strict exchange of goods, but also because they provided a community experience for people from other localities and the countryside. These events, which were not only an economic but also a cultural and social experience, gave the visitors a sense of belonging to a larger community or ethnic group through the immediate, village community (Andrásfalvi, 2005).

The large quantities of valuables gathered at the periodic fairs attracted robbers, and great care was taken to protect them. As a result, the fairs became one of the most important institutions of the state, which helped to enrich the inhabitants, and the security of the fairs was guaranteed by the armed forces in case of need (Bácskai, 2005).

Historically, agricultural commodity production, together with the development of crafts, have been important building blocks of urban development, but the extent of urbanisation of field towns has mostly been measured in terms of the extent of industrialisation. The agricultural production of the settlements was considered to be rural in character. As field towns were mostly formed from market towns, the inseparability and interaction of these two activities was demonstrated in the production and exchange of goods in the 15th century. The gradually increasing supply of manufactured goods attracted visitors to the fairs, but the simpler products of the rudimentary crafts were mostly sold on the narrow local market, mainly among the inhabitants of the surrounding villages. Minors, to prevent vagrancy, were only allowed to enter the fair under parental supervision, but parents and godparents were expected to surprise children left at home with 'fairfair' gifts. As a rule, adults did not go alone either, mostly in groups (dolls for little girls and horse soldiers or swords for little boys.) Farmers and craftsmen mainly supplied the immediate market

area with their products. They usually sold their wares in the nearest town. Citizens who visited the local fairs also played a prominent role in the marketing of products they did not produce, since they did not fully consume the produce they bought and could sell the surplus as goods.

The towns that organised fairs influenced agricultural and industrial production thanks to their developing industries, and promoted the social division of labour. These settlements become not only a marketplace for their own products, but also a collection and exchange point for surplus products released in their vicinity. (Tivai, 2009) The raw materials that make up the vast majority of urban traders' turnover are procured in the markets of smaller settlements, freeing producers from having to transport them to distant markets. Thanks to the intermediation effect of local fairs, residents of municipalities with a right to buy are playing an increasingly important role in the widespread distribution of manufactured goods. As agricultural and industrial commodity production develops, settlements with market rights become important factors in the production of goods, in addition to the development of trade (Bácskai, 1964).

Bargaining was an essential and indispensable behavioural motive in the exchange of goods in the markets of the time, the essential difference being the origin. The difference between the sale of home-produced and purchased products was different. Buyers tended to be more attracted to home-produced products, and sellers were usually able to use this to their advantage in the bargaining process. In the case of an own-produced product, the seller has more information, which he is proud to share with the buyer. The quality of the product is also presented and referred to in the bargain, thus referring to his knowledge and expertise in the hope of obtaining a higher profit. Sellers of their own produce emphasise their diligence by sitting in the market (shelling peas, cleaning the paste, grouping products), as if to prove that they are worthy of the price they are asking from the buyer. Over time, specialisation has developed among those selling agricultural products. Some sold only seeds, or dairy products, or potatoes, or vegetables, or pots and pans. Retailers became mostly artisans, so they were specialised. For the others, specialisation was based on excellent knowledge of the goods and an outstanding knowledge of the conditions of production and purchase of the product chosen for sale.

When selling the product they buy, they do not conceal its origin, but they are not modest in their praise of its quality, and even praise the product they choose and sell in comparison with others. The promotional activity of sellers on the agricultural produce market is always focused on tasting. Here too, the vendor listed the good qualities of the product and paid particular attention to ensuring that the customer got the tastiest bite. Following a negative customer review, the unpurchased product was conspicuously put aside. Depending on the nature of the goods, other trials were carried out on the product to be sold. Clay pots were shaken, eggs were shaken. What these acts had in common was that the sellers tried to do it themselves, in an attempt to hide or reduce the defects of the goods. It was also a common practice to sing market or fair sayings in praise of a particular product, which became

known as folk poetry. In particular, it was an important ritual for the purchase of animals, an essential part of which was the drinking of a drink at the nearest tavern. In the agricultural produce market, the sellers tried to avoid having their customers sort the produce, because the remaining low-quality produce was a loss for them, so it was important for them to have a mixed product, i.e. to have a good quality product and a low-quality one in the customer's basket. If the buyer had noticed the fraudulent behaviour of the seller, the sale could have been cancelled.

At the time of payment, instead of giving change, the vendor tried to give goods, which was usually explained as being in a hurry. People returning home from the market, meeting people they knew, praised themselves by saying lower prices and punished the sellers because new customers wanted to buy at lower prices. According to traditional market public opinion, Sunday shoppers were considered careless and lazy and were offered high prices for products, whereas the Tuesday market was considered the best, as that was the time when new goods arrived but there were still some left over from the previous weekend. In Csíkszereda (Miercurea Ciuc), Wednesday was the biggest market day, while in Marosvásárhely (Târgu Mures), Thursday was the day with the most goods. In general, Tuesday market days were considered a day for buying larger quantities and buying cheap. Customers arriving too early in the morning were not served, as prices were not yet established in the early hours, but traditionally most customers were present at 10-12 o'clock, by which time the full range of goods was clear and prices had already been established. Late buyers were offered lower quality leftover goods. The fairs usually lasted until noon. The expectation at the fairs of the time was that a good buyer would look at the goods several times after having been through the whole market, preferably unobtrusively, and then look for defects by touching them.

The refusal to sort goods was a sign of distrust, which was mostly absent only in the permanent exchange relationships, which were mostly established for perishable foodstuffs and by eliminating fairs (e.g. dairy products, home delivery of fresh bakery products) (Dankó, 1980).

## MATERIALS AND METHODS

The questionnaire survey, mostly online but also including face-to-face interviews in the market, was carried out in March 2022. The survey was carried out among the customers of the Traditional Products Market, which takes place monthly in Csíkszereda (Miercurea Ciuc). The obtained information was obtained using Likert scale, processed with SPSS software and the relationship between variables was examined by cross tabulation analysis. After cleaning the received data, we were left with a sample of 170 items (Péter and Illyés; 2018,2019). Almost 40 percent of the respondents live in a household of four persons. A quarter of the respondents live in a household with three persons and 16 percent (five persons) live in a large family household. The majority of households have at least three people living together, with 16 per cent of households with one or two people living together (Nagy,2022).

The diversity of data is typical of our research, thanks to the wide range of activities of farmers in Harghita County. The quality and quantity of the data collected required the use of data mining tools, as traditional statistical and regression methods proved to be limited (Péter and Illyés; 2018).

A data mining tool extracts information from data. This information is based on statistical methods and/or Shannon's (1948) information theory. Information is extracted using artificial-intelligence algorithms. This information cannot be extracted by classical statistical methods, data mining looks for patterns in the data that characterise it and serve to prepare decision support. The oldest classical artificial-intelligence method in the arsenal of data mining tools is regression analysis. Data mining is an extrapolation of this method, as it can not only provide predictions on numerical values, but also handle classification classifications. The data mining tool that we use Weka (Eibe, Hall, Witten; 2016) was developed at the University of New Zealand (The University of Waikato).

## RESULTS AND DISCUSSION

### *Harghita County*

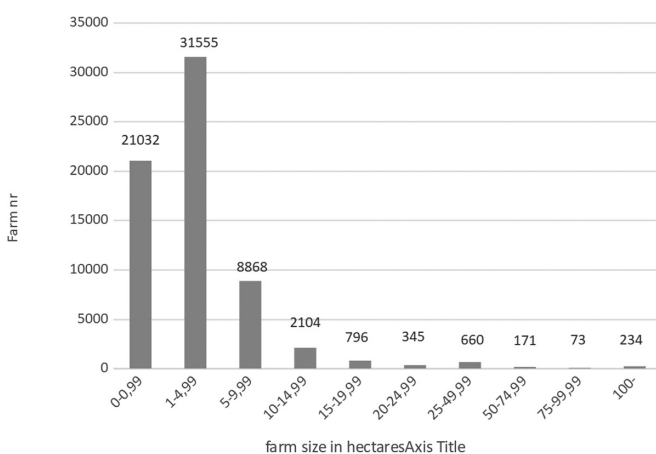
The majority of farms in Romania are family farms, with a particularly high proportion of farms under 5 hectares in size. In family farms, the vast majority of the workforce is made up of family members (over 90%). Family farms in Harghita County are still characterised by small farm sizes. An important feature of land use is the uncertain legal situation, which is the difference between actual use and official records, mostly due to the way land is privatised. One of the most important issues to be addressed for the development of agriculture and the functioning of the land market is the clarification of land tenure. The nature of this task requires the involvement of the state and the legislator. Farmers' organisations and development agencies also have an important role to play. Legal clarification of tenure rights would also have a positive impact on the absorption of EU funds. This unclear ownership situation probably explains why some farms over 1 ha do not benefit from land-based subsidies. However, of the three main forms of support, the share of beneficiaries of land-based support (direct payments) is still the largest. Of the development aids, the purchase of machinery is the most important. This is because they are the easiest to tender, implement and finance. This form of support is likely to continue to be very popular, but because of the small size of farms, it would be worth considering ways of implementing it to help smaller farms become more mechanised.

The agri-environmental subsidies are used by few, only by larger farms. However, in the next funding period up to 2027, the role of agri-environmental support in the EU will be enhanced. Agri-environment requirements will be used even more as a precondition for first pillar (land-based, direct) payments. Moreover, the share of agri-environment payments in total EU agricultural support is likely to increase. It is therefore essential to prepare for this change and to prepare farmers for it. Farmers in Harghita County are characterised by their commitment to agriculture. This is also reflected in their at-

tachment to this activity, with relatively few thinking about giving up, selling the farm or transferring the property. The latter is also more likely to be done within the family and, of course, more by the elderly. There is also an encouraging trend that younger, more skilled farmers have plans for development expansion (Elek et al, 2023).

Thanks to the characteristic agricultural land tenure system of Harghita County, the vast majority of farms are small family farms, which have preserved the land structure that has been established for more than three decades and inherited the basis of their farming knowledge from previous generations. According to data from the agricultural censuses (Fig.1.), there are 21 032 holdings under 1 hectare in the county, 31 555 holdings between 1 and 5 hectares and 8 868 farmers with a total area of between 5 and 10 hectares. In Harghita County, 234 farmers have an agricultural area of more than 100 hectares.

**Figure 1. Distribution of farms in Harghita County in terms of hectares in 2022**



Source: own editing based on Office for National Statistics data 2023

Thanks to the inheritance custom of local families, in Harghita County, farms under 1 hectare cultivate a total of 10,094 hectares of land, while farms with an area of between 1 and 5 hectares cultivate 79,125 hectares. Farms with between 5 and 10 hectares of agricultural land cover a total of 60,933 hectares.

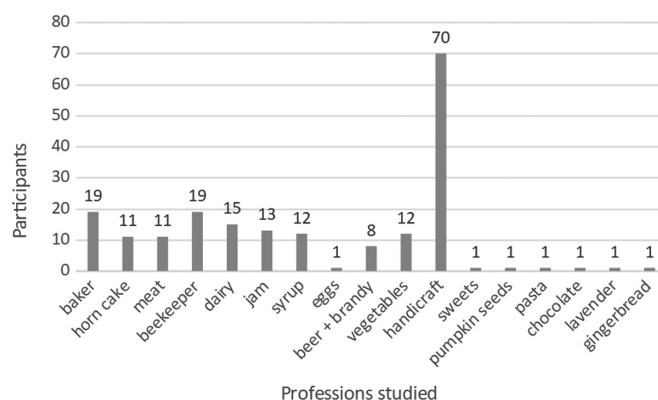
Farming in relatively small agricultural areas encourages farmers to be more integrated. As a result, more and more farmers are entering local markets with processed products. Traditional knowledge acquired on small local farms is shared by families in each rural area and therefore socially reinforcing. Older farmers in our countryside have tended to shy away from the new knowledge of the mega-manager, but their younger, more highly skilled counterparts are more open to new knowledge. In this context, however, the isolation of younger farmers from traditional knowledge and the predominance of managerial knowledge cannot be clearly stated. On the contrary, the short food chains are a good example of the Harghita County "Traditional Products Fair" initiative, which combines and promotes the spread of these two knowledge. Traditional, small-scale production and trade, alongside tradi-

tional environmentally conscious production, using new managerial knowledge, has grown into an example to be followed nationally (Péter, 2017).

The Chamber of Agriculture of Harghita County started to organise training courses for local farmers in the processing of agricultural products as early as 2000. The graduates sell their products at the monthly fairs. Between 2000 and 2023, more than 230 beekeepers, 1 622 farmers, more than 200 bakers, nearly 60 dairy and cheese processors, nearly 65 meat processors, 42 agro-tourists and 80 fruit producers learned the secrets of their chosen trade.

As a pioneer at the national level for newly qualified farmers, the Harghita County Chamber of Agriculture organised the first exhibition and fair of traditional and local products in 2009 in Miercurea. The aim of this pioneering initiative was to help farmers with small local farms. Thanks to this initiative, according to the Harghita County Council database, in 2023, 197 producers had the Szekler Product Trademark and more than 1300 products could bear the Szekler Product Trademark on their packaging (Fig.2.).

**Figure 2. Szekler product trademark holders by product category in 2023**



Source: Harghita County Council database

In most cases, the success of producers depends on satisfying the needs of their customers. If the producer manages to produce the values that customers are looking for in food during the production and marketing process. When buying traditional products, consumers are mostly looking for familiar tastes and safety, but also for a guarantee of quality. The Szekler Product Label helps to establish and preserve these values.

In our analysis, we used the J48 algorithm alongside OneR because the J48 algorithm is popular for its simplicity of decision tree and interpretable results, and can also give valuable results on a smaller data set.

J48 (Eibe Frank et. Al.) is a decision tree algorithm that is an enhancement of the C4.5 (J.R. Quinlan) algorithm in the Java programming language. Like C4.5, J48 can perform decision tree construction and classification decision making.



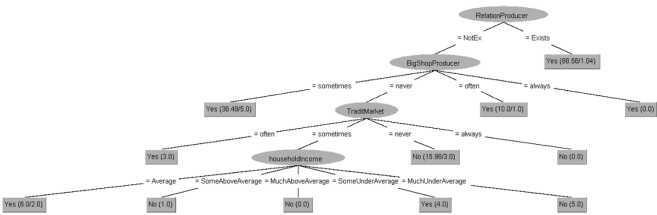
The J48 algorithm consists of the following steps:

- 1. Data pre-processing: this step involves data preparation, such as handling missing values and converting nominal variables into numeric format.
- 2. decision tree building: J48 builds a decision tree from the data, where each node represents a property or attribute, while the branches represent the values of the attribute.

Decision points definition: to navigate the decision tree, J48 assigns a value to each decision point. This value determines which branch in the decision tree to proceed to.

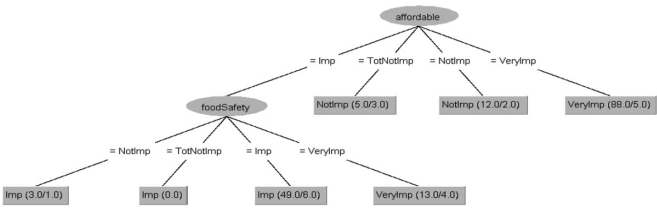
Decision making: When the end of the decision tree is reached, J48 evaluates the values on the branches. Based on this, it determines the decision to classify or categorise the data point.

Figure 3. J48 model where from small producer is the class attribute



In this model, the key finding about the lowest income individuals is that the lowest income individuals either do not do much shopping or do much shopping in supermarkets(Fig.3.). The rest of the decision tree is interpretable but does not have far-reaching implications. According to the results of the model under study, the shopping of traditional products in Csíkszereda for large purchases is mostly visited by higher income shoppers. These regular shoppers are also willing to pay a higher price, especially for better quality.

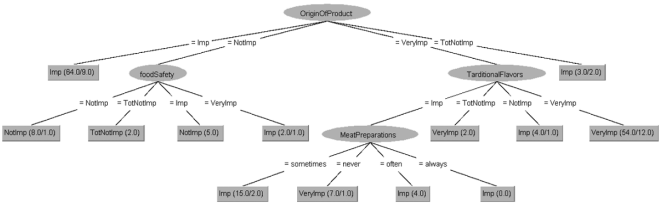
Figure 4. J48 model where the taste of the product is the class attribute



The class attribute is the taste of the product. The accuracy of the model is 84.7059 %.

The interpretation of this decision tree is that if affordability is important to the consumer, then the taste of the product is important, unless food safety is not important to the consumer (Fig.4.). The quality and flavour of the products with the Szekler Product trademark found on the traditional products market is favourable for the customers visiting the market, thanks to the training courses for local producers that have been held for more than 20 years.

Figure 5. J48 model where the local product attribute is the class attribute



The class attribute of the model is the ‘local product’. The accuracy of the model is 74.1176 %.

The main conclusions of this decision tree are:  
If the origin of the product is important, it is important that it is a local product (64)  
If the origin of the product is not important and the traditional flavours are not important, then it is not important that it is a local product (54).  
If the origin of the product is not important, but traditional flavours are important, then it is important that the product is traditional for those who sometimes buy meat products. (15)

The atmosphere of the fairs, which are held monthly, makes shopping an experience for consumers who visit the area (Fig.5.). With tables reflecting a unique character, customers believe in the uniqueness of the product on offer and are reassured of the local character of the product by talking to the producer. At the end of their purchase, they leave knowing that they have supported a local farmer. If the traditional flavour appeals to them, they will become a returning customer of the chosen producer. This applies in particular to meat products that are traditionally processed and flavoured with local spices.

CONCLUSION

Local food and short supply chains are becoming increasingly popular among social actors. Local fairs and markets have a historically proven tradition.

We studied the customer base of markets selling products produced by mostly self-sustaining and small-scale farms in mountainous, agricultural areas. In our study we have explored the new consumer demands to which small-scale producers have recently been increasingly trying to adapt, taking advantage of the traditions that exist. Due to the geographical location of Harghita County, the economic actors present at the regular fairs of traditional products in Csíkszereda (Miercurea Ciuc): sellers and buyers are geographically and culturally close to each other. The products offered for sale are uniformly characterised by the fact that they are grown and produced in an environmentally friendly way and from healthy raw materials. The freshness, flavour, reliable origin and price of the products are of paramount importance to consumers. In most cases, consumers who are looking at the market make their main purchasing decisions according to what is known from the literature (Kis, 2017), i.e. they are mostly influenced by the price of the product. We find that, in

some cases, the price of the product may be more important than the origin of the product.

The research has shown that consumers of local products are highly price sensitive. There is a tradition of self-sufficiency in agricultural produce and food in our countryside. Today's traditional producers are the heirs of historic small-scale farmers. For generations they have been practising a form of farming that has been integrated into the landscape and is therefore useful and valuable. These producers have a wealth of knowledge but a lack of knowledge of alternative food networks, making it difficult for consumers to obtain detailed and up-to-date information on the origin and usefulness of the product. The purchasing decisions of consumers of traditional products contribute to the continued farming activities of small producers. This type of purchase creates a deeper relationship of trust between producer and consumer. Research shows that middle-class consumers are able to pay a fair price to cover the costs of producers (Balogh et al. 2021). The focus on traditional food supply tends to be on small producers, which can disadvantage lower income earners by reducing their access to quality food.

Research on the market for traditional products has shown that consumers are concerned about the origin, quality, nutritional value, taste and price of products. It can be seen that the organisation of a fair for traditional products and the introduction of the Szekler Product Label, as a historically based initiative, has fulfilled the expectations placed in it. While preserving the characteristics and function of the traditional fair, it has grown into a social and cultural event and a community event.

## REFERENCES

- Andrásfalvi B.: *Vásár, búcsúvásár, sokadalom*, In. Rálátás, VI.évfolyam.4.szám.2005, Zsáka
- Bácskai V.: *Mezőgazdasági árutermelés és árucseré a mezővárosokban. Agrártörténeti Szemle, 1964/1-2 sz.*
- Benedek Zs (2014): *A rövid ellátási láncok hatásai, MT-DP-2014/8 MTA közgazdaság- és regionális tudományi Kutatóközpont Budapest, 2014*
- Benedek Zs., Fertő I., Baráth L., Tóth J. (2013): *Hogyan kapcsolódhatnak a mezőgazdasági termelők a modern élelmiszerláncokhoz? A rövid ellátási láncok működésének hazai sajátosságai: egy empirikus vizsgálat tapasztalatai, Vidékkutatás 2012-2013, NAKVI. -*
- Elek, S., Illyés, L., György, O., Péter, E. K., (2023): *Family farms in Harghita County In 16th International Conference on Economics and Business 2023, CHALLENGES IN THE CARPATHIAN BASIN, p.25-36, ISBN:978-973-53-3038-5 Risoprint Cluj – Napoca 2023*
- Csikné Mácsai É. (2014): *Közvetlen értékesítés a mezőgazdasági termékek piacán, kézirat, Gödöllő*
- Csordás A. (2022) *Az élelmiszerekkel kapcsolatos fogyasztói bizalom növelésének lehetőségei, különös tekintettel a rövid ellátási láncokra, kézirat Debrecen, 2022*
- Dankó I. (1980): *Piaci és vásári viselkedésformák MTA Néprajzi Kutatóintézet Évkönyve, 1980*
- Fekete G. (2009. November 30). *Helyi termékek előállítása és értékesítése a Zala Termálvolgyében. Kutatási zárótanulmány. Forrás: <https://docplayer.hu/975172-Zala-termalvolgye-egyesulet-helyi-termek-elallitasa-es-ertekesitese-a-zala-termalvolgyeben.html>*
- Galambkötő N. (2023): *Közösség által támogatott mezőgazdaság, LHarmattan Kiadó, Budapest, 2023*
- Juhász A. (2012): *A közvetlen értékesítés szerepe és jelentősége a hazai élelmiszerek piacra jutásában – Élet a modern kiskereskedelmi csatornákon kívül? Agrárgazdasági Tanulmányok, Agrárgazdasági Kutatóintézet, Budapest, 13-15 p.*
- Juhász, A., Szabó, D. (2012): *A piacok jellemzői termelői és fogyasztói szemmel. Kézirat*
- Juhász, A. - Szabó, D. (2013): *Piacok jellemzői fogyasztói és termelői szemmel = The characteristics of markets from the consumers' and the producers' point of view. Agrárgazdasági Könyvek. Agrárgazdasági Kutató Intézet, Budapest. 2013*
- Kiss K. (2017) : *A rövid élelmiszerláncok nyújtotta lehetőségek a koncentrált élelmiszerkereskedelemben-helyzetfeltáró vizsgálat az élelmiszerláncok megítélését illetően. In. Multidiszciplináris kihívások sokszínű válaszok)*
- Kozák T. (2014): *Multiplikátor- hatás elemzése a kereskedelemben, In. Kulturális és társadalmi sokszínűség a változó gazdasági környezetben, Komárno, Szlovákia)*
- Lehota J., (2012), *Értékesítési sajátosságok- közvetlen értékesítési csatornák. In: Agrártermékek közvetlen értékesítési marketingje, Magyar Agrárkamara Business 117-154 p.*
- LLazo E. (2014): *Customer attitudes towards short food supply chain in albania, Univ Bucuresti Analele Seria Stiinta Economice si Administrative 8, 3-20*
- Marchini, P - Simeon, M. (2017) *Which are the sustainable attributes affecting the real consumption behaviour? Consumer understanding and choices, Br Food J 119, 1839-1853*
- Nagy N. (2022): *Rövid ellátási láncok Csíkszereda vonzáskörzetében, paper*
- Nagyné Pércsi K. (2019): *A fenntartható termék előállítás előírásrendszerének alkalmazása a vidéki élelmiszer-előállításban/ Nemzeti Közfoglalkoztatási Egyetem, 2019, Budapest, 2019)*
- Péter E. K., 2017: *A tanulás szerepe a rövid élelmiszerláncokban, különös tekintettel Harghita Megyében In. A Falu, nr.3, Ősz, Agroinform Budapest, ISSN 0237-4323, p.51-57*
- Balogh P.G, Michels A., Nemes G., Szegedyné Fricz Á. (2021): *Hányzó láncszem – termelők és fogyasztókösszekötésének dilemmái a rövid élelmiszerláncokban, Fordulat/2021, 29.sz.p. 109-147 )*
- Szabó D. (2017): *Determining the target groups of Hungarian short food supply chains based on consumer attitude and socio-demographic factors. Stud Agric Econ 119, 115–122.*

Szabó K.- Kása R.(2022):Rövidített ellátási láncok, vagy fenntartható logisztika, In Logisztikai trendek és legjobb gyakorlatok 2022/1, 25p)

Szakály Z.,Pallóné Kisérdi I., Nábrádi A(2010): Marketing a hagyományos és tájjellegű élelmiszerek piacán, Kaposvár,2010

Tivai Nagy I.,(2009): Emlékezés régi Csikiakról, Csíkszereda Kiadóhivatal, Csíkszereda, 2009

Török Á., Agárdi I.(2020): Társadalmi vállalkozások gasztronómiai lehetőségei a rövid élelmiszerláncok bevonásával Magyarországon(2020), In:Vezetéstudomány, 2020,04,7)

Eibe Frank, Mark A. Hall, and Ian H. Witten (2016). *The WEKA Workbench. Online Appendix for "Data Mining: Practical Machine Learning Tools and Techniques"*, Morgan Kaufmann, Fourth Edition, 2016.

J. R. Quinlan. Improved use of continuous attributes in c4.5. *Journal of Artificial Intelligence Research*, 4:77-90, 1996.

Holte, R. C. (1993). Very Simple Classification Rules Perform Well on Most Commonly Used Datasets. *Machine Learning*, 11(1), 63-91.

# KNOWLEDGE AND PERCEPTION OF LIBERIAN AGRIBUSINESSES IN THE AFRICAN CONTINENTAL FREE TRADE AREA (AfCFTA)

Jacqueline Ninson<sup>1</sup>, Maame Kyerewaa Brobbey, Andrews Aidoo

CERATH Development Organisation, Accra, Ghana

<sup>1</sup>Corresponding author e-mail address: jacquelinebaidoo97@gmail.com

**Abstract:** Liberia has signed and ratified AfCFTA. In this context, this paper aims to assess the knowledge and perception of Liberian agribusinesses on AfCFTA and its implications for their operations and the broader economy. Primary data were obtained from four (4) main categories of stakeholders integral to Liberia's economic growth and development. They included (i) agribusiness enterprises/agricultural micro-small- and medium-sized enterprises operating in Monrovia; (ii) apex business entities/associations; (iii) government actors and (iv) trade and development partnerships active in Liberia's economic ecosystem. Findings from stakeholder engagements revealed varying levels of awareness and understanding of AfCFTA. While a minority of respondents had a fair understanding of the Rules of Origin protocol, central to trading under AfCFTA, the majority had only basic awareness of AfCFTA, often associating it with the broader vision of creating a unified African market. Efforts surrounding AfCFTA in Liberia should not only focus on the removal of tariffs, as many agribusinesses view elimination as potentially disadvantageous.

**Keywords:** Ratification of an agreement; African union; intra-African trade; Removal of tariff; Capacity in implementing agreements  
(JEL code: K33)

## INTRODUCTION

AU (2018) sets the objectives of AfCFTA as 1) creating a single and liberalised market in the African continent 2) contributing to the movement of capital and persons and facilitating investment building in state parties 3) laying the foundation for establishing the continental customs union 4) enhancing the competitiveness of state parties economies 5) promoting industrial development and 6) resolving the challenges of multiple and overlapping memberships and expedite the regional and continental integration processes. The aforementioned objectives are intended to be realized at the national level, with active contribution and participation from the business sector.

AfCFTA is not important to nations only but also to businesses who operate in a nation. In a speech by Mene (2022), he stated, "...As it has been emphasized over time, no matter how well grounded the AfCFTA objectives are, they will remain elusive if our businesses, the micro, small, and medium enterprises (MSMEs), are unable to take full advantage of the opportunities offered by the AfCFTA, to trade and invest...". AfCFTA is projected to enhance competitiveness at the industry and enterprise level through opportunities to increase

economies of scale and access to cheaper raw materials and intermediate inputs (AU, 2018; Frimpong, 2021); businesses are mostly impacted by economic liberalisation like the AfCFTA (Massaley, 2019). Udombana (2020) opined that businesses' contribution towards AfCFTA is crucial as they play a major role in economic growth and development.

Luke et al. (2017) state that there are less opportunities for businesses to express with perspectives on the negotiations and ratification of trade agreements of which AfCFTA is part. The viewpoint of various businesses with regard to ratification and benefits gained from AfCFTA is important in a time where AfCFTA is being promoted by various countries in Africa. Even though businesses play a major role in AfCFTA, Apiko et al. (2020) state that much has to be done with regard to sensitisation, advocacy and capacity building to improve the enjoyment of opportunities in the private sector. The issue, however, is which aspect of sensitization and advocacy should be focused on.

Olayiwola (2020) recommends a collaboration of nations with their private sector in conducting sensitization and advocacy on AfCFTA. The perspectives of the private sector must, however, be ascertained to effectively sensitise and advocate for AfCFTA. A study by Adomako et al. (2022) noted that



players in the agriculture sector are less sensitised in terms of AfCFTA. The agriculture sector, however, stands to benefit as agriculture is a major economic sector for Africa and generates about 15% of the continental GDP annually. It is also a critical sector of employment, food security and potential exports and is expected to benefit greatly from the AfCFTA. It has been noted that intra-African trade in agricultural and food products could increase between 20% and 30% with the removal of tariffs on goods alone under the AfCFTA. Additionally, it has been found that AfCFTA would contribute towards the “formalisation of cross-border trade in agricultural and food products by reducing risk and uncertainty for informal traders, and especially women.” (ECA, 2021).

ECOWAS has a Free Trade Area with the establishment of the ECOWAS Trade Liberalization Scheme (ETLs). ETLs trade ratification was fast-tracked as the then president of Liberia, Ellen Johnson Sirleaf, was elected as the chairman of West African States. Even though trade liberalization was stipulated in the ETLs trade ratification, Liberia has not fully implemented trade liberalisation (Massaley, 2019). Since AfCFTA is the most recent trade agreement aside ETLs, there is the need to ascertain the viewpoints of grassroots agribusinesses in order to increase the opportunities to be enjoyed by stakeholders in the ratification of AfCFTA.

Most Liberians see their homeland to be American and hence desire trading with the United States of America (Van der kraaij, 1983). Liberians’ local entrepreneurs have a positive perception of AGOA and are willing to export their products to the United States (Yates, 2017). The perception of Liberians on AfCFTA and their willingness to trade with other African countries is not, however, known. Massaley (2019) mentioned that economic liberalisation agreements like AfCFTA and ECOWAS Trade Liberalization Scheme (ETLs) in Liberia would result in removing barriers to international investment, unrestricted capital flow, improved stock market performance, reduction of political risks and investor portfolio diversification in Africa. The perspective of Liberians with regard to trade liberalisation has, however, not been assessed. The objective of the paper is to examine the knowledge and perception of Liberian agribusinesses on AfCFTA.

MATERIALS AND METHODS

Study Area

Primary data were obtained from four (4) main categories of stakeholders integral to Liberia’s economic growth and development. They included (i) agribusiness enterprises/agricultural micro-small- and medium-sized enterprises operating in Monrovia; (ii) apex business entities/associations; (iii) government actors and (iv) trade and development partnerships active in Liberia’s economic ecosystem. The study focused on agribusiness enterprises in the Greater Monrovia area. This was based on the assumption that such enterprises would have better and wider access to knowledge and information on international trade and the impacts of international/development and economic policy on business than enterprises in other parts of the country. Liberia’s economy is referenced as Mon-

rovia-centric, with “large disparities between Monrovia and other parts of the country in terms of wealth, infrastructure, and possibilities for participation in the political process.”

Figure 1. Map indicating the study area



Primary Data Collection

The primary data were obtained from four (4) main categories of stakeholders integral to Liberia’s economic growth and development. They included (i) agribusiness enterprises/agricultural micro-small- and medium-sized enterprises (agro-MS-MEs) operating in Monrovia; (ii) apex business entities/associations; (iii) government actors and (iv) partnerships in trade and development in Liberia. The data were obtained from an administration of semi-structured interviews of (ii) apex business entities/associations; (iii) government actors and (iv) partnerships in trade and development in Liberia and a structured interview of 24 agribusiness enterprises conveniently selected in Monrovia. Code for the key informant interview is stated in Table 1.

Table 1. Key informant citation

Key informant citation	Key informant code
MOCI, personal communication, March 09, 2023	KI1
Trade ECOWAS Commission, personal communication, March 03, 2023	KI2
LBBF, personal communication, March 14, 2023	KI3

Agribusiness enterprises are a significant part of the private sector, which is not only expected to benefit from AfCFTA but also to drive its success. The study focused on Liberian-owned MSMEs. This focus is informed by the recognition by expert communities of the significance of MSMEs in the promotion of a competitive and environmentally-friendly industrial structure with the capacity to improve living standards in the West African sub-region (Atsu and Ojong, 2014; ECOWAS Commission, 2016). Field enumerators met with agribusiness enterprise leaders and interviewed their leaders once they were available and willing to participate in the study.

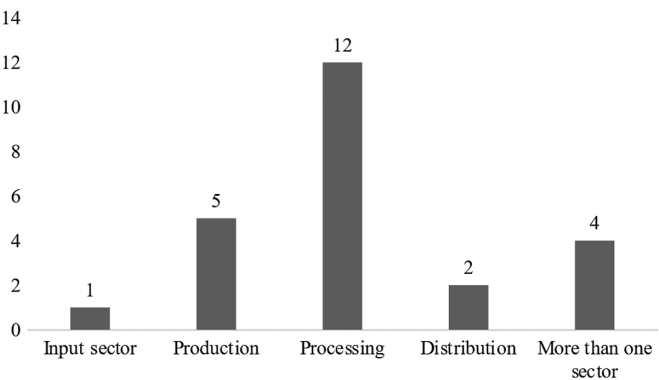
Demography and characteristics of respondent agribusiness enterprises

The twenty-four (24) agribusiness enterprises engaged in the research were comprised of fourteen (14) men-led and ten (10) women-led entities, all Liberian-owned. More than a third (10) of the business leaders were youth (aged below 35 years). Also, all the business leaders had received formal education, with 19 indicating tertiary education as their highest educational attainment. The remaining 5 had secondary school certifications. With one's level of education considered a key determinant of knowledge, it could be assumed that the respondents in this study would have a higher level of knowledge and understanding of the business context and related policy than their cohorts, who may not have such educational attainments.

Most (20) of the agribusiness enterprises interviewed in the study were registered with the Liberia Business Registry. Also, less than half (10) of the enterprises were members of a business association/ cooperative. The enterprises were reported to be members of the Liberia Business Association (LiBA), Pig Value Chain Actors of Liberia, Liberia Chamber of Commerce, Agropreneurs, Liberia Entrepreneur Network, Baker's Union, and the Liberia Women Manufacturers. Other affiliations reported included the African Women Entrepreneurship Program, the National Cassava Sector and Careysburg Vegetable Cluster. It is noteworthy that more than half (14) of the enterprises involved in the study were not represented by any business association in terms of membership.

Half (12) of the enterprises were solely engaged in agri-/food processing and five (5) in production, two (2) in distribution sub-sectors, while four (4) operated in more than one sub-sector of Liberia's agri-/food business value chain. Figure 2 details the sectors of operation of the agribusiness enterprises interviewed.

Figure 2. Agribusiness enterprises interviewed and their sub-sectors of operation



Furthermore, most (17) business enterprises interviewed operated in single agriculture value chains. The others operated in more than one value chain. The dominant value chains of operation were staple food crops, including rice, cassava, as well as, plantain, and maize. Furthermore, the enterprises that operated in more than one value chain (7 of the 24 enterprises) operated in at least one of the identified staple food value chains in addition to other value chains.

On employment opportunities created by the businesses engaged in the research, it was observed that the average number of persons employed in the enterprises was about 9 persons (9.33). Also, four (4) businesses had employees from different African nationalities in addition to the Liberians employed.

Data Analysis and Reporting

Simple quantitative analyses were also important for the data obtained from agribusiness enterprises.

RESULTS AND DISCUSSION

Awareness and knowledge of Private Agribusiness Sector Actors on the AfCFTA in Liberia

**Agribusiness Sector Actors' Knowledge of AfCFTA**  
According to Medden (2021), fewer (25%) agribusinesses are aware of AfCFTA. About two-thirds (15) of the respondents had heard about the AfCFTA. It was also observed that nearly all (15) the respondents who heard of AfCFTA had tertiary-level education. About a third (9) of the respondents were had not heard of AfCFTA.

Table 2. Cross tabulation on hearing about AfCFTA and level of education of respondents

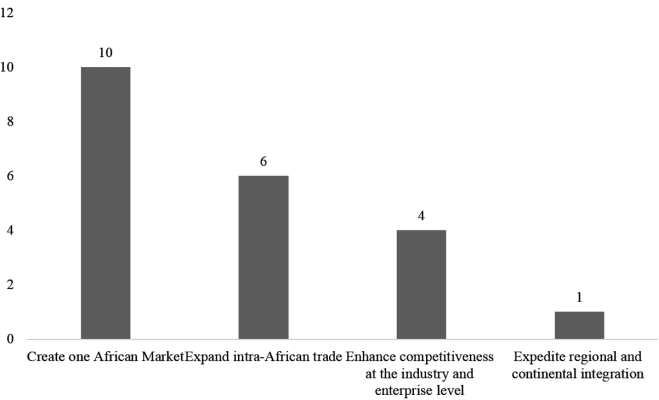
Heard about AfCFTA	Secondary	Tertiary	Total
No	4	5	9
Yes	0	15	15
Total	4	20	24

The main objectives of AfCFTA are to create one African market, expand intra-African trade, enhance competitiveness at the industry and enterprise level and expedite regional and continental integration (AU, 2018). Respondents who had heard of AfCFTA were asked about the objectives of AfCFTA in multiple selection questions. When the respondents who had heard of the AfCFTA agreement (15) were asked to indicate what the AfCFTA agreement sought to achieve, creating one African market (10) was the most referenced objective of the AfCFTA. Gottschalk (2022) cited one African market as the first story highlight for AfCFTA. The expansion of intra-African trade and the enhancement of the competitiveness of African industries and enterprises were also referenced with some high frequency. There was also one reference made to AfCFTA's objective to expedite continental integration processes. Perhaps it is no wonder that agro-MSME leaders may be focused on the trade orientation and not the political one.

There has been an argument by Kuhlmann and Agutu (2019) and Nwankwo and Ajibo (2020) that AfCFTA objective of expediting regional and continental integration is not clear as the implementation of the regional economic commission (REC) has been non-linear and overlapping. They argue that even though AfCFTA provides a framework for REC,

there is no binding and established structure for the REC. This may explain why only one person mentioned that AfCFTA objective was to expedite regional and continental integration.

Figure 3. Frequency distribution of AfCFTA objectives referenced by respondents

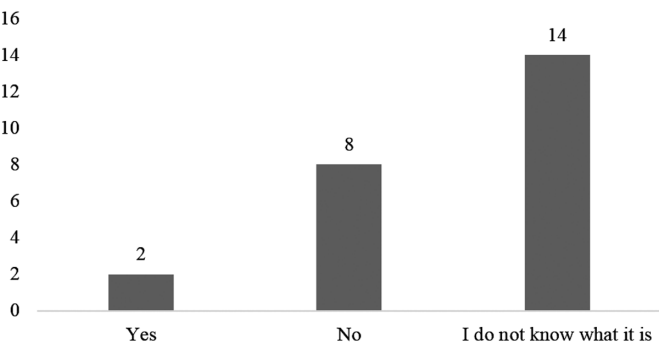


Only 3 of the respondents who had heard of AfCFTA had a fair understanding of the Rules of Origin protocol that guides trade under AfCFTA. Most respondents (11) were not aware of the protocol. There is also low awareness and knowledge of the Rules of Origin protocol in Ghana (Obeng and Adomako, 2020). One respondent who mentioned that they understood the Rules of Origin protocol captured their understanding as having the certification of products produced in Africa. Another respondent mentioned selling production from an AU membership state while the last respondent mentioned benefiting from trade under AfCFTA.

AfCFTA in Liberia

In assessing respondents’ knowledge of Liberia’s progress related to the AfCFTA, the study found that a majority (14) did not know whether AfCFTA was being implemented in the country. While about a third (8) of the respondents knew that Liberia was not implementing AfCFTA, two (2) of them indicated that Liberia was already implementing the AfCFTA. For one of those two respondents, once the agreement was being discussed, it meant that it was being implemented, indicating a deficit in the knowledge of the processes related to

Figure 4. Respondents’ knowledge on whether implementation of AfCFTA had commenced in Liberia



international trade agreements and particularly the AfCFTA in Liberia. Low knowledge on AfCFTA is in line with studies by Adomako et al. (2022) where they reported low knowledge of SMEs on the existence of AfCFTA as 48% did not know the benefits of AfCFTA.

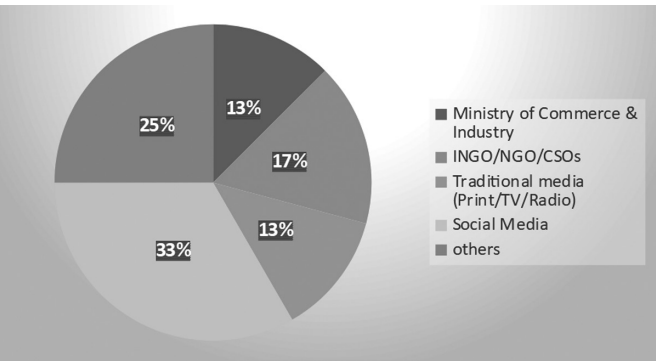
The low knowledge on the implementation of AfCFTA might be because of low engagement as even the Ministry of Commerce and Industry (MOCI) has yet to engage the Legislature fully. KII said

*The House of Parliament has not been fully engaged when it comes to the agreement. Some of them [members of the House] have heard about it, but we have not fully engaged them. We have to engage the public in general, and the House of Parliament. We have to dissect the agreement: this includes going into the agreement, doing a presentation to them [sic]; explaining to them everything that is in this agreement – the benefits and all the opportunities that are available. We have not yet done this even though the document is before them... The act [bill introduced to the Senate] is at the stage of presentation and awareness creation. (Interview with the national focal point on ECOWAS Trade Liberalization Scheme (AfCFTA – Rules of Origin), MOCI)*

Sources of Respondents’ Knowledge of AfCFTA

The paper explored the sources of respondents’ knowledge of AfCFTA. The 15 respondents who had heard of AfCFTA most frequently cited social media as the source of their knowledge. The Ministry of Commerce and Industry (MOCI), (international) non-governmental organisations (INGOs/NGOs), civil society organisations, and traditional media outlets were also mentioned. Other sources, mentioned, included the consultant working on the Liberia national AfCFTA strategy and the Embassy of the United States of America in Liberia.

Figure 5. Sources of respondents’ knowledge of AfCFTA



Perception of Private Agribusiness Sector Actors on the AfCFTA in Liberia

Apiko et al. (2020) posit that the immediate benefit of AfCFTA is the removal of tariffs. This benefit is, however, not appreciated by agribusiness as the majority (15) respondents strongly agreed that it would be bad for Liberia’s economy if there were no or fewer tariffs on imports. Liberia has had no tariff with countries like the United States under the African

Growth and Opportunity Act (AGOA), a Trade and Investment Framework Agreement (TIFA), the Generalized System of Preferences (GSP) and China under a bilateral trade agreement (Privacy Shield Framework, n.d.). Liberia will lose in terms of customs revenue and dumping of goods. Massaley (2019) mention that importation into Liberia comes with different tariffs; Liberia is the 20th country in Africa with the highest duties on intra-African trade (Fofack, 2020). There is a similar concern in Ghana where SMEs are worried about tariff removal as removal of tariffs is seen as a way to lower imported goods to favourably compete with locally manufactured goods (Adomako et al., 2022).

AfCFTA's removal of the tariff will lead to the dumping of African goods in the Liberian market which might kill the infant industry. Ghanaian and Nigerian SMEs have the notion that the removal of tariffs would lead to the dumping of goods and destroying of infant industries (Madden, 2021; Adomako et al., 2022). Adomako et al. (2022) attest that Ghanaians are also concerned with the dumping of goods on the market with regard to the implementation of AfCFTA while Medden (2021) argue that AfCFTA would lead to foreign competition due to cheaper imported goods competing with local products which have a threat the to local industries. Fofack (2020) argue that it will be more difficult for African countries to remove tariffs even though the removal of tariffs will enhance cross-border trade in Africa. Experts indicate that in the short term, countries would experience a loss of revenue because of the progressive elimination of the tariffs under the AfCFTA. In this regard, relevant actors within the AfCFTA policy would focus on reducing the impacts of the losses for the countries.

Gebremariam (2020) posits that the focus of AfCFTA should be less focused on tariff removal but more focused on industrialization and capacity building in the country. From the research, a huge majority (21) of the respondents strongly agreed that AfCFTA could create opportunities for the industrialisation of businesses in Liberia. The finding of AfCFTA leading to industrialisation is in line with the World Bank's (2020) research findings that AfCFTA will increase intra-African manufacturing trade by 110%.

Also, most (17) respondents strongly agreed that AfCFTA was significant for Liberia's trade integration with its neighbours.

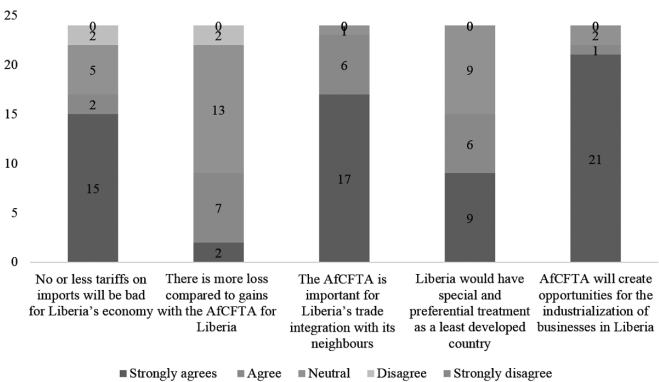
Further, more than half (13) of the respondents neither disagreed nor agreed that there would be more losses than gains for Liberia in the AfCFTA.

Albert (2019) states that AfCFTA promotes preferential treatment for especially low-income countries. From the study, only over a third (9) of the respondents were confident that Liberia would have special and preferential treatment under the AfCFTA as a least-developed country. This finding particularly points to a deficit in knowledge on the AfCFTA and the phase 1 negotiations on trade and services. Unsurprisingly, all the respondents mentioned that they did not know what Liberia had agreed to in the AfCFTA agreement. KI2 said

The benefits of the AfCFTA agreement can only be achieved with its (effective) implementation. Therefore, the study explored Liberia's planned approach to the post-ratification phase and the issues to be prioritised in this phase. As intimated by one of the experts interviewed

*"Having an agreement is only the first step. Countries taking advantage of it is the next... [Through the negotiations] Liberia would have ensured that its issues were taken into consideration and then adopted as part of the overall consent as formulated [but] it is not just having the agreement but taking advantage of it. That is why member states are advised to develop national implementation strategies... It is the countries that ensure that they develop these plans in order to take an advantage of the agreement. The agreement by itself does not necessarily mean it will be implemented."*

Figure 6. Respondents' perceptions on the significance of AfCFTA for the Liberian economy



In addition to respondents' acknowledgement of the significance of AfCFTA for Liberia's regional trade integration, and the industrialisation of Liberian businesses, more than two-thirds (17) of the respondents strongly agreed that their businesses could greatly benefit from the AfCFTA. This notwithstanding, half (12) of respondents expressed high confidence that Liberia could still trade favourably with other African countries outside the context of AfCFTA.

It is noteworthy that the respondents were generally not confident that they were informed about how AfCFTA would affect businesses in Liberia. Also, about two-thirds (16) of the respondents suggested that they did not know whether implementing AfCFTA in Liberia would benefit agribusinesses in the country. They neither disagreed nor agreed that agribusinesses in Liberia would be negatively affected by implementing AfCFTA. KI1 said,

*As an apex body responsible for businesses, LiBA wants to be in the know from the beginning of all trade agreements that will affect them. LiBA thinks Liberia is not really strong for industrialisation, and as such countries that have advanced processes, knowledge, and resources and [are] more industrialised will take over Liberia [the Liberian market].*

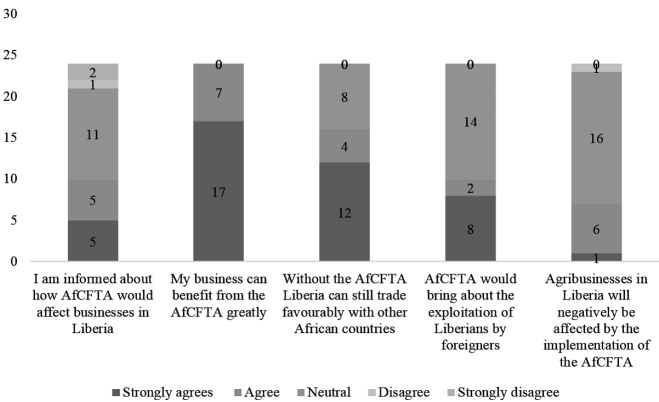
LiBA said this during the only engagement that was carried out. (Interview with the national focal point on ECOWAS Trade Liberalization Scheme (AfCFTA – Rules of Origin), MOCI)

Udombana (2020) mentioned that enterprises that are major players in AfCFTA are constrained with information and communications infrastructure. Additionally, 7 others opined that Liberia's agribusiness sector would be affected negatively by the implementation of AfCFTA in the country.



Even though Massaley (2019) states that business in Liberia stands to benefit from trade liberalisation most respondents (16) were neutral to the statement that agribusinesses in Liberia will negatively be affected by the implementation of the AfCFTA. This paints a rather dire picture of the confidence that private agribusiness sector actors have in the role of AfCFTA for the sector’s development. Considering that the same respondents agreed that AfCFTA would create opportunities for the industrialisation of Liberian businesses, the issue might be with the notions of the particularity of the agri-/food business sector, including existing sector-specific challenges.

Figure 7. Respondents' perceptions on the significance of AfCFTA for Liberian businesses



K3 said,

*“...what steps are required [after the ratification], that is; the outcomes, outputs and activities. A commercial economic case has not been made or laid out for AfCFTA for people to roll in... Agriculture is the dominant sector in Liberia and monetary laws and licenses are not moving towards that. We have to move commerce towards that and how does that happen? We can start to align a pilot or a few businesses that are interested towards crops like cocoa or rubber...I think these are issues that we can unravel as we go from the ratification. The main goal is to let people understand the advantage and disadvantages of AfCFTA for Liberians.” (Interview with the Coordinator of LBBF)*

Ratification process/activities and implementation capacity

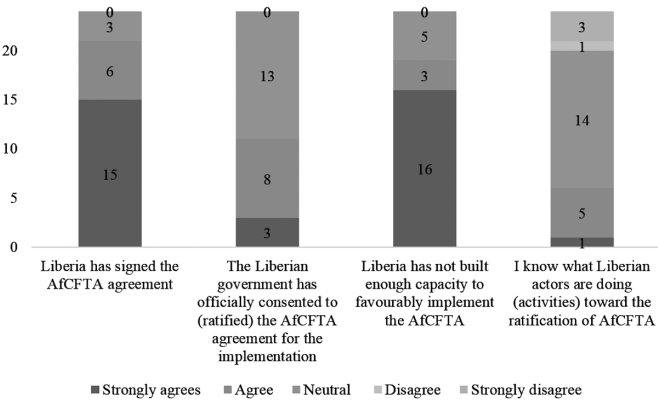
Only one (1) respondent indicated strongly that they knew about the activities Liberian actors were undertaking towards the ratification of AfCFTA in the country. That respondent mentioned that the Senate Committee had already had a discussion on the agreement. Luke et al. (2017) state that encouraging participation in AfCFTA becomes meaningful when participation stakeholders know the decision taken on their behalf. Awareness and dissemination of information about AfCFTA processes and proposed content must thus be spread to stakeholders

Also, while a few (4) of the respondents indicated that they did not know anything about the activities in the rati-

fication process, most (14) of the respondents were not sure whether they knew anything or not. What this means, however, is that three-quarters of the respondents did not know of the activities national actors were taking towards AfCFTA’s ratification in Liberia. There is low consultation, participation and transparency with regard to AfCFTA and its ratification in Liberia. Luke et al. (2017) state consultation, participation and transparency with regards to AfCFTA needs further efforts. This agrees with the findings as most agribusinesses are not aware of AfCFTA and do not know whether AfCFTA has been ratified or not.

The low capacity of low-developed countries makes ratification of agreements very slow (Tura, 2015). Relating to Liberia’s capacity to favourably implement AfCFTA, two-thirds (16) of the respondents strongly agreed that Liberia had not built enough capacity to favourably implement the AfCFTA, with about a fifth (5) of the respondents suggesting that they were not sure of Liberia’s capacity for implementation. This echoes the position of experts who have evaluated the preparedness of countries more advanced than Liberia. For instance, Luke et al. (2017) state that there is progress in capacity building on AfCFTA but it requires further efforts. This is because AfCFTA concentrates on building capacity at the national level but does not make funds available for the capacity-building of potentially vulnerable groups. Political, institutional and economic capacity is a limitation for AfCFTA (Nwankwo and Ajibo, 2020). For agribusinesses, most agree that Liberia has not built enough capacity to favourably implement the AfCFTA. Not only Liberia, but other countries in Africa have not built capacity in terms of infrastructure with regard to the implementation of AfCFTA (Fofack, 2020; Hailu, 2014).

Figure 8. Respondents' perceptions on the legal aspects, ratification activities and Liberia's capacity for implementation



CONCLUSION AND RECOMMENDATION

Findings from engagements with agribusinesses revealed that even though few (2) respondents had a fair understanding of the Rules of Origin protocol, central to trading under AfCFTA, most of the respondents (16) knew or had heard about the AfCFTA and mostly associated AfCFTA with creating one African market. It is surprising to note that none of the

agribusiness enterprise leaders knew about Liberia's AfCFTA ratification status with only one knowing about the progress made on the process involved. Concentration on AfCFTA in Liberia should not only be on the removal of tariffs as the removal of tariffs is perceived by agribusiness as bad. The focus of AfCFTA should be on industrialization and the development of Liberia.

## REFERENCES

- Gottschalk, K. (2022). *Re-thinking Pan-Africanism and African Integration*. *African Journal of Political Science*, 10(1), 13-25. <https://www.worldbank.org/en/topic/trade/publication/the-african-continental-free-trade-area>
- Luke, D., Sommer, L., Schillinger, H. R., & Theemann, Y. (2017). *The Continental Free Trade Area (CFTA) in Africa—A Human Rights Perspective*.
- Tura, H. A. (2015). *Ethiopia's accession to the world trade organisation: lessons from acceded least developing countries*. *Oromia Law Journal*, 4(1), 125-152.
- Udombana, N. J. (2020). *A step closer: Economic integration and the African continental free trade area*. *Duke J. Comp. & Int'l L.*, 31, 1.
- Massaley, A. M. (2019). *Economic Liberalization in Liberia and Its Effects on Unemployment and Economic Growth*
- AU (2018). *Agreement Establishing the African continental Free Trade Area*. <https://au-afcfta.org/wp-content/uploads/2022/06/AfCFTA-Agreement-Legally-scrubbed-signed-16-May-2018.pdf>
- Mene, W. (2022). *Positioning the private sector for new opportunities and markets for sustainability and thriving economies through AfCFTA*. Keynote address on occasion of the 1st AfCFTA private sector CEO breakfast forum in Uganda. H.E.-Speaking-Notes-1st-AfCFTA-Private-Sector-CEO-Breakfast.pdf (au-afcfta.org)
- Kuhlmann, K., & Agutu, A. L. (2019). *The African Continental Free Trade Area: Toward a new legal model for trade and development*. *Geo. J. Int'l L.*, 51, 753.
- Apiko, P., Woolfrey, S., & Byiers, B. (2020). *The promise of the African Continental Free Trade Area (AfCFTA) (No. 287)*. ECDPM Discussion paper.
- World Bank. 2020. *The African Continental Free Trade Area: Economic and Distributional Effects*. Washington DC: World Bank Group.
- Fofack, H. (2020). *Making the AfCFTA Work for 'The Africa We Want*. Brookings Africa Growth Initiative Working Paper, Brookings Institution. <https://www.brookings.edu/wpcontent/uploads/2020/12/20.12>.
- Albert, T. (2019). *The African Continental Free Trade Agreement: Opportunities and Challenges*. Geneva: CUTS.
- Gebremariam, E. B. *African Continental Free Trade Area: Risks and Strategies*. TANA PAPERS 2020, 38.
- Hailu, M. B. (2014). *Regional economic integration in Africa: challenges and prospects*. *Mizan Law Review*, 8(2), 299-332.
- Olayiwola, W. (2020). *Governing the Interface between the African Continental Free Trade Area and Regional Economic Communities Free Trade Areas: Issues, Opportunities and Challenges*. *Opportunities and Challenges*.
- Nwankwo, C. M., & Ajibo, C. C. (2020). *Liberalizing Regional Trade Regimes Through AfCFTA: Challenges and Opportunities*. *Journal of African Law*, 64(3), 297-318.
- Yates, D. A. (2017). *Liberia: AGOA to help local entrepreneurs enter US market*. *Liberian Observer: Liberia: AGOA to help local entrepreneurs enter US market - Agoa.info - African Growth and Opportunity Act*
- Van der kraaij F. P. M. (1983). *The opendoor policy: and overview*. [liberiapastandpresent.org/OpenDoorPolicy.htm](http://liberiapastandpresent.org/OpenDoorPolicy.htm)
- Privacy Shield Framework (n.d.) *Liberia - Trade Agreements* <https://www.privacyshield.gov/article?id=Liberia-Trade-Agreements>
- Obeng, I. Y. and Adomako, A. K. (2020). *Assessment of Ghanaian private sector readiness for AfCFTA implementation*. CUTS International Accra <https://cuts-accra.org/pdf/research-report-assessing-the-readiness-of-the-ghanaian-private-sector-to-AfCFTA-implementation.pdf>
- Adomako, A. K., Bokpin, A. C., Edem, M. K., Obeng, I. Y. and Osei, K. D. (2022). *Improving framework conditions to unlock the potentials of AfCFTA for SMEs in Ghana*. CUTS International Accra. <https://cuts-accra.org/pdf/improving-the-framework-conditions-to-unlock-the-potentials-of-afcfta-for-smes-in-ghana.pdf>
- Madden, P. (2021). *Perceptions of the AfCFTA among small enterprises in Nigeria*. Brookings. <https://www.brookings.edu/blog/africa-in-focus/2021/01/06/figure-of-the-week-perceptions-of-the-afcfta-among-small-enterprises-in-nigeria/>
- Frimpong (2021). *Trends, Structural Reforms and Intercontinental Trade Dynamics: The Case of Sierra Leone's Approach to the Implementation of the AfCFTA*. Accra: Good Governance Africa, West Africa Centre.
- ECA (2021). *AfCFTA to boost intra-African trade in agricultural and food products and enhance continental food security*. Economic Commission for Africa <https://uneca.org/stories/afcfta-to-boost-intra-african-trade-in-agricultural-and-food-products-and-enhance>
- EROS (2018). *Landscapes of West Africa: A window on a changing world*. Earth Resources Observation and Science Center. <https://eros.usgs.gov/westafrica/case-study/urban-growth-liberias-only-metropolis-monrovia>
- Atsu, I. A., & Ojong, C. M. (2014). *The Role of Government in the Development of MSMEs in Nigeria between 1991 and 2012*. *International Journal of Business and Social Research*, 4(12).
- ECOWAS Commission (2016). *ECOWAS strategic framework for private sector and enterprise promotion*. Private Sector Directorate. <https://wacomp.projects.ecowas.int/wp-content/uploads/2020/03/ECOWAS-STRATEGIC-FRAMEWORK-FOR-PRIVATE-SECTOR-AND-ENTERPRISE-PROMOTION.pdf>



# LAND CONTROL AND POVERTY STATUS OF FARMING HOUSEHOLDS IN NIGERIA

Olubunmi O. Alawode

Department of Agricultural Economics, University of Ibadan, Nigeria

E-mail address: olubunmio.alawode@gmail.com, oo.alawode@ui.edu.ng

**Abstract:** Poverty is pervasive among the majority of farming households in Nigeria, particularly affecting small-scale farmers. Having gained access to land, control over the land held is very important in improving the quality of life as it plays a vital role in poverty reduction among small scale farmers. This study examined the relationship between land control and poverty status of farming households in Nigeria. The Nigeria General Household Survey (GHS) 2018 was used. Analytical tools used include descriptive statistics, Land Control Index (LCI), Ordered probit regression and Logit regression models. From the results, majority of the Nigerian farmers were male (84.6%) with a mean age of  $50 \pm 15$  years, and 81.1% were married, having a mean household size of  $7 \pm 4$  persons. The mean farm size held by the households was  $4.42 \pm 14.9$  ha. Farming households had access to the highest proportion (62.79%) of their plots by inheritance, still showing the dominance of inheritance as a means of land access in Nigeria. Also, households had access to 11.80% of the plots by outright purchase, 11.20% by rent in cash or kind (farm produce), and 0.64% by sharecropping; these underscore the growing rural land market in Nigeria. Majority (88.8%) of the households had no control over all the plots of farmlands held ( $LCI=0$ ) while 6.03% had total control of the plots of farmlands held ( $LCI=1$ ). This implies that majority can only carry out farming activities (having use right) on the farmland and did not possess legal documents for the land (not able to dispose of the land). The mean household expenditure on food and non-food were ₦8,609.37 and ₦12,587.08, respectively. The mean total expenditure was ₦18,809.20 ( $\pm 10444.45$ ) and the poverty line was ₦8,433.34. The poverty incidence was 41.03%; 41.03% were poor while 58.97% were non-poor. Location of household in the rural sector, especially in the North East, South West, and South East, was significantly positive in determining the level of land control by farming households at 1%. At 10% level of significance, low land control ( $HCI \leq 0.25$ ) and medium land control ( $HCI = 0.51 - 0.75$ ) would significantly increase the likelihood of the household being non-poor by 27.4% and 33.6%, respectively. Land control positively influences the poverty status of the farming households in Nigeria; farming households with low land control can increase their chances of being non-poor. Rural farmers should be encouraged to obtain legal documents on their land to facilitate higher level of control.

**Keywords:** Land Access, Land Control, Poverty Status, Household Expenditure  
(JEL code: Q24)

## INTRODUCTION

In many developing countries, particularly in Africa, farmers remain trapped in poverty despite the opportunities in agriculture and rising food prices, creating the need for an in-depth investigation to know the factors responsible in sub-Saharan Africa, where farming is a vital component of the economy and the main source of income for a sizable majority of the population (Sassi, 2023). According to Oguizu and Orinkpa (2020), 70 percent of people in Nigeria work in the agricultural industry, relying on it for most of their food and income. Despite the innumerable opportunities in the sector, many Nigerian farmers are still impoverished, even as food prices increase. This paradox persists because most farmers operate on a small scale, producing just enough for their con-

sumption with minimal surplus for the market. The revenue from this surplus is often insufficient to cater for their needs outside what they produce, thereby failing to significantly improve their financial situation.

Poverty is characterized by their inability to meet basic needs such as food, shelter, and clothing. According to Ogunniyi et al. (2020), poverty is a state where individuals cannot achieve a socially acceptable standard of living; poverty is a multifaceted social issue that extends beyond economic challenges, intersecting with education, health, housing, and more. In Nigeria, nearly 40 percent of the population, approximately 83 million people, live below the national poverty line of 137,430 Naira (\$381.75) per year (World Bank, 2020). This widespread poverty is particularly severe in rural areas, where agriculture is the mainstay of the economy, but remains under-



developed due to various constraints. Tackling poverty among farming households, encouraging sustainable consumption and production, and improving health and well-being are vital elements of sustainable development.

Given Nigeria's current level of agricultural growth, the availability of land for agriculture is a key determinant of sufficient food production and livelihood security. However, insufficient and unequal access to farmland contribute to many farming operations staying at subsistence level. The availability and control of land are crucial for agricultural productivity and the economic well-being of farming households. Land control is the ability of a person to own, sell and use the land to serve as collateral to access credit. It ensures tenure security. It is estimated that 95 percent of Nigeria's farmland is untitled, which severely hampers farmers' ability to use their land as collateral to obtain formal loans from financial institutions, which are crucial for investing in improved agricultural practices and expanding production (Hull et al., 2016). Land control also creates motivations for the user to invest resources in it so as to sustain its value and maintain its productivity, and to enable access to social and economic development opportunities (Dauda et al., 2022). Control on land plays a key role in reducing poverty and improving the status of the rural households.

There are different ways Nigerians could gain access to agricultural land such as inheritance, purchase, lease, rent, et cetera, yet, access to land remains a major challenge (Alawode et al., 2018). The Nigeria land law put in place to ensure equity on land control for Nigerians irrespective of the tribe, religion, level of education, occupation, political affinity and gender, has made land to be unreachable to farmers. The inability to own land is now a major challenge in rural areas, where agriculture is their primary source of livelihood. In addition, obtaining land title is burdensome, thus bringing about the land tenure system reform by government in 2007 (Makinde et al., 2024). It is important to know that access to land and control are very important criteria for Nigeria's industrial, social, economic, political, physical and total development (Dauda et al., 2022).

In Nigeria, land is expensive and unaffordable and there is an unsettled disagreement between the government and traditional owners (Makinde et al., 2024). According to the National Bureau of Statistics LSMS-Integrated Surveys on Agriculture (NBS, 2016), the average Nigerian household owns just 2.6 plots of agricultural land, averaging about 0.5 hectares. This fragmentation limits farmers' ability to scale up operations, diversify production, and achieve economies of scale. Effective land tenure systems that provide secure ownership are essential for enhancing agricultural productivity, reducing poverty, and achieving food security. The Land Use Act has birthed certain agencies of government on land issues. Most farmers do not possess official land ownership documents such as certificate of occupancy and customary certificate of occupancy (Makinde et al., 2024), and thus are unable to secure bank loans to improve on productivity, purchase agricultural inputs (fertilizers, insecticides, et cetera) and to plant perennial crops. Therefore, farmers have no choice but to use marginal lands with less productivity potentials, where they can be driven out anytime.

There is no formal land allocation for farmers compared with other land users in Nigeria, thus undermining its numerous contributions to social, economic and environmental development (Makinde et al., 2024). Agricultural output is low due to low access to land, structure of land tenure, lack of proper land ownership documents, low control over land, as well as lack of improved agricultural technology and climate change. Without the ability to use land as collateral, farmers are often unable to obtain the necessary loans to invest in high-value crops or improve their farming techniques. This lack of investment capability results in lower productivity and income, contributing to the persistence of poverty. Hence the need to investigate the relationship between land control and poverty among farming households in Nigeria

### *Objectives of the study*

The broad objective is to investigate the relationship between land control and poverty among farming households in Nigeria

The specific objectives are to

- I. Measure the level of land control among farming households,
- II. Assess the level of poverty of farming households,
- III. Examine the factors influencing land control by farming households,
- IV. Determine the effect of land control on poverty status of farming households.

### **LITERATURE REVIEW**

Hosaena and Zavale (2018) examined land access and tenure security. Two data sets; a nationally representative National Agricultural Survey of 2014 and Supplementary Land Tenure Survey (SLTS) of 2015 were used. A probit regression model was employed. It was found that land access has a positive relationship between with on-farm employment and a negative relationship with off-farm employment.

The poverty status of farming households in Ogbomoso South Local Government Area (LGA) of Oyo State was assessed by Alao et al. (2020). Employing a multistage sampling procedure, the researchers selected 110 respondents and used multiple regression analysis to investigate the impact of various factors on household poverty. The findings identified lack of access to farm machinery, inadequate road infrastructure, and the absence of storage facilities as the key contributors to poverty among the respondents. Moreover, the age of respondents, household size, and farm size emerged as significant determinants of poverty among the farming households.

Kehinde et al. (2021) investigated the relationship between land tenure and property rights among smallholder rice farmers in Northern Nigeria and the household food security (HFS). The study used cross-sectional data collected from 549 rice farmers who were selected through multistage sampling across 84 rice-growing communities, in seven states of the three geopolitical zones in northern Nigeria. The findings indicate that land titling is exogenous in the estimated models. Moreover, the study shows that households experienced a significant (p

< 0.01) improvement in food security with an increase in the shares of freehold and leasehold land in the households' farmlands, compared to reliance solely on communal holdings.

To assess the prevalence of poverty in Northern Nigeria, Jaiyeola and Choga (2021) conducted a study using the General Household Survey (GHS-Panel) wave 1 (2010–2011) and wave 2 (2012–2013). Data were analysed using Foster-Greer-Thorbecke (FGT) poverty measure and the Cumulative Distributive Function (CDF). Their findings show ongoing poverty across all zones, with the Northern region experiencing the most severe poverty, and minimal change observed between the two waves.

Mukaila et al. (2022) conducted a study to assess the poverty status of rural women in Nigeria. Data were gathered from 450 rural women using multistage sampling procedure and analysed using descriptive statistics, Foster-Greer-Thorbecke and logistics regression. They found that poverty was pervasive among the rural women in Nigeria. Age, household size, and cropping system were identified as factors contributing to the high poverty rate among them, while education, access to credit facilities, farm size, marital status, and agricultural extension contacts were identified as the factors reducing poverty rate among rural women.

A study was conducted by Onoja et al. (2022) to investigate the status and determinants of farm household poverty in South East, Nigeria. Primary data were randomly collected from 140 farm households situated in Ideato South Local Government Area of Imo State, Southeast Nigeria. Data were analysed using the multidimensional poverty index (MPI) and Ordinary Least Squares (OLS) regression models. The findings highlighted the sex of the household head, the primary occupation of the household head, household size, and household income as significant determinants of poverty within the studied population.

Dauda et al. (2022) investigated the impact of land access and ownership on farm production across gender in Southwest Nigeria. Across three states in Southwest Nigeria, 480 respondents, comprising 240 male-headed households and 240 female-headed households, were selected using multi-stage sampling procedure. The results showed a significant difference in farm yield between male and female-headed households attributed to their levels of land access and ownership (emphasizing land control) at a 5% level of significance.

Makinde et al. (2024) examined the legal issues in land acquisition for agricultural production in Nigeria. Data were sourced from books, journals, and the internet. Normative legal research techniques and qualitative content analysis were used in to determine the relationship between land acquisition and agricultural production in Nigeria. It was found that Nigeria's land tenure system supports land partitioning (land fragmentation), which leads to scattered small-scale farming. Also, tenure rules stipulated in the Nigerian Land Use Act of 1978 hinder agricultural productivity in Nigeria. Other relevant factors and challenges influencing Nigeria's agricultural production include land tenure insecurity, and political and bureaucratic bottlenecks in the acquisition of land rights for agricultural uses.

There is a dearth of research on the effect of land control and poverty status among farming households in Nigeria.

## MATERIALS AND METHODS

Hosaena and Zavale (2018) examined land access and tenure security. Two data sets; a nationally representative National Agricultural Survey of 2014 and Supplementary Land Tenure Survey (SLTS) of 2015 were use

### Study Area

The scope of the study is Nigeria which comprises of 36 states and the Federal Capital Territory, Abuja. It also has six geo-political zones; North East, North West, North Central, South East, South South and South West.

### Type and source of data

The dataset used for the study is GHS (General Household Survey) 2018/2019. The information used for this study include the socioeconomic characteristics such as age, household size, gender, educational level, access to credit, access to extension, occupation, size of plots, membership of cooperative society, having non- agricultural activities. Data on the means of land access are; outright purchase, rented in cash or kind goods, used free of charge, distributed by community, family inheritance, sharecropping, and temporary land exchange. Also, household food and non-food expenditure were obtained.

### Data Analytical Methods

Data were analysed using descriptive statistics, land control index, FGT poverty measure, ordered probit model and logit regression model.

### Descriptive Statistics

Frequency counts, percentages and mean were used to profile the socioeconomic characteristics of farmers/household heads. The results are presented in frequency distribution tables.

### Land Control Index

Measuring the level of land control among farming households was achieved using land control index (LCI). This was measured by the extent of control on land held by households.

$$LCI = \frac{\text{Area of land with right to sell or use as collateral}}{\text{Total area of land held by household}}$$

LCI = Land Control Index

LCI ranges between 0 and 1. The closer LCI is to 1, the higher the level of control households have on the plots of land held. LCI=0; household has no control over all the farmland held. LCI=1; household has full control over all the farmland held.  $0 < LCI < 1$ ; household has different levels of control over all the farmland held.

Higher values of LCI is desirable as it signifies high levels of household control over the land held, implying secure land rights.

### Foster, Greer and Thorbecke (FGT) Poverty Measure

Assessment of the level of poverty of farming households was achieved using FGT (Foster Greer Thorbecke) poverty measure. The FGT index is given by

$$P_{\alpha} = \frac{1}{N} \sum_{i=1}^q \left[ \frac{z - Y_i}{Z} \right]^{\alpha}$$

Where  $Z$  = poverty line defined as 2/3 of the Mean per capita household

$Y_i$  = per capita expenditure for all households;

$Q$  = number of poor people in the population of size  $N$

$\alpha$  = poverty aversion parameter that takes values of 0, 1 or 2 ( $\alpha=0$  measures poverty incidence;  $\alpha=1$  measures poverty gap and  $\alpha=2$  measures poverty severity).

$$MPCHHEXP = \frac{\text{Total per capita household expenditure}}{\text{Total number of households}}$$

MPCHHEXP = Mean per capita household expenditure

Poverty line = two-thirds of MPCHHEXP

Households were categorized into 2 classes; poor and non-poor households.

Any household whose expenditure falls below the poverty line is regarded as being poor while any household above it is regarded as non-poor.

### Ordered Probit Regression Model

Ordered probit regression was used to examine the factors influencing land control by farming households. The dependent variable  $Y^*$ , level of land control, measured by land control index, has 5 categories; <0.25, 0.251-0.50, 0.51-0.75, 0.751-0.99, 1.0

Model specification for the ordered probit regression:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \beta_6 X_6 + \beta_7 X_7 + \beta_8 X_8 + \varepsilon$$

$Y$  = Level of land control, measured by land control index:

1 = High (1.0), 2 = High medium (0.751-0.99), 3 = Medium (0.51-0.75),

4 = Low medium (0.251-0.50), 5 = Low (<0.25)

The independent variables include:

$X_1$  = Sector (Rural, Urban),  $X_2$  = Sex (Female, Male),  $X_3$  = Age (years),  $X_4$  = Years of education,  $X_5$  = Household size (number of persons),  $X_6$  = Involvement in non-agricultural activities (Yes, No),  $X_7$  = Geopolitical zone (North Central, North East, North West, South East, South South, South West),  $X_8$  = Marital status (married, not married),  $\beta_0$  = Constant term,  $\beta_1 - \beta_{12}$  = Regression coefficients to be estimated,  $\varepsilon$  = error term

### Logit Regression Model

Logit regression was used to determine the effect of land control on poverty among farming households.

Model specification for the logit regression:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \beta_6 X_6 + \beta_7 X_7 + \beta_8 X_8 + \beta_9 X_9 + \beta_{10} X_{10} + \beta_{11} X_{11} + \varepsilon$$

$Y$  = Poverty status of farming household (poor, non-poor)

The independent variables include:

$X_1$  = Level of land control (LCI: High (1.0), High medium (0.751-0.99), Medium (0.51-0.75), Low medium (0.251-0.5), Low (<0.25))

$X_2$  = Sex (Female, Male),  $X_3$  = Age (years),  $X_4$  = Marital status (married, not married),  $X_5$  = Geopolitical zone (North Central, North East, North West, South East, South South, South West),  $X_6$  = Credit access (Yes, No),  $X_7$  = Involvement in non-agricultural activities (Yes, No),  $X_8$  = Extension access (Yes, No),  $X_9$  = Years of education,  $X_{10}$  = Household size (number of persons),  $X_{11}$  = Monetary assistance from non-household member (Yes, No),  $\beta_0$  = Constant term,  $\beta_1 - \beta_{12}$  = Regression coefficients to be estimated,  $\varepsilon$  = error term

## RESULTS AND DISCUSSION

### *Socioeconomic characteristics of farming household heads in Nigeria*

The socioeconomic characteristics and enterprise characteristics of household heads in relation to land control and poverty among farming households in Nigeria are presented in Table 1. The socioeconomic variables include; sex, age, educational level, marital status, household size, involvement in non-agricultural activities, access to extension services, access to credit, and plot size.

The results in Table 1 show that majority (84.6%) of the household heads were male showing that men are the dominant group engaged in farming. This could be due to the rigours of on-farm work. This agrees with Alawode et al. (2018) that most farming households were headed by males. The highest proportion (69.8%) of the respondents were between the age range of 30-60 years, having a mean of 50.1 years ( $\pm 15.2$ ), implying that the respondents were within the active economic age. Farmers in their active years can engage in high level of farm production which can encourage productivity and in turn, reduce poverty. Results show that 73.4% had formal education, including 12.1% who had tertiary education. Farmers that are well educated will be well informed about the various ways to get control over the land they hold, and to fulfil other conditions to reduce poverty. Majority (81.1%) of the respondents were married, having a mean household size of 6.6 ( $\pm 3.7$ ). This implies that farmers were settled with their households and could encourage higher levels of farming.

Also, in Table 1, more than half (51.9%) of the respondents were involved in non-agricultural activities. This indicates that the households may use income from other livelihood activities to improve their farming activities. This implies that farmers were engaged in non-agricultural activities to increase income and thereby reduce poverty. From the results, small proportions; 15.3% had access to extension and 15.7% had access to credit. These indicate that majority of the households did not get access to extension services and innovations, as well as credit. Access to extension services is expected to improve levels of production and productivity, and thereby reducing poverty. Also, access to credit will facilitate more control on land by enhancing land access through market and the processing of land documents. The possession of land documents can also facilitate access to formal credit. These help to increase production and generate higher income, thereby reducing poverty of farmers. Results also indicate that the mean number of plots was 4.42( $\pm 14.9$ ), implying that, on the average, farmers held less than 5 hectares of farmland

**Table 1. Socioeconomic characteristics of farming household heads in Nigeria**

Variables	Frequency n = 3,351	Percentage
<b>Sex</b>		
Male	2,834	84.6
Female	517	15.4
<b>Age (Years)</b>		
< 30	220	6.6
30 – 60	2,340	69.8
>60	791	23.6
Mean 50.12 ( $\pm 15.24$ )		
<b>Education level</b>		
No formal education	891	26.6
Primary	1,212	36.2
Secondary	843	25.2
Tertiary	405	12.1
<b>Marital status</b>		
Married (Monogamous)	1,953	58.3
Married (Polygamous)	763	22.8
Informal/loose union	5	0.2
Divorced	34	1.0
Separated	49	1.5
Widowed	449	13.4
Never married	98	2.9
<b>Household Size</b>		
1 – 5	1,472	43.9
6 – 10	1,437	42.9
>10	442	13.2

Mean 6.58( $\pm 3.72$ )		
Involvement in non-agricultural activities	1,739	51.9
Access to extension services	511	15.3
Access to credit	525	15.7
<b>Plot size (hectares)</b>		
< 5	2,210	65.9
>5	1,141	34.1
Mean 4.42 ( $\pm 14.98$ )		

Source: Computed from 2018/2019 Nigeria GHS Data

### Means of land access by farmers in Nigeria

Various means of land access by farming households in Nigeria are presented in Table 2. Results show that farming households had access to the highest proportion (62.8%) of the plots by inheritance, still showing the dominance of inheritance as a means of land access in Nigeria. Also, households had access to 11.8% of the plots by outright purchase, 11.2% by rent in cash or kind (farm produce), and 0.6% by sharecropping. These underscore the growing land market in Nigeria. Further, households had access to 4.0% of the plots through distribution by community, 9.1% were used free of charge, and 0.4% by temporary land exchange.

**Table 2. Means of land access by farmers in Nigeria**

Means of land access	Frequency n = 10,270	Percentage
Outright Purchase	1,212	11.8
Rented in cash or in kind (farm produce)	1,150	11.2
Used free of charge	937	9.1
Distributed by community	414	4.0
Family inheritance	6,449	62.8
Sharecropping	66	0.6
Temporary land exchange	42	0.4

Source: Computed from 2018/2019 Nigeria GHS Data

### Level of land control by farming households

Control on land is measured by the ability of the household head to sell and/or bequeath the land. Also, the possession of legal documents determine control over land. The results of the level of land control by farming households are presented in Table 3. Results indicate that majority (88.8%) had no control over all the plots of farmlands held (LCI=0) while 6.0% had total control of the plots of farmlands held (LCI=1). This implies that majority can only carry out farming activities (use right) on the farmland and did not possess the legal documents



for the land. However, 4.7% of the households had varying degrees of control on the plots held ( $0 < LCI < 1$ ). Land control enhances high level of investment in land and access to credit. This shows why there is low level of access to credit by household heads (15.7% in Table 3).

Table 3. Level of land control by farming households

Land Control Index	Level of control	Frequency n = 3,351	Percentages
0	No control	2,976	88.8
≤ 0.25	Low	38	1.1
0.251 – 0.5	Low medium	59	1.8
0.501 – 0.75	Medium	56	1.7
0.751 – 0.99	High medium	20	0.6
1	Total control	202	6.0
Mean 0.22 (±0.2192)			

Source: Computed from 2018/2019 Nigeria GHS Data

Level of Poverty of Farming Households in Nigeria

The expenditure of the farming households is presented in Table 4. Results indicate that the mean household expenditure on food was ₦8,609.37 (±8617.15) while the mean household non-food expenditure was ₦12,587.08 (±7101.86). The farming households spent more on non-food than food items. Results also indicate that the mean total expenditure was ₦18,809.20 (±10444.45). The poverty line was ₦8,433.34.

Table 4. Household expenditure

Household expenditure	Minimum	Maximum	Mean
Food expenditure	63.2	129,846.6	8,609.37 (±8617.15)
Non-food expenditure	0.0	750,900	12,587.08 (±7101.86)
Total expenditure	294.5	200,903.3	18,809.20 (±10444.45)
Poverty line = ₦8,433.34			

Source: Computed from 2018/2019 Nigeria GHS Data

Poverty indices

The poverty indices are presented in Table 5. From the poverty line of ₦8,433.34 on Table 4, results indicate that the poverty incidence was 41.0%, poverty depth was 13.82%, and poverty severity was 6.8%. Poverty incidence shows that 41.0% of the households were below the poverty line, implying that relatively, they could not afford the basic needs of the households. The poverty gap shows that 13.82% of the poverty line (₦1,164.49) is required to move an average poor households to the poverty line. The poverty severity indicates that 6.8% of the households suffer from extreme poverty and they need attention by leaders.

Table 5. Poverty indices

Poverty index	Estimates (%)
Poverty incidence	41.0
Poverty depth	13.8
Poverty severity	6.8

Source: Computed from 2018/2019 Nigeria GHS Data

Poverty status of farming households

Table 6 shows the poverty status of the farming households. From the results, 41.0% were poor while 59.0% were non-poor. This shows that only 59.0% of farming households could afford basic necessities. This was before the Covid-19 pandemic. There is need for attention from policy makers to improve the lots of the farming households in Nigeria.

Table 6. Poverty status of farming households

Household expenditure	Frequencies (n=3,351)	Percentage
Non-poor	1,976	59.0
Poor	1,375	41.0

Source: Computed from 2018/2019 Nigeria GHS Data

Socioeconomic characteristics and poverty status of farming households

The results of the relationships between poverty status across socio-economic characteristics of household heads are presented in Table 7. All the results were significant at 1%.

Age and poverty status of the farming households

The results of the poverty status across age distribution of household heads indicate that higher proportion (65.9%) of the <30 years' age category were poor while higher proportion (63.2%) of the 30-60 years' category were non-poor. Also, more than half (53.5) of the >60 years' category were non-poor. This implies that poverty level reduces and welfare improves as household heads grow older. This may be due to better earning capability, accrued savings and better yielding investments.

Sex and poverty status of the farming households

Results indicate that higher proportion (62.7%) of the male headed households were non-poor, while higher proportion (61.3%) of the female headed households were poor. This may imply that male headed households have better earning capabilities than female headed households.

Household size and poverty status of the farming households

Higher proportion (57.7%) of households in 1-5 category were poor, while higher proportion (67.6%) of households within 6-10 were non-poor, and higher proportion (86.7%) of

**Table 7. Socioeconomic characteristics and poverty status**

Socioeconomic	Poor	Non poor	Total
<b>Age</b>			
< 30	145 (65.9)	75 (34.1)	220 (100)
30 – 60	862 (36.8)	1,478 (63.2)	2,340 (100)
> 60	368 (46.5)	423 (53.5)	791 (100)
Pearson chi2(2) = 83.1431 Pr = 0.000			
<b>Sex</b>			
Male	1,058(37.3)	1,776 (62.7)	2,834 (100)
Female	317 (61.3)	200 (38.7)	517 (100)
Pearson chi2(1) = 103.9389 Pr = 0.000			
<b>Household size</b>			
1-5	850 (57.7)	622 (42.3)	1,472 (100)
6-10	466 (32.4)	971 (67.6)	1,437 (100)
>10	59 (13.4)	383 (86.7)	442 (100)
Pearson chi2(2) = 353.8819 Pr = 0.000			
<b>Educational level</b>			
No education	462 (51.9)	429 (48.2)	891 (100)
Primary education	486 (40.1)	726 (59.9)	1,212 (100)
Secondary education	332 (39.4)	511 (60.6)	843 (100)
Tertiary education	95 (23.5)	310 (76.5)	405 (100)
Pearson chi2(3) = 96.1963 Pr = 0.000			
<b>Marital status</b>			
Married	961 (35.3)	1,760 (64.7)	2,721 (100)
Not married	414 (65.7)	216 (34.3)	630 (100)
Pearson chi2(1) = 195.3430 Pr = 0.000			
Total	1,375 (41.03)	1,976 (58.97)	3,351(100)

Source: Computed from 2018/2019 Nigeria GHS Data

households with >10 members were non-poor. This shows that poverty reduces with an increase in the number of household members. This may be due to low number of dependents and higher cumulative per capita income of the household members.

### Education and poverty status of the farming households

Higher proportion (51.9%) of households who had heads with no formal education were poor. However, higher proportion (59.9%) of those with primary education were non-poor and higher proportion (60.1%) with secondary education were non-poor. Results also indicate that higher proportion (76.5%) of those with tertiary education were non-poor. This implies that educated households had better welfare status, and higher education reduces poverty more. This may be because education gives access to better information, innovations and opportunities.

### Marital Status and poverty status of the farming households

Results indicate that higher proportion (64.7%) of those that were married were non-poor. However, higher proportion (65.7%) of those who were not married were poor. This implies that households of married persons had better welfare. Much more if larger households are able to pool their resources together.

### Factors influencing land control by farming households in Nigeria

The results of the ordered probit regression model on the factors influencing land control by farming households are presented on Table 8. The model was significant at 1% (Prob> chi2=0.0000). The log likelihood was -1623.2262.

Sector (Rural) was positive and statistically significant in determining land control by farming households at 1%. The probability of land control by farming household increases by 27.4% if the household is in the rural sector. This implies that farming households in the rural areas had more land control than farming households in the urban areas. This can be due to more available farmlands in the rural area relative to the urban setting.

Household size was negative and statistically significant in determining land control by farming households at 5%. A unit increase in the number of persons in a household will decrease the probability of land control of the farming household by 1.8%. This implies that increased household size will lead to a lower land control for the farming households. Also, more people in the household may lead to fragmentation of the lands.

Being in the North East was positive and statistically significant in determining land control of farming households at 1%. The presence of farming households in the North East area increases the probability of land control by 33%. Also, being in the South East was positive and statistically significant in deter-

**Table 8. Factors influencing land control by farming households**

Land control	Coefficient	Std. Err.	Z	p> z	Marginal effect
Sector (Rural)	0.274442***	0.092057	2.98	0.003	0.274442***
Sex (Female)	0.018535	0.136794	0.14	0.892	0.018535
Age	0.001774	0.002067	0.86	0.391	0.001774
Years of education	-0.001298	0.006291	-0.21	0.837	-0.001298
Household size	-0.018142**	0.008888	-2.04	0.041	-0.018142**
Involvement in non-agric. activity	-0.024814	0.059929	-0.41	0.679	-0.024814
<b>Zone</b>					
North East	0.329735***	0.091780	3.59	0.000	0.329735***
North West	-0.045039	0.101930	-0.44	0.659	-0.045039
South East	0.246482**	0.099959	2.47	0.014	0.246482**
South South	0.041721	0.108821	0.38	0.701	0.041721
South West	0.433095***	0.156429	2.77	0.006	0.433095***
<b>Marital Status</b>					
Not married	-0.232747*	0.127229	-1.83	0.067	-0.232747*

Number of observations = 3,351, LR chi2(12) = 74.87,

Prob> chi2 = 0.0000,

Log likelihood = -1623.2262, Pseudo R2 = 0.0225

\*\*\*, \*\*, \* significant at 1%, 5% and 10% respectively

Source: Computed from 2018/2019 Nigeria GHS Data

mining land control by farming households at 5%. The presence of farming households in the South East area increases the probability of land control by 25%. Further, being in the South West was positive and statistically significant in determining land control of farming households at 1%. The presence of farming households in the South West zone increases the probability of land control by 43%. The positive effect of North East, South East and South West zones on land control may be due to the presence of farmlands, ease of land access and land market in the area. The effect is highest in the South West.

Marital status (not married) was negative and statistically significant in determining the land control of farming households at 10%. Farming households with unmarried head will experience a decrease in the probability of land control by 23%. This may be due to inheritance and the need to increase production and income that comes with a larger household.

### *Effect of Land Control on Poverty Status of Farming Households in Nigeria*

The results of the logistic regression model on the effect of land control on poverty status of farming households are presented in Table 9. The model was significant at 1% ( $\text{Prob} > \chi^2 = 0.0000$ ). The log likelihood was -1878.6213.

#### **Land Control**

Low land control ( $\text{HCI} \leq 0.25$ ) was positive and statistically significant at 10%. Low level of land control by households increases the likelihood of the household being non-poor by 27.4%. This implies that farming households with low land control can increase their chances of being non-poor. Also, medium land control ( $\text{HCI} = 0.51-0.75$ ) was positive and statistically significant at 10%. Medium level of land control by households increases the likelihood of the household being non-poor by 33.6%. This implies that farming households with medium land control can increase their chances of being non-poor.

#### **Other socio-economic characteristics**

Age was positive and statistically significant at 1%. An increase of 1 year in the age of the farming household head increases the likelihood of being non-poor by 0.5%. This implies that the older the farming household head, the less the likelihood of the household being poor. Farming households may have accumulated wealth and assets over the years to keep them above the poverty line.

However, marital status was negative and statistically significant at 1%. Being a married household head reduces the likelihood of being non-poor by 48.9%. This may be due to the increased expenditure of the households. Also, a household being in the North East was negative and statistically significant at 1%. The presence of farming households in the North East area reduces the likelihood of being non-poor by 26.5%. This may be due to unfavorable weather and conflicts in the area.

Being in the South East was positive and statistically significant at 1%. The presence of farming households in the South East area increases the likelihood of being non-poor by 24%. Also, being in the South South was positive and statistically significant at 1%. The presence of a farming household

in the South South area increases the likelihood of being non-poor by 26.2%. This may be due to fertile lands, favorable weather and good market conditions.

Credit access was positive and statistically significant at 1%. Access to credit increases the likelihood of being non-poor by 22.1%. This implies that farming households with access to credit increases their chances of being non-poor. This is due to better investments in farm assets and improved productivity. Also, involvement of a household in non-agricultural activities was positive and statistically significant at 1%. Involvement in non-agricultural activity increases the likelihood of being non-poor by 27.8%. This implies that farming households who are involved in non-agricultural activities (livelihood diversifica-

**Table 9. Effect of land control on poverty status of farming households**

Poverty	Coefficient	Std. Err.	Z	P> z	Marginal effect
<b>Land control</b>					
$\leq 0.25$ (low)	0.396173	0.233939	1.69	0.090	0.396173*
0.251-0.5 (low medium)	0.073622	0.185064	0.40	0.691	0.073622
0.51-0.75 (medium)	0.335954	0.195723	1.72	0.086	0.335954*
0.751-0.99 (high medium)	0.388631	0.356131	1.09	0.275	0.388631
1 (total)	-0.046344	0.097293	-0.48	0.634	-0.046344
Sex (Female)	0.054923	0.107296	0.51	0.609	0.054922
Age	0.005166	0.001735	2.98	0.003	0.005166***
Married	-0.488639	0.100114	-4.88	0.000	-0.488639***
<b>Zone</b>					
North East	-0.265279	0.077113	-3.44	0.001	-0.265279***
North West	0.078601	0.080488	0.98	0.329	0.078601
South East	0.239842	0.083922	2.86	0.004	0.239842***
South South	0.26207	0.087437	3.00	0.003	0.26207***
South West	0.042670	0.097214	0.44	0.661	0.042670
Credit access	0.221282	0.067284	3.29	0.001	0.221282***
Involvement in non-agric. activity	0.278673	0.048944	5.69	0.000	0.278673***
Extension access	0.206094	0.068415	3.01	0.003	0.206094***
Years of education	0.040403	0.005200	7.77	0.000	0.040403***
Household size	0.144118	0.008432	17.09	0.000	0.144118***
Monetary assistance from non-household member	0.355885	0.16648	2.14	0.033	0.355885**
Constant	-0.894917	0.168266	-5.32	0.000	

Number of observation = 3,351, LR  $\chi^2$  (19) = 779.86,

$\text{Prob} > \chi^2 = 0.0000$

Log likelihood = -1878.6213, Pseudo R<sup>2</sup> = 0.1719

\*\*\*, \*\*, \* significant at 1%, 5% and 10% respectively

Source: Computed from 2018/2019 Nigeria GHS Data

tion) increases their chances of being non-poor. This is due to diversified sources of income, which can lead to better investments in farm assets and improved productivity.

Extension access was positive and statistically significant at 1%. Improved access to extension services increases the likelihood of being non-poor by 22%. This implies that farming households with access to extension services increases their chances of being non-poor. This is due to better decision making from innovations and information provided to them. In the same vein, years of education was positive and statistically significant at 1%. An additional year of education of the household head increases the likelihood of being non-poor by 4%. This implies that the better educated the household head, the better their chances of being non-poor. Education presents the households to more opportunities as well as the use of modern equipment and current trends to improve their productivity.

Household size was positive and statistically significant at 1%. Increase in number of household member increases the likelihood of being non-poor by 14.4%. This implies that the larger the farming household, the better their chances of being non-poor. Large households with fewer dependents usually have more people available for labour and farm management. Likewise, monetary assistance from non-household member was positive and statistically significant at 5%. Increased assistance from non-household members will increase the likelihood of being non-poor by 36%. This implies that farming households will have more money for food and non-food expenditure.

## CONCLUSION AND RECOMMENDATIONS

Inheritance is still the dominant means of land access in Nigeria although land market is growing, and households had very low level of control over all the plots of farmlands held. Also, high proportion of the farming households are poor. Land control positively influence the poverty status of the farming households in Nigeria; farming households with low land control can increase their chances of being non-poor. In addition, credit access, extension access, education, larger households and involvement in non-agricultural activity also contributed to the improvement of the poverty status (being non-poor) of farming households in Nigeria. Rural farmers should be encouraged to obtain legal documents on their land to facilitate higher level of control. The government and stakeholders should promote education in rural areas. Improving the level of education of farmers through increased access to educational facilities like schools will enhance the literacy level of farmers which will further impact the poverty status of farming household.

## REFERENCES

- Alao, O. T., Bamiwuye, O. A. and Adedokun, J. A. (2020). Poverty Status among Farming Households in Ogbomoso South Local Government Area of Oyo State, Nigeria. *Nigerian Journal of Rural Sociology*, 20(1): 105-111.
- Alawode, O.O., Abegunde, V.O. and Abdullahi, A.O. (2018). Rural land market and commercialization among crop farming households in Southwestern Nigeria. *International journal of innovative food, Nutrition and sustainable Agriculture*, 6(3), 54-62.
- Daud, A., Kamal, Awotide, B., Amoke, Lawal, L. Waheed, O. and Kehinde, L. (2022). Impact of Land Access and Ownership on Farm Production Empirical Evidence from Gender Analysis in Southwestern Nigeria. *African Journal on Land Policy and Geospatial Sciences*. 5(1). 2657-2664. 10.48346/IMIST.PRSM/ajlp-gs.v5i1.29079.
- Hosaena, G. and Zavale, H. (2018). Land access, tenure security and the fate of rural youth in Africa: the case of Mozambique, *International Food Policy Research Institute, USA Eduardo Mondlane University, Mozambique*.
- Hull, S., Sehume, T., and Sothafile, L. (2016). Land Allocation, Boundary Demarcation and Tenure Security in Tribal Areas of South Africa. *South African Journal of Geomatics*. 5(1): 68-81. DOI:10.4314/sajg.v5i1.5
- Ogunniyi, A., Mistura, R., Mavrotas, G., Kehinde, O., Kabir, S.K. and Olusegun, F. (2020). Delving Deeper into Child Poverty and Its Drivers in Sub-Saharan Africa: A Multidimensional Approach for Nigeria. In *What Works for Africa's Poorest Children: From Measurement to Action*, eds. David Lawson, Diego Angemi, and Ibrahim Kasirye. Chapter 5, Pp. 95-115.
- Jaiyeola, A.O. and Choga, I. (2021) Assessment of poverty incidence in Northern Nigeria, *Journal of Poverty*, 25:2, 155-172, DOI: 10.1080/10875549.2020.1783424
- Makinde O.L., Alawode O.O. and Olaoye R.A. (2024). Legal Issues in Land Acquisition for Agricultural Production in Nigeria. *American Journal of Agricultural Science, Engineering, and Technology (AJASET)*, 8(2): 56-64, 2024. ISSN: 2158-8104 (Online), 2164-0920 (Print) DOI: <https://doi.org/10.54536/ajaset.v8i2.2705>
- Mukaila, R., Falola, A., Akanbi, S.U.O., Aboaba, K.O., & Obetta, A.E. (2022). Drivers of poverty among rural women in Nigeria: Implications for poverty alleviation and rural development. *The Journal of Rural and Community Development*, 17(1), 12-25
- National Bureau of Statistics (2016). *LSMS-Integrated Surveys on Agriculture. General Household Survey Panel 2015/2016*. Abuja, Nigeria
- Oguizu, A., and Orinkpa, J. (2020). Anthropometric Measurement and Dietary Pattern of Rural Farmers in Osisioma Ngwa Local Government Area Abia State, Nigeria. *Proceedings of the Nutrition Society*, 79. <https://doi.org/10.1017/S002966512000172X>.
- Onoja, A. O., Chinyere Onudorogu, C. , Clarietta Chagwiza, C. and Tagwi, A. (2022). Status and Determinants of Farm Household Poverty in South East, Nigeria. *The Journal of Developing Areas*, 56(2): 169-184; DOI: 10.1353/jda.2022.0022.
- Sassi, M. (2023). *Economic Connectiveness and Pro-Poor Growth in Sub-Saharan Africa: The Role of Agriculture*. Sustainability. <https://doi.org/10.3390/su15032026>.
- World Bank Group (2020) Nigeria Releases New Report on Poverty and Inequality in Country, World Bank. Available at: <https://www.worldbank.org/en/programs/lsm/brief/nigeria-releases-new-report-on-poverty-and-inequality-in-country> (Accessed: 15 June 2024).





# PROMOTING COCOA EXPORT FOR TRANSFORMATIVE AND SUSTAINABLE AGRICULTURAL GROWTH IN NIGERIA

Udeme Henrietta Ukpe<sup>1</sup>, Iheanyi Onuigbo<sup>2</sup>

<sup>1</sup>Department of Agricultural Economics and Extension, Federal University Wukari, P.M.B 1020  
Wukari, Taraba State, Nigeria

<sup>1</sup>Corresponding author e-mail address: ukpe@tuwukari.edu.ng

<sup>2</sup>Department of Agricultural Economics, Joseph Sarwuan Tarka University Makurdi, PMB 2373,  
Makurdi, Benue State, Nigeria

<sup>2</sup>Coauthor's e-mail address: onuigbo44@yahoo.com

**Abstract:** This study was carried out to assess whether cocoa export crop could serve as driver for transformative and sustainable agricultural growth in Nigeria. Data were collected from secondary sources. Vector Error correction, impulse response and variance decomposition were used as analytical tools. The results showed that the in the short run the coefficient of determination ( $R^2$ ) was 0.507 indicating that 50.7% of the variation in agricultural growth was explained by cocoa export, exchange rate, government expenditure and labour. There is a positive short run relationship and a negative long run relationship between cocoa export and agricultural growth. Labour exhibits an adverse effect in the short and long run on agricultural growth. Also, the result shows a short and long run positive relationship between exchange rate, government agricultural spending, and agricultural growth. Agricultural growth responded positively to a unit shock in Cocoa export and exchange rate in both the short run and long run. It was recommended that government should be proactive in its responsibilities by increasing budgetary allocation to agriculture and monitoring of its distribution, incentivize local investors and cocoa farmers, put in place viable export policy and appropriate exchange rate policy to stabilize the Nigerian economy. This will restore the place of Nigeria in the competitive cocoa market as well as increase agricultural growth.

**Keywords:** Agricultural growth, cocoa export, impulse response, variance decomposition  
(JEL code: C53; Q18; O11; R15)

## INTRODUCTION

The cocoa sector has the capacity to generate employment opportunities, particularly in rural areas where poverty rates are high. Nigeria is the fourth-largest cocoa producer globally and has the potential to tap into the growing global demand for cocoa and cocoa-derived products (FAO, 2018). By expanding cocoa export, Nigeria can enhance economic growth, reduce dependence on oil revenue, and create opportunities for smallholder farmers. While there is a growing body of literature on cocoa production and adoption in Nigeria, there exists a notable research gap regarding the promotion of cocoa exports for transformative and sustainable agricultural output performance in Nigeria.

While several studies (Ajayi and Ojo, 2019; Osabuohien, 2017; Kehinde, 2022) have addressed the challenges and opportunities in cocoa production, and others (Federal Ministry of Agriculture and Rural Development, 2016; UNDP, 2019) have highlighted policy initiatives and value chain analysis, there is limited empirical research on the practical implications of exports determinants of cocoa such as its output, exchange rate, public agricultural spending and agricultural labour. Therefore, there is a need to ascertain their contribution for the sustainability of the agricultural sector in Nigeria.

Despite its potential, the cocoa export sector in Nigeria faces several challenges that hinder its transformative and sustainable agricultural output performance. For instance, Nigeria primarily exports raw cocoa beans, missing out on

the economic benefits of value-added cocoa products. The lack of processing facilities and infrastructure for cocoa processing hampers the country's ability to compete in the global market (FAO, 2018). The decline has particularly affected the socioeconomic development of the cocoa producing states. The decline in cocoa production is attributed to a myriad of problems such as the ageing of cocoa farmers and cocoa trees, depletion of soil fertility, high pest and disease infestation, poor maintenance of cocoa farms, and lack of credit access, among others (Kehinde and Adeyemo, 2017; Kolawole et al., 2020; Kehinde and Tijani, 2021a; Kehinde and Ogundeji, 2022a; Kehinde, 2022).

Though Nigeria still commands an appreciable share of the cocoa produced from the African continent, evidence over the years had shown a decline in annual output, thereby giving rise to a fall in the fortune of the sub-sector (ICCO, 2016; Daudu et al., 2021). This was consequent upon the closure of the Nigerian Cocoa Marketing Board in the 1980s after which the government's involvement in the cocoa sub-sector was greatly reduced and premium quality was no more rewarded (Adelodun, 2017; Daudu et al., 2021). Earnings from cocoa exports had also gone down in recent times as observed in 2019 when the country recorded export revenue of US\$248.5 million depicting a drop of 3.0% from 2018 figure mainly due to the exportation of low-quality cocoa beans (Workman, 2020; Daudu et al., 2021). The International Institute for Tropical Agriculture asserted that Nigerian cocoa farmers produce beans of low quality due to their adherence to primordial production practices and non-compliance to the international specifications (IITA, 2017; Daudu et al., 2021).

Nigeria has been heavily dependent on oil revenue for its economic sustenance, making it highly susceptible to global oil price fluctuations. Diversifying the economy through the promotion of cocoa exports can reduce this dependency, create a more stable revenue stream, and improve economic resilience (World Bank, 2017). The significance of this endeavor becomes evident in the context of Nigeria's economic diversification aspirations (World Bank, 2017). With an overreliance on oil revenue, the need to diversify the economy has never been more pressing, and cocoa exports present a compelling opportunity to achieve this diversification. In a world increasingly attuned to environmental concerns, the sustainability of cocoa production in Nigeria is paramount. Sustainable cocoa farming practices not only safeguard the environment but also align with global consumer preferences for responsibly sourced products (ICO, 2020). Furthermore, the revival of the cocoa sector holds the promise of rural development, job creation, and poverty alleviation (Owusu and Owusu, 2018). By enhancing productivity, improving value chain linkages, and embracing sustainable farming practices, cocoa can become a vehicle for holistic rural transformation.

In the subsequent sections, we provide an overview of cocoa export sector in Africa, present the methodology, results and discussion, and draw conclusions. Through this article, we aim to contribute to the ongoing discourse by assessing the role that cocoa export could play in sustaining and transforming Nigeria's agriculture into a catalyst for poverty alleviation and food security.

## *Overview of the Cocoa export sector in Africa*

Africa has a long history of cocoa production, dating back to the colonial era. Early cultivation of cocoa was concentrated in West Africa, particularly Ghana and Côte d'Ivoire. Today, these two countries remain the largest cocoa producers in Africa and contribute significantly to global cocoa exports (Martin, 2018). However, other African countries, including Nigeria, Cameroon, and Togo, also make substantial contributions to the continent's cocoa industry (Gockowski and Sonwa, 2011). These countries have historically been major cocoa exporters, with Côte d'Ivoire and Ghana being the largest exporters globally (UNCTAD, 2020). The cocoa export sector in Sub-Saharan Africa is primarily focused on the export of raw cocoa beans, with limited value addition and processing activities (Gockowski and Sonwa, 2011). This exposes these countries to price volatility and limits their ability to capture higher-value segments of the cocoa value chain (Schoneveld and Andrianto, 2020).

Cocoa exports play a vital role in the economies of many African countries. The revenue generated from cocoa exports contributes to foreign exchange earnings, employment generation, and poverty reduction (Sarpong et al., 2019). The sector provides income opportunities for millions of smallholder farmers, thereby supporting rural livelihoods and promoting socioeconomic development. Enhancing value addition and processing capacity is crucial for increasing export earnings and improving the competitiveness of Sub-Saharan African countries in the global cocoa market (Schoneveld and Andrianto, 2020). Sustainable cocoa production and certification schemes have gained prominence in recent years, driven by increased consumer demand for ethically sourced and environmentally sustainable cocoa (Schoneveld and Andrianto, 2020).

Government policies and interventions play a crucial role in shaping cocoa exports in Africa. Countries like Ghana and Côte d'Ivoire have implemented cocoa sector reforms, including price stabilization mechanisms, farmer support programs, and investment in research and development (Martin, 2018). These interventions aim to enhance productivity, improve farmer incomes, and strengthen the cocoa value chain.

Sub-Saharan African countries face various challenges in their cocoa export sectors. These include issues related to aging cocoa tree populations, low productivity, pests and diseases, inadequate access to finance and inputs, limited infrastructure (Gockowski and Sonwa, 2011; Schoneveld and Andrianto, 2020; Ahmed et al., 2020). Additionally, climate change poses a significant threat to cocoa production in the region, with rising temperatures and changing rainfall patterns affecting cocoa-growing regions (Schroth et al., 2016). Additionally, issues such as child labor and price volatility pose significant challenges to sustainable cocoa production and ethical supply chains (Martin, 2017).

Despite the challenges, cocoa exports in Sub-Saharan Africa present opportunities for economic growth, poverty reduction, and rural development. Enhancing productivity through improved farming practices, promoting value addition and processing, strengthening farmer support systems, and investing in infrastructure are crucial for realizing the

potential of the cocoa sector (Gockowski and Sonwa, 2011). Furthermore, regional cooperation and coordination among cocoa-producing countries can facilitate knowledge sharing, resource pooling, and joint marketing initiatives (UNCTAD, 2020). Sustainable cocoa production has gained increasing attention, and certifications like Fairtrade, Rainforest Alliance, and UTZ have been introduced to address social, environmental, and economic concerns in the cocoa sector. Several studies have examined the impact of certification schemes on cocoa farmers' livelihoods, market access, and environmental practices (Dzahini-Obiatey et al., 2021; Asare et al., 2020). These certifications aim to improve farming practices, increase farmer incomes, and promote responsible supply chains.

## MATERIALS AND METHODS

### The Study Area

The study area is Nigeria. Nigeria has an area of 923,768.00 sq. kilometers and lies between latitudes 40 and 140North of the equator and longitudes 30 and 140East of the Greenwich meridian. It is bounded on the West by the Republic of Benin on the North by the Republic of Niger and on the East by the Federal Republic of Cameroun, and on the South by the Nigerian coast- line bathed by the Atlantic Ocean.

### Data Collection Method

Annual time series data spanning a period of twenty years (1996-2021) were used for the study. Data on Agricultural productivity and the value of cocoa export measured in Naira was collected from Food and Agriculture Organization of the United Nations (FAO) and United Nations Conference on Trade and Development (UNCTAD). The official exchange rate of Nigeria measured in US dollars was collected from World Bank data base, Government expenditure on agriculture and labour were gotten from National Bureau of statistics and were measured in Naira and number of people employed in the agricultural sector.

### Techniques of Data Analysis

To avoid reporting spurious regression findings, a unit root test, called Augmented Dickey-Fuller (ADF) coined by Dickey and Fuller (1981) for testing a stationary time series data was used. The unit root test determines whether the series is stationary at the level, first or second difference. Johansen co-integrating test was carried out to establish the existence of a long run relationship, Vector Error Correction model was used to analyse the short run and long run effects of the determinants of agricultural growth, Variance decomposition and impulse response were applied to determine the contributions of each of the determinants to agricultural growth and the response of agricultural growth to a unit shock of each of the variables respectively.

## Models specification

### Augmented Dickey Fuller test (ADF)

The Augmented Dickey Fuller (ADF) model with the constant term and trend can be specified as follows:

$$\Delta Y_t = \alpha_0 + \alpha_1 t + \beta Y_{t-1} + \sum_{i=1}^p \delta_i \Delta Y_{t-i} + \varepsilon_t \quad (1)$$

Where Y is the value of the variable of interest (Agricultural growth, Cocoa export, government expenditures on agriculture, exchange rate and Agricultural labour),  $\alpha_0$  is the constant,  $\alpha_1$  is the coefficient of the trend series,  $p$  is the lag order of the autoregressive process,  $Y_{t-1}$  is lagged value of order one of  $Y_{t-1}$  and  $\varepsilon_t$  is the error term.

### Johansen Cointegration test

Johansen tests assess the null hypothesis  $H(r)$  of co-integration rank less than or equal to  $r$  among the time series in  $Y$  using trace test or max-eigen test. Granger's representation theorem asserts that if the coefficient matrix  $\Pi$  has reduced rank  $r < k$ , then there exist  $k \times r$  matrices  $\alpha$  and  $\beta$  each with rank  $r$  such that  $\Pi = \alpha\beta'$  and  $\beta'y_t$  is  $I(0)$ . A linear combination of two or more  $I(1)$  series may be stationary or  $I(0)$ , in which case the series are co-integrated. The null hypothesis for the Johansen cointegration test ( $H! : r = 0$ ) implies that co-integration exist, while the alternative ( $H! : r > 0$ ) means that co-integration does not exist in which case the null hypothesis is rejected. The rejection of the null hypothesis imposes the lagged residual from the co-integrating regression as the error correction term in a Vector Error Correction Model which could be specified thus:

$$\nabla Y_t = \Pi Y_{t-1} + \sum_{i=1}^{k-1} \tau_i \nabla Y_{t-1} + u + \quad (2)$$

$\nabla Y_t$  = First difference of a () vector of the  $n$  variables of interest.  $\Pi = (n \times n)$  coefficient matrix associated with lagged values of the endogenous dependent variables,  $Y_{t-1}$  = Lagged of  $Y_t$ ,  $\tau = (n \times (k-1))$  Matrix of short term coefficients  $u = (n \times 1)$  vector of constant and  $\varepsilon_t = (n \times 1)$  vector of white Noise Residuals.

### Vector Error Correction Model (VECM).

The vector error correction (VEC) model is just a special case of the VAR for variables that are stationary in their differences (i.e.,  $I(1)$ ). The VEC can also take into account any cointegrating relationships among the variables. This was applied to investigate on short run interaction causality and the ability to correct long run deviation in the short run. The model is specified thus with the variables of interest.

$$\nabla \ln AGRP_{t-1} = \alpha_0 + \sum_{i=1}^p a_1 \nabla \ln CCEXP_{t-1} + \sum_{i=1}^p a_2 \nabla \ln EXCH_{t-1} + \sum_{i=1}^p a_3 \nabla \ln GOVEXP_{t-1} + \sum_{i=1}^p \quad (3)$$



Where:

$\ln\text{AGRP}_{t-1}$  = Agricultural growth,

$\ln\text{CCEXP}_{t-1}$  = Value of cocoa export,

$\ln\text{EXCH}_{t-1}$  = Exchange rate

$\ln\text{GOVEXP}_{t-1}$  = Government expenditure on Agriculture,

$\ln\text{LABOR}_{t-1}$  = Value of labour in agriculture

$\varepsilon_t$  = Error term

## RESULTS AND DISCUSSION

### Testing for Stationarity: Unit Root Test Results

The Augmented Dickey Fuller test results presented in table 1 shows that all the variables are not stationary at level hence the null hypothesis that states that Cocoa export, Exchange rate, Government expenditure on agriculture and labour do not influence agricultural production cannot be rejected. This implies that the variables have unit roots. A further test at first difference of the entire variables rejected the null hypothesis at 1% as the values of ADF t-statistic are greater in absolute term than the critical value. It is therefore concluded that the series of cocoa export, exchange rate, government expenditure on agriculture and labour are integrated of order I(1).

**Table 1. Unit Root test Result in Levels and First Difference**

	ADF Results				
	At level		At First difference		Decision
Variables	t-statistic	Probability	t-statistic	Probability	
$\ln\text{AGRP}_{t-1}$	-3.986764	0.0270	-6.513864	0.0002***	I(1)
$\ln\text{CCEXP}_{t-1}$	-1.970812	0.5792	-3.120956	0.0420**	I(1)
$\ln\text{EXCH}_{t-1}$	-2.167521	0.2230	-4.267279	0.0040***	I(1)
$\ln\text{GOVEXP}_{t-1}$	-0.870443	0.7735	-7.316249	0.0000***	I(1)
$\ln\text{LABOR}_{t-1}$	-2.470735	0.1376	-13.20043	0.0000***	I(1)

\*\*\* indicate stationary at 1% and \*\* stationary at 5% level of significance respectively

Source: Computed from 2018/2019 Nigeria GHS Data

### Co-integration Test Result

The results of the unrestricted co-integration test presented in Table 2 shows the values of Trace statistic to have co-integration in one of the equations at 5% level of significance. This implies the existence of a long run relationship among the variables. The subsequent equations shows the Trace statistic to be less than the critical values indicating the rejection of the hypothesis ( $H_1: r > 0$ ), meaning that co-integration does not exist. This reveals that some variables have a long run relationship with the dependent variable; others exist to correct long run deviations in the short run.

**Table 2. Co-integration Rank Test based on Trace Statistic**

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	Critical Value 0.05	Prob.**
None *	0.286872	88.342	69.818	0.0000
At most 1	0.269719	12.067	47.856	0.0000
At most 2	0.233880	29.797	59.567	0.0000

Trace statistic test indicates 1 co-integration equation at 0.05 level of significance

This denotes rejection of the hypothesis at the 0.05 level

\*MacKinnon-Haug-Michelis (1999) p-values

Source: Authors computation using E-Views

### Assessing the Factors affecting Agricultural Growth in the Long run

The VECM was employed in order to analyse the long run and short run dynamics of the effects of the factors that promote agricultural growth.

The result shows that in the long run, cocoa export, exchange rate, government agricultural spending and labour were the variables that significantly affected agricultural production. Specifically, the coefficient of Exchange rate (1.02) and Government agricultural spending (1.87) were positive and significant at 1%. This implies that, a unit increase in exchange rate and public agricultural spending will increase agricultural growth by 1.87% and 1.02% respectively. This could be due to the various agricultural targeted programs set up by the government to sustain the agricultural sector. This finding is in line with Setshedi and Mosikari (2019) who found a positive relationship between government expenditure and agricultural productivity. Similarly, exchange rate increase stimulates export which in turn generates foreign exchange. This finding is contrary with Oloukoi (2020) who found a negative relationship between exchange rate and agricultural output in Nigeria. In contrast, the coefficients of cocoa export (-0.05) and labour (-11.4) were negative and significant and at 1%. This implies that a unit increase in the value of cocoa export and labour will decrease agricultural growth by 5% and 11.4% respectively in the long run. The negative effects of cocoa export could be due to the fact that cocoa industry in Africa and especially in Nigeria faces various challenges that impact its production and export potential. These challenges include environmental factors

**Table 3. Factors affecting Agricultural Growth in the Long run**

Variables	Coefficients	t- Value
LNCCOAEX	-0.055002***	-6.2
LNEXCH	1.020757***	11.6
LNGOVEXP	1.872895***	22.2
LNLABOUR	-11.44490***	-19.5
C	140.1533	7.15

\*\*\* Significant at 1%

(climate change, pests, and diseases), low productivity, aging cocoa trees, limited access to finance and technology, and inadequate infrastructure (Ahmed et al., 2020). The negative effect of labour on agricultural growth might be due to rural urban migration by the active labour force leaving the elderly and the aging population in cocoa farming and export. This finding is contrary to the Arikewuyo et al. (2021) who found that employment in the agricultural sector is positively related to agricultural output in Sub-Saharan Africa.

### Factors affecting Agricultural Growth in the short run

The result showed that the coefficient of determination ( $R^2$ ) was 0.507 indicating that 50.7% of the variation in agricultural growth was explained by cocoa export, exchange rate, government expenditure and labour. The result also shows that 'F' Statistic (2.05) was significant at 5% indicating the goodness of fit and the overall significance of the variables used in the model. The result further revealed that in the short run, the previous year's cocoa export and labour significantly affected agricultural growth. Specifically, the coefficient of Cocoa export (0.26) was positive and significant at 1% while labour (-6.11) was negative and significant at 10%. The positive effect of cocoa export indicates that a unit increase in cocoa export will increase agricultural growth by 0.26% in the short run. This could be due to accruals from foreign exchange earned from cocoa export ploughed back into agriculture. Another reason may be due to the positive externalities which accrue to exporting countries such as increasing return to scale, increased innovations and other efficiency gains all of which can increase agricultural growth. This result agrees with the findings of Noula et al. (2013) who found that cocoa export enhance agricultural growth through increased competition, economies of scale and increased capacity utilization. In contrast, the coefficient of labour (-6.11) was negative and significant at 10%. This result indicates that a unit increase in labour will decrease agricultural growth by 6.1% in the short run. This could be as a result of the un-mechanized nature of farming in Nigeria where drudgery impedes youth participation in agriculture.

**Table 4. Short Run Determinants of Agricultural growth**

Error Correction:	D(AGPRO)	D(CCEX)	D(EXCH)	D(GEXP)	D(LABOR)
D(AGPRO(-1))	-0.365066 [-1.61169]	-0.326434 [-0.42198]	0.012686 [0.15573]	0.183830 [0.85832]	0.009250 [0.83940]
D(CCEX(-1))	0.261352 [2.59849]***	0.592767 [1.72569]	0.004664 [0.12893]	0.106080 [1.11545]	0.004131 [0.84416]
D(EXCH(-1))	-0.577479 [-1.08588]	-2.913111 [-1.60393]	-0.135753 [-0.70978]	-0.435016 [-0.86512]	-0.031216 [-1.20648]
D(GEXP(-1))	0.157522 [0.55175]	0.068845 [0.07061]	0.175195 [1.70628]	0.050994 [0.18891]	0.026673 [1.92031]
D(LABOR(-1))	-6.113570 [-1.87552]*	-11.91003 [-1.06985]	3.138558 [2.67721]	-5.269297 [-1.70963]	-6.617061 [-3.89093]***
C	0.203206 [1.05294]	0.859333 [1.30380]	0.029603 [0.42650]	0.291713 [1.59862]	0.049433 [5.26485]
R-squared	0.507107	0.329060	0.674549	0.337258	0.685787
Adj. R-squared	0.260660	-0.006410	0.511824	0.005887	0.528681
Sum sq. resids	4.918447	57.36706	0.636174	4.397240	0.011642
F-statistic	2.057672	0.980891	4.145324	1.017765	4.365112

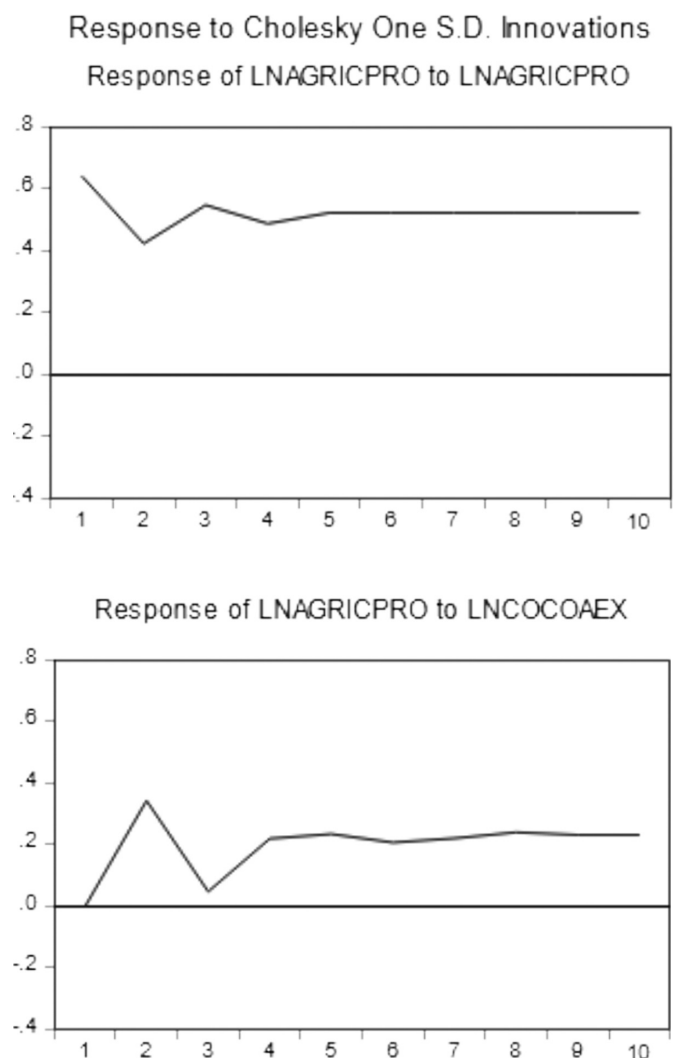
\*\*\*, and \* Significant at 1% and 10% respectively

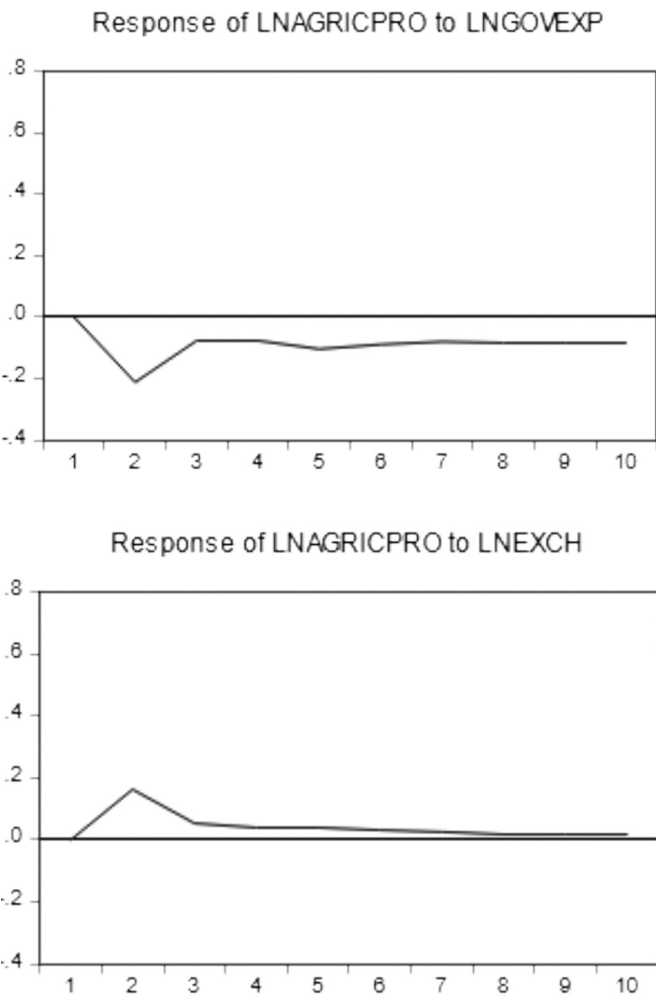
N.B. Values in brackets are *t* statistics

### Impulse responses of Agricultural growth to unit shock of Variables of interest

The result of the study revealed that agricultural growth responded positively to its unit shock in both the long run (10years) and short run (5yrs). Also, Agricultural growth responded positively to a unit shock in Cocoa export and exchange rate in both the short run (5yrs) and long run (10years). In contrast, agricultural growths responded negatively to a unit shock in Government agricultural spending and labour both in the short run (5yrs) and long run (10years). This implies that the lesser the government spend on the agricultural sector; the lesser will be the growth of the sector. The negative response on labour could be explained by the rural urban migration of youth endemic in the country and the preponderance of aging population in agriculture.

**Figure 1. Impulse responses of Agricultural growth to unit shock of Variables of interest**





Variance Decomposition Results of Agricultural growth and variables of interest

The result also showed that agricultural growth will contribute to itself for 81.2% in the short run and 81.7% in the long run. Cocoa Export will contribute to agricultural growth for 13.0% in the short run and 14.2% in the long run. Exchange rate will contribute to agricultural growth by 1.9% in the short run and 1.1% in the long run. Government agricultural spending will contribute to agricultural growth for 3.9% in the short run and 3.1% in the long run. labour will contribute to agricultural growth for 0.89% in the short run and 1.6% in the long run. Among the variables used, cocoa export was found to have the highest contribution to agricultural growth in Nigeria both in the short run and the long run.

CONCLUSION

This study was carried out to assess whether cocoa export crop could serve as driver for transformative and sustainable agricultural growth in Nigeria. It was found a positive short run relationship and a negative long run relationship exist between cocoa export and agricultural growth. Labour exhibits an adverse effect in the short and long run on agricultural growth. Also, the result shows a short and long run positive relationship between exchange rate, government agricultural spending, and agricultural growth. The results also showed that Agricultural growth responded positively to a unit shock in Cocoa export and exchange rate in both the short run and long run. It was recommended that government should be proactive in its responsibilities by increasing budgetary allocation to agriculture and monitoring of its distribution, incentivize local investors and cocoa farmers, put in place viable export policy and appropriate exchange rate policy to stabilize the Nigerian economy. This will restore the place of Nigeria in the competitive cocoa market as well as increase agricultural growth. There is also a need to set up measures such as training, and land access to attract youth in Cocoa agribusiness given that they could provide energetic and skillful labour to raise the productivity of the commodity.

REFERENCES

Adelodun A. (2017): *Cocoa production in Nigeria: A literature review*. The Centre for Public Policy Alternatives (CPPA) Publication, Lagos, Nigeria. <http://www.cpparesearch.org>. (Accessed on January18, 2021)

Ajayi, O. C., and Ojo, A. O. (2019). Sustainable cocoa production in Nigeria: A review. *Agricultural Reviews*, 40(4), 241-250.

Ahmed, S., Asare, R., and Ofori, K. (2020). Cocoa farming system and its challenges in Ghana: A case study of the Suhum Kraboa Coaltar District. *African Journal of Agricultural Research*, 15(5), 844-853.

Arikewuyo, K., Yumusa, L., Oke, B., and Okuneye, B. (2021). Do labour and political will affect agricultural output? Evidence from Sub-Saharan Africa. *Economic Analysis*, 54(2):104-117

Asare, R., Obeng, E. A., and Dzahini-Obiatey, H. (2020). Effects of certification on cocoa farmers' livelihoods and production practices in Ghana. *Sustainability*, 12(5), 1829.

Dickey, D, A, and Fuller, W.A (1981), Likelihood Ratio Statistics for Autoregressive Time serieswith unit Root. *Econometrica*, 74 Review

Table 5. Variance Decomposition Results of Agricultural growth and variables of interest

Period	S.E.	LNAGRI PRO	LNCCEXP	LNXCH	LNGOVEXP	LNLABOUR
5yrs	1.311194	81.19003	12.97636	1.896031	3.928617	0.008963
10yrs	1.839057	81.66542	14.21733	1.045462	3.055707	0.016087

Source: Authors computation using E-Views

- Daudu, A. K., Oladipo, F. O., Balogun, K. S., Awoniyi, O. A., and Adisa, R. S. (2021). Factors determining adoption of bean quality improvement practices by cocoa farmers in Cross River State, Nigeria. *AGRICULTURA TROPICA ET SUBTROPICA*, 54 OV, 32–42, 2021. DOI: 10.2478/ats-2021-0004
- Dzahini-Obiatey, H., Asare, R., and Fialor, S. C. (2021). Impacts of cocoa certification on farm-level environmental practices and biodiversity conservation in Ghana. *Sustainability*, 13(3), 1467.
- Federal Ministry of Agriculture and Rural Development. (2016). Nigeria Cocoa Roadmap: A Strategic Plan for Sustainable Growth and Development in the Cocoa Sector.
- FAO. (2018). Analysis of the cocoa value chain in Nigeria. Food and Agriculture Organization of the United Nations. <https://www.fao.org> (Assessed on February 5th 2022)
- Gockowski, J., and Sonwa, D. (2011). Cocoa intensification scenarios and their predicted impact on CO2 emissions, biodiversity conservation, and rural livelihoods in the Guinea rainforest of West Africa. *Environmental Management*, 48(2), 307–321.
- International Cocoa Organization (2016): Production of cocoa beans. *Quarterly Bulletin of Cocoa Statistics*, London. <http://www.icco.org>. (Accessed on January 3, 2019)
- International Cocoa Organization (ICO). (2020). Cocoa Market Report. Retrieved from <https://www.icco.org/> (Accessed on October 3, 2023)
- International Institute for Tropical Agriculture (2017): USAID Nigeria Expanded Trade and Transport (NEXTT) – Cocoa close-out meeting and strategic thinking, IITA News. <http://www.belletin.iita.org/index.php/20>. (Accessed on January 5, 2019)
- Kehinde, A.D., Adeyemo, R. (2017). A probit analysis of factors affecting improved technologies dis-adoption in cocoa-based farming systems of southwestern Nigeria. *Int. J. Agricult. Econ.* 2, 35–41.
- Kehinde, A.D., Tijani, A.A. (2021a). Effect of access to livelihood capitals on the adoption of European Union (EU) approved pesticides among cocoa-producing households in Osun State, Nigeria. *Agricult. Tropica Subtrop.* 54 (OV), 57–70.
- Kehinde, A.D., Ogundeji, A.A. (2022b). Social capital networks (SCNs) reducing the poverty in cocoa producing households: evidence from osun and ondo states of South-western Nigeria. *Trop. Subtrop. Agroecosyst.* 25, #082'
- Kehinde, A. D. (2022). Access to trade credit and its impact on the use of European Union (EU) approved pesticides among smallholder cocoa farmers in Ondo State, Nigeria. *Heliyon* 8 (2022) e12409
- Kolawole, M.A., Tijani, A.A., Kehinde, A.D. (2020). Impact of a growth enhancement support scheme on cocoa yield and income of cocoa farmers in Osun state, Nigeria. *Acta Sci. Pol. Agricult.* 19 (1): 41–49.
- Martin, G. (2017). Cocoa and child labor: The role of certification. *American Economic Journal: Applied Economics*, 9(2), 1–33.
- Martin, G. (2018). The economics of chocolate. *Journal of Economic Perspectives*, 32(3): 173–196.
- Noula A.G., Sama G.L., Gwa M.D. (2013). Impact of Agricultural Export on Economic Growth in Cameroon: Case of Banana, Coffee and Cocoa. *International Journal of Business Management Review*, 1(1):135–147.
- Oloukoi, L. (2020). Comparative effect of short term credit granted to agriculture on agricultural added value in the West African countries. *Journal of economics and development*, 24(2):176–195
- Osabuohien, E. S. (2017). Cocoa production in Nigeria: Challenges and opportunities. *African Journal of Economic Review*, 5(2): 68–80.
- Owusu, V., and Owusu, M. (2018). Sustainable cocoa production in West Africa: The case of Ghana and Cote d'Ivoire. *Sustainability*, 10(9): 3094.
- Sarpong, D. B., Owusu, V., and Obuobie, E. (2019). Economic role of cocoa export in Ghana: Evidence from cocoa smallholder farmers in the Ashanti region. *Journal of Economics and Sustainable Development*, 10(22): 1–15.
- Setshedi, C., and Teboho, J. M. (2019). Empirical analysis of macroeconomic variables towards agricultural productivity in South Africa. *Italian Review of Agricultural Economics*, 74:3–15
- Schoneveld, G. C., and Andrianto, A. (2020). The cocoa global production network in Indonesia and Ghana: Production, trade, and sustainability. *World Development*, 125: 104686.
- United Nations Development Programme (UNDP). (2019). Cocoa Value Chain Analysis in Nigeria: Opportunities for Sustainable Development. <https://www.undp.org/> (assessed on October 5th 2023)
- UNCTAD. (2020). Cocoa: A guide to trade practices. United Nations Conference on Trade and Development. <https://www.unctad.org/> (assessed on October 5th 2023)
- World Bank. (2017). Nigeria Economic Update: Agriculture as a Growth Alternative. Retrieved from <https://www.worldbank.org/> (assessed on October 5th 2023)
- Workman D. (2020). Nigeria's top 10 exports. <http://www.worldstopexports.com>. (Accessed on May 20, 2020)





# DETERMINING TYPES OF CONSCIOUS CONSUMERS WHO PREFER NUTRITION LABELING

Ildikó Tóth<sup>1</sup>, Zoltán Szakály<sup>2</sup>

<sup>1,2</sup>University of Debrecen, Faculty of Economics and Business, Institute of Marketing and Commerce,  
H-4032 Debrecen, Böszörményi út 138.

<sup>1</sup>toth.ildiko@econ.unideb.hu  
<sup>2</sup>szakaly.zoltan@econ.unideb.hu

**Abstract:** *One of the most important pillars of a healthy lifestyle is healthy nutritional value, in which FOP nutrition labels can support consumers in making the right decision. A healthy diet is essential for overall well-being and the prevention of many chronic diseases. Special attention must be paid to the use of FOP nutrition values in order to prevention and healthy decision-making. It is important that people can interpret the nutritional value of food as simply as possible, which FOP nutrition labels can help them with. The packaging has to provide realistic and accurate information about the product. This study describes four types of FOP nutrition labels used in the European Union: Nordic Keyhole, Nutri-Score, Traffic Lights, Nutrinform Battery. During the conducted focus group interviews, the participants got acquainted with these nutrition labels and created the personality types that they can imagine knowing and using the given FOP nutrition label.*

**Keywords:** food-marketing, nutrition labels, food-choice  
(JEL code: R20)

## INTRODUCTION

Obesity and obesity-related diseases are an important public health problem, both internationally and domestically. Its treatment is a serious challenge for professionals, but at the same time, prevention can be more effective in the fight against obesity. It is known not only in health circles, but also in an increasingly wider part of the population, that diet is an important etiological factor in the development of most diseases and influences their outcome and the effectiveness of treatment.

Overweight and obesity are cardiovascular diseases, especially heart diseases and strokes, as well as diabetes, some joint and cancer diseases (such as uterine, breast, ovarian, prostate, liver, gall bladder, kidney - and colon cancer) is a major risk factor and leading cause of death worldwide. As the body mass index (BMI) increases, the risk of diseases also increases (WHO, 2021). Obesity and being overweight can reduce life expectancy by approximately 3 years on average in the European Union, according to data from the Organization for Economic Co-operation and Development (OECD) (OECD/European Union, 2020). Hungary can be classified as one of the overweight countries in the European Union, as al-

most 2/3 of the adult population is overweight or obese (Erdei et al., 2017), unfortunately, the ratio among children can also be described as a bad situation, as every fourth child in our country counts overweight or obese. Children are of particular importance, because a person who is overweight or obese as a child is more likely to remain obese as an adult, and is more likely to develop certain diseases and die prematurely.

Obesity is the amount of excess body fat in the body, which is determined by the body mass index (Body Mass Index, BMI), but not only the amount of fat, but also the distribution of body fat must be taken into account. In most cases, obesity is due to a complex mixture of environmental, genetic and psychosocial factors, in a small proportion of cases endocrinological disorders play a role. Obesity results in co-morbidities such as diabetes, cardiovascular diseases, malignant neoplasms, sleep disorders and osteoarthritis, and can also cause a number of psychosomatic disorders. Through these comorbidities, obesity contributes significantly to many diseases and deaths.

Losing weight and maintaining a normal body weight can be successfully achieved by changing a high-calorie diet and a sedentary lifestyle, as well as taking into account the indi-

vidual's physical, mental and environmental conditions. Obesity has become a global problem in the last century, because the accumulation of body fat plays a role in the development of several diseases. Overweight and obesity cause the majority of type 2 diabetes and high blood pressure, infertility, birth complications, arthritis, it also contributes to an abnormal blood lipid profile and the development of several types of cancer, increases asthma symptoms, and significantly worsens the general state of health. Obesity, in addition to the corresponding genetic characteristics, can be prevented with the right diet, adequate physical activity, enough sleep, low stress, and favourable environmental conditions, but this is a serious challenge for everyone (Csapó-Albert, 2021).

An improper diet contributes to the risk of overweight, obesity and general ill health. A healthy diet is considered one of the most important pillars of a healthy lifestyle. The so-called FOP nutrition labels (Front Of Packaging) placed on the front side of the packaging can help consumers make the right choice and choose healthy food with adequate nutritional value. In order to develop a general sense of well-being, a healthy diet is essential, and thus the development of many chronic diseases can be prevented. For the sake of both prevention and healthy decision-making, it is important that consumers pay sufficient attention to the FOP nutrition labels and use them correctly, as they can easily check the nutritional value of foods with the help of the FOP nutrition labels.

Particular attention is paid to the packaging of food, which includes all the information visible on the packaging, as well as the mandatory and voluntary nutrition labels. The uniform requirement for food labels is to provide accurate, authentic and reliable information about the food. The importance of nutrition labels is also supported by research that they support consumers in choosing healthier foods, and in the light of the results, it can be stated that they result in a significant improvement in the healthy amount of diets (Shangguan et al., 2019). According to Cowburn and Stockley (2005) it is difficult and imprecise for consumers to interpret markings placed on the back of the packaging, mostly in diagram format, containing numerical data.

The markings placed at the front of the packaging provide information on the nutritional content of the food in a simple, easy-to-interpret form for consumers, and also help consumers to focus on the most important health-related information instead of other marketing information on the packaging. In addition to the fact that the primary purpose of nutrition labels is to inform consumers, they play an important role in encouraging healthier choices (Hobin et al., 2017), and they can also motivate the food industry to transform the food supply into a healthier profile (Griffith et al., 2017).

Consumers are constantly at risk of developing problems as a result of unhealthy consumption, such as obesity, diabetes, or cardiovascular disease (WHO, 2014). The primary purpose of the nutrition label placed at the front of the package is to support consumers in this vulnerable situation, i.e. to display information about the nutritional value of food in a more comprehensible way, thus supporting a "healthier" decision and a healthier lifestyle. Addressing health problems related to nutrition and diet is an important and serious problem for

both food distributors and policy makers. A generally recommended approach to encouraging consumers to adopt healthy eating habits is simpler and clearer information on nutritional composition. The goal is for consumers to be able to process as much as possible all the information needed to choose healthier food (Balasubramanian and Cole 2002).

It can be concluded that consumers suffer from a lack of time when shopping, they can devote little time to shopping, which is why they cannot examine the information on the packaging, and they have difficulty understanding the data content of the nutrition label on the back of the packaging. On the other hand, nutrition labels placed at the front of the package support consumers in making an informed decision in just a few seconds, as they not only contain data, but in some cases, combined with symbols, summarize the key nutritional aspects and characteristics of foods in a simplified form.

### *Nutrition labels*

In the current situation, when the majority of consumers are struggling with overweight and obesity, and the resulting non-communicable diseases, special attention is paid to the packaging of food, which also includes the voluntary FOP-nutrition labels.

However, the nutrition labels placed at the front of the package are not the same, their content and structure are different (Kanter et al., 2018).

FOP-nutrition labels can be divided as follows:

- „nutrient-specific” systems that provide detailed information on certain nutrients,
- systems with a „summary indicator” which is a general quality and „health” overview assessment (Savoie et al., 2013).

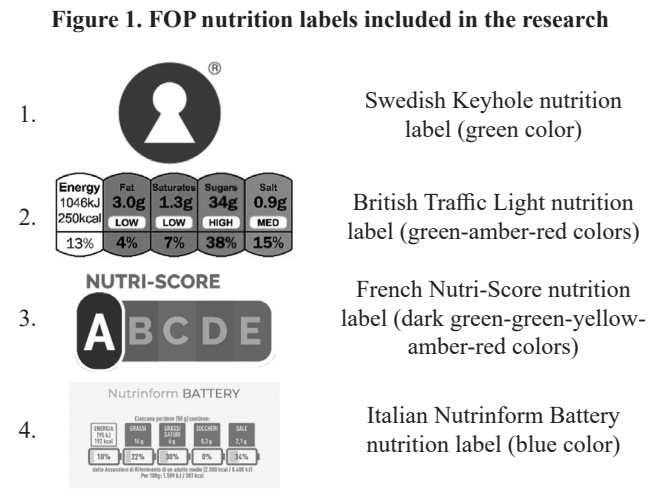
„Nutrient-specific” systems can be further divided into color-coded and numerically marked categories, which include logos expressing the recommendation. The „positive” label can be applied to foods that meet certain prescribed nutritional value criteria. There are also systems that use „classification” markings that can be placed on all foods, as they provide comprehensive and classified information about the product (Julia and Hercberg, 2017).

According to Newman et al. (2014), there are two categories:

- the „reductive” category, which contains the information on the nutritional value on the back of the package in an abbreviated version. This category includes, among other things, calorie labels and recommended daily amounts. They provide objective information about the nutritional content of the food, placed at the front of the package, in a more understandable form, in a less complex way than the information placed on the back of the package. However, despite the advantages, reductive markings are time-consuming and difficult for consumers to interpret (Hawley et al. 2013; Talati et al. 2016).
- the „evaluative” category, which evaluates nutritional information for the consumer. It evaluates, that is, it classifies the product into „good” and „bad” groups (Andrews et al., 2011),

which associates the classification with color codes, such as red, yellow and green, to different levels of nutrients, which makes consumers' decisions much easier (Roberto et al. , 2012). Evaluating categories include, for example, traffic light labels, warning labels, nutrition claims and health claims.

The four types of FOP-nutrition labels included in the research are shown in Figure 1.



Source: own editing

MATERIALS AND METHODS

The primary data collection included two focus group interviews, which were conducted in August 2024. The sample is not representative in accordance with the exploratory nature of the study. During the two interviews, we asked 8 consumers each. The participants of both focus groups were randomly selected, and accordingly, there is a mix of health-conscious and non-health-conscious participants among the focus group members. The participation of women was higher, in the first focus group there were 6 women (75%) and 2 men (25%), and in the second focus group there were 7 women (88%) and 1 man (12%) participants. All participants easily understood the FOP nutrition labels and their essence, even those who were previously unfamiliar with the labels were able to identify them.

RESULTS AND DISCUSSION

In relation to FOP nutrition labels, the interview touched on the topic of the creation of the personality type associated with the given nutrition label. After the introduction, the participants got to know the FOP nutritional labels one by one (Keyhole, Traffic light, Nutri Score, Nutrinform Battery). Then, a consumer personality was created for each of them, which was done according to specified criteria: gender, age, hair color, marital status. The participants had the opportunity to make other observations and comments about the created consumers, on the basis of which it was possible to assign complete personalities and life situations to each type. Using artificial intelligence, images of the consumers were created based on the pre-specified criteria.

In both focus groups, it can be observed that common aspects emerged when creating the personality types, despite the fact that the participants defined completely different personalities. Common aspects were the awareness shown during nutrition and grocery shopping, healthy eating, or at least the striving for it, lifestyle changes and weight reduction were also common aspects. Sports and sports opportunities were also discussed for each created personality type.

After learning about FOP nutrition labels, focus group participants readily identified with it. Based on the given criteria, complete personalities were defined, with their main character traits, as well as their current life situation, family background, and plans for the future.

The personality types imagined and created for the nutrition labels by the two focus groups differ significantly based on several aspects.

As an introduction to the interview, we lightened the mood with a short introduction. The first was the presentation of each FOP nutrition label, in the framework of which they could see the given FOP nutrition label in a photo. We presented the advantages and disadvantages, in addition to general information, followed by the definition of the type of consumer envisioned for the given nutrition label.

When creating the personality types, the participants of the focus group had to agree on the following aspects: gender, age, body shape, skin color, whether they have tattoos and body jewelry, hair color, length and type, eye color, nose and ear size. In addition to external factors, the highest level of education and marital status were also determined for each imagined type of consumer. The internal characteristics could be determined using a ten-point Likert scale according to the following characteristics, where 1 represented a positive opinion, while 10 represented its negative meaning:

- healthy diet;
- amount of time spent shopping;
- information about food;
- considering the information on the packaging as an authentic and reliable source;
- is he a conscious customer;
- is sustainability important to him;
- is it important for him to buy healthy food;
- how much does nutritional labeling help in decision-making;
- do you like to shop;
- how optimistic, optimistic, kind;
- how sympathetic a customer is.

The participants of the focus group could also give other comments and observations in relation to the imagined consumer. With this option, they were able to define the personality even more precisely and describe the life situation of the given imagined consumer.

Swedish Keyhole nutrition label

Sweden introduced the first FOP nutrition label in the European Union in 1989, which was named “Keyhole”. The basis of the name can be traced back to the shape of the green symbol. The Swedish National Food Agency developed this label, which is a summary free label that stands out from the



positive labels. This marking encourages a healthier choice, based on criteria depending on the nutrient content, such as fat, sugar, salt content, with a green marking on the packaging. The Keyhole FOP nutrition label has been widely accepted in many countries, but some research groups regard it as a health claim rather than an interpretive FOP nutrition label (RAYNER ET AL., 2013).

The Keyhole FOP nutrition label can be displayed on both prepackaged and bulk foods. The primary purpose of using the label is to enable consumers to make healthier dietary choices. However, it has an encouraging effect on producers and manufacturers to produce foods that meet the criteria for placing the Keyhole FOP nutrition label (LIVSMEDELSVERKET, 2021a,b; VAN DER BEND ÉS LISSNER, 2019). The criteria are determined by the cooperation of the Nordic authorities that use nutrition labeling, but companies and other interested parties can also comment on the proposal (LIVSMEDELSVERKET, 2021a; LIVSMEDELSVERKET, 2020). The specified criteria differ for each food group: they range from the requirements for the amount of fiber and whole grains to the amount and quality of fats or sugars, but they differ for each food group, but the Keyhole FOP nutrition label indicates the healthiest choice within a given food group. Some food groups are on the prohibited list, such as food made for children under 36 months.

According to Livsmedelsverket (2021d) research, the Keyhole FOP nutrition label can overcome social differences in eating habits.

The Keyhole nutritional label is voluntary and does not involve any costs, however the environmental protection and health protection offices check whether the companies using the keyhole meet their criteria (LIVSMEDELSVERKET, 2021a).

This nutrition label has been used in Sweden for more than thirty years. It is also used in other countries within the European Union, such as Denmark and Lithuania, and also in Norway, Iceland and Macedonia (LIVSMEDELSVERKET, 2021).

The members of the first focus group imagined a man over 40 years of age who is a consumer with an average build, light skin, light brown hair and blue eyes. According to the participants, a Danish family man who buys very little, because his wife does the shopping. Because of this, he doesn't even have to spend much time on shopping, he rarely goes shopping with his wife. However, there are situations in life when he has to deal with grocery shopping. In such cases, he likes to take the usual products off the shelf. The Keyhole marking helps him, because he knows the green sign and trusts that he will really choose a healthy food.

The imagined consumer eats healthy, but spends little time shopping and examining the food packaging. The FOP nutrition label can help him to choose the best option. Furthermore he can make a decision easily and quickly in the case of a known or unknown product. Despite the small investment of time, it is important for him to put healthy foods in his basket. In addition to a healthy diet, regular exercise is important to him, so he goes for a run several times a week before work, and he likes to go to the nearby swimming pool on weekends.

He lives with his family in an apartment complex on the outskirts of town. They have two sons. His older son also swims

regularly, so they go swimming together on weekends. And his younger son plays handball, so he tries to pay more and more attention to this sport as well, so that he has sufficient knowledge and physique for this sport. His workplace is located on the other side of the city, in the industrial park, where he usually goes by bicycle or car. Due to the increased traffic and the number of cars, he cycles more and more often, thus avoiding unnecessary time spent in traffic jams. He likes to go out with his family on weekends, when they mostly go hiking in the mountains.

His personality is calm, cheerful, good-natured, kind, friendly and well-intentioned, however, shopping makes him tense, which makes him a less sympathetic customer.

**Figure 2. Imagined consumer of Keyhole FOP nutrition label (First focus group)**



*Source: Ideogram, own editing*

The members of the second focus group imagined a German mother. The lady is between 40-45 years old, divorced, mother of two children. He has a thin build, long blond hair, blue eyes, and glasses. He has a teacher's degree and teaches mathematics in an elementary school. A healthy diet is important to him. She pays special attention to grocery shopping and nutrition, because one of her children is gluten-sensitive, so she has to adjust their meals accordingly. She really wants to exercise regularly, but with her children and work, she only has some time for sports on weekends. His children go to training twice a week, one plays basketball and the other swims. For your children, it is also a matter of course that they eat healthy. As a busy, single mother, the marking on the front of the packaging is a big help for her, on the basis of which she can make a decision quickly. In his opinion, these nutrition labels are important, because even small children or the elderly can easily interpret them, and thus they can take care of their health. Your children also observe the markings and can use them to help you when shopping.

They live in a small town, in a family house with a large garden. They have a cat and a dog.

His personality is determined, a typical leader type, thoughtful, but kind, friendly, well-intentioned, especially sympathetic as a customer.

**Figure 3. Imagined consumer of Keyhole FOP nutrition label (Second focus group)**



*Source: Ideogram, own editing*

### *British Traffic light FOP nutrition label*

The FOP nutritional value markings, called traffic lights, are so named because they display the colors characteristic of traffic lights: green, yellow/amber and red. Prescriptive and prohibitive nutrient contents are marked with these colors. Traffic light FOP nutritional value markings are not widespread markings, although only three countries have introduced them, the UK, Ecuador and South Korea, and only one country has made the marking mandatory (DÍAZ ET AL., 2017).

Introduced in the UK in 2013, the 'traffic light' FOP nutritional labeling system combines color-coded percentages of the reference intake value. It shows the saturated fat, fat, salt and sugar content, as well as the energy content of a portion of food. Based on the amounts found in 100 ml of drinks or 100 g of food, this marking indicates with colors whether the amount of the listed nutrients in the given food is "high" (red), "medium" (yellow), or "low" (green).

The UK and South Korean FOP nutrition labeling systems include total fat and saturated fat, as opposed to the Ecuadorian label which only shows total fat. Limits for total fat are stricter in the UK than in Ecuador, but the opposite is true for total sugar (DÍAZ ET AL., 2017).

The members of the focus group imagined a woman between the ages of 30 and 39. Because of her blue eyes and

shoulder-length, straight blonde hair, the member of the focus group specifically imagined a German lady. According to their opinion, she lives in a relationship and they want children. She buys purposefully and analyzes and checks everything. Her physique is average: she is not overweight, but she is not athletic either. She has several tattoos. She and her partner live in a small apartment near the city center. They do not have pets, as she spends most of her time at work. She is an office manager near in the city center. This is not her dream job, but it provides a good living for her. Because of the many overtime hours, he has little time to exercise. She usually goes to a small gym, where there are not as many people as the well-known and popular gyms, because he does not like large crowds. She and her partner are planning a wedding and they also want a child, which is why she is putting more and more emphasis on health and healthy nutrition. She is determined to be a fit mom.

She is a conscious buyer, prefers healthy foods. She is thoroughly informed about food, but she does not like to change her shopping basket. She tries to buy the usual products, because she she spends a little time on shopping and she does not like this activity. She does not consider the information on food packaging to be an authentic and reliable source, as she only examines food packaging occasionally and spends little time on it. She gets information from other sources and tries to find out in advance so that she can reduce the time of the purchase. She is familiar with the nutrition label, on the basis of which she can quickly and easily judge the given food and can quickly and easily make a decision about the purchase. Sustainability is also important to her. The members of the focus group defined her personality as a cheerful, cheerful, optimistic, kind and friendly, sympathetic customer.

**Figure 4. Imagined consumer of Traffic light FOP nutrition label (First focus group)**



*Source: Ideogram, own editing*



**Figure 5. Imagined consumer of Traffic light FOP nutrition label (Second focus group)**



*Source: Ideogram, own editing*

The members of the second focus group imagined a 30-year-old lady. She is obese, she has brown shoulder-length curly hair and blue eyes and wears glasses. She lives alone, in an apartment, on the outskirts of the city. She does not pay attention to nutrition, nor is it important for her to eat healthy. She eats fast food several times a week, mostly hamburgers, because this is a good solution for her to solve the given meal quickly. She doesn't like to cook and doesn't really know how, which is why she used to just order food. However, due to the health problems caused by being overweight, diabetes and high blood pressure, she needs to act as soon as possible: she needs to eat healthier and start exercising. It is very difficult for her to get used to this, because she likes to eat good food and snacks, various sweets and chips. Her doctor received her all support to start changing her lifestyle. The doctor explained the Traffic Light nutrition label and how to use it so that you can identify healthy foods more easily and quickly. However, she still lacks her own determination. Time is pressing, because her health problems and her weight are becoming increasingly serious problems.

She has a secondary education and works in the HR department of a local company. She would like to continue her education, but she lacks the determination to do so. Her personality is very kind, smiling, cheerful.

#### *French Nutri-Score FOP nutrition label*

The first summary FOP nutrition labeling was developed in New Zealand, and was introduced voluntarily in Australia and New Zealand in 2014. This mark, depending on the nature of the product, uses a mark ranging from half a star to

five stars, with negative and positive components (MHURCHU EZ AL., 2017). In 2017, France developed and introduced a voluntary system similar to the star rating. With five categories, color codes and letters (from A to E), it is used to summarize the health status of the product (JULIA ET AL., 2017). The French "Nutri-Score" system is most similar to the scale for classifying household appliances in the energy class. The Nutri-Score indicates the overall nutritional value of a given food. The Nutri-Score FOP nutrition label uses a five-color scale with foods with the lowest nutritional value in dark orange and foods with the highest nutritional value in dark green, complete with letters from E to A. The algorithm for scoring the nutritional value takes into account the positive (protein, fiber, fruits, vegetables, legumes and seeds) and negative (calories, salt, sugar, saturated fats) components.

The members of the focus group imagined a male consumer in his forties, childless and divorced. He is trying to become a conscious customer.

His hair is brown, short and messy, he has blue eyes, a wide nose and small ears. His physique is average, but it seems that he has played sports before. He is currently minimally overweight, but this can be easily corrected with sports and lifestyle changes.

After the divorce, he lives alone. He has to shop alone, and he has to take more time to choose the right, healthy foods from the stores. He thoroughly informs himself about food by browsing the internet in advance, so he can reduce the time spent shopping. He does not like shopping, he considers it an unnecessary waste of time, so it is important for him to minimize the time spent on it as much as possible. He always looks at the food packaging when shopping, as he considers the information on the front of the packaging to be a reliable source.

**Figure 6. Imagined consumer of Nutri Score FOP nutrition label (First focus group)**



*Source: Ideogram, own editing*

With the help of the nutrition label on the front of the packaging, you can easily and quickly make informed decisions about food. He buys consciously, healthy nutrition is important to him, as he definitely wants to change his lifestyle. Due to his past as an athlete and water polo player, he is no stranger to diet and healthy eating. He is aware that he can quickly change his body shape with diet, attention and exercise.

He lives alone on the outskirts of the city, in a newly built apartment complex. His apartment is simple, clean, and you can see the signs of a fresh start, as he only recently moved in. He has to commute to work, he works in another settlement, so he goes by car. Public transport and cycling to work cannot be solved. He goes hiking or cycling in the mountains on weekends, goes swimming two mornings a week, and goes to the gym two afternoons. Really committed to lifestyle change.

His personality is optimistic, cheerful, cheerful and calm, kind, benevolent and friendly, despite the fact that he wants to complete the purchases in the shortest possible time, he can be considered a sympathetic customer.

The members of the second focus group imagined a 45-year-old family man. He lives in the village with his wife and two daughters. They have their own agricultural business, in which they work together with his wife. The basis of their business was that they wanted a self-sufficient economy. However, in addition to their own farm, they were given the opportunity to purchase land and an organic farm, so that they can provide food for several families locally, and also deliver to restaurants. The business means a lot of work, but a secure livelihood for them.

He has an average build, brown hair and eyes, and tanned skin. In order to operate the business at a high level, he is pursuing advanced agricultural studies.

**Figure 7. Imagined consumer of Nutri Score FOP nutrition label (Second focus group)**



*Source: Ideogram, own editing*

In the economy, it is important for him to produce food that contributes to a healthy diet. They cannot produce everything on the farm, however, they try to get what they can from acquaintances and local farmers. You are familiar with the nutrition labels, if you buy a type of food that has them on them, you apply them and try to choose the food you think is healthier. However, the products that are produced on their own farm, or the local products they buy, do not have a nutrition label on the packaging.

Sustainability is very important to him, he tries to operate the economy with as small an ecological footprint as possible, and the carbon emissions are also reduced year after year.

### *Italian Nutrinform Battery FOP nutrition label*

Italy is lagging behind in terms of front-of-pack nutrition labeling, as it only developed its own FOP nutrition labeling system in December 2020.

The Nutrinform Battery nutrition label represents the Italian proposal that they intend to adopt as part of the European Union-wide Farm to Fork strategy (GAZZETTA UFFICIALE, 2020). The purpose of this labeling system is to provide consumers with a clear and concise overview of the nutritional content of the given foods. It adapts to a balanced and varied diet, which can prevent obesity and non-communicable diseases that develop as a result, such as cardiovascular diseases, in a scientifically based and effective way. The Nutrinform Battery FOP nutrition label is an additional tool for indicating the nutritional composition of foods, which can support the mandatory list of ingredients and nutrition declaration.

The Nutrinform Battery nutrition labeling consists of two rows and five columns: the top row contains the grams per serving of each nutrient, and the bottom row shows the contribution of each nutrient to the average daily requirement. This display is marked with the charge level of an element, which recommendation is based on the recommended nutrient intake of EU Regulation 1169/2011. The five columns display other values: energy, fats, saturated fats, sugars, salt. The portion size is indicated in grams or milliliters and depends on the nutritional characteristics of the food and traditional eating habits. The Nutrinform Battery nutrition label is indicated for a single portion size, but the package may contain several portions, which are also indicated on the packaging (MINISTERO DELLO SVILUPPO ECONOMICO (MISE), 2021). The point of view of the Ministry of Economic Development, MISE, is that in order to have a healthy diet, consumers should take care to eat foods that fill them up on a given day, but do not overfill the elements of each nutrient.

Nutrinform Battery is also a voluntary nutrition label, but manufacturers who wish to use it must notify the Ministry of Health and can expect inspections later. The nutrition label can be placed on all food categories, but there are exceptions: for example, packaging areas of less than 25 cm<sup>2</sup>, as well as protected designations of origin, protected geographical indications and traditional specialty product labels. These exceptions are justified by the fact that the use of the Nutrinform Battery nutrition label would hinder the consumer's understanding of the labels that attest to the uniqueness and dis-



tinctiveness of the products bearing them (GAZZETTA UFFICIALE, 2020). Research shows that in European countries, the Nutrinform Battery is more effective than the Nutri Score label when it comes to helping consumers understand the nutritional content of foods (FIALON ET AL., 2020).

The members of the focus group imagined an Italian mother in her thirties who is married and the mother of several children. She has a large family, in which she tries to maintain a close relationship with everyone. They hold frequent family gatherings, for which she likes to bake and cook, and makes herself at home in the kitchen. In terms of her body shape, she is slightly overweight, which is mainly due to the wrong meals, as she likes to eat well.

She has light, tanned skin, long, curly, brown hair, brown eyes, a nose and small ears. She has a high school diploma, but is pursuing higher studies. In terms of internal characteristics, the created consumer's personality is cheerful, cheerful, calm, optimistic, kind and friendly, a loving mother who likes to shop and can be considered a particularly sympathetic customer, but her time does not always allow her to spend a lot of time shopping. The imagined consumer is in the process of changing his lifestyle in order to reduce her body weight, it is important for her to buy healthy foods, to try to eat healthily, and to be thoroughly informed about foods. She tries to shop consciously, due to the lack of time, she routinely puts the products he is used to in her basket and does not spend much time browsing the products. In addition to lifestyle changes, conscious waiting and conscious food consumption, she emphasizes regular exercise. Taking advantage of the proximity of the large family, she has the opportunity to do sports, because there is always someone who is happy to look after her

**Figure 8. Imagined consumer of Nutrinform Battery FOP nutrition label (First focus group)**



*Source: Ideogram, own editing*

**Figure 9. Imagined consumer of Nutrinform Battery FOP nutrition label (Second focus group)**



*Source: Ideogram, own editing*

children. She likes to walk, which is an excellent form of exercise in the embrace of mountains, and she can take her youngest child with her in a stroller. Due to the proximity of the sea, she can swim regularly, where she also likes to go with children and family. Furthermore, the issue of sustainability and environmental protection is also an important aspect for her. She considers the information on the food packaging to be an authentic source, examines it during her purchases, and learns about the food.

The members of the second focus group imagined a young man aged 20-25. Who, based on his brown hair and eyes and creole skin, is a temperamental Italian young man. He is a university student and also works as a coach. At the university, he is studying sports in a master's degree. Healthy eating, exercise, and sports are very important to him.

He has an athletic body and several tattoos. He pays special attention to healthy nutrition, since as a trainer he can set a good example for many people in the field of eating and exercise. He thoroughly informs himself about the food, in which he is helped by the nutrition label on the front of the package. He considers these markings to be an authentic and reliable source, and he looks for them on the packaging, because with this he can make a quick decision about a food. His job is very busy, as he often works from morning to night as a coach. He deals with personal training and also holds classes for groups. Due to his work, he spends little time on shopping, he likes to buy the usual products. He is happy to try new flavors, possibly dishes typical of other countries. His big dream is to open his own gym.

He lives in a small seaside town and has his own apartment on the outskirts of the town. He does not want to move to the city center, because nature and its proximity are very impor-

tant to him. There are lots of green areas around his apartment and a wooded area not far away. He has a mixed breed dog with whom he regularly goes for runs in the nearby forest. He likes to go hiking on weekends. However, he considers family important, so he tries to spend time with them on weekends.

His personality is temperamental, cheerful, cheerful, kind, friendly, well-intentioned, very optimistic.

## CONCLUSION

In connection with both the literature research and the interviews with the focus groups, it is clear that the use of well-planned nutrition labels placed at the front of the package is extremely important in order to provide consumers with adequate information. Front-of-pack nutrition labels encourage consumers to prefer "healthier" foods and to reduce the purchase and consumption of products that fall under the "less healthy" category. Nutrition labels not only affect consumers, they influence industry change, meaning they can encourage positive rethinking to produce more products that are rated positively.

It is of utmost importance that the introduction of nutrition labeling on the front of the package should be combined with a broad consumer education campaign, so that consumers have the opportunity to learn about the labeling, their understanding and use.

It can be seen from the focus group interview that the participants got to know the FOP nutrition labels and were able to identify the persons and characters who, in their opinion, observe and use the four nutrition labels included in the research. Four different personalities were defined for the four nutrition labels, but the common factor of a healthy lifestyle appeared in all four imagined consumers: they do sports and try to eat as healthily as possible.

Nowadays, due to the increase in the number of processed foods and the global obesity epidemic, nutrition labels placed at the front of the packaging appear more and more often. Nutrition labels placed on the front of the packaging have been introduced in many European countries to help consumers understand the nutritional value of food and ultimately make informed, health-conscious decisions for a healthier lifestyle. The basic principle of food labels is to communicate real, accurate and non-misleading information. The FOP nutrition labels are placed in the consumers' main field of vision, i.e. on the front side of the packaging, so they are located in a place that is more visible to the consumer.

The primary goal of the study was to have participants define personalities for front-of-pack nutrition labels, known as FOPs. The primary data collection method is the focus group interview, during which the four FOP nutrition labels included in the research were presented to 8 people, and then one consumer had to be created for each of them based on given and freely defined options, so it was possible to create a complete personality and family background.

The limitation of the study is that it is exploratory in nature, so in order to provide qualitative information, we conducted a focus group study on a small sample. The results cannot be generalized to the entire population, but they can

provide a good basis for further quantitative studies in the future, where the revealed relationships can be quantified with the help of questionnaires.

## REFERENCES

- Andrews, J. C., Burton, S., & Kees, J. (2011). *Is simpler always better? Consumer evaluations of front-of-package nutrition symbols*. *Journal of Public Policy & Marketing*, 30(2), 175–190.
- Balasubramanian, SK és Cole, C. (2002). *A táplálkozási információk fogyasztói keresése és felhasználása: A tápértékjelölési és oktatási törvény kihívása és ígérete*. *Journal of Marketing*, 66 (3), 112–127.
- Cowburn G, Stockley L. *Consumer understanding and use of nutrition labelling: a systematic review*. *Public Health Nutrition*. 2005;8(1):21-28. doi:10.1079/PHN2005666
- Csapó J., Albert Cs. (2021): *A túlsúly, az elhízás és a táplálkozás kapcsolata*, Sapientia Könyvek, Kolozsvár
- Díaz AA, Veliz PM, Rivas-Mariño G et al. (2017): *Etiquetado de alimentos en Ecuador: implementación, resultados y acciones pendientes*. *Rev Panam Salud Publica* 41, e54.
- Erdei, G., Kovács, V. A. & Martos, É. (2017). *Országos Táplálkozás és 113 Tápláltsági Állapot Vizsgálat 2014. I. A magyar felnőtt lakosság tápláltsági állapota*. *Orvosi Hetilap*, 158(14), 533-540.
- Fialon, M., Egnell, M., Talati, Z., Galan, P., Dréano-Trécant, L., Touvier, M., Pettigrew, S., Hercberg, S., Julia, C. (2020). *Effectiveness of Different Front-of-Pack Nutrition Labels among Italian Consumers: Results from an Online Randomized Controlled Trial*. *Nutrients* 12, 2307. <https://doi.org/10.3390/nu12082307>
- Gazzetta Ufficiale (2020). *Forma di presentazione e condizioni di utilizzo del logo nutrizionale facoltativo complementare alla dichiarazione nutrizionale in applicazione dell'articolo 35 del regolamento (UE) 1169/2011*. <https://www.gazzettaufficiale.it/eli/id/2020/12/07/20A06617/sg> [3.12.21]
- Griffith R, O'Connell M, Smith K. 2017. *The importance of product reformulation versus consumer choice in improving diet quality*. *Economica*, 84(333):34–53
- Hawley, K. L. L., Roberto, C. A. A., Bragg, M. A. A., Liu, P. J. J., Schwartz, M. B. B., és Brownell, K. D. D. (2013). *he science on front-of-package food labels*. *Public Health Nutrition*, 6(3), 430–439.
- Hobin E, Bollinger B, Sacco J, Liebman E, Vanderlee L, et al. (2017) *Consumers' response to an on-shelf nutrition labelling system in supermarkets: evidence to inform policy and practice*. *Milbank Q.*, 95(3) 94– 534
- Hodgkins, C., Barnett, J., Wasowicz-Kirylo, G., Stysko-Kunkowska, M., Gulcan, Y., Kustepeli, Y., Raats, M. (2012). *Understanding how consumers categorise nutritional labels: A consumer derived typology for front-of-pack nutrition labelling*. *Appetite*, 59(3), 806–817.
- Julia C, Peneau S, Buscail C et al. (2017): *Perception of different formats of front-of-pack nutrition labels according to sociodemographic, lifestyle and dietary factors in a French population: cross-sectional study among the NutriNet-Sante cohort participants*. *BMJ Open* 7, e016108.

- Julia C. és Hercberg, S. (2017). *Nutri-Score: Effectiveness of the Nutrition Label introduced in France*. *Ernährungs Umschau*, 64(12), M685–M691
- Kanter, R., Vanderlee, L., és Vandevijvere, S. (2018). *Front-of-package nutrition labelling policy: global progress and future directions*. *Public Health Nutrition*, 21(8), 1399–1408
- LIVSFS 2005:9. *Livsmedelsverkets föreskrifter om användning av symbolen Nyckelhålet* Uppsala: Livsmedelsverket
- LIVSFS 2021:1 *Föreskrifter om ändring I Livsmedelsverkets föreskrifter (LIVSFS 2005:9) om användning av viss symbol*. Uppsala: Livsmedelsverket
- Livsmedelsverket (2021a). *Att märka med Nyckelhålet* <https://www.livsmedelsverket.se/produktion-handel--kontroll/information-markning-ochpastaenden/nyckelhalet---foretagsinformation> [3.5.21]
- Livsmedelsverket (2021b). *Nyckelhålet* <https://www.livsmedelsverket.se/livsmedel-ochinnehall/text-pa-forpackning-markning/nyckelhalet> [3.5.21]
- Livsmedelsverket (2021d). *Vad tycker konsumenterna om nyckelhålet* <https://www.livsmedelsverket.se/bestall-ladda-ner-material/sok-publikationer/artiklar/2021/2021-nr-06-vad-tycker-konsumenterna-om-nyckelhalet> [4.15.21b]
- Mhurchu CN, Eyles H & Choi Y (2017). *Effects of a voluntary front-of-pack nutrition labelling system on packaged food reformulation: the Health Star Rating System in New Zealand*. *Nutrients* 9, E918.
- Ministero dello Sviluppo Economico (MISE) (2021). *Avviso 19 gennaio 2021 - NutrInform Battery. Pubblicato il Manuale d'uso* <https://www.mise.gov.it/index.php/it/normativa/notifiche-e-avvisi/2041921-avviso-19-gennaio-2021-nutrinform-battery-pubblicato-il-manuale-d-uso> [3.13.21]
- Newman, C. L. L., Howlett, E., és Burton, S. (2014).: *Shopper Response to Front-of-Package Nutrition Labeling Programs: Potential Consumer and Retail Store Benefits*. *Journal of Retailing*, 90(1), 13–26.
- OECD/European Union, *Health at a Glance: Europe (2020): State of Health in the EU Cycle*, OECD Publishing, Paris. <https://doi.org/10.1787/82129230-en> (hozzáférés dátuma: 2022. 01. 20.)
- Rayner M., Wood A., Lawrence M. et al. (2013). *Monitoring the health-related labelling of foods and non-alcoholic beverages in retail settings*. *Obes Rev* 14, Suppl. 1, 70–81.
- Roberto, C. A., Shivaram, M., Martinez, O., Boles, C., Harris, J. L., & Brownell, K. D. (2012). *The smart choices front-of-package nutrition label: Influence on perceptions and intake of cereal*. *Appetite*, 58(2), 651–657.
- S. Shangguan et al. *A meta-analysis of food labeling effects on consumer diet behaviors and industry practices* *American Journal of Preventive Medicine*, (2019)
- Savoie, N., Barlow, K., Harvey, K. L. L., Binnie, M. A. A., és Pasut, L. (2013). *Consumer Perceptions of Front-of-package Labelling Systems and Healthiness of Foods*. *Canadian Journal of Public Health-Revue Canadienne De Sante Publique* 104(5), E359–E363.
- Talati, Z., Pettigrew, S., Kelly, B., Ball, K., Dixon, H., és Shilton, T. (2016). *Consumers' responses to front-of-pack labels that vary by interpretive content*. *Appetite*, 101, 205–213.
- World Health Organization (2014): *Regional Committee For Europe 64th Session: European Food and Nutrition Action Plan 2015-2020*. (2014)., [www.euro.who.int/data/assets/pdf\\_file/0008/253727/64wd04e\\_foodnutAP140426pdf](http://www.euro.who.int/data/assets/pdf_file/0008/253727/64wd04e_foodnutAP140426pdf)
- World Health Organization (WHO) (2021). *Obesity and overweight*. <https://www.who.int/newsroom/fact-sheets/detail/obesity-and-overweight> (hozzáférés dátuma: 2022. 01. 20.)



# GREEN SPORTS PRODUCT CONSUMPTION

Emese Makara<sup>1</sup>, Kinga Ráthonyi-Ódor<sup>2</sup>

<sup>1</sup>Doctoral School of Management and Business

<sup>1</sup>makaraemese77@gmail.com

<sup>2</sup>University of Debrecen, Faculty of Economics, Institute of Sports Economics and Management

<sup>2</sup>rathonyi-odor.kinga@econ.unideb.hu

**Abstract:** *The escalating climate crisis over the past decades has increasingly impacted the sports sector, particularly the activities of sports equipment and sportswear manufacturing companies. Globally, companies striving to meet the growing consumer demand and expectations are causing significant environmental impact through the mass production of sports goods and apparel. This impact manifests in extensive waste generation, CO<sub>2</sub> emissions, the release of harmful chemicals, wastewater discharge, excessive water and energy consumption, and the relentless exploitation of natural and fossil resources. In recent years, a shift has gained momentum, aiming to promote sustainable economic and social practices, with an increasing number of sports equipment and sportswear manufacturers joining this movement. The sportswear industry has a significant impact on both social and natural environments, making it inevitable for companies to take radical steps to reduce their ecological footprint. For years, several international manufacturers have been implementing numerous sustainability initiatives, striving to adopt water- and energy-efficient, CO<sub>2</sub>- and waste-reducing manufacturing methods and processes to minimize the environmental impact of their products. These efforts are aimed at making the world a better place for people and the planet, standing up for important social issues, and ensuring fair and ethical working conditions for their employees. The demand for green sports product consumption is gaining increasing popularity, particularly abroad, leading to noticeable transformations and developments. Consumers are increasingly favoring conscious, responsible consumption, reflected in the growing demand for clothing made from organic cotton, bio-based materials, and sustainable, recycled materials. Moreover, they are paying more attention to ensuring that the sports products they purchase are produced with minimal environmental impact and ethical manufacturing practices. Sports equipment and sportswear manufacturing companies are adapting to these changing consumer trends by offering a broader and more diverse range of eco-friendly sports products, equipment, and apparel to meet the growing interest in environmentally responsible options. The aim of this study is to examine consumer behavior and attitudes regarding the purchase of sustainably produced sports products, equipment, and apparel, using a population survey. The survey investigated consumer demands, preferences, motivations, and awareness related to green sports products, as well as the factors influencing purchasing and payment willingness and decisions for sustainably produced goods.*

**Keywords:** *environmental protection, consumer behavior, sports products, conscious consumption*  
(JEL code: Q56, D12)

## INTRODUCTION

The escalating climate crisis over the past decades has increasingly impacted the sports sector, particularly the activities of sports equipment and sportswear manufacturing companies. Globally, companies striving to meet the growing consumer demand and expectations are causing significant environmental impact through the mass production of sports goods and apparel. This impact manifests in extensive waste generation, CO<sub>2</sub> emissions, the release of harmful chemicals, wastewater discharge, excessive water and energy consumption, and the relentless exploitation of natural and fossil resources. Thus, the is-

sue of sustainability is one of the most prominent challenges of our time, requiring active involvement from economic, social, political, and industrial sectors in addressing it. Almost every activity related to sports is associated with environmental harm, such as the pollution caused by sports equipment and sportswear manufacturers, the construction and operation of stadiums, the organization of sports events, and the behavior of fans and consumers, among others. The relationship between sports and the environment is cyclical, often negatively affecting the natural environment, land use, air pollution, water use, energy and resource demands, carbon emissions, and waste management issues, which pose cardinal problems for urban atmospheres and



living spaces. As in every area of life, it is crucial in the sports industry to prioritize the rational and ecologically unobtrusive, productive use of raw materials and natural resources, as well as to preserve the healthy living conditions of the population and consumers (KELLISON, 2023; RÁTHONYI-ÓDOR, 2019; MAKARA and RÁTHONYI-ÓDOR, 2024). Globalization and the dynamically developing production-oriented economy have generated environmental harms that have made it urgent for economic actors to take action as soon as possible. Environmental protection is the essence of responsible corporate strategy, which should guide all economic players, including the sports sector, and within it, sports equipment and sportswear manufacturers (KIM and OH, 2020; RÁTHONYI-ÓDOR et al., 2019; TRENDAFILOVA et al., 2013).

The environmental connection points of the sports sector and the examination of the environmental aspects of sustainability are considered foundational in research, which is increasingly being addressed by international studies and literature (BAIER et al., 2020; SHIPLY, 2018; SUBIC et al., 2014). Sports equipment and sportswear manufacturing companies operate with high-volume, multi-tiered global supply chains. They constantly strive to meet sudden changes in consumer demand, resulting in high raw material and resource needs, waste and greenhouse gas emissions, and water usage, all of which contribute to some of the most harmful environmental impacts. Today, sustainable development as a systemic way of thinking has been integrated into the corporate strategies of larger, leading sports equipment and sportswear manufacturers, and it must be extended to their entire production chain. A crucial aspect of greener operations is that companies must pay increased attention to product design, rethink manufacturing processes, and collaborate closely with suppliers, enabling them to drastically reduce their ecological footprint (BAIER et al., 2020; FUNG, 2021; KIM and OH, 2020).

In recent years, a significant shift has gained momentum in promoting sustainable economic and social practices, with an increasing number of sports equipment and sportswear manufacturing companies joining this movement. The sportswear industry has a profound impact on both social and natural environments, making it essential for companies to take radical steps to reduce their ecological footprint. For several years, numerous international manufacturers have implemented sustainability initiatives, focusing on water and energy efficiency, minimizing CO<sub>2</sub> and waste emissions, and adopting manufacturing methods and processes that reduce the environmental impact of their products. These efforts aim to make the world a better place for people and the planet, to stand up for important social issues, and to ensure fair and ethical working conditions for their employees.

Leading international sports equipment and sportswear manufacturers make a credible effort each year to publish reports on their measures supporting sustainable development through various reports (annual reports, sustainability reports, CSR reports, environmental reports). In these publications, they also provide insights into their business activities, substantiating the effectiveness of their environmentally conscious actions with plan-vs-actual data, and regularly set goals to further reduce their environmental pollution in the

future. The green initiatives and goals of sports equipment and sportswear manufacturers generally focus on waste management, reducing water usage, wastewater treatment methods, recycling, minimizing chemical usage, and reducing carbon emissions (RÁTHONYI-ÓDOR et al., 2019).

Consumer preferences, choices, and decisions significantly influence product markets, societal operations, and environmental impact. Conscious consumer behavior involves a series of purchasing decisions where the buyer focuses on products that minimize harmful environmental effects, prioritize seasonal products from local producers, avoid goods made with plastic, and prefer items produced through more energy-efficient manufacturing methods. The demand for sustainable fashion reflects a consumer behavior pattern that seeks to reduce ecological footprints by opting for green products when purchasing clothing and accessories. This behavior not only protects the planet but also contributes to the well-being of communities and future generations (SPINDLER et al., 2023; KHAN et al., 2023).

Sustainable consumer habits are increasingly evident in the purchase of sports products. Environmentally friendly sports equipment and apparel are products that have been designed to minimize environmental harm during their manufacturing processes. These items are often made from recycled materials, produced using renewable energy sources and eco-friendly technologies, contain minimal or no plastic, and are packaged in environmentally conscious ways. The demand for green sports products is gaining popularity, particularly abroad, leading to noticeable transformations and developments. Consumers are increasingly favoring conscious and responsible behavior, with a growing number expressing future intentions to purchase such products. This trend is reflected in the rising demand for clothing made from organic cotton, bio-based materials, biop cotton, and sustainable, recycled materials. Shoppers are also more concerned with ensuring that the sports products they buy are produced with minimal environmental impact and ethical manufacturing practices, and that these products are durable and long-lasting to reduce waste generated from frequent replacements. Sports equipment and apparel manufacturers are adapting to these changing consumer trends by offering a wider and more diverse range of eco-friendly sports products, equipment, and apparel to meet the increasing consumer interest in sustainably produced items (NAM et al., 2017; NIKE, 2020; UNDER ARMOUR, 2022).

Environmentally sustainable, or "green" consumer behavior presents a significant opportunity for average individuals to contribute to reducing the negative environmental impacts generated by consumer society through their everyday decisions, aiming for a more sustainable and environmentally friendly future. Conscious consumers may commit to a brand not only because of ethical and environmental considerations but also due to trends, social pressure, and the community value associated with a brand's social responsibility. Green, conscious consumer behavior is also evident in how buyers carefully seek out sports equipment and sportswear manufacturers that clearly indicate and publicly share information about their ethical, green manufacturing processes, environmental certifications, and quality control data (NAM et al., 2017; FUCHS and HOVMANN, 2022).

MATERIALS AND METHODS

The aim of this study is to examine consumer behavior and attitudes towards purchasing sustainably produced sports products, equipment, and apparel through a public survey. The survey assessed consumer demands, preferences, motivations, and awareness related to green sports products, as well as the factors influencing purchasing and payment willingness and decisions associated with sustainably produced items.

The purpose of the questionnaire was to gather sufficient and high-quality information regarding consumers' environmentally conscious sports product purchases. The survey employed closed, multiple-choice, intensity questions using a Likert scale. The questions progressed from demographic data to those exploring occupational and sports habits, and then to questions related to sports product purchases, concluding with an individual opinion survey. The questionnaire was distributed via social media, using the so-called "snowball method." It was made available to respondents from April 20 to May 14, 2024, and a total of 241 people completed it.

Statistical analysis was performed using SPSS software and at all statistical tests, statistical significance was defined as 5%. Descriptive statistics were calculated for the demographic variables. Data normality was evaluated with a Kolgomorov–Smirnov test. Next, for normally distributed data we used parametric tests (t-test), and for non-normally distributed data we used non-parametric tests (Mann-Whitney). Pearson chi-square analysis was used to examine for significant differences in willingness to pay premium by gender. We also examined whether there are significant differences between genders in the Likert-scale statements included in the questionnaire.

RESULTS AND DISCUSSION

Demographic questions

In our research, a total of 241 individuals completed the questionnaire, which was preceded by a "pilot test" before distribution. According to the data in Table 1, women are clearly overrepresented in the sample, with their proportion being nearly twice that of men. Of the respondents, 160 (66.4%) were women, and 81 (33.6%) were men. Analyzing the distribution by age and gender ratio, we found that the 26-35 age group was the most represented, comprising 36.5% of all respondents (88 individuals), nearly a third of the sample. The smallest representation came from the 56-65 age group (10 individuals, 4.1%) and those over 65 (3 individuals, 1.2%). The second most frequent age group was 36-45 years (22.4%, 54 individuals), followed by equal representation from the 18-25 and 46-55 age groups (17.8%, 43 individuals each). Overall, it can be stated that more than half of the respondents were under the age of 35, with women being the majority in nearly every age group. The high proportion of respondents under 35 can be attributed to the frequency of time spent on social media, as younger generations tend to spend more time on such platforms and are more active in the online space.

As the next step in our research, we considered it important to assess whether the respondents have their own income. It was

Table 1. Distribution of Participants by Gender and Age Group in the Sample

Age group (Years)	Women		Men		Total	
	N	%	N	%	N	%
18-25	19	11,8%	24	29,6%	43	17,80%
26-35	61	38,1%	27	33,3%	88	36,5%
36-45	37	23,1%	17	21%	54	22,4%
46-55	31	19,4%	12	14,8%	43	17,8%
56-65	10	6,2%	0	0	10	4,1%
65 <	2	1,2%	1	1,2%	3	1,2%
Total	160	66,4%	81	33,6%	241	100%

Source: own construction based on the results of the research

revealed that 218 participants (90.5%) have their own source of income, while 23 participants (9.5%) do not. Therefore, the proportion of active earners in the sample is approximately 90%, which we consider to be a strong basis for further analysis.

Sport activities related question

Since the main goal of our research is to explore respondents' purchasing habits and trends regarding environmentally friendly sports equipment and apparel, we examined how often the participants in our sample engage in physical exercise and how many times per week they work out. This information is crucial because we assume that those who exercise regularly are more open to purchasing environmentally friendly products and are more likely to buy such items.

The results showed that most respondents exercise 1-2 times per week (78 participants, 32.4%). Unfortunately, a significant portion of respondents exercise less than once a week (22.8%, 55 participants) or do not engage in physical activity at all (11.2%, 27 participants). The finding that nearly 70% of respondents exercise 1-2 times per week or less is, in our opinion, insufficient and reflects the situation in Hungary, where nearly 60% of the adult population does not engage in sports during their free time. Additionally, 21.6% of respondents (52 participants) exercise 3-4 times per week, 6.6% (16 participants) exercise 5-6 times per week, and 5.4% (13 participants) engage in physical activity every day.

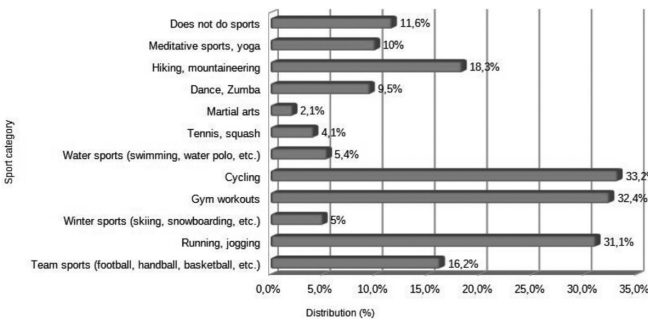
In terms of educational attainment among the sample, the largest proportion of respondents had completed a university bachelor's degree (BSc) (38.6%; 93 participants). A significant number also had a high school diploma (27%; 65 participants), while an equal proportion (16.2%; 39 participants each) had completed a vocational school or a university master's degree (MSc). The proportion of those who had completed PhD studies was minimal (0.8%; 2 participants). When examining exercise habits, we aimed to assess how much time respondents dedicate to physical activity per session. The survey results showed that respondents were nearly evenly split between those who spend 1-2 hours per session (35%) and those who spend 30-60 minutes (35%) on exercise. Meanwhile, 14.9% of respondents spent less than 30 minutes, and 10% did not exercise at all. The

proportion of those who engaged in physical activity for more than 2 hours per session was very low (5.8%).

When creating questions related to sports activities, we considered it important to ask what type of sports respondents engage in, as illustrated in Figure 1. The diagram clearly shows that the most popular activities are cycling (33.2%; 80 participants), gym workouts (32.4%; 78 participants), running or jogging (31.1%; 75 participants), and team sports (e.g., football, basketball, handball, etc.) (16.2%; 39 participants). Many respondents also enjoy dancing or Zumba (9.5%; 23 participants) and spend their leisure time hiking or mountain climbing (18.3%; 44 participants). The range of active leisure activities is almost endless. People have numerous options for how to spend their limited free time. For this reason, it is not easy for sports service providers to achieve the goal of attracting the maximum number of customers and securing their loyalty.

The vast array of options is accompanied by constantly changing consumer demands, which sports equipment and apparel manufacturers strive to meet and adapt to. A marketing strategy linked to an eco-friendly, sustainably produced sports product can often capture consumers' attention, making them feel good about their purchase, as they may feel they are contributing to a better planet.

Figure 1. Participants' Choice of Sports

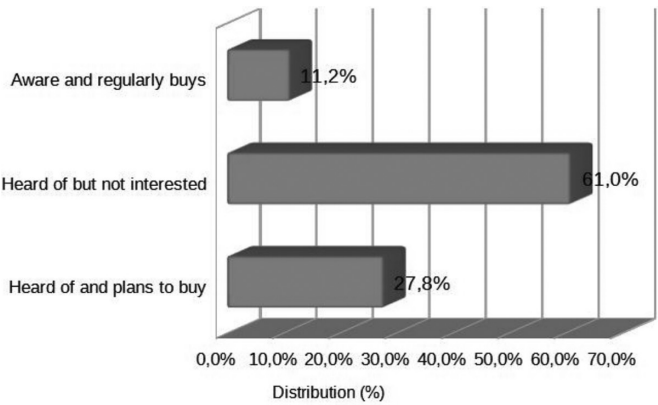


Source: own construction based on the results of the research

Questions related to the purchase of sports equipment and sportswear

At the next stage of our survey on sports equipment and sportswear purchases, we focused on the locations where these purchases are made. Different habits are typical when buying clothing items, groceries, durable consumer goods, and technical devices. Based on the information gathered, it was revealed that most respondents (82.6%; 199 people) usually purchase sports equipment and sportswear in sports stores and sports outlets. This is likely due to the fact that when buying such items (sportswear, sports shoes, etc.), it is important to ensure the proper size and quality, which can most often and best be checked and tried on in person by the buyer. Additionally, many respondents (51%; 123 people) indicated that they typically purchase such items through online shops, which is also not surprising, as we live in the age of the internet, and in many cases, this is the fastest and most convenient solution for consumers. Sports equipment and sportswear manufacturers often

Figure 2. Knowledge of eco-friendly sports equipment

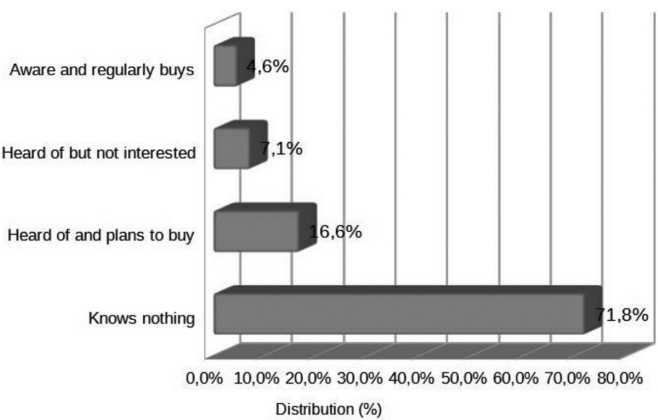


Source: own construction based on the results of the research

present their product ranges on their own websites, where direct filters can be applied, and browsers can often find special deals as well. In the spirit of sustainability, it is important that unwanted and unused clothing and sports equipment are reintroduced into circulation rather than ending up in waste containers. In total, about 11% of respondents indicated that they are happy to buy used items, for example, on social media platforms such as Marketplace (4.6%) or on various online marketplaces such as Vinted, Jófogás, and Vatera (5.8%).

One of the key steps in our research was to map how familiar our respondents are with the concept of environmentally friendly manufactured sports equipment and sportswear, and we also wanted to assess how well they know the green sports products of domestic sports equipment manufacturers. The results of these questions are illustrated in Figures 2 and 3. As shown in the figures, the majority of respondents (61%) have heard of them but do not plan to purchase such products in the near future, and 71.8% have no information about domestic companies that are part of the sustainable sports industry. Only 27.8% indicated on a national level and 16.6% on an international level that they had heard of such products and plan to

Figure 3. Awareness of eco-friendly products by Hungarian sports manufacturers



Source: own construction based on the results of the research



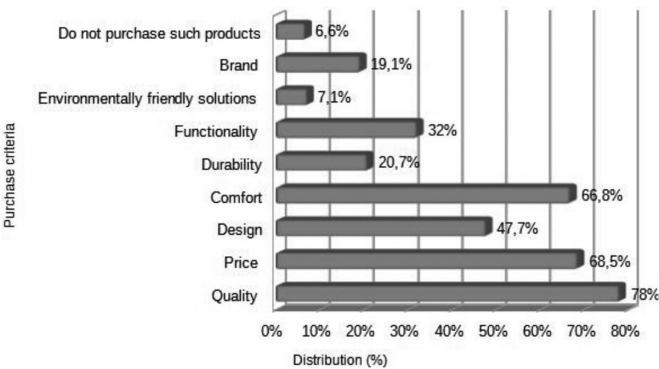
try them in the near future. Very few respondents consciously select their sportswear; 11.2% answered that they only buy such products, while in the case of domestic sports equipment manufacturers, this number was even lower (4.6%).

Sustainable fashion is more prominently represented on an international level among sports equipment manufacturers. Major multinational companies have recognized for years that urgent steps must be taken to mitigate the damage caused by climate change. In a brand preference survey linked to international sports equipment and sportswear manufacturers, it was revealed that 37.3% of respondents prefer Nike, 22.4% prefer Adidas, 7.1% prefer Under Armour, 6.2% prefer Puma, 3.7% prefer Heavy Tools, and 2.1% prefer New Balance and Reebok products. We found it interesting to assess which sports equipment manufacturers' products respondents consider the most environmentally friendly. The results show that the majority pointed to Nike (15.4%), Adidas (11.2%), Under Armour (4.6%), and Puma (3.3%), which closely mirrors the brand preference results.

It is not surprising that international sports equipment and sportswear manufacturers' sustainable initiatives are better known, as these companies strive to publish reports on their sustainability measures annually, informing consumers, economic players, and competitors about their operational status, goals, and achievements. For instance, Adidas, Nike, and Under Armour each have established and detailed environmental strategies. They emphasize the use of renewable energy sources, water conservation efforts, recycling, and waste management methods, as well as responsible material usage and procurement. All three companies aim to reduce the environmental impact of their partners and suppliers. They are aware that immediate actions must be taken for a sustainable future and climate neutrality. Their reports detail the outcomes of their sustainability efforts with varying levels of specificity, including planned vs. actual data, and outline their short- and long-term goals for more environmentally conscious operations (MAKARA, 2023).

Figure 4 clearly reflects the results of the previous questions, showing that when it comes to purchasing sports equipment and sportswear, the respondents almost did not consider environmentally friendly solutions and sustainability factors important

Figure 4. Respondents' purchasing considerations related to sports equipment and sportswear



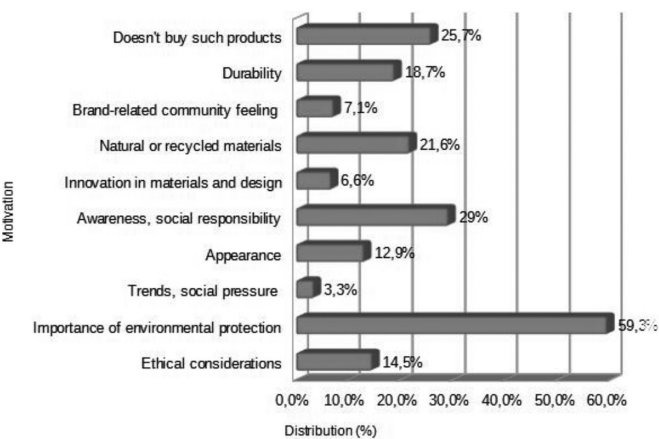
Source: own construction based on the results of the research

(7.1%). When acquiring sports products, the respondents primarily prefer quality (78%), price (68.5%), comfort (66.8%), as well as appearance (47.7%) and functionality (32%). A surprising result is that brand loyalty does not appear as strongly in the findings, as only 19.1% of respondents indicated this as a factor.

Questions on Awareness and Purchasing Habits Regarding Environmentally Friendly Sports Equipment and Sportswear

In Figure 5, we illustrated what motivates respondents to purchase environmentally friendly sports equipment or sportswear. The majority of respondents (59.3%) indicated that they purchase such products primarily because of the importance of environmental protection. Additionally, they value consciousness and social responsibility (29%) as well as the presence of natural or recycled materials (21.6%). From this, we can infer that the respondents understand the benefits associated with green products and the importance of environmental protection. Furthermore, 14.5% indicated that they consider ethical factors, while 18.7% value durability, and 12.9% also consider appearance important.

Figure 5. Motivations for Purchasing Eco-Friendly Sports Products



Source: own construction based on the results of the research

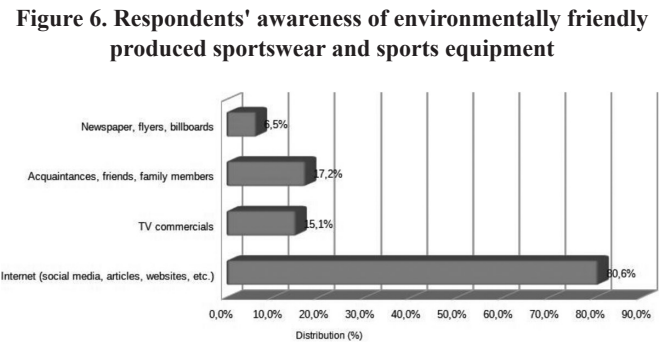
A significant proportion of the survey participants also reported that they rarely (56%; 135 people) or never (39.4%; 95 people) purchase environmentally friendly sports equipment and sportswear. Only 4.1% (10 people) indicated that they regularly do so, and just 0.4% (1 person) stated that they exclusively prefer such products, which unfortunately cannot be considered a good result.

Next, we considered it important to ask what information the respondents need to ensure and trust that a product has been manufactured in an environmentally friendly manner. This is particularly interesting to examine because, in today's fast-paced world flooded with information, it is extremely difficult to make responsible, conscious decisions, especially concerning purchasing habits. In the sample, 68.2% (163 people) indicated that they require an eco-friendly, sustainability certification, while detailed knowledge of the production



process is important for 35.1% (84 people). Additionally, various quality control data provide valuable information, which 37.2% (89 people) consider important. Today's consumer society continuously churns out newer and newer products and services, and the activities of sports equipment manufacturers are no exception. Sustainable corporate behavior is increasingly leaning toward green product marketing. Gaining consumer trust is not simple, as they often encounter misleading and unfair marketing strategies, known as the "greenwashing" phenomenon. To regain credibility, manufacturers have the opportunity to apply the above-mentioned methods to win consumer trust and assist them in making responsible purchasing decisions (ADAMKIEWICZ et al. 2022).

Figure 6 shows how the participants in the sample learn about environmentally friendly sportswear and sports equipment. The most significant number and proportion are associated with online sources (80.6%), including various social media platforms (TikTok, Instagram, Facebook, etc.), articles, and websites. This is because information flows fastest on the internet, and our smart devices are with us almost all the time. As a result, manufacturers spend a large portion of their marketing budgets on online advertisements, influencer marketing, and direct marketing. The other options pale in comparison to the dominant internet, with 17.2% of respondents obtaining such information from acquaintances, friends, or family members, 15.1% from TV commercials, and 6.5% from newspapers, flyers, or possibly billboards.



Source: own construction based on the results of the research

Willingness to Pay

In the following question, we sought to determine whether the respondents are willing to pay more when purchasing sports equipment or sportswear if they know that these products were manufactured in an environmentally friendly manner. Overall, it can be said that more than half of the respondents, 61% (147 people), are willing to pay more, while 39% (94 people) are not willing to spend extra on green sports products.

When examining the relationship between gender and willingness to pay, we conducted a Pearson Chi-Square test, the results of which are illustrated in Table 2. The test aimed to determine whether men or women are willing to pay more for sports equipment or sportswear if they know that these products were manufactured in an environmentally friendly manner. As can be seen from the Likert scale questions later on, women

generally place a higher value on environmentally friendly solutions in sports products, but this difference does not manifest in their willingness to pay. According to the test results, there is no significant difference between genders in terms of willingness to pay extra (Pearson Chi-Square= 3.069, p= 0.546).

Table 2. Willingness to Pay Premium by Gender

	Up to 10%	Up to 20%	Up to 30%	More than 30%	I am not willing to pay more	Total
Female						
N	34	13	3	1	30	81
%	42,0%	16,0%	3,7%	1,2%	37%	100%
Percentage of Column (%)	33%	25,5%	50%	33,3%	38,5%	33,6%
Standardized Residual	-0,1	-1	0,7	0	0,7	
Male						
N	69	38	3	2	48	160
%	43,1%	23,8%	1,9%	1,3%	30%	100%
Percentage of Column (%)	67%	74,5%	50%	66,7%	61,5%	66,4%
Standardized Residual	0,1	0,7	-0,5	0	-0,5	
Total						241
N	103	51	6	3	78	241
%	42,7%	21,2%	2,5%	1,2%	32,4%	100%
Percentage of Column (%)	100%	100%	100%	100%	100%	100%

Chi-Square Test Results

Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	3,07	4
Likelihood Ratio	3,08	4
Number of Valid Cases	241	

Source: own construction based on the results of the research

In the final phase of our research, we focused on the 16 Likert-scale surveys included in the questionnaire. Our goal was to assess respondents' opinions regarding their awareness and consumption of green, environmentally friendly sports products, their knowledge of the sustainable efforts of international or domestic sports equipment and sportswear manufacturers, as well as their individual environmentally conscious attitudes and behaviors. We used a paired 4-point scale (1: Strongly disagree, 4: Strongly agree) to minimize the likelihood of responses clustering around the midpoint. The following statements were presented to the participants in the questionnaire:

- 1. It is important to me that the sports equipment or sportswear I purchase is produced in an environmentally friendly manner.

2. I am satisfied with the current selection of sports equipment and sportswear produced in an environmentally friendly manner.
3. I am happy to buy products from domestic sports equipment manufacturers.
4. I am satisfied with the environmentally friendly sports equipment and sportswear produced by domestic sports equipment manufacturers.
5. I am satisfied with the variety of environmentally friendly sports equipment and sportswear offered by domestic sports equipment manufacturers.
6. I am satisfied with the availability of environmentally friendly sports equipment and sportswear in online shops and retail stores.
7. Overall, I am satisfied with the prices of environmentally friendly sports equipment and sportswear.
8. When purchasing sports equipment or sportswear, it is important to me that the products are recyclable or made from recycled materials.
9. I trust manufacturers when they claim that their products are produced in an environmentally friendly manner.
10. With my purchase, I aim to support sports equipment and sportswear manufacturers that adhere to sustainability and environmental protection principles.
11. I am a conscious, environmentally friendly shopper.
12. When buying sports equipment or sportswear, I am brand loyal.
13. My consumption and purchasing habits are influenced by my commitment to environmental protection.
14. It is important to me that the sports equipment and sportswear I purchase are environmentally friendly and have sustainability certifications.
15. I am willing to make compromises in order to buy sports equipment and sportswear produced in a sustainable, environmentally friendly manner.
16. I generally shape my purchasing habits by considering the environmental impact I generate.

We examined whether there are significant differences between genders in the Likert-scale statements included in the questionnaire. As an initial step, we conducted a normality test. For normally distributed data we used parametric tests (t-test), and for non-normally distributed data we used non-parametric tests (Mann-Whitney). We used SPSS software to analyze significant correlations.

Based on the calculations mentioned above, Table 3 shows that significant differences were found in the following statements:

- It is important to me that the sports equipment or sportswear I purchase is produced in an environmentally friendly manner. (Q1; Mann-Whitney, 0.005)
- I am a conscious, environmentally friendly shopper. (Q10; Mann-Whitney, 0.002)
- I generally shape my purchasing habits by considering the environmental impact I generate. (Q15; Mann-Whitney, 0.006)

- I am happy to buy products from domestic sports equipment manufacturers. (Q3; t-test 0.024)
- It is important to me when buying sports equipment or sportswear that the products are recyclable or made from recycled materials. (Q8; t-test 0.003)

**Table 3. Testing significant differences between genders in Likert-scale statements formulated in the questionnaire**

Q	N; W/M	K-S Asymp. Sig. (2-tailed)	M-W (U) Asymp. Sig. (2-tailed)	Mean	Std. Deviation	Levene's Test Sig.	Two- Sided p
Q1	79	0,011	0,005	2,24	0,909	0,293	0,008
	152			2,59	0,931		0,007
Q3	79	0,261	0,023	2,25	1,006	0,589	0,024
	150			2,57	1,012		0,024
Q8	79	0,087	0,006	2,19	0,833	0,006	0,005
	149			2,56	0,975		0,003
Q11	79	0,046	0,002	2,06	0,896	0,004	0,002
	149			2,50	1,018		0,001
Q16	78	0,020	0,006	2,18	0,785	0,00	0,005
	150			2,55	1,001		0,003

*Source: own construction based on the results of the research*

The aim of our research is to examine how the consumers we surveyed behave and how interested they are in purchasing sustainably produced sports products, sports equipment, and sportswear. Analyzing the demographic data, we found that the number of female respondents in our sample was almost twice as high (66.4%) as the number of male respondents. The majority of respondents were aged between 26-35 (36.5%) and 36-45 (22.4%), with 90% having their own income. Most of the respondents were women under the age of 35, which we attribute to the younger generation's higher use of social media and greater participation in online surveys.

Regarding questions on the frequency of sports activities, our results reflect the situation in Hungary, where nearly 60% of the adult population does not engage in sports in their leisure time. In our case, more than two-thirds of the respondents exercise once or twice a week or even less frequently. The respondents mostly chose cycling, gym workouts, running, and team sports for their leisure activities, but the diversity of responses suggests that there is a wide range of products offered by sports equipment and sportswear manufacturers. This represents an ideal opportunity for these companies to highlight the importance of minimizing environmental damage through their products.

When it comes to purchasing sports equipment and sportswear, we observed that a large majority of respondents (82.6%) usually buy sports goods from sports stores, sports chains, and online shops (51%), while only a few (11%) contribute to the reuse of used or unwanted sports products.

We found it important to examine what motivates the respondents to buy environmentally friendly sports equipment or sportswear. The majority of respondents (59.3%) indicated

that they primarily buy such products because of the importance of environmental protection, and they value awareness and social responsibility. However, when it comes to purchasing habits for sports equipment and sportswear, respondents generally did not consider environmentally friendly solutions or sustainability factors to be important. Instead, they prioritized quality, price, and comfort. While 67.6% of respondents were theoretically willing to pay more for environmentally friendly products, a contradictory finding was that a significant majority (95.4%) rarely or never purchase such products.

From these results, we conclude that environmental awareness — as a theoretical category — does not yet translate into environmentally conscious behavior or real actions, as seen in the infrequent actual purchases of environmentally friendly products.

We also sought to gather respondents' opinions on their awareness and consumption of green, eco-friendly sports products, their knowledge of the sustainability efforts of international or domestic sports equipment and sportswear manufacturers, as well as their individual attitudes and behaviors toward environmental awareness. An interesting finding from the Likert scale survey was that significant differences were primarily noted in the responses from women, indicating that women place greater importance on sustainable and eco-friendly purchasing practices and are more conscious consumers. They also show a stronger interest in green sports products and sportswear. Female respondents further emphasized the importance of sports products being made from recycled materials and produced in an environmentally friendly manner. It was also more characteristic of female respondents that they were more inclined to buy products from domestic sports manufacturers, identified themselves as conscious, environmentally friendly consumers, and generally shaped their purchasing habits by considering environmental impacts.

Nowadays, climate change and sustainability-related issues pose an increasingly significant threat, and these problems are evident to many people. However, there is widespread agreement that current measures and actions to address these challenges are insufficient. The current consumer society produces a large amount of byproducts that contribute to environmental damage. Therefore, it is crucial to provide consumers with accurate and thorough information about environmental problems and climate change. Consumers can significantly influence the planet's ecosystem through their everyday activities, purchasing habits, and preferences. Manufacturers and retailers have an important role in deepening environmental awareness among consumers and sparking their interest in these topics in a way that translates into actual behavior change.

In one phase of our research, we found that consumers primarily learn about environmentally friendly sportswear and sports equipment through the internet (80.6%). For this reason, sports equipment and sportswear companies should advertise their sustainable products on these platforms (TikTok, Instagram, Facebook, etc.), where information flows fastest. The activity of sports manufacturers in this area is crucial, given their product range that attracts large audiences, thereby influencing consumers during the purchasing process.

Sports manufacturers can encourage a shift toward a more responsible, conscious, and environmentally friendly lifestyle through ethical partnerships, the use of renewable energy sources, the introduction of manufacturing processes that minimize waste and emissions, the use of recycled and chemical-free materials, and environmental protection programs. These steps are necessary because many people are not aware of how they can contribute to a greener future. Our research revealed that although the majority of respondents (61%) have heard of eco-friendly sports products, they do not plan to purchase them in the near future.

In our view, consumer education about eco-friendly products by sports manufacturers could be beneficial. Our research showed that 68.2% of respondents demand environmental and sustainability certifications, while 35.1% desire knowledge of detailed manufacturing processes. By providing this information, sports manufacturers can reduce consumer uncertainty and help them make more responsible, conscious decisions.

## REFERENCES

- Adidas (2023). *Annual Report 2022*. Megjelenés: 2023. Letöltés dátuma: 2023. február Forrás: [https://report.adidas-group.com/2022/en/\\_assets/downloads/annual-report-adidas-ar22.pdf](https://report.adidas-group.com/2022/en/_assets/downloads/annual-report-adidas-ar22.pdf)
- Adidas (2022). *Annual Report 2021*. Megjelenés: 2022. Letöltés dátuma: 2023. február Forrás: [https://www.adidas-group.com/media/filer\\_public/ad/a3/ada3f4a0-4751-484d-b053-f2b2b78b2e30/ar21\\_en.pdf](https://www.adidas-group.com/media/filer_public/ad/a3/ada3f4a0-4751-484d-b053-f2b2b78b2e30/ar21_en.pdf)
- Baier, D., Rausch, T. M., & Wagner, T. F. (2020). *The drivers of sustainable apparel and sportswear consumption: a segmented kano perspective*. *Sustainability*, 12(7), 2788. doi:10.3390/su12072788 [Letöltés dátuma: 2023. február].
- Fuchs, M., & Hovemann, G. (2022). *Consumer preferences for circular outdoor sporting goods: An Adaptive Choice-Based Conjoint analysis among residents of European outdoor markets*. *Cleaner Engineering and Technology*, 11, 100556.
- Fung, Y. N. (2021). *Sustainable fashion product development: with application in fashion sportswear*.
- Khan, S. J., Badghish, S., Kaur, P., Sharma, R., & Dhir, A. (2023). *What motivates the purchasing of green apparel products? A systematic review and future research agenda*. *Business Strategy and the Environment*, 32(7), 4183-4201.
- Kim, Y., – Oh, K. W. (2020). *Effects of perceived sustainability level of sportswear product on purchase intention: Exploring the roles of perceived skepticism and perceived brand reputation*. *Sustainability*, 12(20) doi: 10.3390/su12208650 (Letöltés dátuma: 2023. március)
- Kellison, T. (2023). *Sport Stadiums and Environmental Justice* (p. 279). Taylor & Francis. DOI: 10.4324/9781003262633. <https://library.oapen.org/handle/20.500.12657/59111>
- Makara E. – Ráthonyi-Ódor K. (2024): *Amikor nemcsak a stadion gyepe zöld*. *Acta Carolus Robertus*. 14(1) (megjelenés alatt)

Makara, E. (2023): Zöldülő sporttermékelőállítás–Egyes sport-szer-és sportruházat gyártó vállalatok környezetbarát törekvései. *International Journal of Engineering and Management Sciences*, 8(3), 45–61. DOI: 10.21791/IJEMS.2023.024 <https://doi.org/10.21791/ijems.2023.024>

Nam, C., Dong, H., & Lee, Y. A. (2017): Factors influencing consumers' purchase intention of green sportswear. *Fashion and Textiles*, 4, 1-17.

Nike, Inc. (2022). *Breaking Barriers – FY21 Impact Report*. Megjelenés: 2022. Letöltés dátuma: 2023. február Forrás: [https://www.responsibilityreports.com/HostedData/ResponsibilityReports/PDF/NYSE\\_NKE\\_2021.pdf](https://www.responsibilityreports.com/HostedData/ResponsibilityReports/PDF/NYSE_NKE_2021.pdf)

Nike, Inc. (2020). *Purpose Moves Us– FY19 Impact Report*. Megjelenés: 2020. Letöltés dátuma: 2023. február Forrás: [https://www.responsibilityreports.com/HostedData/ResponsibilityReportArchive/nNYSE\\_NKE\\_2019.pdf](https://www.responsibilityreports.com/HostedData/ResponsibilityReportArchive/nNYSE_NKE_2019.pdf)

Ráthonyi-Ódor K., Bácsné Bába É., Ráthonyi G. (2019). Nike vs. Adidas –Környezetvédelmi Erőfeszítések Eredményei. *Acta Carolus Robertus*, 9(2), 133-148. doi: 10.33032/acr.2019.9.2.133 Letöltés dátuma: 2023. február

Ráthonyi-Ódor K. (2019). Társadalmi felelősségvállalás a sportban, különös tekintettel a környezetvédelemre, *Habilitációs gyűjtemény, Debreceni Egyetem*

Shibly, M. (2018). *Sport and Environment*. <https://www.progressivet-eacher.in/sport-and-environment/> Letöltés dátuma: 2023. február

Spindler, V., Schunk, H., & Könecke, T. (2023). Sustainable consumption in sports fashion–German runners' preference and willingness to pay for more sustainable sports apparel. *Sustainable Production and Consumption*, 42, 411-422.

Subic, A., Shabani, B., Hedayati, M., & Crossin, E. (2012). Capability framework for sustainable manufacturing of sports apparel and footwear. *Sustainability*, 4(9), 2127-2145. doi: 10.3390/su4092127 (Letöltés dátuma: 2023. február)

Trendafilova, S., Babiak, K., & Heinze, K. (2013). Corporate social responsibility and environmental sustainability: Why professional sport is greening the playing field. *Sport Management Review*, 16, 298-313. doi: 10.1016/j.smr.2012.12.006 Letöltés dátuma: 2023. február

Under Armour, Inc. (2022). *Sustainability and Impact Report 2021*. Megjelenés: 2022. Letöltés dátuma 2023. február Forrás: [https://about.underarmour.com/content/dam/ua/sustainability/sustainability-report/UA\\_2021SustainabilityImpactReport.pdf](https://about.underarmour.com/content/dam/ua/sustainability/sustainability-report/UA_2021SustainabilityImpactReport.pdf)

Adamkiewicz, J., Kochańska, E., Adamkiewicz, I., & Łukasik, R. M. (2022). Greenwashing and sustainable fashion industry. *Current Opinion in Green and Sustainable Chemistry*, 38, 100710. <https://doi.org/10.1016/j.cogsc.2022.100710>, (Letöltés dátuma: 2024 június)





# BRAIN DRAIN AND ITS REPERCUSSIONS ON THE NEEDS OF THE PALESTINIAN LABOR MARKET: A STUDY OF THE CAUSES AND CONSEQUENCES OF MIGRATION AMONG EDUCATED YOUTH

**Manal Mohammad Hamarsha**

Eötvös Loránd University

E-mail address: manal@student.elte.hu

**Abstract:** *This study examines the consequences of the outflow of young people from the occupied territories for the Palestinian labor market. This phenomenon is labeled a "drain" because it deprives the area of many educated individuals needed for its development. Commonly discussed as a political issue and as a consequence of war, the problem is often not addressed as an economic issue. Moreover, emigration exacerbates the population problem as young females and males leave the area for neighboring states and seek permanent sanctuary in them. When this group is not present to aid in the process of internal development, the investment in their education is lost. In all areas of the world, one may observe graduations from universities and other institutions leading to the majority of proficient students leaving or attempting to leave to assume responsible positions. This exodus constitutes a serious problem for the donor country in the sense of its youth development, and a serious problem for the recipient country deprived of the services of these skilled graduates. The total "drain" of the talented becomes an important economic problem. The outflow of trained individuals is not unique to Palestine; therefore, similar serious situations are prevalent in many developing countries, particularly those situated in proximity to concentrations of wealth. The magnitude of the Palestinian outflow, however, has not previously been demonstrated. The analysis of Palestine's probable situation was accepted reluctantly, as many information sources refused or were too cautious to share statistics related to this study. The specific objective of the analysis is to present these and related statistics. The concern in this paper is with the consequences of the phenomenon and the associated costs in disutility. There are other consequences and costs, all of which are important.*

**Keywords:** Brain Drain, Palestinian Labor Market, Migration  
(JEL code: F22, J61)

## INTRODUCTION

Brain drain is not a new phenomenon, but its severity can greatly vary according to the economic and intellectual capabilities of different countries around the world. It is indeed a global phenomenon characterized by both negative and positive impacts that resonate across various regions. The phenomenon negatively affects the pressing need of donor countries for highly qualified individuals and has a positive impact on developing countries as it helps in increasing the qualifications and skills of migrants who move from one nation to another (Kreichati, 2023).

The specific causes for the massive migration around the Palestinian territories have their roots deeply embedded in the long-standing occupation that has plagued the region for decades. Poverty and high unemployment rates are the primary motives for migration, amidst other planned and systematic actions taken in order to create a climate that is particularly tempting for Palestinians to emigrate to different lands. Low wages, terrible economic conditions, and the dramatic absence of available jobs have become regular and unfortunate traits among Palestinians, compelling many to seek opportunities elsewhere. This study is divided into six detailed sections. The introduction is specifically chosen for the first section in order

to thoroughly clarify the various causes, the significance of the issue at hand, and the multiple motives driving this study forward in light of the ongoing challenges faced by these individuals (Hiltermann, 2021).

The second section of the study clarifies the concept of brain drain, elaborating on its definition as well as its underlying motives. This phenomenon is complex and multifaceted, with both positive and negative aspects that can significantly impact nations and individuals alike. The third section delves into Palestinian emigration, which bears particular relevance due to the unique circumstances surrounding the country. The roots of this movement are deeply entrenched in the enduring occupation, making the phenomenon of emigration from Palestine significantly older than the establishment of the state itself (Bukhari et al.2024).

The ongoing situation has resulted in a creation of surplus labor within Palestine, a direct consequence of systematic hindrances to any form of Palestinian development. This environment fosters a climate that tempts many Palestinians to seek migration as a viable solution to their struggles. The fourth part of this study thoroughly discusses the research methodology employed, offering detailed insights into the various techniques used for data collection (Bukhari et al.2024).

This approach is crucial in order to derive reliable conclusions concerning this complex issue of emigration. Meanwhile, section five addresses the results derived from this study, particularly focusing on the reasons behind youth emigration, charting the various factors influencing this decision among the younger demographics. The final section systematically illustrates all findings and presents a series of thoughtfully considered ideas, ultimately providing valuable recommendations based on the data collected. This information is intended for the benefit of government officials, policy formulators, and decision-makers who are in positions to exert influence and implement change (Loewenstein, 2024).

## RESEARCH OBJECTIVES

In light of the ongoing intra-Palestinian rift and the successive Israeli wars that have caused extensive devastation and left the economic sectors in a state of complete collapse, it has been observed that the percentage of educated individuals migrating abroad has increased relatively significantly. This rise in educated migration from Palestine is manifesting in the notable trend among individuals, particularly the growing number of students at Palestinian universities, who are increasingly opting to migrate abroad in pursuit of completing their higher studies. This prominent phenomenon of Palestinian migration carries with it a multitude of negative social and economic repercussions that affect not only the daily lives of Palestinians but also the fabric of the Palestinian community from which this migration originates. The implications of this trend continue to unfold, raising urgent questions about the future stability and development of Palestinian society as well as its ability to retain its educated youth (Fischer et al.,2021).

The Palestinian education system is grappling with a multitude of challenges that significantly hinder the sustainability and effectiveness of investments that are being poured into

the educational process. One of the most pressing issues faced by the educational sector is the alarming trend of migration among students. A striking statistic indicates that the number of individuals who chose to migrate in 2006 reached approximately 60,000, a considerable increase compared to only 45,000 during the turbulent years of the Intifada. In addition to this, there is a concerning number of about 11,000 individuals who already possess the necessary travel documents and are currently engaged in their studies while merely waiting for their scholarships to facilitate their migration.

This data starkly confirms a troubling rise in educated migration, which poses significant challenges for the local education system. In light of these findings, the objectives of this research have been carefully refocused and now encompass several critical areas: First and foremost, the demographic and educational landscape will be mapped out, specifically targeting Palestinian students who are pursuing their studies at the higher educational levels within both Palestinian and supervised universities. Second, the research will delve into the most significant reasons and motivations that drive these students to seek migration in order to further their academic studies, as well as the various educational stages and specializations they wish to pursue at these supervised universities. Third, an exploration of the professional aspirations that these students harbor for their futures will be undertaken. Fourth, the investigation will assess the most impactful positive and negative implications that migrate may bear on the families of these students. Finally, the research will highlight and examine some of the societal efforts that have been made to curb this trend of migration and retain talent within the local context (Cummings et al., 2022).

## LITERATURE REVIEW

The literature review provides a comprehensive overview of migrational trends in general, as well as an in-depth examination of brain drain specifically within developing countries and the Arab world. This review also delves into the unique phenomenon of brain drain as it pertains to the Palestinian context. Migration, which can occur at various levels, plays a pivotal role in fostering both economic and social development by enabling individuals to adapt to the dynamics of a changing economy. Additionally, migration can serve as a viable strategy to escape high rates of unemployment that individuals face in their home regions. There are numerous factors propelling people to migrate from their places of origin: the pursuit of enhanced job opportunities, the desire to expand their knowledge, acquire new skills, gain experiences, and ultimately, to establish a stable and decent life for themselves and their families (Latukha et al.2022).

In certain cases, particularly in some regions, we observe that the most qualified and best-trained individuals are often the first to leave, which poses a severe challenge for their countries of origin. This trend not only undermines the growth and development of these nations but may also exacerbate existing inequalities both between countries and within them. Consequently, the outcome is a net loss encapsulated in the term "brain drain." This phenomenon has sparked considerable discussion, debate, and research among policymakers, scholars,

and students in the field of development studies since the mid-1950s. Regrettably, the findings and conclusions derived from this body of work frequently resemble a metaphorical spherical chicken—pursued primarily for the elegance and novelty of the endeavor rather than yielding any realistic expectations that such a uniquely-shaped, spherical version of poultry could ever come to fruition (Anetoh & Onwudinjo2020).

### *Definition and Concept of Brain Drain*

The term migration is used more often with the negative connotation of brain drain. But actually, the impact of migration depends mainly on the quality of those moving and on the development level of both the country of origin and the host country. All countries profit from the international brain exchange if the terms of the movement of highly competent manpower are regulated by generally accepted rules, especially when the supply of professionals is limited in the host country. The study tries to give further understanding of the reasons and consequences of migration among the educated sectors of the labor market. The use of the world's intelligentia and highly compressed technology diffusion are consequences frustrating employment creation and development in the origins. The presence or absence of rules in the social game is studied by analyzing migration on the basis of so-called push-pull factors on the side of the origin and the host country (Kaczan & Orgill-Meyer, 2020).

Brain drain, understood as the unplanned migration of workers capable of contributing to development, is an astonishing fact. Normally, people adjust to changes. Why do many specialists, especially those in demand everywhere in the world, decide so quickly to leave their countries and settle in a host country, often without knowing where to live and initially living in a kind of manipulated limbo? Underdeveloped and advanced countries profit from the international exchange of knowledge and leading technology if, at the same time, the movement of highly skilled manpower is restricted. The capitalization of brain with advanced technology diffusion is expected only for a limited number of source countries. Brain waste and brain overflow occur for the remaining source countries. The international brain exchange is often compared with the international trade of goods and exchange rates, the lack of efficient regulation of land utilization, and the availability and exclusion of mobility, land ownership, and the activity of specialized actors in the world's foreign exchange markets acting in the absence of rules regulating exchange rates. The purpose of the study is to explain the present absence of important rules at the actual transfer of manpower and to derive recommendations permitting the increase of the positive effects of international brain exchange, respecting the interests and enhancing development by fighting the costs of cabin fever among the origin countries. (Pastor-García et al.,2024).

### *Global Trends in Brain Drain*

In recent years, an increasing number of highly skilled individuals have been attracted to the developed world, particularly through various human capital initiatives and neoliberal eco-

nomic policies. This trend is creating a new era of globalism and transforming the world into a competitive free market environment for highly skilled workers. The developed world's growing interest in acquiring and utilizing highly skilled labor has led to a significant increase in the movement of these workers across international borders. This phenomenon can be observed as a form of global brain drain, which has significant implications for both sending and receiving countries. Movements of highly skilled labor to the developed world, particularly from numerous developing countries, have resulted in unprecedented and far-reaching negative economic, political, and social consequences. This unidirectional flow of talent not only creates acute shortages of essential professionals such as doctors, nurses, hairdressers, farmers, and various other skilled workers in the sending countries, but brain drain also deprives these countries of crucial intellectual, human, and service capital. This capital is critically needed to build and sustain their home economies and to address severe issues related to economic deprivation and social deterioration. The loss of such valuable human resources hampers developmental progress and exacerbates existing challenges in those countries striving for growth and stability (Hongal and Kinange,2020).

The international labor market is increasingly demanding trained personnel from less developed countries, particularly as their populations continue to age and face demographic shifts. Meanwhile, the developed world is struggling to produce a sufficient number of individuals with expertise in highly specialized areas, especially during a time when the previously unforeseen flexible service economy is expanding at an impressive rate. The most notable rise in brain drain has been seen among those with advanced academic degrees; for instance, during the seventies, the number of academics who moved to the United States reached approximately 200,000 individuals. Fast forward to the early 1990s, where there was a significant escalation in the movement of highly skilled professionals, including software engineers and information systems experts. Currently, more than 20,000 individuals every year are awarded diplomas through various Management Information Systems (MIS) programs. A considerable portion of these graduates ultimately decides to migrate in search of better opportunities and living conditions. As a result, the number of developing countries is actively seeking and implementing various strategies to expand and strengthen their higher education systems, ensuring that they can nurture and retain their educated workforce effectively in the face of ongoing global competition (Rani & Furrer, 2021).

### *Brain Drain in the Palestinian Context*

In the Arab world, there exist exceptionally high levels of educational achievement among emigrants, particularly among those individuals who are highly qualified and possess advanced degrees, as well as prestigious academic titles. The achievements of these educated emigrants play an undeniably significant role in bolstering the economic development of the host countries or the recipient nations where they decide to settle. This phenomenon is especially noticeable within the context of the Middle Eastern countries, particularly the oil-



rich nations, which have been remarkably impacted by the influx of skilled labor that these emigrants bring with them. Among the educated segments of the Palestinian population, there exists a stark and extreme disparity between the returns they receive on their educational investments and the meager income levels that they are often faced with. This pronounced imbalance strongly contributes to a persistent inclination toward emigration to the more prosperous Arab oil-rich nations, which typically offer better job opportunities and a higher quality of life. Historical estimates have indicated that approximately one-third of the Palestinian labor force was working abroad as early as the year 1952. This significant statistic compelled policymakers in East Bank Jordan to start formulating comprehensive and strategic plans aimed at developing an economic infrastructure designed to reduce the heavy reliance of East Bank Jordan on the inflow of Palestinian labor, thereby fostering a more self-sufficient economic environment that would promote local job creation and retention (Hallaq & Daas, 2024).

In the Palestinian context, the complex web of professional and familial connections with expatriates has woven a bittersweet narrative that is both hopeful and challenging. On one hand, the remittances sent back by Palestinian expatriates serve as a vital lifeline, significantly alleviating the social and economic struggles endured by the indigenous Palestinian population who face various hardships in their daily lives. This financial support is crucial for many families and contributes positively to the overall resilience of the community. On the other hand, the persistent issue of brain drain leads to a substantial loss of highly educated individuals, which, while alleviating immediate financial pressures, simultaneously serves as a troubling indictment of the indigenous economy. This situation reveals its inability to adequately absorb, retain, and reward the talents and skills of the local educated labor force within the country.

Additionally, during periods when the economy heavily relies on foreign aid as a critical lender of last resort, the support from expatriates becomes incredibly vulnerable to withdrawal. Such withdrawals can occur as political circumstances fluctuate in the host countries where these expatriates reside, while at the same time, the coordination of Palestinian and Israeli policies in response to these shifting developments often complicates matters further. Given these political risks, it becomes alarmingly clear that the recipient of expatriate remittances must strive to achieve as high a degree of economic independence as possible to protect against the volatility of this external support. This necessity drives home the importance of developing a more robust and self-sustaining local economy that can provide for its citizens without overly relying on foreign assistance (Yunitasari et al., 2021).

## MATERIALS AND METHODS

The data utilized for this comprehensive study has been gathered from an extensive survey, specifically targeting the directors of senior secondary and vocational secondary schools located in the West Bank region. The survey was meticulously designed to encompass a variety of questions that address

diverse aspects of the schools, including the facilities available, the demographic composition of the student body, and the overall nature of the educational programs being offered by these institutions. In addition to these inquiries, the survey also included questions that pertained to crucial factors such as teacher wages, the length of their service in the educational field, and their respective levels of educational qualifications. It was deemed essential to engage with these individuals to ensure a thorough understanding of the schools' dynamics, as they were expected to possess detailed and in-depth knowledge regarding the unique circumstances and developments occurring within their schools. Moreover, these school directors are likely to have reasonably accurate insights concerning the transitions of their students, as well as the prevailing demands associated with the graduates of their schools, largely due to their ongoing interactions with key players in the private sector and with the graduates themselves. Their day-to-day interactions provide them with a comprehensive understanding of how their graduates are faring in the job market. Additionally, the fact that these individuals are entrenched within the administration of the Public Education Sector further enhances their access to valuable data, which includes important information about where the graduates are securing employment following their educational experiences. This unique position enables them to possess and share a distinctive perspective on various activities transpiring within the labor market, especially with regard to documenting and analyzing the role that the flight of educated individuals has played in contributing to significant wage disparities. Furthermore, the insights gleaned from their experiences encapsulate crucial information about employment levels and salary standards across different sectors of the economy (Ibay & Pa-alisbo, 2020).

## Research Design

This section delves into the essential variables that play a crucial role in the study, which directly address the research questions posed. Additionally, it presents the hypotheses that this research will rigorously test through its chosen research methodology. The section encompasses a thorough exploration of the study variables, providing their conceptual definitions along with potential avenues for operationalization, making them ready for empirical testing. Furthermore, it presents a detailed outline of the research design employed in this study. The previous section successfully addressed the first research question, which aimed to comprehensively determine the underlying causes and far-reaching consequences associated with youth-educated migration. In turn, the first part of this section takes a closer look at and effectively answers the second research question by examining the theoretical framework that supports the investigation into the causes and consequences of educated migrant youth within the labor markets of the country of origin. To further expand upon this inquiry, the second part of this section distinctly presents the second research question, articulating the nature of the relationship that exists between the aforementioned causes and consequences, specifically about the dependent variable being examined (Mikac and Wahdyudin, 2021).

The necessary data for conducting thorough empirical testing is gathered through the careful distribution of a meticulously crafted one-page questionnaire, which was initially drafted in English. This initial version was translated into Arabic with the invaluable assistance of friends knowledgeable in both languages, ensuring clarity and accuracy in conveying the intended questions. The students from the Arab-American University played a pivotal role in this process, as they generously returned a significant number of filled-in questionnaires. Each of these responses has proven invaluable in capturing and identifying various predictive causes related to the multifaceted issue of migration. Moreover, they provide ample and rich information regarding the long-term outcomes connected to this complex subject. These initial findings have been further enhanced and elaborated upon by conducting a set of more extensive interviews, allowing for deeper insights. The explanatory variables utilized in this analysis have been carefully adapted from existing research that delves into the various causes and consequential effects of migration. Additionally, both the independent and dependent variables were influenced by focus groups that provided qualitative input, specifically identified within the context of the Palestinian informal labor market by examining the population of a local university. The estimations employed in this study are closely related to other established models of wage equations that have been previously estimated for the Palestinian territories, as well as for several Arab countries, thus providing a robust framework for understanding the economic dynamics at play within the migration discourse (Shet et al., 2021).

Data for this study are meticulously gathered at the esteemed Arab-American University, a leading institution where a dedicated team of six individuals has collaborated intensely to prepare and execute 20 separate focus groups that involve the active participation of approximately 25 students in each session. Out of these focus groups, eight out of the ten correspond to male members, while the remaining ten focus groups are comprised entirely of female members, providing a balanced representation of the study. Each focus group meeting was carefully structured and took place over two-hour sessions every two days, amounting to three to six days a week, relative to the various academic majors offered by the university's colleges. This systematic approach ensured that a diverse range of opinions and experiences were collected during the meeting times. After thoroughly analyzing the audio recordings from each of the 20 focus groups, an impartial third person was assigned to take detailed notes, particularly focusing on the disbursement of discount fares discussed among the participants. In the following part of this document, we will present the specific conceptual definitions of the study variables, which are crucial for understanding the framework of our research. The table below outlines this important step in further detail and provides a clear example of how we will construct the design of the questionnaire, with careful attention to both the observations and questions columns that will guide our inquiry.

## *Data Collection Methods*

This research was meticulously based on primary data that was systematically collected using both the mini-survey and the comprehensive interview guides. Colleagues and students at Al-Quds University played a pivotal role in distributing the mini surveys to a diverse range of participants. To ensure an adequate stratification concerning gender, age, and major, students from the same university were utilized to conduct various focus group meetings. In contrast, a distinct and tailored data collection strategy was implemented to gather data from returned migrants residing in two European countries. In this case, acquaintances and fellow students in the relevant academic field, who live in the same cities, took the initiative to engage with potential participants and guide them in choosing individuals with whom to set up an appointment. In both scenarios, the partners were diligent in informing the participants about the overarching project objectives and the specific interview dates (Punnett et al., 2020).

After nearly all the interviews had been successfully conducted, the women's meetings were strategically scheduled to gather further insights. These meetings were all audiotaped for thorough documentation and were facilitated by one pair of researchers, with one individual performing the role of the speaker, posing questions, and engaging with the participants while the second researcher meticulously took notes during the discussions. The primary objective in recording the meetings was to create an environment that would encourage the participants to share their common predilections and experiences more freely. We operated under the assumption that the women would engage with one another in a manner that fostered open dialogue and facilitated frankness due to their shared backgrounds and circumstances. The topics of discussion during the meetings primarily revolved around employment issues that they could potentially face as newcomers to the labor market and other pressing concerns they were likely to encounter in that landscape. Additionally, the conversations delved into various factors they took into account while considering their decisions regarding studying abroad, making the choice to return to their homeland after their educational pursuits, the courses they could take, and the professional opportunities available to them without the necessity of emigrating to another country. Participants also expressed any fears, obstacles, and concerns they faced during or were associated with their academic studies. Even though all of the meetings commenced with the same set of foundational questions, the order in which the questions were posed was sometimes adjusted or tailored in response to the particular interests of the respondents involved. Occasionally, academic meetings were also held, some of which bore similarities to the women's focus group discussions, enriching the dialogue and enhancing the depth of understanding about their experiences (Karl et al., 2022).

## *Data Analysis Techniques*

This section is primarily dedicated to a comprehensive discussion of the data and methodology that were employed in the development of the questionnaire survey for this particular study. The initial focus will be on the way in which the questionnaire was carefully framed, its overall coverage, and the various sources of data that were utilized for conducting the questionnaire survey. Following this, we will delve into the specific methodology used for measuring and analyzing the independent and dependent variables that are central to this research. Furthermore, the descriptive, inferential, and multivariate statistical techniques that were applied in the empirical analysis sections will also be thoroughly described in this segment. This detailed explanation will provide clarity on how the research was structured and the analytical approaches employed throughout the process (Hoffmann et al., 2021).

### **Survey Methodology and Data Sources**

The survey utilized for this in-depth research study employed a comprehensive and well-structured questionnaire, necessitating approximately one full hour for a respondent to thoroughly answer all the questions related to the various causes and far-reaching consequences of youth migration. This detailed questionnaire was carried out in three significant Palestinian cities: Nablus, Ramallah, and Hebron. These specific cities were deliberately chosen for several important reasons that underpin the research objectives: firstly, they provide the essential data and foundational information necessary to analyze the size and scope of emigration; secondly, they are primarily considered the economic and commercial hubs of the region and embody the typical characteristics associated with vibrant commercial and economic cities; thirdly, they exhibit high levels of economic competitiveness, viability, and dynamism; lastly, they are home to a range of institutions of higher learning and education that draw youth from various backgrounds. Each of these aspects played a crucial role in shaping our selection criteria for the survey. The data for these cities were systematically collected through a series of well-designed questionnaires distributed among the respondents. (Hamarshah & Amro, 2020).

## **CAUSES OF BRAIN DRAIN AMONG PALESTINIAN YOUTH**

Among other significant reasons contributing to the increased emigration of Palestinians, particularly those individuals possessing basic educational qualifications, are the persistent work-related challenges and economic problems that have arisen from the ongoing occupation. These issues manifest in the form of heavy taxation rates and widespread unemployment, which particularly affect the younger generations more acutely than other demographics. The intifada led to severe restrictions that resulted in the closure of the job market, which previously served as the primary employer for many individuals, especially those with merely a primary level of education. However, when discussing the main issues driving young people who contemplate emigration, it is crucial to highlight the

devastating impacts of house demolitions and the uprooting of families, which compel a considerable number of them to live in precarious and unsafe shelters, often lacking basic amenities and security. The second major reason motivating these individuals is a notable increase in the desire for a better quality of life, both on a personal level and collectively as a community striving for improvement, in essence, pursuing a lifestyle that aligns more closely with that of the civilized world. Furthermore, among the reasons that lead educated youth to leave the territories, one must consider the limited acceptance rates at local universities. Many believe there are more promising opportunities available, such as scholarships and courses of high quality that come at a reduced financial burden. Additionally, the ongoing dire economic, political, and security conditions play a significant role in influencing their decisions to seek opportunities beyond their current circumstances (Hijawi, 2022).

### *Economic Factors*

The search for a better economic future, alongside the desperate need to escape from unemployment and poverty, is among the principal reasons that drive individuals to migrate, particularly among the youth who often feel trapped with limited opportunities. The significant decline in real wages that occurred after the Intifada, largely as a direct consequence of the sweeping closure policies, is deemed another one of the urgent causes of this migration trend. Furthermore, there has been a notable decrease in the active labor force, which exacerbates the situation, creating an increased burden on manufacturers and contributing to the rising production costs in the domestic labor market. These factors collectively serve to prompt economic migration as people look for better circumstances. The aspiration for a higher standard of living, which is readily available in developed countries, and the stark disparity between the modern standards of living compared to the traditional ones, also act as powerful push factors. Additionally, there exists a strong yearning to reside in a society that values freedom and democracy, where individuals can escape the pressures of the prevailing political system that adversely impacts the stability and security of individuals within their current places of residence. Migrating not only symbolizes hope for better economic conditions but also the need for social and political freedoms that can lead to a more fulfilling and secure life. (Hassan & Aref, 2023).

Globally, the persistent question re-emerges: Why do a substantial segment of young educated individuals, who benefit from the myriad advantages of elevated cultural and scientific standards, actively seek job opportunities beyond their immediate communities and national borders? In the case of Palestine, however, the search for viable job opportunities and a stable income is largely contingent upon the accumulation of human capital. This accumulated human capital is essential until a person reaches a point where they can join the ranks of decision-makers or assert some level of control over a segment of a productive project. Achieving this milestone is typically a rather costly and time-consuming process. Consequently, this reality drives a significant number of job seekers to pursue employment opportunities outside the borders of Pales-



tine, irrespective of whether their skills and talents are in high demand in those foreign countries. Moreover, this migratory movement is bolstered by a variety of encouraging factors that significantly include ethnic backgrounds, familial relations, religious beliefs, and political affiliations. These aspects are often highly regarded in the labor markets of other nations. The phenomenon of brain drain transpires when certain push factors propagate this outflow of skilled individuals. Additionally, the existence of specific pull factors plays a crucial role in attracting these immigrants, while the synergistic effect of hybrid push-pull factors further complicates this dynamic situation, driving the ongoing trend of skilled professionals seeking better prospects abroad. (Hamarsheh & Amro, 2020).

### *Political Factors*

In the Palestinian case, the influence of political factors is perceived to be considerably more severe than elsewhere, as the relentless persistence of occupation policies exerts substantial pressure, serving as a significant push factor for labor emigration among the populace. Many of those who possess voting rights firmly believe that elections, conducted among a suffering population, impose an essential functional commitment on the leadership to actively seek to improve the challenging life circumstances of the people. However, the prevailing atmosphere of despair often transforms even the most noble efforts into mere inaction, primarily due to the incapable official circumstances that entrap decision-makers. Irrefutable aspects to the contrary vividly reflect the everyday harsh realities that these outcasts must endure. When millions of ordinary citizens share their plight, the election process and the ensuing political power struggle inaugurate a critical dimension of life-related authority. This dynamic ultimately alters the nature of what are deemed invalid voting rights and leads to governmental isolation and the control of citizens' lives. This widespread and palpable distrust varies widely between different administrations, manifesting to the point where the interaction between leaders and the general public regarding political decision-making takes a turn for the worse; trust in the opposition remains frustratingly incomplete. At some unknown level of significance, elections are said to benefit the entire population, bringing forth a clearer understanding of the complete equation, which loses none of its inherent legitimacy. However, only a few rudimentary physical components of life's fundamental requirements are needed, which are often suppressed or truncated by economic power dynamics. Political assessments concerning the Palestinians frequently manipulate criteria that mislead broader perspectives; what is evidently shown to exacerbate adversity within our nation is alarmingly close to a precarious balance of power. The intricate web of societal struggles continues to ensnare the everyday lives of countless citizens, prompting a desperate need for genuine political engagement and resolution. (Hassan & Aref, 2023).

### *Social Factors*

The high cost of marriage and settling down in life is a real challenge facing young graduates. The estimated 36,000 young men and women studying in universities and junior

colleges constitute 6 percent of the population, and they live under high living expenses in big cities. They cannot afford the current high prices of real estate, weddings, and items of dowry, which makes it difficult for them to think about forming families. Securing an apartment is also an obstacle for anyone wishing to get married. The economic conditions and shortage of jobs lead to competition and unequal relationships between the two parties as they try to adjust their relationships and financial responsibilities to suit the means of the partners (Yamamoto & Kawabata, 2022).

Ever since the end of the 1980s, the problem of work opportunities has been the main cause for the delay of marriage, as the difficult financial conditions make the prospects of finding a job challenging. Families often prevent their adult children from getting married due to not having the conditions that make marriage easy and provide for its outcome, as well as the high commercial prices and the expenses of everyday life. The number of expensive marriage contracts, from the perspective of the young, is increasing, for whom qualities and criteria are unimportant, whereas the partner is seen as a temporary solution for fulfilling their natural needs, such as reproduction. What concerns the youth of either sex who enroll in universities and institutes are the chances of getting compromised and married to become honored in the present and the future. The high commercial prices and the phenomenon of offering are factors that do not help increase enrollment, especially in girls' institutes. Why then would a girl go to college under these expensive conditions and bear a large expense when she will only remain single, unwed, and unable to form a family? (Keblawi & Al-Sahili, 2022).

## **CONSEQUENCES OF BRAIN DRAIN ON THE PALESTINIAN LABOR MARKET**

One notable and evident effect of brain drain on the labor market is the increasing difficulty and growing challenge of finding and obtaining well-trained and highly educated individuals who can adequately meet the diverse needs of the labor market, particularly in the field of higher education. In the case of Gaza, the situation is particularly critical and alarming. The growing and expired need to provide specific services, coupled with the frequent and continual closures of border crossings, strongly dissuades many holders of entry visas from making the decision to return to Gaza, as they fear the possibility of being unable to leave and subsequently go back again. This fear significantly damages their professional careers and jeopardizes their own futures. Such circumstances only exacerbate the difficulty of addressing both quantitative and qualitative deficiencies that exist among skilled laborers, as viewed through a functionalist lens. The transfer of advanced knowledge, whether it is sector-specific or general, which the migrants could potentially transmit back to their native place, constitutes the applicable knowledge profile of the Palestinians; however, this valuable knowledge remains largely unused and unutilized within the borders of Gaza. The general level of qualification among Palestinian society does not necessarily place the country at a disadvantage. Nonetheless, the profile, structure, and regional distribution of educational qualifications reveal significant in-



adequacies and shortcomings, rendering the overall profile incomplete. This situation thereby justifies the concept of “out-skilling,” which translates to the excess or deficit of the level of qualification that is needed for a certain occupation compared to the qualifications of workers that are currently present in the market. A disturbing and evident discrepancy between the primary source of professional qualifications and the actual skills that are accorded is apparent in the careers of graduates who find themselves unable to secure employment, as well as in the workforce that remains inactive and does not engage in productive work (Alsaad et al., 2022).

### *Impact on Economic Development*

The Palestinian economy suffers from a serious problem known as the “brain drain.” In light of this, the return of educated or skilled individuals has an encouraging effect on the development and economic life of society. This research has defined the concept of brain drain and its classifications and then studied the most important reasons behind it, such as the lack of job opportunities, low salaries, and the search for better living standards. This study also presents the dimensions of the phenomenon in a statistical and informative manner and identifies the sectors that suffer from such a phenomenon. Finally, the study suggests a number of important recommendations to reduce the phenomenon and its seriousness, including the improvement of living standards, the creation of specialized centers to absorb educated Palestinian cadres, the support of creativity, the increase of funds for projects, and the availability of fund allocation for these projects in a way that guarantees that these individuals will return to their home country and invest their expertise and experiences in order to achieve the goals of economic and social development. The causes of migration and the lack of necessary qualifications in the local labor market have left negative effects on Palestinian society as a series of transformations and consequences, both of which are of a social, economic, or political nature. Therefore, the unified demographic model reflects these changes as they are reflected in the reduction of growth rates and entry into the composed. The shortage of manpower and the economic difficulties force these Palestinian workers to resort to Israel and work in hard and difficult jobs at a time when this sector can be occupied by Palestinian workers. This would help to increase demand for labor, reduce unemployment problems, and expand anti-occupation efforts. The return of educated individuals also has a driving force on the development and economic life of society; they attempt to change the traditional Palestinian economy into an integrated and well-organized economy that relies on knowledge production. The return of educated individuals to their homeland increases the supply of manpower in various required specializations, thereby placing pressure on the demand for different types of services. These individuals also work in the education, training, and teaching sectors, undertake responsibility for training and sophistication, and benefit institutions with their capabilities and qualifications by attracting the latest scientific and technological experiments. Their return also improves productive and research sectors due to their direct positive impact on the quality of productivity, the public budget, life, and societal satisfaction.

### *Skill Shortages and Mismatch*

Numerous studies of labor market failures, conducted across various regions around the globe, have concluded that markets consistently demonstrate a slow pace in adjusting to persistent imbalances between demand and supply, leading to widespread labor shortages that are evident across many sectors. The findings derived from a significant number of these comprehensive studies suggest that an employment policy focused solely on skill training and retraining initiatives can at best marginally decrease the overall number of job seekers who are unable to find meaningful employment. However, such a policy fails to enact any substantial changes in the fundamental workings of the labor market as it currently stands. The direct and indirect costs associated with unemployment are relatively straightforward to measure and quantify, yet what remains less tangible is the cost incurred from the inability to find the right person for a given role, the mere act of rejecting a highly qualified applicant, the implications of offering an attractive job to someone who may not genuinely fit the role, promoting an unqualified individual into a position of responsibility, or the unfortunate accidents that may arise due to a lack of necessary skills, qualifications, and overall job satisfaction. In the numerous dealings that take place within the labor market, one fundamental fact must always be taken into account: asymmetric information is often a prevailing issue. Different stakeholders, including employers, employees, movement institutions, training institutions, trade unions, and various government bodies, each possess distinct and potentially conflicting goals, objectives, and attitudes that can significantly hinder cohesive action and resolution in addressing labor market challenges (Keblawi & Al-Sahili, 2022).

The varying ways in which these goals and attitudes have so far been managed consistently have led to the implementation of certain policies perceived as having been formulated with a view to implementing them to benefit the greater number of job seekers. Prior to the Gulf War, many studies had demonstrated the existence of skill shortages and occupational mismatch as common and serious labor market failures in many developing and developed countries, both in times of economic contraction and expansion. In many Arab countries which the shortage of skilled and qualified personnel has many causes, such as the low level of funds provided to promote education and training, and very often, a portion of education budgets does not reach its intended users. Indeed, in times of depressed oil prices, some Arab countries reduced their provision of education and training, whereas others gave priority to defense activities and programs to fight desertification, leaving poverty and unemployment still high (Altarifi et al., 2024).

### *Policy Implications*

The policy implications drawn from the findings of this important study are varied and multifaceted. In order to effectively contain the human capital being lost from the region, which primarily originates from the challenging structural conditions of life there, priority must be given to implementing drastic and comprehensive structural changes. These

changes must not be simply of a temporary nature; rather, they should serve as a solid and sustainable starting point for evolving and developing the essential building blocks of the future. The ongoing and unfolding process of occupation is implanting sour seeds that persistently burn the youth away, preventing them from maturing and thriving enough to eventually bear the fruits of their potential. Addressing this issue is not an easy task, and it requires a concerted international effort aimed at actively participating in the attainment of specific, well-defined objectives within a clear timeline that encourages accountability and progress (Helal & Zawawi, 2024).

The Palestinian leadership, which encompasses a wide range of perspectives and backgrounds, must embark on a comprehensive twin approach to effectively counter the current trends that are deeply ingrained in the political structure of the region, as well as the complex and foundational issues that are closely linked with the Palestinian question. It is absolutely crucial that these initial steps are not taken without securing a solid international guarantee, ensuring that the process is supported on a global scale. The proposed solutions must have a substantial and meaningful connection with the broader questions surrounding Palestine, as they are inextricably linked. In addition to this, a structured and differentiated approach must be implemented to address the ongoing exodus of Palestinians. This approach should also focus on the potential for optimizing the talents and expertise of qualified Palestinian scientists and professionals, facilitating the possibility for some of the expatriates to return to their homeland to live and contribute their skills and knowledge in the region. This strategy, therefore, needs to be considered as an essential component of the comprehensive solution that addresses both the political and social aspects of the ongoing challenges faced by the Palestinian people (Natour et al., 2020).

## **MITIGATING BRAIN DRAIN: POLICY RECOMMENDATIONS**

Palestinian authorities should take measures to mitigate the brain drain and its economic and social repercussions on the Palestinian labor market. Several relevant economic and labor market policies need to be carefully and jointly developed. Policy measures to stem brain drain are as follows: 1. Helping students finance their studies by increasing grants, reducing interest rates on student loans, and providing practice opportunities during the summer months; 2. Increasing available levels of government research, enhancing levels of excellence, and driving government research that makes greater utilization of private sector resources; 3. Assisting colleges and their students to make good decisions, such as requiring colleges to pay a fair portion of excess government spending and introducing performance measures by institutions; 4. Overhauling tuition grants and working methods at college. This means making the system more focused on need and merit, maintaining institutions responsible for results, and simplifying the entire process; 5. Exploiting new technologies to challenge the prevailing higher education business model. This may involve lifting obstacles and bringing new ideas to the marketplace of ideas by means of innovative new ways

of financing the learning that occurs at college. Collectively, these changes in public policy could restrict an exodus that, while profitable for the participants, will reduce future economic growth while increasing social divisions now and in the future (Badrasawi et al., 2020).

## *Education and Skills Development Policies*

There are three main elements of educational policies under the conditions of occupation and economic instability: First, the different branches of education have to go hand in hand to provide graduates with different knowledge, skills, and attitudes required for self-employment. Technical education for all must be intensified to reduce the dependency of the economy on outside expertise and create employment for young graduates. Second, the relative advantage and the potential role of each student under occupation conditions must be identified so that before entering higher qualifications, there should be informed choices and increased enrollment in the right avenue of studies under social justice. Third, the economic use of the available supply of human and non-human resources must be given due consideration. The above-mentioned indication will help relatively in responding to the nature of the Palestinian economy, and in turn, may help absorb a considerable irony of our present time: although human beings with dignity and talent constitute the principal wealth and pride of the Palestinian people, they have not reaped the fruit of their innovative effort at home, and the more learned individuals are the most ready to go abroad to seek decent work conditions and secure living quarters and education for their children (Badrasawi et al., 2020).

## *Labor Market Reforms*

The Palestinian economy, especially in the West Bank and Gaza, operates under difficult circumstances, and the operation of the labor market is no exception. The driving force behind the Palestinian economy, the labor force, faces severe restrictions due to the military conditions under which this force operates, as well as social, political, and economic factors that have accumulated over the years. This labor force is not free to move in accordance with the economic mechanisms that operate within it and govern the relationship between supply and demand for labor. It does not operate in an open competitive labor market that is free from racial and ethnic discrimination. It suffers from the institutional arrangements in the labor market in particular, and the institutional arrangements in general, which reduce the effectiveness, creativity, and productivity of the labor force. The labor force is also forced to work in arduous conditions that reduce income and increase the hours of work. All of these challenges and others have crippled this force (Assaf, 2023).

Regarding the labor force cost, the occupation authorities imposed a number of measures after the establishment of the National Authority, which is the Labor Law imposed on the level of the Palestinian worker in the areas controlled by the Palestinian Authority. They also imposed other measures during periods of closure and siege, including lengthy security

examinations, which increased travel time from one hour to eight hours or more, and the transfer of workers from inside the occupied territories. This includes physical detention and blindfolding, and money and food are not allowed to be carried with them. These measures affect the cost of the Palestinian labor force due to delays and food shortages, and the contractor may not be able to collect food at all after that, which affects productivity and the quality of the work being performed. The measures also include cutting off electricity from within the Palestinian territories, which increases transport times if workers are forced to travel in the early hours of the day. In addition to the increase in transport time, the conditions of the workforce in detention cells also contribute to the spread of chronic diseases. The low cost of the labor force is also connected to the cost of Palestinian workers, due to the additional expenditure resulting from the imposition of travel restrictions, so the Palestinian worker's income is always lower than that of his counterpart. Likewise, the low cost of the labor force has led to a reduction in the demand for Palestinian workers (Helal & Zawawi, 2024).

### *Incentives for Return Migration*

Despite the pessimistic and often negative attitude of successive governments towards the people's migration, the Palestinian government has continued to adopt a variety of measures aimed at encouraging return migration. Some of these measures include exemptions from customs duties, the freezing of academic rank and seniority, as well as exemption from the need to pay back grants, loans, and essential equipment. All these incentives represent an earnest attempt to alleviate the adverse consequences resulting from the migration of the educated class, thus encouraging them to return to their homeland. In addition, these incentives have become an increasingly important aspect of the Palestinian emigration policy framework. However, despite the introduction of these policies, the overall emigration strategy, with its various instruments, has proven to be quite weak and ineffective in reversing the prevalent trends of migration that have been observed in recent years. The challenges linked to engaging the educated class in returning to their homeland remain significant (Hassan & Aref, 2023).

It is known, however, that the success of these policies depends on the environment inside the country. The policies should be comprehensive and applicable and should be combined with planning that takes into account the nature of the country and the migrants' needs and goals. The Palestinian experience has not been successful so far, not only because of the stress and strain the whole country is experiencing these days but also because the policies the country has followed have not been comprehensive and integrated. Additionally, the opportunities that are expected to be available in the local market have been limited, except for a few areas like education and health. It is highly recommended that the target specializations be identified at the early stages, given the available limited resources. The main aim of these well-defined policies is to urge educated Palestinian expatriates to return to their homeland (Hijjawi, 2022).

## CONCLUSION

All people, in principle, have the right to move and settle anywhere. However, the exercise of this right by educated young people in Palestinian society and similar societies leads to an untimely drain of human resources, one from which there can be no return: a drain that changes its components and increases its dimensions over time, one that has extended effects on growth, quality of life, and the structure of society. Society faces a difficult moral dilemma. It should allow the right individuals to realize the benefits of their human qualities, but it should also be alert that in encouraging the right to migrate, it does not do so at the expense of the rights of brothers and sisters to enjoy the same benefits. In general, it should pay equal attention to economic costs and benefits, as well as to ethics and equity. The duty of the policymaker is to construct regimes that balance both needs, past experiences, and the values of society. Society could agree on international mobility regimes that have as a mandatory characteristic that the right of people to seek and determine the place of their residence should not diminish the right of each society to safeguard its sources of production of skills.

Finding a balance between these points of view implies raising the living conditions and medium- and long-term prospects for the vitality of the territory left by those who emigrate. Simple ways of confirming that belonging through utilization can be advantageously substituted with the pride of living and working, through their contribution, in the place where they were born and to which they should feel attached for the duty of making it more hospitable, more just, and with equal opportunities for personal growth, for the degree of social well-being that each person deserves, and for the essential elements of individual and collective success. A real and true commitment to the development and growth of Palestinian society could reduce conflicts with the rights sensitive to educated young people who have chosen to build their future outside their republic, improving their ability to take risks. The importance of the brain drain and how it could definitely affect the small markets based on certain skills is significant. Recommendations include solving the political and scientific injustices that cause this brain drain, identifying examples from various countries that try to restore some of their losses, and focusing on temporary solutions like holding workshops and seminars for young people interested in emigrating.

## REFERENCES

- Alsaud, L. A., Salha, S., Affouneh, S., Shaqor, A., Issa, A. K., & Nablus, P. (2022). *Archaeological Fieldwork Training in Palestinian Universities: A Review*. *Encyclopedia of Global Archaeology*. Springer, Cham. Available at: < [https://doi.org/10.1007/978-3-319-51726-1\\_3558-1](https://doi.org/10.1007/978-3-319-51726-1_3558-1) .researchgate.net
- Altarifi, D., Harb, T., & Abualhasan, M. (2024). *Patient satisfaction with pharmaceutical services at primary healthcare centers under the Palestinian Ministry of Health*. *BMC Health Services Research*. [springer.com](https://www.springer.com)



- Anetoh, B. C., & Onwudinjo, V. G. (2020). Emigration and the problem of brain drain in Nigeria: a philosophical evaluation. *Journal of African Studies and Sustainable Development*, 3(1). [acjol.org](http://acjol.org)
- Assaf, S. Y. (2023). *Socioeconomic Assessment Of Drinking Water Sources In Ramallah City*. *Najah.Edu*
- Badrasawi, M., Anabatawi, O., & Qaissieh, M. (2020). Nutrition knowledge and dietary practices among secondary school students in Hebron-Palestine: a cross-sectional study. *Palestinian Medical and Pharmaceutical Journal*, 6(1), 5. [najah.edu](http://najah.edu)
- Bukhari, S. R. H., Khan, A. U., Noreen, S., Khan, M. T. U., Khan, M. N., & Haq, M. I. U. (2024). Silenced Voices, Unheeded Pleas: The Plight of Palestinian Human Rights under the Shadow of Israeli Occupation. *Remittances Review*, 9(1), 2240-2276. [remittancesreview.com](http://remittancesreview.com)
- Cummings, C., Pacitto, J., Lauro, D., & Foresti, M. (2022). Why people move: understanding the drivers and trends of migration to Europe. [service.gov.uk](http://service.gov.uk)
- Fischer, P. A., Martin, R., & Straubhaar, T. (2021). Should I stay or should I go?. In *International migration, immobility and development* (pp. 49-90). Routledge. [HTML]
- Hallaq, S. & Daas, Y. (2024). Exploring Factors and Disparities: Female Labor Force Participation in the Palestinian Regions: East Jerusalem, West Bank and Gaza Strip. *Forum for Social Economics*. [HTML]
- Hamarsheh, O., & Amro, A. (2020). Epidemiology of parasitic infections in the West Bank and Gaza Strip, Palestine. *The American Journal of Tropical Medicine and Hygiene*, 102(2), 313. [nih.gov](http://nih.gov)
- Hassan Shehadeh, W., & Aref, J. M. (2023). The Prefabricated Housing System And Its Impact On The Traditional Building System In Palestine (A special case in Hebron, Nablus, and Ramallah). *International Journal of Architectural Engineering and Urban Research*, 6(2), 297-319. [ekb.eg](http://ekb.eg)
- Helal, A. & Zawawi, Z. (2024). Land Cover and Land Surface Temperature in the West Bank, Palestine. *Advances in Civil Engineering*. [wiley.com](http://wiley.com)
- Hijawi, F. S. (2022, May). Geotechnical Risk Management. A Case Study of Nablus City, Palestine. In *International Conference on Geotechnical Engineering-IRAQ* (pp. 139-150). Singapore: Springer Nature Singapore. [HTML]
- Hiltermann, J. R. (2021). Behind the intifada: Labor and women's movements in the occupied territories. [HTML]
- Hoffmann, R., Šedová, B., & Vinke, K. (2021). Improving the evidence base: A methodological review of the quantitative climate migration literature. *Global Environmental Change*. [sciencedirect.com](http://sciencedirect.com)
- Hongal, P., & Kinange, U. (2020). A study on talent management and its impact on organization performance-an empirical review. *International Journal of Engineering and Management Research*, 10. [academia.edu](http://academia.edu)
- Ibay, S. B. & Pa-alisbo, M. A. C. (2020). An Assessment of the Managerial Skills and Professional Development Needs of Private Catholic Secondary School Administrators in Bangkok, Thailand.. *World Journal of Education*. [ed.gov](http://ed.gov)
- Kaczan, D. J. & Orgill-Meyer, J. (2020). The impact of climate change on migration: a synthesis of recent empirical insights. *Climatic Change*. [davidkaczan.com](http://davidkaczan.com)
- Karl, K. A., Peluchette, J. V., & Aghakhani, N. (2022). Virtual work meetings during the COVID-19 pandemic: The good, bad, and ugly. *Small group research*. [sagepub.com](http://sagepub.com)
- Keblawi, A. Z. A., & Al-Sahili, K. (2022, November). Performance Level of the Public Transportation in the West Bank. In *RSF Conference Series: Engineering and Technology* (Vol. 2, No. 2, pp. 232-246). [researchsynergypress.com](http://researchsynergypress.com)
- Kreichati, C. (2023). *Chronicles of Disappearance: Palestinian Encampment in the Bekaa Valley (1948–1951)*. *Journal of Refugee Studies*.
- Latukha, M., Shagalkina, M., Mitskevich, E., & Strogetskaia, E. (2022). From brain drain to brain gain: the agenda for talent management in overcoming talent migration from emerging markets. *The International Journal of Human Resource Management*, 33(11), 2226-2255.
- Loewenstein, A. (2024). The Palestine laboratory: How Israel exports the technology of occupation around the world.
- Mikac, R., & Wahdyudin, A. Y. (2021, December). The Impact of Migration on University Education. In *2nd International Indonesia Conference on Interdisciplinary Studies (IICIS 2021)* (pp. 14-24). Atlantis Press.
- Natour, N., Al-Tell, M., Badrasawi, M., & Al Rob, A. A. (2020). Factors Associated With Method of Pregnant Women Delivery in Nablus Region in West Bank. *J Human Health Res*, 1(202), 2.
- Pastor-García, M. I., Francisco Rodríguez-Barquero, A. N. T. O. N. I. O., & González-Alegre, J. U. A. N. (2024). Learning About Migration Through Economics: A Development Education Approach. *Policy & Practice: A Development Education Review*, (38).
- Punnett, L., Nobrega, S., Zhang, Y., Rice, S., Gore, R., Kurowski, A., & SHIFT Project Research Team. (2020). Safety and Health through Integrated, Facilitated Teams (SHIFT): stepped-wedge protocol for prospective, mixed-methods evaluation of the Healthy Workplace Participatory Program. *BMC Public Health*, 20(1), 1463.
- Rani, U. & Furrer, M. (2021). Digital labour platforms and new forms of flexible work in developing countries: Algorithmic management of work and workers. *Competition & Change*.
- Shet, S. V., Poddar, T., Samuel, F. W., & Dwivedi, Y. K. (2021). Examining the determinants of successful adoption of data analytics in human resource management—A framework for implications. *Journal of Business Research*, 131, 311-326.
- Yamamoto, M. & Kawabata, Y. (2022). The History Of Palestinian Embroidery And Current Situation Of Palestinian Territories. *Journal Of Arid Land Studies*.
- Yunitasari, D., Khotimah, K., & Fathorrazi, M. (2021). The implication of brain gain on brain drain phenomenon in overcoming the problem of educated unemployment in Indonesia. *Sosiohumaniora*.





# ANALYSIS OF SOCIAL AND ENVIRONMENTALLY CONSCIOUS BEHAVIOR AS PART IN COMPANIES

Maryam Alhassan Talatu, Viktória Vida<sup>1</sup>

University of Debrecen, Faculty of Economics and Business

<sup>1</sup>Corresponding author e-mail address: vida.viktoria@econ.unideb.hu

**Abstract:** *This research estimates public perceptions of corporate environmental responsibility and the use of clean energy in terms of how businesses exhibit environmentally sensitive behaviour through their operations and how clean energy is used within daily business operations. It carries out a large-scale survey among 100 participants, analyzing responses across various dimensions of corporate social responsibility, especially those relevant to environmental practices. The findings show that there is a high public expectation of business environmental responsibility, as 82% of the respondents regard it as very important for companies to undertake social responsibility activities. The same percentage (80%) feel it is essential that companies be liable for environmental damage. The same study also firmly focused on carbon emission reduction since 91% rated it somewhat or very important for companies to reduce their carbon emissions. On the other hand, a perception gap was indicated since 52% of the respondents strongly believed that companies genuinely care about their social and environmental impact. This contrasts with the 77% of participants publicly declaring support for corporations promising to reduce environmental degradation. On the use of clean energy, while the research does not give an explicit quantitative status of the practice by corporate entities, it generally creates a good case demonstrating popular support for such corporate initiatives. A 72% rated a firm's effort to reduce its carbon footprint as essential, representing a clear expectation of adopting clean energy within corporate operations. The study finds considerable public mandate for companies to engage in environmentally sensitive business practices, including using clean energy. It also calls for improving business environmental responsibility programs, better communication transparency, prioritizing clean energy, and using environmental initiatives to gain market advantage. The findings and recommendations carry significant implications for corporate strategy, public policy, and future research in corporate social responsibility and environmental sustainability.*

**Keywords:** *Corporate Social Responsibility, Environmental Consciousness, Clean Energy, Public Perception, Carbon Emissions, Sustainability, Corporate Accountability*  
(JEL code: M14, Q56)

## INTRODUCTION

The importance of the environment to human lives can never be overstated because our environment defines us; therefore, our conscious behaviour towards it must be very positive. It is a massive task for the community, businesses, and government to ensure sustainable environmental behaviour. Several studies have suggested that environmental corporate social responsibility can enhance staff members' affective dedication, managerial recognition, and professional fulfilment (Mueller et al., 2012; Farooq et al., 2014; Rongbin et al., 2022). The need for sustainability extends beyond corporate operations and has been shown to be a central concern in agriculture as well, particularly in animal husbandry, where sustainable practices are increasingly emphasized (Nábrádi et al., 2011).

Corporate social responsibility is a business concept and tool corporate organizations use to establish good relationships with their host community for harmonious working relations.

However, when CSR is mentioned, most people consider taking a portion of an organization's profit to finance one social course. However, the concept has gone far beyond that. There are many ways in which an organization can be socially responsible to its host community where it operates. Customers around the globe are progressively conscious of firms' environmentally genial, economic, and socially responsible implementation (Vitell, 2015; González-Rodríguez et al., 2021), along with intermediate-term and indelible outcomes. Firms have executed CSR measures within their career by assisting the environment and competing in the market (Suganthi, 2019; González-Rodríguez et al., 2021).

An organization can engage in many social responsibility activities, including being environmentally responsible and having conscious behaviour towards our environment. Previous research has indicated that corporate social responsibility (CSR) imparts an organization's competitive advantage by modifying stakeholders' viewpoints. While the current survey stipulates that CSR correlates with part of employee outcomes, each technique that steers an employee's antiphon to CSR resourcefulness remains obscure (De Roeck et al., 2014; Mousiolis & Bourletidis, 2014). Numerous enterprises concede the need to collide the steadiness connecting renewability and protruding a pragmatic public depiction by accepting social and environmental responsibility (Mozes et al., 2011; Mousiolis & Bourletidis, 2014). Developing and utilizing bioenergy, as noted by Popp et al. (2013), represents an additional dimension of corporate sustainability, highlighting potential challenges such as risks to food supply, energy security, and environmental stability.

Moreover, advanced approaches, such as machine and deep learning models, have been applied to environmental research to predict CO<sub>2</sub> emissions across diverse agroclimatic zones. These innovations provide critical insights into mitigation strategies, including soil carbon storage, that directly support sustainable business practices (Harsányi et al., 2024). Bai et al., 2023 suggest that while power-to-biomethane technology holds promise, substantial financial support and optimal operating conditions are essential for its economic viability. Additionally, CSR programs must account for the economic structures of society, including the differing financial needs and expectations of various family types, which can provide a relevant basis for developing corporate strategies (Nagy, 2007).

Nearly all firms admit that effective environmental corporate social responsibility is an achievement to the communal, and firms can enhance their critical determination by adopting environmental corporate social responsibility benefits, such as by expanding commodities that are not injurious to habitat and human wellbeing, energy-efficient in the manufacturing method and lessening radiation (Chuang & Huang, 2018; Sarfraz et al., 2020; Khan et al. 2020a, 2020b; Rongbin et al., 2022).

Recent studies highlight that in an era characterized by volatility, uncertainty, complexity, and ambiguity (VUCA), corporate approaches must incorporate adaptive sustainability strategies to remain relevant and impactful. For instance, sustainable public transportation systems offer a blueprint for addressing environmental challenges while ensuring societal benefits (Kovács et al., 2023).

Furthermore, the rise of platform-based collaborative economic models offers another pathway to sustainability by enabling resource sharing and fostering demand-side efficiency, which has been systematically analyzed and classified in recent research (Kovács et al., 2021). It should be noted that not every sustainable system provide only benefits: in many cases a circular economy is not always sustainable (Lengyel et al., 2021).

Mao et al. (2020) and Rongbin et al. (2022) also suggest that firms' environmental corporate social responsibility action can shape a surrounding of certainty and credibility among staff members, allowing them to take risks without awe of

adverse outcomes. Since their working environment significantly affects employees' conscious behaviours (Memon et al., 2021; Rongbin et al., 2022).

The analysis of distinctive definitions of Corporate Social Responsibility (CSR), given by different educationists and philosophers, proves that CSR can connect with social, economic, and environmental sustainability components (Dahlsrud, 2008; Zhao et al., 2021). Bowen (the father of CSR) first introduced the approach of CSR in 1930 (Hishan et al., 2017; Pactwa & Woźniak, 2020; Zhao et al., 2021).

Howard R. Bowen proposed the corporate social responsibility approach in the 1950s, and over the years, its perception was substantially developed (Ashrafi et al., 2018; Matsunani et al., 2022). In accordance with Sarkar and Searcy (2016) and Matsunani et al., (2022), research literature introduced contrasting rationales for corporate social responsibility; nonetheless, since the 2003 increment, the effect of ethical aspects and shareholder administration.

Over the years, environmental and social aspects have earned more immersion in board decisiveness. Corporate social responsibility is a multidirectional approach that indicates various path pivots on how firms run (Van Marrewijk, 2003; Cader et al., 2022).

In accordance with the European Commission (EC), CSR is a policy change in strategic corporate management, which requires economic advancement regarding the concept of economy, ethics, and environment (European Commission, 2011; Cader et al., 2022).

According to Du et al. (2011) corporate social responsibility alludes to companies' dedication to increasing everlasting economic, societal, and environmental welfare through business conduct, strategy, and funds. As previously mentioned, CSR impacts firm contentment (Barcelos, 2015), recognition (Pérez et al., 2013) or allegiance (Mandhachitara & Poolthong, 2011; González-Rodríguez et al., 2021).

CSR is discerned as a notion that has more advantages than disadvantages. Generally cited advantages are advancing the organizations relationship with shareholder and public interest, intensifying managerial perception and appearance, resolving disputes, and bolstering integrity (Crisan-Mitra & Borza, 2015; Martinuzzi & Krumay, 2013; Cader et al., 2022).

Gonzalez-Ortiz et al. (2018) and Cader et al. (2022) define corporate social responsibility as an everlasting, tactical approach that reciprocates the objections prompted by the development of the economy, the public, and the environment. Energy is a crucial sector that adds substantial pressure and impacts human welfare.

A firm's corporate social responsibility action can be recognized as a continuation from conscious to cautious, which regulates the intensity of social responsibility and the type of CSR processes enforced.

CSR is defined as a company's engagement in preventing or minimizing any destructive effects and enhancing its sustainable beneficial impact on society (Mohr et al., 2001). Companies are enforcing different forms of CSR actions, such as voluntary contributions, the usage of bio-based products, and diversity initiatives (Sen & Bhattacharya, 2001). Voluntary work for a good cause is based on old traditions and is of

great help to social organizations, be it for the needy or supporting cultural life (Bakosné Kiss et al., 2024).

Corporate Social Responsibility (CSR) activity is an active mechanism to triumph over the “hearts and minds” of the workforce, and employees who admit their firms are more socially significant are more expected to remain (Bozkurta & Balb, 2012; Choi & Yu, 2014; El-Kassaar et al., 2017; Rupp et al., 2013; Li & Chen, 2023).

According to Vlachos, et al., 2013 and Li & Chen, 2023, CSR acknowledgement can contribute beneficial data for an organization to implement CSR efficiently. The intended beneficiaries of CSR include firm employees, municipalities, government entities, established charities, sponsored foundations, and social security. Further advanced analysis of CSR affirms its contributions to economic sustainability (Frynas, 2015; Lamb et al., 2017).

Nonetheless, it is still an element of supposition whether CSR initiatives play an essential role in helping to accomplish international development goals, simplify local development, lessen competition, and alleviate impacts on societies (Frynas, 2005; Lamb et al., 2017).

When firms engage in CSR, the user's perspective towards the firm is positively augmented through improved appraisal of the firm and its commodities (Barone et al., 2000; Bhat-tacharya & Sen, 2004; Brown & Dacin, 1997; Sen & Bhat-tacharya, 2001; Jiménez et al., 2017).

The positive effects of corporate social responsibility (CSR, subsequently) on companies' competitiveness, performance, reputation, entrepreneurial potential, shareholder negotiation and risk reduction are approved in the academic work (Vishwanathan et al., 2020; González-De-la-Rosa et al., 2023).

One of the key factors that alter the way end users acknowledge CSR is akin to the congruence between the social drive and the major action of the firm (Becker-Olsen et al., 2006; Bigné et al., 2012; Webb & Mohr, 1998; Jiménez et al., 2017).

Thus, firms should embrace formalized CSR methods and authorize the strategy and mechanism aligned with corporate strategy (Bocquet et al., 2013; Bernal-Conesa et al., 2016).

Several studies show that CSR has a compelling positive grant to rivalry (Battaglia et al., 2014; Boulouta & Pitelis, 2014; Bernal-Conesa et al., 2016).

Hence, the European Union states, "A tactical approach to CSR is progressively significant to the competitiveness of companies. It can bring benefits such as innovation capacity, access to capital, risk management, human resource management, and customer relationship" (European Commission, 2011; Bernal-Conesa et al., 2016).

Thus, in many firms, standard, health, safety, and environmental management exist as three counterpart schemes (Hamidi et al., 2012; Bernal-Conesa et al., 2016). CSR refers to a company's legal or moral responsibilities to government employees, suppliers, customers, staff members, communities, and the environment while assuming economic responsibilities (Brummer, 1991; Carroll, 1999; Kytte & Ruggie, 2005; Tong et al., 2019).

## MATERIALS AND METHODS

This chapter outlines the research methods and decisions about the research objectives and phenomena studied. It also includes the materials and methods of the data collection and analysis processes and the assessment of the study's design, population, sample size, techniques for data analysis and data presentation.

This study will be conducted using quantitative data, which questionnaire will be distributed, collected, and analyzed. This study's population comprises students who are full-time employed, self-employed, part-time employed, and unemployed. The total population size is 100 individuals, distributed across various countries. This includes Germany, Nigeria, Hungary, Russia, Morocco, USA, Ghana etc.

A descriptive statistical method was used to process and analyze the questionnaire data, including tables and rank order. Quantity stimulation from questionnaire data analysis, for example an average index calculator (Azevedo et al., 2017). The frequency and average indexes were used to rank the analysis.

This index was computed as follows:

“Average index formula”

Average =

“= Weighting given to each factor by respondents (1 to 5)

“n = Frequency of the response”

“N = Total number of responses”

In this case, the use of average index in a questionnaire would be as follows:

“= 1, frequency of “not important at all” response” “= 2, frequency of “not very important” response” “= 3, frequency of “neutral” response” “= 4, frequency of “somewhat important” response” “= 5, frequency of “very important” response”

With rating scale as below:

“1 = not important at all ( $1.00 \leq \text{Average index} < 2.5$ ) “2 = not very important ( $1.50 \leq \text{Average index} < 2.5$ ) “3 = neutral ( $2.50 \leq \text{Average index} < 3.5$ ) “4 = somewhat important ( $3.5 \leq \text{Average index} < 4.5$ ) “5 = very important ( $4.5 \leq \text{Average index} < 5.00$ )

This study used several statistical techniques to examine the data related to social and environmentally conscious behaviour as part of the company's social responsibility and its public acceptance. The primary methods of data analysis used in this study were descriptive statistics, focusing on frequency distributions, percentages, and measures of central tendency, particularly the arithmetic mean.

Frequency distributions have been calculated for each item from the questionnaire. This technique involves counting the number of responses for each category within a variable. The formula for frequency can be expressed as:  $f = \sum x$ . Where  $f$  is the frequency and  $x$  are the number of occurrences of each response category.



Percentages have been calculated to provide a relative measure of the frequency distributions. This allows for easier comparison across different items and gives a clearer picture of the proportion of respondents in each category. The percentage formula is:

Percentage = (f / N) × 100.

This study analyzes data from questionnaire distribution using descriptive statistics. Demographic data and variable features are analyzed using frequency count percentages and central tendency measures. The data analysis was done using the statistical software IBM SPSS Version 23.0.

Cronbach's Alpha is a figure used to explain the reliability of a test or questionnaire by examining the internal consistency of the test with itself and assessing the extent to which such items in a test or questionnaire measure the same underlying idea embedded within them. As the reliability statistics recorded achieved Cronbach's Alpha of 0.713, it can be said that the parameters are reliable since most of the research, especially in social sciences, falls in the range of 0.7 to 0.8.

RESULTS AND DISCUSSION

The demographic data presented in Table 1 offers valuable insights into the respondent pool for a study on social and environmentally conscious behavior as part of a company's social responsibility and public acceptance.

Regarding the distribution of respondents by sex, there is a higher number of females (53%) than males (47%). The proportion of males and females is substantively upside-down, giving room for such a topic to be considered more comprehensively; with such an attitude, any underlying gender issues in corporate social responsibility (CSR) activities may be identified.

Asked about age and sex, in particular, all respondents were in the skewed age category of 18-34 years, comprising 83% of the respondents.

With the educational background information, this implies that most respondents pursued higher education at about 67%, wherein 37% have Master's Degrees and 30% have Bachelor's Degrees. The respondents' relatively high level of education may relate to increased awareness and expectations about corporate social and environmental responsibilities.

The statuses of the respondents are pretty varied, with students leading the chart at 40%, full-time employees at 27%, and self-employed at 19%. These shall give a blend of different professional perspectives that shall assist in getting a comprehensive view of how various segments of society perceive and value corporate social responsibility efforts.

The marital status indicates a dominance of single responses at 68%, corresponding with the younger age profile recorded in this sample. This can be a factor in attitude and opinion toward social and environmental issues since single persons very well may place different emphases on life concerns compared to married couples.

These data on citizenship and country of residence reflect an international sample but with some significant overrepresentation of Nigeria therein: 78% are citizens of the country,

and another 56% reside therein. Hopefully, this international element would make a valid contribution toward understanding how corporate social responsibility is viewed across different cultural and economic contexts.

Table 1. Demographic Distribution Respondents

	Frequency	Percentages
<b>Gender</b>		
Male	47	47.0
Female	53	53.0
Total	100	100.0
<b>age group</b>		
18-24 years	34	34.0
25-34 years	49	49.0
35-44 years	14	14.0
45_54	2	2.0
55+	1	1.0
Total	100	100.0
<b>highest level of education</b>		
High School or equivalent	28	28.0
Master's Degree	37	37.0
Bachelor's Degree	30	30.0
Associate Degree	2	2.0
Other	3	3.0
Total	100	100.0
<b>employment status</b>		
Unemployed	9	9.0
Student	40	40.0
Self-employed	19	19.0
Employed Part-time	5	5.0
Employed Full-time	27	27.0
Total	100	100.0
<b>Marital status</b>		
Single	68	68.0
Married	31	31.0
Prefer not to say	1	1.0
Total	100	100.0
<b>Citizenship</b>		
Nigeria	78	78.0
Kenya	1	1.0
Kazakhstan	1	1.0
Ugandan	1	1.0
Jordan	2	2.0
Ghanaian	3	3.0
Maldives	2	2.0
Hungarian	2	2.0

Qatar	1	1.0
German	1	1.0
Italian	1	1.0
Total	93	93.0
current country of residence		
Nigeria	56	56.0
United Kingdom	4	4.0
Hungary	15	15.0
Morocco	7	7.0
Italy	4	4.0
China	2	2.0
Germany	1	1.0
Algeria	1	1.0
Ghana	2	2.0
American	1	1.0
Russia	1	1.0
Total	94	94.0

Source: field survey 2024

In the survey, when the respondents were asked about the importance of a company's engagement in social responsibility initiatives (Table 2), the overwhelming majority considered it "Very important," with an average of 4.73 out of 5. This positive feeling could point toward the public's high value to CSR activities, which might include environmentally conscious practices and clean energy use. The high mean score indicates that companies engaging in such practices would appear positive to consumers and create some competitive advantage and better brand perception.

The second statement, accountability by companies for their impact on the environment, was supported just as strongly. 74% believed this was "Very important," with an average score of 4.65. That result supports the request that corporate operations be responsible from an environmental perspective very well and directly supports the research question about environmentally conscious behavior in the operations of companies. The implication is that there is strong public support for actions that would make companies take responsibility and minimize environmental damage, perhaps by embracing clean energy solutions.

The third statement deals with a business commitment to social responsibility correlated with consumers buying behaviour. The hypothesis showed that 61% strongly agreed that CSR directs their purchasing choice, with an average score of 4.39. It is particularly germane to the research topic because it has shown that a firm's green behaviour and clean energy could have a tangible impact on customers' behaviour and, subsequently, on a company's bottom line.

Considering the research questions, such a finding would give companies powerful motives for including environmentally responsible practices in business due to the increased corporate accountability demanded by most people for envi-

Table 2. Perception of Corporate Social Responsibility

S/N	State-ments	Responses	Frequency	Percentages	Mean	Remarks
1	Importance of corporate social responsibility initiatives	Not very important	2	2	4.73	Important
		Neutral	5	5		
		Somewhat important	11	11		
		Very important	82	82		
		Total	100	100		
2	Account-ability for environ-mental impact	Not important at all	1	1	4.65	Important
		Not very important	1	1		
		Neutral	4	4		
		Somewhat important	20	20		
		Very important	74	74		
		Total	100	100		
3	Influence of social responsibility on purchasing decisions	Not important at all	2	2	4.39	Important
		Not very important	1	1		
		Neutral	14	14		
		Somewhat important	22	22		
		Very important	61	61		
		Total	100	100		
				Grand Mean	4.52	

Source: field survey 2024

ronmental damage. Indeed, companies that use clean energy in daily activities are likely to attract consumer affinity easily. Similarly, environmental responsibility practices might translate into marketplace competitiveness via CSR's influence on buying behavior.

As to the first objective, which is the assessment of perceptions about how corporations exercise environmentally conscious behavior in their operations, our analysis showed that there is, in fact, a tremendous public expectation for corporate environmental responsibility. From the perceptions demonstrated in all three tables, the environmental sustainability efforts ranked highly important, with mean scores that ranged between 4.62 and 4.73. This agrees with Zhu et al. (2019) study on the importance of environmental impact in CSR in light of community participation. This perception is further corroborated by the fact that the public's expectations to hold companies responsible for environmental impact was high at a mean score of 4.66 and to reduce carbon emissions at a mean score of 4.51.

Table 3. presented provides crucial insights into public attitudes towards companies' environmental consciousness and sustainability efforts. This data is highly relevant to the research questions regarding how companies demonstrate environmentally conscious behavior in their operations and the extent to which they utilize clean energy in their day-to-day activities.

Table 3. Environmental Conscious Behavior

Statements	Responses	Frequency	Percentages	Mean	Remarks
Importance of environmental sustainability efforts	Neutral	13	13.0	4.62	Important
	Somewhat important	12	12.0		
	Very important	75	75.0		
	Total	100	100.0		
Support for companies reducing their carbon footprint	Not important at all	7	7.0	4.02	Important
	Not very important	3	3.0		
	Neutral	18	18.0		
	Somewhat important	25	25.0		
	Very important	47	47.0		
	Total	100	100.0		
			Grand Mean	4.32	

Source: field survey 2024

The first statement gauges the importance of a company's environmental sustainability efforts to the respondents (Table 3). A huge 75% of the participants have rated this as "Very important" with an average score of 4.62 on a scale of 5. Such positivity in attitude implies that the public has goodwill for companies practicing environmental sustainability. A strong preference like this hints that companies adhering to environmentally conscious practices, such as using clean energy, are likely to garner favorable recognition and support from the public. This finding thus relates directly to the research question on how companies exercise environmentally conscious behavior and would therefore suggest that there is significant public pressure for corporations to adopt and maintain such practices.

The second question assesses the degree of support for businesses that take active measures to reduce their carbon footprint. Responses, while somewhat more scattered, still strongly favor importance: 47% rate it "Very important," and 25% as "Somewhat important." Overall, the average is very strong at 4.02 for positivity. This data point will have direct relations to the identified research question, focusing on clean energy use in everyday business activities. This usually entails the implementation of clean energy solutions, meaning any company investing in such technology would more than likely be supported by society. However, given that this question differed more from the first question, it could be interpreted

to mean that, while generally the public would support carbon footprint reduction, there may be disagreements over the methods of doing so or the extent of measures taken.

The grand mean of 4.32 (Table 3) for the two questions, therefore, underlines overall the importance of environmental consciousness in corporate behavior from the perspective of the public. This high score suggests that companies' environmentally conscious behaviors/clean energy use are now moving beyond being 'nice-to-have' features but are, as a matter of fact, an integral part of corporate social responsibility within the eye of the public.

However, our analysis also showed a degree of skepticism that companies are genuinely concerned with the environmental impact of their operations, with the average score being only 4.13. This shows the probable expectation gap between the public and perceived corporate actions. The finding, therefore, aligns with the notion of CSR by Bowen (1953) and Carroll (1979) that businesses must conduct activities consistent with the values and objectives of the society.

Table 4. shows an overview of the general public's perception in relation to corporate practices in clean energy application and their environmental awareness. Interestingly, regarding the genuineness of companies' concern for their social and environmental impact, there was a more divided opinion: 52% saw it as "Very important," yet with a mean score of 4.13, there was also some skepticism in corporate motives. This perception could influence companies' disclosure of their environmentally conscious behaviors and clean energy pursuits.

Respondents rated the importance of companies reducing their carbon emissions as high, with 62% rating it as "Very important" for a mean score of 4.51. This relates directly to the research question of clean energy usage since reducing carbon emissions often involves using cleaner energy sources.

The responses were more varied for single-use plastics reduction, with a low average of 3.71. This would mean that environmental concerns associated with energy are more important in the same population than plastic use.

On the contrary, there was a high likelihood of supporting companies that publicly commit to reducing environmental impact, with a 57% rating of "Very important" and a mean of 4.21; this shows that companies showcasing environmentally conscious behavior-for instance, clean energy use-will, gain support from the public.

Responses to items addressing companies striving to reduce water waste showed mixed opinions and a mean score of 3.90. That would then make it less critical than energy-related environmental issues.

Stricter government regulations on companies regarding environmental issues were strongly supported, with 73% rating this as "Very important" (mean 4.64). This suggests the belief that there is a need for external pressures to ensure that companies maintain environmentally conscious practices, including clean energy use.

The future impact that CSR initiatives will have on consumer behavior was rated critical through the mean of 4.38, with 56% rating it as "Very important." Therefore, this may point to the future where environmentally friendly behavior and clean energy use influence consumer choice.

The willingness to recommend companies based on their social and environmental responsibility was high, with 58% rating it "Very important" for an average of 4.35. This suggests that companies' environmental practices can significantly affect their public image and customer base.

With an average of 4.30 out of all answers, it shows how much the public attaches importance to firms being sensitive to the environment and using clean energy.

Table 4. Perception of Clean Usage by Companies

Statements	Responses	Frequency	Percentages	Mean	Remarks
Accountability for environmental impact	Not important at all	3	3.0	4.66	Important
	Neutral	5	5.0		
	Somewhat important	12	12.0		
	Very important	80	80.0		
	Total	100	100.0		
Perception of genuine corporate care vs public image	Not important at all	6	6.0	4.13	Important
	Not very important	2	2.0		
	Neutral	17	17.0		
	Somewhat important	23	23.0		
	Very important	52	52.0		
	Total	100	100.0		
Importance of reducing carbon emissions	Not very important	2	2.0	4.51	Important
	Neutral	7	7.0		
	Somewhat important	29	29.0		
	Very important	62	62.0		
	Total	100	100.0		
Observation of reducing single-use plastics	Not important at all	9	9.0	3.71	Important
	Not very important	9	9.0		
	Neutral	24	24.0		
	Somewhat important	18	18.0		
	Very important	40	40.0		
	Total	100	100.0		
Likelihood of supporting companies committed to reducing environmental impact	Not important at all	4	4.0	4.21	Important
	Not very important	5	5.0		
	Neutral	14	14.0		
	Somewhat important	20	20.0		

	Very important	57	57.0		
	Total	100	100.0		
Efforts to minimize water waste	Not important at all	7	7.0	3.90	Important
	Not very important	8	8.0		
	Neutral	19	19.0		
	Somewhat important	20	20.0		
	Very important	46	46.0		
	Total	100	100.0		
Stricter government regulations on companies	Not very important	1	1.0	4.64	Important
	Neutral	7	7.0		
	Somewhat important	19	19.0		
	Very important	73	73.0		
	Total	100	100.0		
Influence of CSR initiatives on consumer behavior	Not important at all	2	2.0	4.38	Important
	Not very important	2	2.0		
	Neutral	8	8.0		
	Somewhat important	32	32.0		
	Very important	56	56.0		
	Total	100	100.0		
Recommendation based on CSR commitment	Not important at all	2	2.0	4.35	Important
	Not very important	2	2.0		
	Neutral	13	13.0		
	Somewhat important	25	25.0		
	Very important	58	58.0		
	Total	100	100.0		
Future influence of CSR initiatives on behavior	Not important at all	4	4.0	4.43	Important
	Not very important	1	1.0		
	Neutral	7	7.0		
	Somewhat important	24	24.0		
	Very important	64	64.0		
	Total	100	100.0		
			Grand mean	4.30	

Source: field survey 2024



Regarding the second, related to understanding the percentage of clean energy usage companies use in their day-to-day business operations, the current analysis does not render direct quantitative data related to using clean energy. However, it does provide substantial insight into public expectations and the support given to such practices. High importance is therefore attributed to companies reducing their carbon footprint (mean score 4.02) and carbon emissions (mean score 4.51), suggesting a high public expectation for clean energy adoption. This aligns with Arena et al. (2018) and Zhao et al.'s (2021) description of CSR qualities, including using renewable resources and clean manufacturing methods.

Overall, our findings agree with the empirical reviews cited. Strong support for public demand over environmental responsibility directly emanates from Elkington & Rowlands, 1999 triple bottom line, which stresses the balance of economic, environmental, and social performance. The high mean score of government regulations is 4.64, supporting that CSR goes beyond financial interests only, as defined by Kaur et al. (2022).

However, there are a few noticeable discrepancies. For instance, the empirical reviews focus on CSR from a business outlook, while our review gives information about CSR from the public's outlook. This identifies a potential mismatch between corporate understanding of CSR and public expectations. For example, even though a firm perceives CSR as a balance between economic, environmental, and social factors, our review indicates that the public places more emphasis on environmental factors.

Our analysis goes further, however, to uncover nuances not represented in the empirical reviews. For example, the differential importance granted to different environmental issues, such as carbon emissions compared with water waste, would suggest public conceptions of environmental responsibility are more multi-dimensional than often supposed in the CSR literature.

To the first objective, which establishes a review of perceptions on how enterprises practice their environmentally conscious behavior in their operations, there is a robust and stable public desire for responsible enterprise environmental performance. Overwhelmingly, 82% of respondents believe it is essential that firms undertake social responsibility, with particular attention being given to environmental sustainability exercises. This level of importance is further reinforced by solid support, with 80% rating it as very important for holding companies accountable for their environmental impact. These results suggest that the public considers environmental consciousness a core part of corporate social responsibility rather than an optional or peripheral concern.

However, the study also unveils a notable skepticism about the authenticity of companies' environmental efforts. While 52% of respondents believe it's essential that companies genuinely care about their social and environmental impact, the lower mean score (4.13) compared to other environmental questions suggests a level of public doubt about corporate motivations. This indicates that although the public highly supports environmentally responsible corporate behavior, there is a perceived expectation-reality gap. It thus follows that companies not only have to adopt environmentally responsible practice but also must communicate credibly the sincerity of such prac-

tices to engender confidence among the public. Concerning the second goal, which relates to determining what percentage of clean energy is used as part of companies' daily operations, indirect evidence of public support for this idea is powerfully given by this study, while direct quantitative data related to actual corporate usage are not. The high importance placed on companies reducing their carbon footprint-72% rated it as somewhat or very important- and carbon emissions-91% rated it as somewhat or very important strongly suggests that the public would expect and support the adoption of clean energy into corporate operations. This is further bolstered by a willingness from the majority (77%) to help companies which publicly commit to reducing their environmental impact.

This research also suggests that the public considers different aspects of environmental responsibility to be of varying importance. While carbon emissions and general environmental impact are rated critically important, other concerns, such as water waste management, drew lower yet still significant problems. Such a nuanced understanding of the public's priorities may lead companies toward focusing their environmental efforts and communications strategies.

It is also clear from the results that corporations' environmental awareness and clean energy use could greatly impact public image and market performance. 83% of the respondents said they would likely recommend a corporation based on its commitments to social and environmental responsibility.

Moreover, 88% of the respondents said they believe that, in the future, Corporate Social Responsibility initiatives will continue to have a much greater impact on the behavior of consumers. This would underscore the competitive advantage companies can achieve by embracing and communicating effective environmentally conscious practices, including clean energy.

With such strong support, 92% rating it as somewhat or very important for stricter government regulations on companies when it comes to environmental issues, the public expects external pressure to ensure corporate environmental responsibility. Thus, those businesses that proactively adopt environmentally conscious behavior and clean energy solutions might be better equipped to face potential future regulatory changes.

## CONCLUSIONS

The main objective of this research is to examine the effect of CSR on society and its acceptance and determine how society's responses to CSR vary with their individual social and environmentally conscious behavior. The findings suggest that CSR perception strongly determines society-conscious behavior regarding companies and the use of clean energy.

However, this study has limitations; despite the valuable insights gained from the data, it primarily captures the short-term public perception and limits its predictive power for the long-term public perception. Future research would benefit from a more varied sample, and deeper qualitative analysis would be beneficial. In general, CSR perception in the community, the employees, and consumers highly supports environmentally responsible corporate behavior, positively impacting the companies and using clean energy.

The findings show that, indeed, there is high public expectation from business environmental responsibility, as 82% of the respondents regard it as very important for companies to undertake social responsibility activities. The same percentage (80%) feel it is essential that companies be liable for environmental damage. The same study also firmly focused on carbon emission reduction since 91% rated it somewhat or very important for companies to reduce their carbon emissions. Yet, on the other hand, a perception gap was indicated since 52% of the respondents strongly believed that companies genuinely care about their social and environmental impact. This contrasts with the 77% of participants publicly declaring support for corporations promising to reduce environmental degradation. On the use of clean energy, while the research does not give an explicit quantitative status of the practice by corporate entities, it generally creates a good case demonstrating popular support for such corporate initiatives. A 72% rated a firm's effort to reduce its carbon footprint as essential or significant, representing a clear expectation of adopting clean energy within corporate operations. The study finds considerable public mandate for companies to engage in environmentally sensitive business practices, including using clean energy.

In the future, companies must build Corporate Environmental Responsibility Programs: A company must be able to design and implement fully fleshed-out environmental responsibility programs beyond mere compliance. The program should be inculcated into core business strategies and operations, addressing main areas of carbon emissions reduction, clean energy adoption, and sustainable resources management. Implementation should involve a cross-functional team led by senior management with clear goals, timelines, and accountability measures. The strategy will allow the corporations to meet the public's high expectations with respect to corporate environmental accountability and, in turn, achieve a better brand image, customer loyalty, and sustainability.

Companies need to develop various environmental strategies across different spheres of environmental responsibilities, mainly focusing on issues of critical importance to the public, such as carbon emissions. As such, they must not fail in other aspects, such as wasting water. This balanced approach should be addressed through an environmental management system that is fully inclusive and reviewed from time to time about stakeholder responses and emerging environmental issues. In this way, companies can directly meet public priorities and show, at the same time, their comprehensive concern for the environment.

It also calls for improving environmental responsibility programs in businesses, better communication transparency, prioritizing clean energy, and using environmental initiatives to gain market advantage. The findings and recommendations carry significant implications for corporate strategy, public policy, and future research in corporate social responsibility and environmental sustainability.

## REFERENCES

- Arena, M., Azzone, G. & Mapelli, F. (2018). What drives the evolution of Corporate Social Responsibility strategies? An institutional logics perspective. *Journal of Cleaner Production*, 171, 345–355. <https://doi.org/10.1016/j.jclepro.2017.09.245>
- Ashrafi, M., Adams, M., Walker, T.R. & Magnan, M. G. (2018). How corporate social responsibility can be integrated into corporate sustainability: a theoretical review of their relationships. *International Journal of Sustainable Development & World Ecology*, 25(8), 671–681. <https://doi.org/10.1080/13504509.2018.1471628>
- Azevedo, S. G., Godina, R., & Matias, J. C. D. O. (2017). Proposal of a sustainable circular index for manufacturing companies. *Resources*, 6(4), 63. <https://doi.org/10.3390/resources6040063>
- Bai, A., Balogh, P., Nagy, A., Csedő, Z., Sinóros-Szabó, B., Pintér, G., Prajapati, SK., Singh, A., Gabnai, Z. (2023). Economic Evaluation of a 1 MWel Capacity Power-to-Biomethane System. *Energies* 16(24):8009. <https://doi.org/10.3390/en16248009>
- Bakosné Kiss, V. Á., Kiss, K., Szakács, A., & Szűcs, R. (2024). CSR expectations and voluntary participation among employees. *Economica*, 15(3-4), 14-21. <https://doi.org/10.47282/economica/2024/15/3-4/14668>
- Barcelos, E. M. B., de Paula Baptista, P., Maffezzoli, E. C. F., da Silva, W. V., Zancan, R., & Marchetti, C. P. D. V. (2015). Relationship between an organization evaluated as being socially responsible and the satisfaction, trust and loyalty of its clients. *Australian Journal of Basic and Applied Sciences*, 9(7), 429-438.
- Barone, M.J., Miyazaki, A.D. & Taylor, K.A. (2000) The Influence of Cause Related Marketing on Consumer Choice: Dose One Good Turn Deserve Another? *Journal of the Academy of Marketing*, 28, 248-262. <http://dx.doi.org/10.1177/0092070300282006>
- Battaglia, M., Testa, F., Bianchi, L., Iraldo, F., & Frey, M. (2014). Corporate social responsibility and competitiveness within SMEs of the fashion industry: Evidence from Italy and France. *Sustainability*, 6(2), 872–893. <http://dx.doi.org/10.3390/su6020872>
- Becker-Olsen, K. L., Cudmore, B. A., & Hill, R. P. (2006). The impact of perceived corporate social responsibility on consumer behavior. *Journal of Business Research*, 59(1), 46-53. <https://doi.org/10.1016/j.jbusres.2005.01.001>
- Bernal-Conesa, J. A., Briones-Penalver, A. J., & De Nieves-Nieto, C. (2016). The integration of CSR management systems and their influence on the performance of technology companies. *European Journal of Management and Business Economics*, 25(3), 121-132. <https://doi.org/10.1016/j.redeen.2016.07.002>
- Bhattacharya, C. B., & Sen, S. (2004). Doing better at doing good: When, why, and how consumers respond to corporate social initiatives. *California Management Review*, 47, 9-24. <https://doi.org/10.2307/41166284>
- Bigné, E., Currás-Pérez, R., & Aldás-Manzano, J. (2012). Dual nature of cause-brand fit: Influence on corporate social responsibility consumer perception. *European Journal of Marketing*, 46(3/4), 575-594. <https://doi.org/10.1108/03090561211202620>

- Bocquet, R., Le Bas, C., Mothe, C., & Poussing, N. (2013). Are firms with different CSR profiles equally innovative? Empirical analysis with survey data. *European Management Journal*, 31(6), 642–654. <http://dx.doi.org/10.1016/j.emj.2012.07.001>
- Boulouta, I., & Pitelis, C. N. (2014). Who needs CSR? The impact of corporate social responsibility on national competitiveness. *Journal of Business Ethics*, 119(3), 349–364. <http://dx.doi.org/10.1007/s10551-013-1633-2>
- Bozkurt, S., & Balb, Y. (2012). Investigation of the relationship between corporate social responsibility and organizational citizenship behavior: A research. *International Journal of Innovations and Business*, 1(1), 1–20.
- Bowen, H. R. (1953). *Social responsibilities of the businessman*. New York: Harper&Row.
- Brown, T. J., & Dacin, P. A. (1997). The Company and the Product: Corporate Associations and Consumer Product Responses. *Journal of Marketing*, 61(1), 68–84. <https://doi.org/10.1177/002224299706100106>
- Brummer, J.J., (1991). *Corporate responsibility and legitimacy: an interdisciplinary analysis*. New York: Greenwood Press. ISBN: 0313247269.
- Cader, J., Olczak, P., Koneczna, R. (2021). Regional dependencies of interest in my electricity photovoltaic subsidy program in Poland. *Polityka Energ. – Energy Policy Journal*, 24, 97–116. <http://dx.doi.org/10.33223/epj/133473>
- Carroll, A. B. (1979). A Three-Dimensional Conceptual Model of Corporate Performance. *The Academy of Management Review*, 4(4), 497–505. <https://doi.org/10.2307/257850>
- Carroll, A. B. (1999). Corporate Social Responsibility: Evolution of a Definitional Construct. *Business & Society*, 38(3), 268–295. <https://doi.org/10.1177/000765039903800303>
- Choi, Y., & Yu, Y. (2014). The influence of perceived corporate sustainability practices on employees and organizational performance. *Sustainability*, 6(1), 348–364. <https://doi.org/10.3390/su6010348>
- Chuang S. P., Huang S. J. (2018). The effect of environmental corporate social responsibility on environmental performance and business competitiveness: the mediation of green information technology capital. *Journal of Business Ethics*, 150, 991–1009. <https://doi.org/10.1007/s10551-016-3167-x>.
- Crişan-Mitra, C. & Borza, A. (2015). Approaching CSR in Romania: An empirical analysis. *Procedia - Social Behavioral Science*, 207, 546–552. <https://doi.org/10.1016/j.sbspro.2015.10.125>
- Du, S., Bhattacharya, C.B. & Sen, S. (2011). Corporate Social Responsibility and Competitive Advantage: Overcoming the Trust Barrier. *Management Science*, 57(9), 1528–1545. <https://doi.org/10.1287/mnsc.1110.1403>
- El-Kassar, A.-N., Yunis, M., & El-Khalil, R. (2017). The mediating effects of employee company identification on the relationship between ethics, corporate social responsibility, and organizational citizenship behavior. *Journal of Promotion Management*, 23(3), 419–436. <https://doi.org/10.1080/10496491.2017.1294872>.
- Elkington, J., & Rowlands, I. H. (1999). Cannibals with forks: The triple bottom line of 21st century business. *Alternatives Journal*, 25(4), 42.
- European Commission, (2011). *Corporate social responsibility: A new definition, a new agenda for action*. Memo/11/730 1–4. [https://ec.europa.eu/commission/presscorner/detail/en/memo\\_11\\_730](https://ec.europa.eu/commission/presscorner/detail/en/memo_11_730)
- Dahlsrud A. (2008): How corporate social responsibility is defined: an analysis of 37 definitions. *Corporate Social Responsible Environmental Management*, 15(1), 1–13. <https://doi.org/10.1002/csr.132>
- De Roeck, K., Marique, G., Stinglhamber, F., & Swaen, V. (2013). Understanding employees' responses to corporate social responsibility: mediating roles of overall justice and organisational identification. *The International Journal of Human Resource Management*, 25(1), 91–112. <https://doi.org/10.1080/09585192.2013.781528>
- Farooq M., Farooq O., Jasimuddin S. M. (2014). Employees response to corporate social responsibility: Exploring the role of employees' collectivist orientation. *European Management Journal* 32(6), 916–927. <https://doi.org/10.1016/j.emj.2014.03.002>
- Frynas, J. G. (2005). The false developmental promise of corporate social responsibility: Evidence from multinational oil companies. *International affairs*, 81(3), 581–598. <https://doi.org/10.1111/j.1468-2346.2005.00470.x>
- Frynas, J. G. (2015). Strategic CSR, value creation and competitive advantage. In: *The Routledge companion to non-market strategy* (pp. 245–262). Routledge. ISBN 9781315819389.
- González-De-la-Rosa, M., Armas-Cruz, Y., Dorta-Afonso, D. & García-Rodríguez, F. J. (2023). The impact of employee-oriented CSR on quality of life: Evidence from the hospitality industry. *Tourism Management*, 97. <https://doi.org/10.1016/j.tourman.2023.104740>
- Gonzalez-Ortiz, A., Reichel, A., Arceredillo, A. T., Unterstaller, A., Meiner, A., Lukewille, A., & Hoogeveen, Y. (2018). Environmental indicator report 2018: in support to the monitoring of the seventh environment action programme. <https://doi.org/10.2800/180334>
- González-Rodríguez M. R., Díaz-Fernández M. C., Shi F., Okumus F. (2021). Exploring the links among corporate social responsibility, reputation, and performance from a multi-dimensional perspective. *International Journal of Hospitality Management*, 99. <https://doi.org/10.1016/j.ijhm.2021.103079>
- Hamidi, N., Omidvari, M., & Meftahi, M. (2012). The effect of integrated management system on safety and productivity indices: Case study; Iranian cement industries. *Safety Science*, 50(5), 1180–1189. <http://dx.doi.org/10.1016/j.ssci.2012.01.004>
- Harsányi, E., Mirzaei, M., Arshad, S., Alsilibe, F., Vad, A., Nagy, A., Ratonyi, T., Gorji, M., Al-Dalahme, M., & Mohammed, S. (2024). Assessment of advanced machine and deep learning approaches for predicting CO2 emissions from agricultural lands: Insights across diverse agroclimatic zones. *Earth Systems and Environment*, 8(1109–1125). <https://doi.org/10.1007/s41748-024-00424-x>
- Hishan, S. S., Ramakrishnan, S., Lim, B. K. & Umar, A. (2017). The Concept of Corporate Social Responsibility (CSR) - A Review of Literature. *Advanced Science Letters*, 23(9), 9287–9290. <https://doi.org/10.1166/asl.2017.10072>



- Jiménez, J. V. G., Ruiz-de-Maya, S. & López, I. (2017). The impact of congruence between the CSR activity and the company's core business on consumer response to CSR. *Spanish Journal of Marketing –ESIC*, 21(6), 26-38. <https://doi.org/10.1016/j.sjme.2017.01.001>
- Khan T. M., Bai G., Fareed Z. & Yasmeen R. (2020a). The impact of CEO tenure on corporate social and environmental performance: an emerging country's analysis. *Environmental Science and Pollution Research*, 27, 19314–19326. <https://doi.org/10.1007/s11356-020-08468-y>
- Khan T. M., Bai G., Fareed Z. & Khan A. (2020b). How does CEO tenure affect corporate social and environmental disclosures in China? Moderating role of information intermediaries and independent board. *Environmental Science and Pollution Research*, 28, 9204–9220. <https://doi.org/10.1007/s11356-020-11315-9>
- Kaur, P., Talwar, S., Madanaguli, A., Srivastava, S., & Dhir, A. (2022). Corporate social responsibility (CSR) and hospitality sector: Charting new frontiers for restaurant businesses. *Journal of Business Research*, 144, 1234-1248. <https://doi.org/10.1016/j.jbusres.2022.01.067>
- Kovács, T., David, F., Nagy, A., Szűcs, I., Nábrádi, A. (2021). An Analysis of the Demand-Side, Platform-Based Collaborative Economy: Creation of a Clear Classification Taxonomy. *Sustainability*, 13(5):2817. <https://doi.org/10.3390/su13052817>
- Kovács, T., Nábrádi, A., Tóth, S., Huzsvai, L., Nagy, A., Bittner, B. (2023). Sustainable Public Transportation in a Volatile, Uncertain, Complex, and Ambiguous (VUCA) Age. *Sustainability*. 15(21):15310. <https://doi.org/10.3390/su152115310>
- Kytle, B., & Ruggie, J. G. (2005). Corporate social responsibility as risk management: A model for multinationals.
- Lamb, S., Jennings, J., & Calain, P. (2017). The evolving role of CSR in international development: Evidence from Canadian extractive companies' involvement in community health initiatives in low-income countries. *The Extractive Industries and Society*, 4(3), 614-621. <https://doi.org/10.1016/j.exis.2017.05.011>
- Lengyel, P., Bai, A., Gabnai, Z., Mustafa, O.M.A., Balogh, P., Péter, E., Tóth-Kaszás, N., Németh K. (2021). Development of the Concept of Circular Supply Chain Management-A Systematic Review. *Processes* 2021, 9(10), 1740. <https://doi.org/10.3390/pr9101740>
- Li, Y., & Chen, C. H. (2023). The impact of employee-perceived CSR on organizational citizenship behavior-evidence from China. *Asia Pacific Management Review*, 28(4), 487-500. <https://doi.org/10.1016/j.apmr.2023.02.003>
- Mao Y., He J., Morrison A. M. & Coca-Stefaniak A. (2020) Effects of tourism CSR on employee psychological capital in the COVID-19 crisis: from the perspective of conservation of resources theory. *Current Issues in Tourism*, 24, 2716-2734. <https://doi.org/10.1080/13683500.2020.1770706>
- Mandhachitara, R., & Poolthong, Y. (2011). A model of customer loyalty and corporate social responsibility. *Journal of Services Marketing*, 25(2), 122-133. <https://doi.org/10.1108/08876041111119840>
- Martinuzzi, A., Krumay, B., 2013. The good, the bad, and the successful – How corporate social responsibility leads to competitive advantage and organizational transformation. *Journal of Change Management*, 13(4), 424–443. <http://dx.doi.org/10.1080/14697017.2013.851953>
- Matsutani, L., Rampasso, I. S., Serafim, M. P., Quelhas, O. L., Leal Filho, W., & Anholon, R. (2022). Critical analysis of corporate social responsibility projects developed by Brazilian companies: Providing new insights for debates. *Cleaner Engineering and Technology*, 7. <https://doi.org/10.1016/j.clet.2022.100412>
- Memon K. R., Ooi S. K., Khalid S. & Ghani B. (2021). Mediation-moderation mechanism between the relationship of corporate social responsibility and employees' promotive voice behavior. *International Journal of Business Science and Applied Management*, Volume 16 (1). <https://doi.org/10.69864/ijbsam.16-1.142>
- Mohr, L.A.; Webb, D.J.; Harris, K.E. (2001). Do consumers expect companies to be socially responsible? The impact of corporate social responsibility on buying behavior. *Journal of Consumer Affairs*, 35(1), 45-72. <https://doi.org/10.1111/j.1745-6606.2001.tb00102.x>
- Mozes, M., Josman, Z., & Yaniv, E. (2011). Corporate social responsibility organizational identification and motivation. *Social Responsibility Journal*, 7(2), 310-325. <https://doi.org/10.1108/174711111111141558>
- Mousiolis D. T. & Bourletidis K. (2014). The Corporate Identity through the CSR's Paths. *Procedia - Social and Behavioral Sciences*, 175, 511 – 514. <https://doi.org/10.1016/j.sbspro.2015.01.1230>
- Mueller, K., Hatstrup, K., Spiess, S.-O., & Lin-Hi, N. (2012). The effects of corporate social responsibility on employees' affective commitment: A cross-cultural investigation. *Journal of Applied Psychology*, 97(6), 1186–1200. <https://doi.org/10.1037/a0030204>
- Nagy, A. S. (2007). Analysis of the expected income of several family types. *Applied Studies in Agribusiness and Commerce*, 1(1), 49-51. <https://doi.org/10.19041/APSTRACT/2007/1/6>
- Nábrádi, A., Madai, H., & Nagy, A. (2011). Animal Husbandry in Focus of Sustainability. In *Sustainable Agricultural Development* (pp. 225–233). [https://doi.org/10.1007/978-94-007-0519-7\\_16](https://doi.org/10.1007/978-94-007-0519-7_16)
- Pactwa, K. & Woźniak J. (2020). Knowledge of CSR Issues Among Mining Business Stakeholders and the Academic Environment—Case Study from Poland. *Gospodarka Surowcami Mineralnymi-Mineral Resources Management* 36(1), 149-166. <https://doi.org/10.24425/gsm.2020.132548>
- Pérez, A., del Mar García de los Salmones, M., & Rodríguez del Bosque, I. (2013). The effect of corporate associations on consumer behaviour. *European Journal of Marketing*, 47(1/2), 218-238. <https://doi.org/10.1108/03090561311128552>
- Popp J, Harangi-Rákos M, Pető K, Nagy A. (2013). Bioenergy: Risks to food-, energy- and environmental security. *Applied Studies in Agribusiness and Commerce*, 7(4-5), 121-130. <https://doi.org/10.19041/APSTRACT/2013/4-5/17>



- Rongbin R., Wan C. & Zuping Z (2022). *Environmental Science and Pollution Research*, Volume 29, pages 52189–52203. <https://link.springer.com/journal/11356>.
- Rupp, D. E., Shao, R., Thornton, M. A., & Skarlicki, D. P. (2013). Applicants' and employees' reactions to corporate social responsibility: The moderating effects of firstparty justice perceptions and moral identity. *Personnel Psychology*, 66(4), 895-933. <https://doi.org/10.1111/peps.12030>
- Sarfraz, M., Syed, Shah, G. M., Zeeshan, F. & Farrukh. S. (2020). Demonstrating the interconnection of hierarchical order disturbances in CEO succession with corporate social responsibility and environmental sustainability. *Corporate Social Responsibility and Environmental Management*, 27, 2956-2971. <https://doi.org/10.1002/csr.2014>
- Sarkar, S. & Searcy, C. (2016). Zeitgeist or chameleon? A quantitative analysis of CSR definitions. *Journal of Cleaner Production*, 135, 1423–1435. <https://doi.org/10.1016/j.jclepro.2016.06.157>
- Sen, S. & Bhattacharya, C. (2001). Does Doing Good Always Lead to Doing Better? Consumer Reactions to Corporate Social Responsibility. *Journal of Marketing Research*, 38, 225-243. <https://doi.org/10.1509/jmkr.38.2.225.18838>
- Suganthi, L. (2019). Examining the relationship between corporate social responsibility, performance, employees' pro-environmental behavior at work with green practices as mediator. *Journal of Cleaner Production*, 232, 739–750. <https://doi.org/10.1016/j.jclepro.2019.05.295>
- Tong, C., Wong, A. T. T., & Cheng, T. (2019). Do corporate social responsibility and safety of food affect reputation? A study of fast-food restaurants industry in Hong Kong. *Journal of Economics, Management and Trade*, 22(3), 1-18. <https://doi.org/10.9734/JEMT/2019/46107>
- Van Marrewijk, M. (2003). Concepts and definitions of CSR and corporate sustainability: Between agency and communion. *Journal of Business Ethics*, 44(2), 95-105. <https://doi.org/10.1023/A:1023331212247>
- Vitell, S.J. (2015). A Case for Consumer Social Responsibility (CnSR): Including a Selected Review of Consumer Ethics/Social Responsibility Research. *Journal of Business Ethics*, 130, 767–774. <https://doi.org/10.1007/s10551-014-2110-2>
- Vishwanathan, P., van Oosterhout, H. J., Heugens, Pursey P. M. A. R., Duran, P. & van Essen, M. (2020), Strategic CSR: A Concept Building Meta-Analysis. *Journal of Management Studies*, 57(2), 314-350. <https://doi.org/10.1111/joms.12514>
- Vlachos, P. A., Epitropaki, O., Panagopoulos, N. G., & Rapp, A. A. (2013). Causal attributions and employee reactions to corporate social responsibility. *Industrial and Organizational Psychology*, 6(4), 334e337. <https://doi.org/10.1111/iops.12061>
- Webb, D. J., & Mohr, L. A. (1998). A Typology of Consumer Responses to Cause-Related Marketing: From Skeptics to Socially Concerned. *Journal of Public Policy & Marketing*, 17(2), 226-238. <https://doi.org/10.1177/074391569801700207>
- Zhao, G., Irfan Ahmed, R., Ahmad, N., Yan, C. & Usmani, M.S. (2021). Prioritizing critical success factors for sustainable energy sector in China: A DEMATEL approach. *Energy Strategy Review*, 35, 2–13. <https://doi.org/10.1016/j.esr.2021.100635>
- Zhu, Q., Zou, F. & Zhang, P. (2019). The role of innovation for performance improvement through corporate social responsibility practices among small and medium-sized suppliers in China. *Corporate Social Responsibility and Environmental Management*, 26(2), 341-350. <https://doi.org/10.1002/csr.1686>