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Challenges in the Plant-based Dairy Alternatives Market: A Case Study of Ripened Rennet Cheese Alternatives in the Context of Sustainable Development Policy Principles

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ABSTRACT

Objective: To determine whether the production and consumption of plant-based dairy alternatives (PBDAs) aligns with sustainable development policy and to identify challenges on the path to achieving Sustainable Development Goals (SDGs).

Research Design & Methods: A review and critical analysis of the literature, official documents, reports, food labels, and legal regulations. Synthesis and logical reasoning methods are also employed.

Findings: Contradictions have been identified between the principles of sustainable development policy and the directions the current PBDAs market is taking *vis-à-vis* ripened rennet cheese substitutes. The low nutritional value of PBDAs, inefficient resource utilisation in the production

of non-nutritive foods, and challenges arising from the need to sustainably feed a growing population may all hinder the achievement of SDGs.

Implications/Recommendations: The challenges identified can be a subject of research into consumer acceptance of plant-based alternatives. Further development is required to increase the adequacy and economic availability of PBDAs.

Contribution: The article sheds new light on the development of the PBDAs market in the context of the convergence of this trend with the principles of sustainable development policy.

Article type: original article.

Keywords: sustainable development, SDGs, sustainable consumption, sustainable production, plant-based food, sustainable food system.

JEL Classification: Q01, Q56, L15, L66, O13, P46.

1. Introduction

In developed countries over the last few years, a shift in the consumption model has been observed. This transformation has involved a complete or partial abandonment of meat and animal-derived products in favour of plant-based food, which includes plant-based meat alternatives, dairy alternatives, and other plant-based foods. In 2021, following the rapid expansion of the global plant-based food market, an optimistic forecast was published: Further growth was projected to reach 77.8 billion US dollars by 2025, and the market would more than double in value by 2030 (Plant Based News, 2021).

Contrary to these initial forecasts, the upward trend today has moderated, while the projected growth rates have been tempered, especially in the plant-based meat alternatives market (Terazono, 2022). Retail sales of plant-based foods in 13 European countries – Austria, Belgium, Denmark, France, Germany, Italy, the Netherlands, Poland, Portugal, Romania, Spain, Sweden, and the United Kingdom – increased by 15% from 2020 to 2021. In 2022, they rose another 6% compared to 2021, reaching a total value of 5.8 billion euros. The most developed plant-based product category is beverages, with sales reaching 2.2 billion euros in Europe in 2022. Plant-based meat alternatives, the second-largest category in Europe, had sales of 2 billion euros (NielsenIQ, 2022).

Plant-based dairy and meat alternatives have become a global consumer trend among higher-income populations. They appeal to those with food allergies and intolerances, those seeking to avoid diet-related diseases, and those with environmental, ethical, and religion-based concerns (Giacalone, Clausen & Jaeger, 2022). Others are curious or seek to diversify their diet (Ruby *et al.*, 2013). According to recent estimates, food production is responsible for approximately 30% of anthropogenic greenhouse gas emissions, 70% of freshwater usage, and the occupation of

37% of ice-free land surfaces. This makes it a significant driver of environmental change globally (Willet *et al.*, 2019). Given the role the food system plays in biodiversity loss, climate change, and resource depletion, there is an urgent need for it to be transformed – on a global scale (Hoehnel, Zannini & Arendt, 2022). An analysis of the current food system reveals that food consumption patterns in the European Union are unsustainable, in terms of both the environment and human health (European Commission, 2020). In light of these facts, it is imperative that how raw materials are sourced and how food is produced, processed, consumed, and disposed of be shifted (Henchion *et al.*, 2017).

The Farm to Fork Strategy, a pillar of the European Green Deal, takes a comprehensive approach to addressing the challenges of sustainable food systems. It recognises the interconnectedness between the well-being of people, societies, and the planet. It also plays a crucial role in the European Commission's efforts to achieve the United Nations' Sustainable Development Goals (SDGs) (European Commission, 2020). The growing consumer interest in using alternative protein sources to replace protein-rich foods derived from livestock aligns with the increasing demand for more sustainable food systems (Pingali *et al.*, 2023). Sustainable development could therefore be pursued by growing the market for plant-based dairy alternatives (PBDAs). The expansion of the market for dairy and meat alternatives, both in terms of value and variety, has led to the growth of plant-based foods, though with unclear implications for nutrition, health, and the environment (Clegg *et al.*, 2021; Wickramasinghe *et al.*, 2021; Costa *et al.*, 2023; Pingali *et al.*, 2023). Given these developments, it is important to question whether the growing market for plant-based alternatives to conventional products aligns with global needs and challenges.

The aim of this paper is twofold: First, to consider whether the production and consumption of PBDAs align with principles of sustainable development policy and, second, to identify challenges on the path to achieving SDGs. To achieve these objectives, a review and critical analysis of the subject literature was carried out, including an examination of secondary sources such as official documents, reports, and legal regulations. Additionally, synthesis and logical reasoning methods were also employed. The analysis focuses on a specific case study involving ripened rennet cheese alternatives available in the Polish market. Their composition and nutritional value are examined and compared with Gouda cheese. The composition and nutritional value analyses were conducted based on data from the literature, as well as information obtained from product labels and product sheets. It is worth noting that replicating the functionality of plant-based ingredients to create other plant-based products, such as alternatives to ripened rennet cheese, is a complex process that requires more intricate processing to mimic the composition, unique nutrient profile, structure, shelf life, sensory quality and physicochemical properties (Grasso *et al.*, 2021; Craig, Mangels & Brothers, 2022). The article sheds new light

on the development of the PBDAs market in the context of the convergence of this trend with the principles of sustainable development policy. The study contributes to the understanding of the complex relationships and threats related to food consumption in the context of achieving SDGs. In Poland, this line of research was initiated by Wiśniewska (2022).

2. Plant-based Dairy Alternatives

Plant-based dairy alternatives are now being offered by an increasing number of food business operators (FBOs). Some of these operators focus exclusively on producing plant-based foods, while others originate from the dairy industry and have expanded their product portfolios to include plant-based offerings. There is also a smaller group of companies that previously produced dairy products but have now shifted their focus to plant-based food production (Boba & Sosin, 2023).

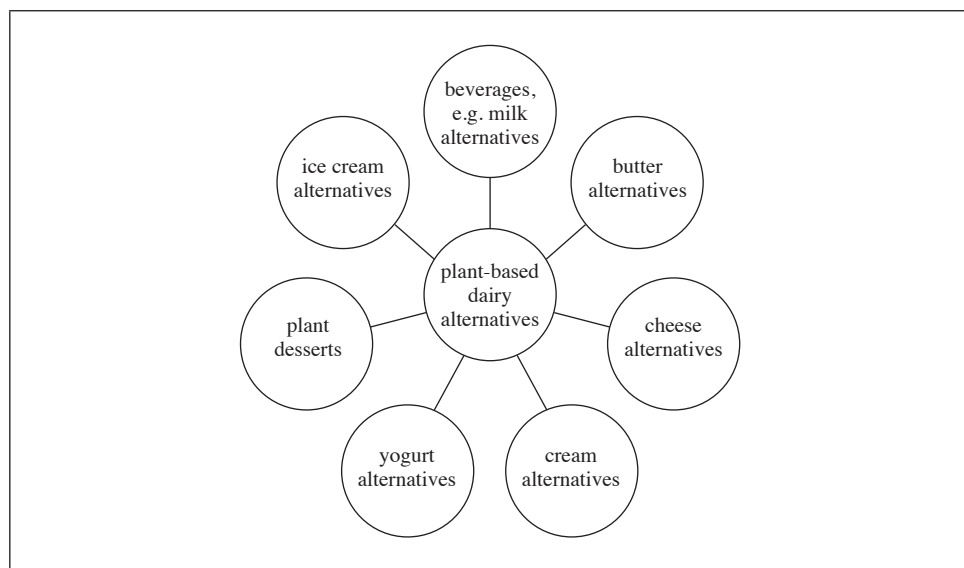


Fig. 1. Assortment of Plant-based Dairy Alternatives

Source: the author, based on World Food Poland (2023).

The market offers a wide variety of PBDAs (Fig. 1). Among them, the most popular category, an extensive one, is plant-based beverages. These beverages include options like soy, oat, coconut, almond, rice, hemp, or combinations thereof, such as oat-almond or coconut-rice. Another category, plant-based yogurt alternatives, is made from similar plant-based ingredients as the beverages, including oats, soy, coconut and cashews. Cheese alternatives are typically based on cashews and

coconut fat, while butter substitutes are primarily derived from coconut, rapeseed, or cashew fat. Plant-based cream alternatives are products made from ingredients like water, coconut beverage, or oat, soy, lentil, or almond flour. Ice cream alternatives are produced using plant oils, such as sunflower or coconut, in combination with plant-based beverages. As of February 2023, there were approximately 400 of these products available on the Polish market, and new ones continue to emerge regularly (World Food Poland, 2023).

3. Ripened Rennet Cheeses and Their Plant-based Alternatives

More than 1,000 cheese varieties can be created through a range of production and aging techniques (Grossmann & McClements, 2021). Ripened rennet cheeses are crafted through the careful processing of milk curd induced by rennet, leading to a product with a distinct aroma, flavour, and characteristic plasticity. Rennet cheese is widely acknowledged as a nutritious food, renowned for its rich content of essential nutrients, including fats, proteins, significant quantities of calcium and phosphorus, with an ideal ratio for absorbability, vitamin A, beta-carotene, and zinc (Kunachowicz *et al.*, 2018).

For many years, cheese alternatives made with plant-derived fats were seen as inexpensive and less nutritious imitations of cheeses, i.e. food produced from animal milk. In some cases, they were even considered food adulteration. Nevertheless, in recent years the production of plant-based cheese alternatives has taken off, a shift driven by changing consumption habits and growing consumer interest in foods made from plant-based ingredients (Aschemann-Witzel *et al.*, 2021). In 2022, the revenue generated from the sales of plant-based cheese alternatives in Poland reached almost 77 million złotych, 17% higher than in 2021 (The Good Food Institute, 2023).

Grossman and McClements (2021, p. 209) defined plant-based cheese¹ as “an edible material prepared from plant ingredients that is designed to have a similar appearance, texture, and flavour as animal-based cheeses.” The fundamental principle guiding the production of plant-based cheese alternatives is to replicate the physicochemical and sensory characteristics of specific cheese by employing various plant-based ingredients and structuring techniques. This poses a significant challenge because plant-derived ingredients have different properties than animal milk, the primary ingredient in cheese production (Grossman & McClements, 2021). It is evident that the nutritional value of rennet cheese alternatives is contingent on the ingredients used to produce it, as is the case with any food product.

¹ In the EU the term “cheese” shall be reserved exclusively for milk products (Regulation (EU) No 1308/2013).

In the Polish market, several plant-based rennet cheese alternatives are available, offered by various suppliers in forms such as blocks, slices, and grated options. Within the product range of the same manufacturer, these alternatives generally share a similar composition, with variations typically attributed to the presence of specific flavour additives or different forms (blocks, slices or grated). Following the preliminary analysis of the compositions of 30 alternatives of ripened rennet cheese, seven of the most distinct products were selected for further examination. The results are described in the subsequent section.

Table 1. Ingredients Used in the Production of Ripened Rennet Cheese Gouda and Its Plant-based Alternatives

Food Product	Ingredients
Ripened rennet cheese	
Gouda	pasteurised milk, bacterial cultures, salt, stabiliser: calcium chloride, microbial rennet
Plant-based alternatives to ripened rennet cheese	
1	water, vegetable fat (coconut oil 24%), modified potato starch, tapioca starch, salt, olive extract, natural flavours, colour: beta-carotene, vitamin B12
2	water, coconut oil (23%), modified starch, starch, sea salt, flavours, olive extract, colour: beta-carotene, vitamin B12
3	water, coconut oil 23%, modified starch, salt, Gouda flavour (glucose, salt, flavour, yeast extract), calcium, stabiliser: calcium chloride, preservative: potassium sorbate, vitamins: niacin, pantothenic acid, B6, B12, folic acid, biotin, colours: carotenes, acidity regulator: citric acid
4	water, vegetable oil (coconut oil) 23%, modified starch, salt, Gouda flavour, colour: carotenes
5	water, coconut oil, starch, stabilisers (gum arabic, locust bean gum, agar), pea protein (2.3%), sea salt, seasonings, natural aroma, antioxidant: citric acid
6	almond filling 52% (water, almonds 2%), coconut oil, modified starch, starch, flavour, salt, carrot and apple concentrate, antioxidant: sodium ascorbate
7	water, coconut fat 21%, starch, maltodextrin, salt, modified starch, stabiliser: xanthan gum, acidity regulators: lactic acid, calcium lactate, colour: carotenes, flavouring mixture (glucose, salt, flavour, yeast extract)

Source: the author, based on label and product sheet.

As indicated in Table 1, the primary formulation ingredients for rennet cheese alternative-products include water, vegetable fat (coconut oil), and starch. Among the products showcased, one was made primarily from almond paste (53%), with water constituting the primary ingredient and almonds accounting for only 2%. The coconut oil content in the seven plant-based cheese alternatives typically amounts to about 23%, which contrasts with the composition of milk fat, where no

fats beyond animal fat are present. Few cheese alternatives are fortified with the important nutrients present in milk products – vitamin B12 and calcium, which are critical for vegans.

All cheese alternatives are coloured to achieve a yellow hue (natural colour of rennet cheese resulting from beta-carotene content in milk), often using ingredients like beta-carotene or carrot concentrate, and they are also flavoured. On a related note, the formulations of these alternatives do not align with the consumer trend of “short and clean labels” (Maruyama, Streletskaia & Lim, 2021), as the ingredient lists tend to be relatively complex and may include food additives according to Commission Regulation (EU) No 1129/2011. In conventional rennet cheese, calcium chloride is commonly used, whereas in their plant-based alternatives, more food additives are employed. Such additives include potassium sorbate, citric acid, carotenes, gum arabic, locust bean gum, sodium ascorbate, lactic acid, and calcium lactate.

Table 2 presents the nutritional value of ripened rennet cheese Gouda and selected cheese alternatives.

Table 2. Nutritional Value of Ripened Rennet Cheese Gouda and Its Plant-based Alternatives

Energy Value and Nutrient Content in 100 g of Product								
Specification	Gouda cheese	1	2	3	4	5	6	7
Energy (kJ/kcal)	1323/318	1296/312	1190/285	1210/292	1225/295	1130/273	1123/270	1126/271
Fat (g)	23	24	23	23	23	23	19	21
of which saturates (g)	14	21	21	20	21	20	17	19
Carbohydrate (g)	0.1	24	20	20	22	14	24	20
of which sugars (g)	0.1	0	0	0.2	0	0.1	<0.5	<0.5
Fibre (g)	0	1.5	.	.
Protein (g)	27	0	0	0.4	0	1.4	0.7	<0.5
Salt (g)	2.3	2.1	2.3	2.3	2.3	0.9	2.7	2.3
Calcium (mg)	807	.	.	126

Source: the author, based on information from the label, product sheet and Kunachowicz *et al.* (2018).

Caloric content, derived from the nutritional composition, is slightly lower for plant-based alternatives than for cheese. The fat content ranges from 19 to 23 g/100 g, compared to 24 g/100 g in Gouda. Both cheese and its plant-based alternatives contain predominantly saturated fatty acids, but the dairy product has a lower quantity and proportion of saturated fatty acids. Fatty acids derived from milk have a different fatty acid profile than those derived from coconut oil. They also contain accompa-

nying substances, such as cholesterol and conjugated diene isomers of linoleic acid (CLA) (Mojska *et al.*, 2020). A significant difference between conventional cheeses and their alternatives is the protein content. It is present in only some alternatives and often in very low or negligible amounts. The recommendation formulated for the Polish adults is that protein should account for 10–20% of energy intake (Charzewska *et al.*, 2020). According to Regulation (EC) No 1924/2006 of the European Parliament and of the Council, a product can claim to be a “source of protein” only when at least 12% of the energy value of the food is provided by protein. In rennet cheese, protein covers about 34% of its energy value. For product no. 5 – the best source of protein among the seven alternatives analysed – energy from protein contributes only 2% of the total energy content. Product no. 5 also contained 1.5 g of fibre/100 g. A claim that a food is a “source of fibre,” and any claim likely to have the same meaning for the consumer, may only be made where the product contains at least 3 g of fibre per 100 g or at least 1.5 g of fibre per 100 kcal. This condition is not met; nevertheless, cheeses are not a source of fibre, so the absence of such a declaration is not a drawback in this case.

While conventional dairy products typically have low or no sugar content, plant-based rennet cheese alternatives do contain notable amounts of carbohydrates. These carbohydrates result from starch, helping achieve the desired texture and consistency of the product. The results of studies conducted in various countries, including the United Kingdom, the USA, and Spain, from 2019 to 2021, indicated that cheese alternatives were characterised by a low nutritional value, particularly low protein content, and high carbohydrate and saturated fatty acid content (Szymańska, 2022). Unlike plant-based meat alternatives, which have comparable amounts of protein to conventional meat, the protein content of plant-based dairy varies widely, with only legume-based beverages containing protein concentrations comparable to milk (Boeck *et al.*, 2021). Cheese alternative no. 3 was fortified with calcium, but at a level six times lower than that in milk.

4. Development of the Market for Rennet Cheese Alternatives in the Context of Sustainable Development Policy

Plant-based dairy alternatives have the potential to provide additional sources of nutrients, reduce the overall environmental impact, improve animal welfare, and promote positive health effects through phytonutrients. As consumer awareness of such alternatives rises and dietary patterns change, PBDAs may be aligned with the following SDGs: 2, 3, 12, and 13. Including plant-based food in a diversified balanced diet would improve the health status of the population and offer environmental and economic advantages. However, attaining these goals may be hindered by a range of challenges, which, if not addressed appropriately, could become threats (Table 3).

Table 3. Targets and Challenges in Achieving SDGs in Connection with Market Development of Ripened Rennet Cheese Alternatives

Targets	SDG	Challenges
<ul style="list-style-type: none"> – 2.1. “(...) end hunger and ensure access by all people, in particular the poor and people in vulnerable situations, including infants, to safe, nutritious and sufficient food all year round” – 2.2. “(...) end all forms of malnutrition, (...) address the nutritional needs of adolescent girls, pregnant and lactating women and older persons” 	SDG 2 End hunger, achieve food security and improved nutrition and promote sustainable agriculture	<ul style="list-style-type: none"> – does not meet the criteria of “source of protein” as per regulations – risk of calcium deficiencies in vulnerable population groups, such as pregnant women, nursing mothers, and older persons – challenges posed by the need to feed a growing population – high price compared to milk products
<ul style="list-style-type: none"> – 3.4. “(...) reduce by one third premature mortality from non-communicable diseases through prevention and treatment and promote mental health and well-being” 	SDG 3 Ensure healthy lives and promote well-being for all at all ages	<ul style="list-style-type: none"> – reduced nutritional value compared to conventional products – an increased risk of diet-related diseases due to high saturated fatty acids and carbohydrates from non-nutritive sources
<ul style="list-style-type: none"> – 12.2. “(...) achieve the sustainable management and efficient use of natural resources” – 12.3. “(...) halve per capita global food waste at the retail and consumer levels (...)” – 12.8. “(...) ensure that people everywhere have the relevant information and awareness for sustainable development and lifestyles in harmony with nature” – 12A. “Support developing countries to strengthen their scientific and technological capacity to move towards more sustainable patterns of consumption and production” 	SDG 12 Ensure sustainable consumption and production patterns	<ul style="list-style-type: none"> – inefficient use of resources in the production of non-nutritive foods – challenges related to labelling – misalignment with the “short and clean label” trend – advanced technology that does not support sustainable consumption patterns
<ul style="list-style-type: none"> – 13.3. “Improve education, awareness-raising and human and institutional capacity on climate change mitigation, adaptation, impact reduction (...)” 	SDG 13 Take urgent action to combat climate change and its impacts	<ul style="list-style-type: none"> – environmental burden in the production of non-nutritive foods

Source: the author, based on United Nations (2015).

The burden of malnutrition includes both undernutrition (stunting and wasting) and overnutrition (overweight and obesity) and continues to be a major problem globally, especially in developing countries (Tabe-Ojong *et al.*, 2024). A shift from consuming dairy products to plant-based alternatives should not result in reduced nutritional value – alternative products should contain at least similar nutritional value. If they do not, nutrient deficiency and nutritional inadequacy – consuming nutrients in amounts below the estimated average requirement – would only rise (Kiani *et al.*, 2022).

As Table 2 showed, ripened rennet cheese alternatives are not a valuable source of nutrients, especially protein and calcium. Proteins are essential structural and functional elements in every cell of the human body. They are crucial for the growth and development of the human body and regulate gene expression. As biocatalysts, proteins are involved in many enzymatic systems and help regulate various metabolic processes. High-quality sources of protein include eggs, dairy products, meat, fish, and poultry. Increased demand for protein occurs in pregnant and breastfeeding women, young individuals, elderly, and in various medical conditions (Charzewska *et al.*, 2020).

Calcium is a fundamental building block of bones and teeth. It also plays a role in conducting nerve impulses, muscle contraction, activation of certain enzymes, hormonal regulation, and blood clotting. Calcium is essential for the proper functioning of the heart, the vascular system, and the regulation of blood pressure. Including an adequate amount of calcium in the diet is crucial for preventing conditions such as obesity, type 2 diabetes, and certain types of cancer (Wojtasik *et al.*, 2020).

Deficiencies of essential nutrients are associated with an increased risk of a wide range of diseases. The nutritional inadequacy of ripened rennet cheese alternatives is not currently satisfactory and calls for further exploration of alternative sources of nutrients. Consumers should be aware that they need to obtain nutrients from other sources.

The challenge is to reformulate these PBDAs in a way they would be nutritious. Unfortunately, there has been no improvement in the nutrient profile of rennet cheese alternatives in the past year, especially when considering protein content (Szymańska, 2022). Similar observations were made regarding other PBDAs. In a study examining the nutritional profile of ultra-processed plant-based burgers, Vellinga *et al.* (2024) found that the profile of amino acids indicated a low nutritional value of protein. This issue may pose a threat to the implementation of targets 2.1 and 2.2, which reference the need to reduce malnutrition, ensuring access to sufficient safe, nutritious food and to address the special nutritional needs of vulnerable groups including the elderly, adolescent girls and pregnant women.

Point 2.1 of the SDG addressed the issue of accessibility. Economic availability implies that all social groups, including the poorest, can afford to purchase food. Although this topic is not directly addressed in this paper, other analyses have shown that plant-based products tend to cost more than conventional ones made with animal proteins (Batista *et al.*, 2023). Plant-based rennet cheese alternatives are no exception. Additionally, unlike their substitutes, conventional cheeses are often available in bulk, allowing customers to purchase them by weight, which can be a more cost-effective and environmentally friendly option. The higher price of PBDAs can affect their economic availability. For some products, a higher price is generally seen as a drawback, particularly for low-income consumers, and may limit the growth of the plant-based alternatives market (Batista *et al.*, 2023).

In the EU, average energy intake, consumption of red meat, sugars, salt, and fats continue to exceed recommended values, while there is insufficient consumption of whole-grain cereals, fruits, vegetables, legumes, and nuts (Willet *et al.*, 2019). In rennet cheese alternatives, carbohydrates are sourced from thickeners rather than whole-grain, nutritious ingredients. A carbohydrate-heavy diet may lead to being overweight or obese (Przygoda, Jarosz & Sajór, 2020). Dietary fat is an essential nutrient, but it is recommended that daily energy intake from fats not exceed 30%. The fatty acid profile is of particular importance. Unfortunately, coconut fat predominantly consists of saturated fatty acids, making it an unhealthy choice for some (Mojska *et al.*, 2020).

There is ongoing debate about how to label PBDAs because they do not fully substitute for traditional dairy products in terms of nutritional value. Pérez-Rodríguez *et al.* (2023) maintained that these products should not be considered an alternative to milk, but as different products – each with its own nutritional and functional characteristics. In light of the presented data on nutritional value of plant-based ripened rennet cheese alternatives, Nicolás Saraco and Blaxland (2020) recommend the term “imitation,” rather than the more common “alternatives” or “substitutes.”

SDG 12.8 refers to the importance of informing people about the impact of their lifestyles on sustainable development. In this context, the data presented in Table 2 indicate the need to provide consumers with reliable information on the consequences of regular and exclusive consumption of PBDAs regarding their composition and properties. Frequent consumption of alternatives instead of conventional products could potentially have a detrimental effect on nutrient intake, especially for less health-conscious consumers who do not prioritise a varied diet. Therefore, legal regulations regarding name and labelling of ripened rennet cheese alternatives are extremely important, as they help consumers make informed decisions.

Sustainable development policies are intended to empower consumers to make informed, healthy, and sustainable dietary choices. It is therefore crucial that food

labelling, food presentation and marketing communication not be misleading, be clear and understandable, and not raise doubts that could negatively impact human health due to uninformed choices (Kamińska & Dmowski, 2023). Furthermore, food production requires the use of resources such as land, water, labour, energy, and leads to the emission of greenhouse gases (Willet *et al.*, 2019; Chen, Chaudhary & Mathys, 2020). Producing non-nutritive foods causes unjustified burden on the environment and may lead to unnecessary and inefficient resource utilisation. With forecasts indicating that the global population will reach 10 billion by 2050 (Searchinger *et al.*, 2019; United Nations, 2022), prioritising resource management and efficient use to end hunger (SDG 2) should be essential. Given this, the availability of ripened rennet cheese alternatives on the market poses a challenge to achieving SDG 3, which focuses on ensuring healthy lives and promoting well-being, as well as SDG 12, which aims to promote sustainable consumption patterns. Moreover, unclear labels, misleading names, and the purchase of products based on trends without considering their composition, properties, or impact on resource management hinder the achievement of SDG 13, which focuses on combating climate change.

There is a need to raise awareness among both PBDAs producers, who can influence consumer choices, and consumers themselves. According to Schiano *et al.* (2020), consumers may be biased toward believing that PBDAs are more sustainable than their dairy counterparts. They stated that product labels are the most common source of sustainability information and emphasised that FBOs should assist consumers in making informed decisions by simplifying sustainability-related messaging and maintaining open, transparent communication on the subject. Additionally, Vellinga *et al.* (2024) highlighted the need for PBDAs manufacturers to make improvements to better support healthy dietary habits, including reducing energy, sodium, and total fat content, as well as improving the quality of proteins used in their formulations. Schiano *et al.* (2020) also showed a misalignment between consumer and industry definitions of sustainability, which, if addressed, could lead to the development of marketing messaging that resonates more effectively with consumers.

Another challenge concerns technological difficulties arising from the need to replicate the shelf life, sensory and textural properties of dairy ingredients. To achieve this, manufacturers use flavours and permitted additives, such as colours, acidity regulators, stabilisers, and thickeners. The current state of technological advancement does not allow for the replication of cheese's organoleptic properties using a short list of ingredients. An increasing number of consumers expect product compositions to be simple and free from additives, especially thickeners and stabilisers (Maruyama, Streletskaya & Lim, 2021). At present, rennet cheese substitutes do not meet consumer expectations. It is hoped that growing consumer

demand for these products will drive technological advancements, which can then be transferred to developing countries, supporting the achievement of target 12A. Producing a stable product that meets consumer expectations in terms of sensory quality, nutritional value and shelf life will help reduce the risk of food waste. By following these development pathways, PBDAs producers can contribute to the achievement of target 12.3, which focuses on reducing food waste at both the retail and consumer levels.

5. Managerial Implications

The study provides valuable insights into the role of the PBDAs market in sustainable development policy, specifically regarding ripened rennet cheese alternatives. It identifies challenges in achieving the SDGs and clearly underscores the need for further development of technology and formulations for rennet cheese alternatives to address global challenges.

Manufacturers of PBDAs can leverage these findings to better understand how to develop the market for alternatives to animal-origin products, thereby improving their marketing strategies, enhancing competitiveness, and positively impacting their public image and trust. The paper demonstrates the complexity of the relationships and connections at issue. For this reason, the impending transformation is likely to be time-consuming and costly, and to require substantial investment in research and development. The study also highlights the important task that FBOs face in helping consumers make sustainable choices.

This study serves as an entry point for policy intervention. The paper can assist food regulatory bodies in formulating improved policies and regulations regarding plant-based products as alternatives to dairy, which may support sustainable development goals.

6. Limitations and Directions for Future Research

The limitation of this study is that it focuses solely on ripened rennet cheese alternatives. However, it is essential to consider other products to enable consumers to make sustainable choices from a diverse range of nutritious options. Some aspects of food products, such as sensory quality and shelf life, were beyond the scope of this research, but they also deserve attention. Lastly, researching consumer acceptance of new, improved formulas is crucial for improving their dietary patterns and habits.

7. Conclusions

While this research offers valuable insights for FBOs and policymakers, there are limitations that suggest potential for future research. The market for PBDAs

is undergoing rapid expansion, driven in part by increased consumer awareness of the impact of nutrition on health, as well as the effects consumption has on the environment and climate. This translates into a growing demand for these products. Therefore, it can be expected that the concept of sustainable development could be implemented through the development of this market.

The analysis uncovered contradictions between the principles of sustainable development policy and the development of the market for PBDAs, specifically rennet-free cheese substitutes. There are challenges that may hinder or even threaten the achievement of some sustainable development goals. According to the principles of SDG, efforts should be made to increase the market share of plant-based products, which can help reduce the consumption of animal-based products. At the same time, dietary recommendations call for the consumption of highly processed foods, including plant-based dairy and meat alternatives, to be limited. Food producers currently face significant challenges in meeting the requirements of sustainable development policies. To fully replace dairy products with plant-based dairy substitutes, issues related to their nutritional value must be addressed, along with considerations for the aspects mentioned above during technological transition. In the short term, the use of a varied diet can help mitigate the negative effects of imperfections.

Authors' Contribution

The authors' individual contribution is as follows: Urszula Samotyja 70%, Kamila Kuźnik 30%.

Conflict of Interest

The authors declare no conflict of interest.

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Leadership Talent Staffing in Foreign Entities of Multinational Companies during Crisis: New Challenges and Lessons for the Future

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ABSTRACT

Objective: Rational leadership talent management (LTM) is a current challenge for HRM, which may have an impact on the performance of an organisation. The main aim of the paper is to find dissimilarities in the approaches to leadership talent staffing in the pre-pandemic and pandemic periods, and their relationship to centralisation, transfer of knowledge, and the results of an organisation.

Research Design & Methods: The research sample consists of 200 nonfinancial companies headquartered in Central Europe with foreign entities located around the world. The research results were collected by using the CATI method and analysed by principal component analysis (PCA).

Findings: The analysis used shows that there are factors which describe statistically important differences in the number and type of LTM practices characteristic of staffing those potential leaders, and their relationship with centralisation, transfer of knowledge, and the results of multinational companies in the pre-pandemic and pandemic periods.

Implications/Recommendations: The results lead to the conclusion that in difficult conditions the approach to staffing is precisely focused on specific areas, maybe because of their decreasing role in the financial results of an organisation.

Contribution: The research is of an innovative character. The wealth of data allows for further analysis in search of other dependencies and modelling of LTM practices, including those related to staffing.

Article type: original article.

Keywords: leadership talent management, multinational company, staffing, foreign entity, COVID-19 pandemic, Central Europe.

JEL Classification: M12, M16, F23.

1. Introduction

In a rapidly changing environment when competition is increasing in various industries around the world, leadership talent acquisition (staffing) in multinational companies (MNCs) is one of the key challenges facing any company. The growing importance of recruitment, selection and adaptation of prospective holders of managerial positions is reflected in the creation of further theoretical concepts, conduct of empirical research and modification of academic education programmes. New conditions on the labour market during the COVID-19 pandemic have also caused changes in the approach of managers and HR departments making decisions on employment policy in organisations. On the one hand, companies are implementing system solutions protecting organisations against unexpected situations. On the other hand, they divide their approach into specific components within HRM subfunctions – such as staffing. A higher standard of practices in this area are particularly expected in multinational companies with a high level of both internationalisation and geographical spread indexes.

In this context, the main aim of the paper is to describe the similarities and differences that may appear in leadership talent management practices (LTMPs) aimed at the staffing subfunction due to the importance of these activities for the results obtained by foreign entities (FE) of companies headquartered in Poland and operating on international markets, the level of centralisation or decentralisation and the direction of knowledge transfer from/to the company's headquarters (HQ) in both the pre-pandemic and pandemic periods. The goal is to be achieved by findings resulting from empirical research. Taking into account the publishing limitations, the paper will take the following structure: First, the presentation of the theoretical framework. Then the methods of empirical research and the obtained research results will be discussed. Finally, conclusions will be drawn.

2. Theoretical Framework

Talent management and its relationship to leadership have been analysed in numerous publications (Ingram, 2011; Björkman *et al.*, 2017; Collings, Mellahi & Cascio, 2017; Collings, Scullion & Caligiuri, 2019; Miś, 2020; Pocztowski, Pauli & Miś, 2020; Haromszeki, 2022; Tarique, 2022) and international reports, i.a. *Global Talent Trends Report 2022–2023* (Mercer, 2023), *Talent Acquisition Trends 2023* (Korn Ferry, 2022) and *2023 Global Human Capital Trends* (Deloitte, 2023). Research in this area was rather conducted in MNCs with headquarters outside Poland. Central European perspectives on leadership in MNCs are presented in i.a. studies focused on the strategy of internalisation (Głodowska, Pera & Wach, 2019) or talent management (TM) (Haromszeki, 2022; Stor, 2023). These perspectives seem to be important voices in the discussion, which emphasises the value of studies analysing this region, especially those presenting research findings focused on changes in HRM in the Central and Eastern European regions since the communist era (Morley *et al.*, 2021), internationalisation of HRM (Poór *et al.*, 2019) and international and cross-cultural aspects of HRM (Usunier, van Herk & Lee, 2017). They present different definitions of leadership and TM. However, the purpose of this article is not to review and analyse them. Therefore, the definitions that most clearly constitute the theoretical basis of my own empirical research were chosen.

It was assumed that organisational leadership is a specific type of “relationship between a superior (...) and his/her subordinates (or coworkers) (...)” (Haromszeki, 2010, p. 40). Following the chosen definition, each leader wants to play this role and leadership is expected of them by their subordinates. The meaning of leadership is similar to Drucker’s (2004) approach and exists only in real situations which should only be analysed in a pragmatic way by presenting the means and effects of a leader’s behaviour (Haromszeki, 2010). A leader should be clearly distinguished from a manager who “is a person managing an enterprise or a part of it” (PWN, n.d.). For a manager, the most important thing is rationality and control, and for a leader, a practical approach to shaping various activities (Zaleznik, 2018). An effective leader can be a person formally employed in a managerial position, but it can also be a team member, without official seniority, but having a real influence on co-workers and treated by them as a person with real influence on them. Moreover, our own research and critical analysis of the literature shows that many managers are not real leaders in the organisational units they manage (Haromszeki, 2020). More important than the psychological features possessed is the acceptance of leaders in given socio-cultural conditions convergent with the expectations of the organisation’s social environment resulting from the categorisation of model types of leadership shaped in the process of socialisation and learning (Lord, Foti & Vader, 1984).

As stated in Armstrong's (2007, p. 354) definition, talent management focuses on talented people and according to existing expectations includes activities such as: attracting, retaining, motivating and developing. When studying talent in an organisation, it seems important to distinguish TM from LTM, which may be treated as formal tools (formed from the LTMPs) focused on managers, potential managers and specialists, who are treated as natural leaders by their co-workers which results in a positive impact of their actions on the work results of other employees who are dependent on the leader (Haromszeki, 2023b, p. 45), and is a useful practical approach to learning in rapidly changing conditions and crises (Wang, Hutchins & Garavan, 2009). This approach follows an assumption that, in the case of organisational leadership, only a practical understanding of talent applies. It is assumed that "a talented leader must have a high ability to process different types of information, be aware of their own skills, preferences and prejudices, cooperate well with various stakeholders, constantly increase their ability to create the future and easily create stories with specific dramaturgy" (Gardner, 2009, pp. 303–304). According to the belief that leadership talent is revealed in real professional situations, it is important to refer to the knowledge and scientific achievements in the field of practical intelligence (Wagner & Sternberg, 1985; Nęcka, 2003; Terelak & Baczyńska, 2008; Witkowski & Stopyra, 2010), pragmatism (Tatarkiewicz, 1981), praxeology (Kotarbiński, 1999) and the concept of situational leadership (Tannenbaum & Schmidt, 1958). Leadership talent in this sense can be analysed according to expectations towards them in both the process of staffing and development (Haromszeki, 2014). Hence formal solutions – called here LTMPs – can be used to shape leadership talents, not only prospective managers.

A very important phase of TM is staffing. Many different ways of defining this concept are presented in publications, which describe various aspects and methods, including collective studies in the field of HRM (Armstrong, 2007; Listwan, 2010; Pocztowski, 2016) and work focused directly on the staffing of employees (Dale, 2001; Jamka, 2001; Witkowski, 2007). For research purposes, the article adopts the definition of Kawka and Listwan, in which the selection of personnel is understood as "a set of activities leading to the proper staffing of vacant positions in order to ensure the continuous and efficient functioning of the organization" (Kawka & Listwan, 2010, p. 101), a definition based on previous scientific work in this area (e.g. Cascio, 1989; Listwan, 1998; Armstrong, 2000).

As already indicated, despite the wealth of research on talent acquisition (McCracken, Currie & Harrison, 2016), there is a lack of articles presenting the results of empirical research on the staffing of leadership talents in MNCs with their HQ in Poland, and presenting differences between staffing practices in both the pre-pandemic and pandemic periods.

Taking into account the above considerations and the assumption that times of crisis require specific action (Czakov, 2020), four research hypotheses were formulated:

H1. In the time of the COVID-19 pandemic, the staffing of leadership talents changed.

H2. In the time of the COVID-19 pandemic, the centralisation of LTMPs for staffing increased.

H3. In the time of the COVID-19 pandemic, the knowledge transfer from/to HQ and FE of LTMPs for staffing increased.

H4. In the time of the COVID-19 pandemic, the importance of LTMPs within staffing to the success of organisations, measured by results in finance, quality, innovativeness and HRM increased.

3. Research Methods

As a result of the critical analysis of the literature, it was decided that it was necessary to examine the practices focusing on staffing of leadership talents in the pre-pandemic and pandemic periods in FE of MNCs headquartered in Poland. The main research problem (identical to the aim of this study) is presented in the form of a question, namely, whether there are any differences between important activities in leadership talent staffing before and during the COVID-19 pandemic.

The research sample consists of 200 nonfinancial companies headquartered in Central Europe with FEs situated around the world. The total number of employees in the surveyed MNCs is 76,740 worldwide. They had 416 foreign subsidiaries in 26 countries. The empirical research took place in March 2022. The CATI method was used to collect data. The respondents were managers with up-to-date information about HRM strategies and practices, and various types of company's results. The structure of the respondents was as follows: HR director – 50%, HR manager – 46%, GM/CEO – 2%, HRBP and owner – each 1%. The respondents' task was to answer questions about two periods of their organisation's performance: 1) pre-pandemic of 2018–2019, and 2) during the pandemic of 2020–2022.

The reliability of the results is guaranteed by the quality of the HBR database, the deliberate selection of organisations and respondents, and pilot studies in the chosen MNCs before research with the use of expert methods. The differentiation of the research sample structure according to the business profile was carried out in accordance with NACE (the Statistical Classification of Economic Activities in the European Community) standards.

LTMPs occurring at different stages of LTM, resulting from the literature review and pilot studies, are presented in Table 1.

Table 1. Leadership Talent Management Practices

LTMP Acronyms	LTMP Titles
LTMP1	Leadership talent identification (applicants for employment) during the process of recruitment and selection
LTMP2	Acquiring leadership talents at various industry fairs, job fairs, etc., and using headhunting agencies
LTMP3	Leadership talent acquisition on the web: portals, social media, etc., and the use of ICT in the selection process
LTMP4	Leadership talent selection with the use of in-depth structured interviews
LTMP5	Leadership talent selection by use of AC and other sophisticated techniques
LTMP6	Leadership talent process of adaptation based on the knowledge of experienced managers, mentoring and coaching
LTMP7	Training programmes for leadership talent to expose them to different aspects of MNCs, i.a. the internal knowledge sharing platform and peer-to-peer discussions for LT from various organisations
LTMP8	Ongoing assessment of leadership talent with feedback during adaptation
LTMP9	TM programmes for leadership talent
LTMP10	Up-to-date leadership competencies database
LTMP11	Managerial career paths for leadership talent
LTMP12	Succession programmes for leadership talent
LTMP13	Investing in leadership talent i.a.: leadership courses and Executive MBA
LTMP14	Analysis of internal surveys collected opinions about leadership talent existing at different levels of management in an organisation
LTMP15	Analysis of the expectations and needs of leadership talents and their strongest points and weaknesses
LTMP16	Well-prepared motivating system for leadership talent
LTMP17	Development of leadership talents by increasing their autonomy and responsibility

Notes: LTMPs with grey shading represent leadership talent staffing in MNCs.

Source: the author. The categories of the LTMPs in MNCs presented in this table are similar to those used previously (Haromszeki, 2023a), because they are the results of the research project no.: 015/RID/2018/19.

Due to character constraints, descriptive and correlation statistics were presented only for LTMPs focused on staffing (LTMP1–LTMP7) in the pre-pandemic and in-pandemic periods in FE of MNCs (Tables 2–7). The LTMPs in staffing are treated here as formal criteria for leadership talent in MNCs. The differences in their significance before and during the pandemic, as revealed in empirical research are presented in the next part of the paper.

4. Results

4.1. Descriptive Statistics

When you examine means of staffing activities characteristic of LTM before and during the pandemic, the differences are notable. Their intensity increased significantly during the pandemic. The biggest change concerns two practices: *Leadership talent acquisition on the web: portals, social media, etc., and the use of ICT in the selection process* (LTMP3) – an increase of 1.07, and *Leadership talent identification (applicants for employment) during the process of recruitment and selection* (LTMP1) – an increase of 0.9. These dissimilarities are shown in Table 2 and Table 3.¹

An increase in *Centralisation level* and in the importance of *Knowledge transfer* in both directions – *from HQ to FE* and *from FE to HQ* characteristic for staffing of leadership talents during the pandemic was also observed. The aggregate means of results in these areas are presented in Table 4 and Table 5. To explain the results presented in Tables 4 and 5, it is worth adding that, in order to determine the extent to which LTM decisions focused on staffing are made at the FE, respondents had to define the role of HQ in this activity. In this case the following four-degree descriptive scale was used. In the scale:

- 1: decentralisation (each subsidiary has full autonomy),
- 2: general guidelines and framework provided by HQ,
- 3: detailed policies, procedures and rules provided by HQ,
- 4: centralisation (centralised decision-making and control over realisation).

Table 2. LTMPs Scores – Foreign Entities in the Pre-pandemic Period

Ranking Position	Staffing Activities	Mean
1	LTMP1	2.64
2	LTMP2	0.42
3	LTMP3	0.37
4	LTMP6	0.31
5	LTMP7	0.26
6	LTMP4	0.16
7	LTMP5	0.07
Total mean		0.60

Notes: The definitions of the acronyms are in Table 1.

Source: the author.

¹ In Table 2 and Table 3 are results, the answers of respondents, who used the following five-degree scale to compare the practices in their organisations to the general trends based on the best practices worldwide: 1 – very low, 2 – low, 3 – average, 4 – high, and 5 – very high.

Table 3. LTMPs Scores – Foreign Entities during the Pandemic

Ranking Position	Staffing Activities	Mean
1	LTMP1	3.54
2	LTMP3	1.44
3	LTMP2	0.85
4	LTMP7	0.59
5	LTMP6	0.49
6	LTMP4	0.32
7	LTMP5	0.18
Total mean		1.06

Notes: The definitions of the acronyms are in Table 1.

Source: the author.

To measure the importance of *Knowledge transfer* a five-degree scale was used, in which: 1 – not important, 2 – slightly important, 3 – moderately important, 4 – important, and 5 – very important.

Table 4. Centralisation Level and Knowledge Transfer Aggregate Means in the Pre-pandemic Period

Centralisation Level	Knowledge Transfer from Headquarters to Foreign Entity	Knowledge Transfer from Foreign Entity to Headquarters
2.64	3.85	3.74

Source: the author.

Table 5. Centralisation Level and Knowledge Transfer Aggregate Means during the Pandemic

Centralisation Level	Knowledge Transfer from Headquarters to Foreign Entity	Knowledge Transfer from Foreign Entity to Headquarters
2.74	4.00	4.00

Source: the author.

4.2. Correlation Analysis

The next step of data analysis revealed that the significant differences exist between LTMPs before and during the pandemic. Statistically significant correlations between LTMPs and *Centralisation level* and *Knowledge transfer* are only

seen before the pandemic. Additionally, it is worth emphasising that the correlation between LTMPs and the results in *finance* and *quality* are slightly more important before pandemic but between LTMPs and *innovativeness* and *HRM* during the pandemic (see Table 6 and Table 7).

Table 6. Correlations between LTMPs and Centralisation Level, Knowledge Transfer and Results of Foreign Entities before the Pandemic

Variable	Centralisation Level of LTMPs	Knowledge Transfer of LTMPs from Headquarters to Foreign Entity	Knowledge Transfer of LTMPs from Foreign Entity to Headquarters	Results in:			
				Finance	Quality	Innovativeness	HRM
LTMP1	0.20	0.11	0.03	0.20	−0.01	0.11	0.17
LTMP2	0.27	0.24	0.15	0.19	−0.06	0.03	0.16
LTMP3	0.14	0.22	0.15	0.22	0.15	0.00	0.15
LTMP4	0.08	0.04	0.05	0.18	0.02	0.03	0.15
LTMP5	0.20	0.05	0.05	−0.02	−0.05	−0.07	−0.03
LTMP6	0.10	0.10	0.06	0.01	−0.11	−0.06	0.04
LTMP7	0.28	0.13	0.24	0.21	0.01	0.13	0.22

Notes: Variable acronyms are explained in Table 1. Marked correlations are significant at $p < 0.05000$, $N = 200$ (casewise deletion of missing data).

Source: the author.

Table 7. Correlations between LTMPs and Centralisation Level, Knowledge Transfer and Results of Foreign Entities during the Pandemic

Variable	Centralisation Level of LTMPs	Knowledge Transfer of LTMPs from Headquarters to Foreign Entity	Knowledge Transfer of LTMPs from Foreign Entity to Headquarters	Results in:			
				Finance	Quality	Innovativeness	HRM
LTMP1	0.10	0.07	0.09	0.17	0.11	0.25	0.24
LTMP2	−0.01	0.05	0.01	0.08	−0.05	0.03	0.09
LTMP3	0.12	0.04	0.04	0.21	0.15	0.13	0.17
LTMP4	0.06	0.06	0.08	0.14	−0.02	0.12	0.10
LTMP5	0.04	0.06	0.01	−0.04	−0.12	0.02	−0.01
LTMP6	0.04	0.10	0.00	0.04	−0.08	0.06	0.05
LTMP7	0.11	0.18	0.11	0.18	0.13	0.19	0.22

Notes: Variable acronyms are explained in Table 1. Marked correlations are significant at $p < 0.05000$, $N = 200$ (casewise deletion of missing data).

Source: the author.

4.3. Principal Component Analysis

The next step of the analysis, used to deepen the knowledge of similarities and differences between LTMPs in staffing before and during the pandemic, was based on principal component analysis (PCA), because it allows items to be sorted into separate statistically significant sets of practices.

In consequence of using this type of analysis, it was noted, that the LTMPs are combined into four factors², composed of LTMPs in both periods: pre-pandemic (Table 8) and pandemic (Table 9).

Before the pandemic most of the LTMPs coexist together in component 2 (Table 8). There are:

- training programmes for leadership talent to expose them to different aspects of MNCs, i.a. the internal knowledge sharing platform and peer-to-peer discussions for LT from various organisations (LTMP7 – 0.762),
- acquiring leadership talents at various industry fairs, job fairs, etc. and using headhunting agencies (LTMP2 – 0.718),
- leadership talent process of adaptation based on the knowledge of experienced managers, mentoring and coaching (LTMP6 – 0.581)
- leadership talent acquisition on the web: portals, social media, etc., and the use of ICT in the selection process (LTMP3 – 0.365).

Table 8. Component Loadings – FE of MNCs in the Pre-pandemic Period

Component Loadings	Component				Uniqueness
	1	2	3	4	
LTMP10	0.732				0.374
LTMP13	0.725				0.368
LTMP15	0.722				0.409
LTMP14	0.605				0.529
LTMP12	0.525		0.342		0.486
LTMP7		0.762			0.399
LTMP2		0.718			0.378
LTMP6	0.386	0.581			0.513
LTMP9		0.411	0.396		0.619
LTMP3		0.365			0.759
LTMP5			0.764		0.363
LTMP4		0.33	0.595		0.521

² The scree stops at four eigenvalues.

Table 8 cnt'd

Component Loadings	Component				Uniqueness
	1	2	3	4	
LTMP17			0.577	0.393	0.51
LTMP8	0.323		0.514	0.353	0.506
LTMP11		0.383	0.385		0.624
LTMP1				0.68	0.519
LTMP16		0.324		0.587	0.467

Notes: Variable acronyms are explained in Table 1. “Varimax” rotation was used. Grey and bold are results representing staffing practices.

Source: the author.

During the pandemic the LTMPs focused on staffing are divided into three components (1, 2 and 3).

Practices characteristic of adaptation coexist in component 1 (Table 9):

- leadership talent process of adaptation based on the knowledge of experienced managers, mentoring and coaching (LTMP6 – 0.517),
- training programmes for leadership talent to expose them to different aspects of MNCs, i.a. the internal knowledge sharing platform and peer-to-peer discussions for LT from various organisations (LTMP7 – 0.489).

Table 9. Component Loadings – FE of MNCs in the Pandemic Period

Component Loadings	Component				Uniqueness
	1	2	3	4	
LTMP15	0.748				0.381
LTMP14	0.69				0.413
LTMP6	0.517				0.674
LTMP7	0.489				0.713
LTMP8	0.354		0.312		0.684
LTMP3		0.736			0.421
LTMP17	0.332	0.683			0.419
LTMP16	0.454	0.602			0.39
LTMP1		0.582			0.623
LTMP2		0.547	0.315		0.576
LTMP4			0.844		0.255
LTMP11			0.603		0.556
LTMP5	0.384		0.591		0.502

Table 9 cnt'd

Component Loadings	Component				Uniqueness
	1	2	3	4	
LTMP9	0.354		0.462		0.577
LTMP13				0.854	0.249
LTMP12			0.305	0.747	0.334
LTMP10			0.31	0.34	0.704

Notes: Variable acronyms are explained in Table 1. “Varimax” rotation was used. Grey and bold are results representing staffing practices.

Source: the author.

- Component 2 consists of practices characteristic of recruitment (Table 9):
- leadership talent acquisition on the web: portals, social media, etc., and the use of ICT in the selection process (LTMP3 – 0.736),
 - leadership talent identification (applicants for employment) during the process of recruitment and selection (LTMP1 – 0.582),
 - acquiring leadership talents at various industry fairs, job fairs, etc., and using headhunting agencies (LTMP2 – 0.547).
- Component 3 consists of i.a. practices representing selection (Table 9):
- leadership talent selection with the use of in-depth structured interviews (LTMP4 – 0.844),
 - leadership talent selection by use of AC and other sophisticated techniques (LTMP5 – 0.591).

5. Discussion and Conclusions

The hypothesis H1 was positively verified in its entirety because results evidenced that the approach to staffing of leadership talents changed under the circumstances of the pandemic. It is visible when taking into account the means of LTMPs (Table 2 and Table 3). This conclusion is supported by the results of PCA which divides LTMPs into different components before and during the pandemic (Table 8 and Table 9). The role of proper TM during the pandemic is confirmation of other observations from different parts of the world, focusing on the general discussion on talents (i.a. Aguinis & Burgi-Tian, 2021; Carson *et al.*, 2023; Fernandes *et al.*, 2023) and detailed aspects of the most widespread leadership practices (Gouda & Tiwari, 2024).

There is also confirmation of hypotheses H2 and H3, because the role of centralisation and knowledge transfer has increased during the pandemic (Tables 4–7). In changing realities, it is important for an organisation to have competencies that are useful under specific conditions (Korzyński *et al.*, 2021). My empirical research

conducted under crisis conditions confirms previous observations and concepts emphasising that the appropriate staffing of employees based on transfer of knowledge and precise rules affects the process of inclusion and development (Shen & Edwards, 2004; Anderson, 2005; Kang & Shen, 2013; Almeida & Fernando, 2017; Tahir, 2018), modification of the selection policy in foreign entities (Mahmood, 2015) and better adaptation to changing conditions (Sparrow, 2007).

The obtained results do not confirm hypothesis H4. The correlation between LTMPs used in staffing are rather lower during the pandemic than in the pre-pandemic period. The increase during the pandemic (0.7) is visible only between *Leadership talent identification (applicants for employment) during the process of recruitment and selection* (LTMP1) and the results in HRM. The research outcomes allow the conclusion to be drawn that the staffing of leadership talents is positively correlated with results in finance and quality achieved by enterprises before the pandemic (see also: Ahmad & Schroeder, 2002; Lockyer & Scholarios, 2007; Froese & Peltokorpi, 2011; Vui-Yee, 2015). During the pandemic the LTMPs are more significantly correlated with results in HRM. This phenomenon is not surprising, because crises create not only problems but also opportunities (Reichwald, 2021) and a chance to use the talent shortage as a foundation for improvement of HRM (Caligiuri *et al.*, 2020; Chatterjee *et al.*, 2023; Jooss, Lenz & Burbach, 2023).

Referring to the results presented above, it can be considered that the goal of the paper was successfully achieved. There are differences between LTMPs focused on staffing under non-pandemic and pandemic circumstances.

There are some limitations, but the presented conclusions are an important contribution to the discussion about the staffing of leadership talents. The limitations include the research sample that consists of MNCs headquartered in Poland, interviewing only within HQ and benchmarking instead of hard indicators. This was a deliberate move to show the perspectives of MNCs from Central Europe, but it limits the possibility of generating conclusions for the entire population of MNCs in Europe and slightly weakens the value of research. Despite these limitations, the special value of the study is treating leadership talent management as a separate system of practices divided into subfunctions, which is used in different ways for leadership talent staffing in crisis and non-crisis contexts.

To sum up, it is worth noting that the observations made during the empirical research, especially those indicating a significant impact of the crisis on the usefulness of specific sets of leadership talent staffing practices, can not only help multinational companies with headquarters in Poland or other Central European country to cope with challenges during the crisis, but can also provide them with useful tools to manage various problems in the rapidly changing reality of the 21st century.

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Conflict of Interest

The author declares no conflict of interest.

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Negative Shocks on the US Capital Market and the Rate of Return on Investments in Gold

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ABSTRACT

Objective: The article examines how strong the sell-off on the capital market in the United States must be to cause above-average, positive rates of return on the gold investment market. The durability of such above-average gains in the gold market was also assessed.

Research Design & Methods: The study was conducted using an event analysis for daily data from 3 January 1994 to 2 November 2022. The AAR and CAAR rates of return and the results for the adjusted Patell test were used to answer the research questions. The Standard & Poor's 500 (S&P 500) and Dow Jones Industrial Average (DJ) indices as a representation of the capital market in the United States, LBMA spot prices for gold prices, and the Bloomberg Commodity Index, which served as a benchmark, were used for the study.

Findings: The paper shows that drops in the S&P 500 and DJ indices, exceeding 3%, result in an immediate, i.e., on the same day and on the following day, above-average price increase on the gold market. The cumulative, above-average, positive and statistically significant rate of return for gold is maintained with such a size of decrease for up to 21 days from the day of the fall on

the capital market. Falls on the capital market not exceeding 2%, however, are not a strong enough stimulus to cause above-average rates of return on the gold market.

Implications/Recommendations: Investors should always buy gold on the event day, when the decline in the US capital market is bigger than 2.3%. As an event, we define the biggest declines in the US capital market. Buying gold on the day after the event depends on which US index declines. Buying gold and holding it for 21 days after a decline in the US market bigger than 3% is always profitable.

Contribution: The current study sheds more light on the connections between capital and gold markets. It measures gold's ability to serve as a safe haven asset in the context of the overreaction hypothesis. This hypothesis, derived from applied psychology, states that people tend to overreact to dramatic events and then make irrational decisions.

Article type: original article.

Keywords: investing in gold, financial crisis, safe haven, event analysis, rate of return.

JEL Classification: G01, G11, G12, G15.

1. Introduction

In capital markets, from time to time, certain situations cause strong investor reactions and significant sell-offs. In recent years, the two most important events include the announcement by the WHO of the COVID-19 as a pandemic on 11 March 2020, and the start of the aggression of the Russian Federation against Ukraine on 24 February 2022. Previous examples of such events include the global financial crisis in 2008 or the debt crisis in the euro area in 2009. Each of these events resulted in strong declines in global stock exchanges and, simultaneously, investors turning towards looking for investments that could be described as hedge or safe haven assets (Baur & Lucey, 2010). An example of investments that have been examined in terms of portfolio diversification is, for example, precious metals (Naeem *et al.*, 2022), or investments in commodities in general (Roache & Rossi, 2010; Creti, Joëts & Mignon, 2013), but also investment in diamonds (Potrykus, 2015a; D'Ecclesia & Jotanovic, 2018) or investment in wines (Bouri, 2014; Łęt & Siemaszkiewicz, 2020). Among the above-mentioned examples of investments, which are credited with a positive reaction in times of significant declines in financial markets, the most frequent to appear in this context is, however, investment in gold, which is part of the precious metals market (Baur & McDermott, 2010; Hood & Malik, 2013; Potrykus, 2015b).

The fact that investors react strongly to emerging negative information has its theoretical basis in the overreaction hypothesis (De Bondt & Thaler, 1985). According to this hypothesis, derived from applied psychology, it can be stated that “people tend to overreact to dramatic news and events, regardless of whether these

events are positive or negative in nature” (Mun, Vasconcellos & Kish, 2000, p. 53). Based on this hypothesis, it can be assumed, following the previously-cited research (Baur & McDermott, 2010; Hood & Malik, 2013; Potrykus, 2015b), that during a strong sell-off on the capital market (event), caused by negative information, in the short term investors transfer their funds to the gold market, which they perceive to be a safe haven.

In the context of the fore-mentioned theory, it is necessary to acknowledge that there must be the potential for profiting from potential sell-offs in capital markets in order to elicit a significant reaction from investors in the gold market. Other key questions are: How long does a possible increase in gold returns occur following such significant declines in stock markets, and how long does it last? The answers to the above questions will allow for the possible formulation of short-term investment strategies on the gold market in response to significant falls on the capital market. The conclusions of this paper should therefore be of interest not only to capital market researchers, but also to individual and institutional investors, and market analysts.

2. Literature Review

Investment in gold is a subject of research mainly in the context of the properties of gold to perform the function of a so-called hedge or safe haven. One of the first studies on this trend is the work of Baur and Lucey (2010), who state that investing in gold is a form of long-term hedging and a safe haven in times of negative shocks on stock exchanges. Similar conclusions regarding the role of gold as an investment in the investment portfolio were also reached in another paper (Baur & McDermott, 2010). The authors of the above-quoted paper confirm that gold investments perform the function of a hedge and safe haven. It was also emphasised that gold generates profits in times of increased uncertainty in the stock market (Roache & Rossi, 2010). In turn, the multidimensional aspect of gold’s ability, or lack of such an ability, to perform the function of a safe haven was also previously discussed in the paper by Joy (2011). Contrary to the previously-quoted papers, the latter emphasises that investing in gold serves as a hedge, but does not fulfil the function of a safe haven. However, these conclusions were not drawn in the context of the capital market, but in the currency market.

Another increase in interest from researchers in investments in the gold market was also observed during the outbreak of the COVID-19 pandemic. In the study (Salisu, Raheem & Vo, 2021), the property of gold to act as an indisputable safe haven during a pandemic was found. In their conclusions, the authors also emphasise that gold fulfils this role better than the capital market in the United States of America or other precious metals such as silver, palladium or platinum. This is true for the research period covered by that study, which means from 31 December 2019

to 28 May 2020. The assessment of the properties of gold to act as a safe haven during the COVID-19 pandemic, was verified in the study conducted by Dutta *et al.* (2020). Based on this study, it can be concluded that gold was a safe haven for the oil market during the pandemic. Identical properties of investments in gold to investments in crude oil, were also shown by Salisu, Vo and Lawal (2021). It should be noted, however, that the risk-reducing function of an investment in gold is also mentioned in numerous pre-pandemic works, such as (Reboredo, 2013; Selmi *et al.*, 2018). In another study (Yousaf *et al.*, 2022), authors use hourly data for research. Despite the change in the frequency of research compared to previously-cited papers, the conclusions they draw remain consistent with previous research, i.e., gold acts as a safe haven investment and a hedge for the oil market. The last conclusion is also highlighted by Shehzad *et al.* (2021).

The indisputable role of gold as a safe haven investment during the COVID-19 pandemic outbreak is also mentioned in the article by Ji, Zhang and Zhao (2020). This paper shows that most of the examined investments do not fulfil the role of a safe haven during the pandemic, yet this was not confirmed for investments in gold and in soybeans, represented by a futures contract. However, alternative views posit and underline that investment in gold is not always a safe haven asset (Akhtaruzzaman *et al.*, 2021). This is in contrast to the previously-quoted works, yet it should be emphasised that the conclusion that investing in gold did not turn out to be a safe haven investment relates only to the second phase of the pandemic, lasting from 17 March 2020 to 24 April 2020. For the first phase (31 December 2019–16 March 2020) of the pandemic defined by Akhtaruzzaman *et al.* (2021), such a claim for investments in gold has already been confirmed. The authors also note a significant increase in the share of gold investments in investment portfolios during the second phase, which relates to the phenomenon known as “flight-to-safety.” This process has at least been approximated in the study (Boucher & Tokpavi, 2019). It should also be added that gold was not seen as a safe haven investment in the work by Cheema, Faff and Szulczyk (2022), in which the authors analyse the causes of the crisis in order to determine which of the available investments are perceived by investors as safe havens. They emphasise that gold was a risky investment during the pandemic in countries such as China and Japan. Therefore, when assessing a given investment as a safe haven, the geographical context should also be taken into account.

Another increase in interest in investing in the gold market was observed as a result of Russia’s aggression against Ukraine in 2022. Diaconășu, Mehdian and Stoica (2023) emphasised that investment in oil, and not gold, can act as a safe haven in the initial period of war. The authors also highlight that the rates of return obtained in the gold market indicate that investors in the gold market predicted its boom in 2022 before it happened. As a hedge investment for geopolitical risk, an investment in gold is presented in the paper by Będowska-Sójka, Demir and Zaremba (2022). In addition to gold, similar properties have been observed for

investments in silver, the Swiss franc and investments in the real estate market. Izzeldin *et al.* (2023) also point to the aspect of low volatility of rates of return for investments in gold during the war. Investment in gold as a safe haven was also indicated by Shahzad *et al.* (2023).

Despite numerous studies on the investment properties of gold in times of turmoil in the financial markets, it seems that the question of how significant the decline of the capital market must be to cause above-average rates of return on the gold market remains open. Identifying the scale of a sell-off on the capital market that causes changes in the gold market is the main research goal of this article. A secondary goal is also to determine how long the impulse generated by stock market declines lasts on the gold market. The answers to these questions will allow investment strategies to be formulated in the short term and will contribute to the development of the theory of investment decision-making, in particular, the construction of an investment portfolio. The conclusions of this study should therefore prove valuable to investors, gold market and capital market analysts, as well as companies dealing with the use of gold as a raw material in their production processes.

3. Methodology and Data

3.1. Event Study Analysis and Its Characteristics as a Research Method

The methodology that was used to answer the predefined research questions was event study analysis (Gurgul, 2019). The study was conducted using the Event-Study package in the R programming language (Wolf *et al.*, 2014). To determine the reaction on the gold market after the largest falls of US stock indices, the study was conducted for four lengths of event window, i.e.: (0, 4); (0, 7); (0, 15); (0, 21). The lengths of the event windows adopted in this way result from the construction of the research questions and from the fact that the effect on the gold market and the possible outflow of capital from the US stock exchange in previous studies was defined as short-term (Baur & Lucey, 2010). Baur and Lucey (2010) directly state that after 15 days, we can no longer refer to the positive impact of significant declines in capital markets on the price of gold. Research windows adopted in this way will allow this effect to be verified. As both the AAR and CAAR rates were used to answer the research questions the beginning of the event window was defined on the day of the event, which allows an assessment of the cumulative effect without analysing the possible impact of above average rates of return prior to the day of the event. The formulas used to calculate the AAR and CAAR rates were calculated in a standard way, as defined in the paper (Prusak & Potrykus, 2021).

Simultaneous assessment of the AAR and CAAR rates will allow possible dependencies to be captured on each day of the event window, both separately (AAR rate), and in total (CAAR rate). It should be emphasised here that the above-average rates of return for the examined days from the event window were

determined using the market-adjusted model, under the methodology described by Wolf *et al.* (2014). The choice of such a model was determined by the fact that the use of more sophisticated methods to determine the above-average rate of return does not contribute to improving the quality of the results obtained (Castro-Iragorri, 2019). Because the choice of model for determining above-average rates of return is often a subject of discussion (Andrew Coutts, Mills & Roberts, 1995; Cable & Holland, 1999), the study was also repeated with the market model and the EGARCH model. However, the use of these models did not change the presented results. It can be stated that the shorter the examined window and the more significant the size of the discount on the capital market, the more homogeneous were the results obtained. 250 observations preceding the event were used to estimate the parameters of the model for which the results were presented, with the last observation taken into account being dated four days before the event. Such a length of the estimation window, reaching almost one calendar year, is recommended based on research conducted by Corrado (2011).

The adjusted Patell test was used to assess the statistical significance of the obtained results (Kolari & Pynnönen, 2010). In this study (Kolari & Pynnönen, 2010), the procedure for determining the test statistic for this test is presented in detail. The choice of this test was determined by the fact that it accounts for cross-sectional correlation. In addition, all calculations were performed for logarithmic returns. Quotations for the Dow Jones (DJ) and Standard & Poor's 500 (S&P 500) indices were used as data for the capital market. As the research period, the period from 3 January 1994 to 2 November 2022 was adopted. The determined rates of return for both indices were sorted in ascending order and grouped into sets of 50 cases from 1 to 50, and so on, to the group containing the cases of the lowest rates of return with numbers from 251 to 300, which in total accounted for over 4% of all determined rates of return. Thus, a total of six research samples were analysed for four different lengths of event windows.

3.2. Research Sample – Key Descriptive Statistics for the Time Series Used

The adopted length of the event window was influenced by the benchmark, which is the Bloomberg Commodity Index (BCI), for which data were obtained from the beginning of the adopted research window, i.e., from 3 January 1994. Data for both the BCI and capital market indices were obtained from the Investing.com portal (accessed: 20.10.2023), while gold price data were obtained from the portal LBMA Prices and Data (2023). Table 1 presents selected descriptive statistics for the data series determined during the research period.

Based on the data presented in Table 1, it can be concluded that the average daily rate of return on investments in the Dow Jones Industrial Average (DJ) and Standard & Poor's 500 (S&P 500) indices was at a similar level and amounted

Table 1. Descriptive Statistics for Logarithmic Rates of Return of the Analysed Data Series

Descriptive Statistic	LN DJ	LN S&P 500	LN BCI	LN LBMA
Mean (%)	0.030	0.029	0.003	0.018
Median (%)	0.054	0.063	0.032	0.000
Min (%)	-13.842	-12.765	-6.402	-9.596
Max (%)	10.764	10.957	5.647	7.006
Standard deviation (p.p.)	1.147	1.195	0.968	1.003
Range (p.p.)	24.606	23.722	12.049	16.602
Kurtosis	12.359	10.375	3.021	6.492
Skewness	-0.410	-0.417	-0.304	-0.194
Number of observations	7,262	7,262	7,262	7,262

Source: the authors.

to approximately 0.03%, the average rate of return was almost half that level for investments in gold, and the lowest average rate of return was associated with BCI investments. In the case of investment risk, it can be said that investments in stock exchange indices were characterised by a much higher risk than investments in gold or the analysed commodity index. This is confirmed by the minimum and maximum values obtained for these investments and the values of the standard deviation or range, which are the largest in the case of investments in the DJ and S&P 500 indices, the value of the standard deviation of the rate of return exceeds 1 percentage point, while for LBMA investments, it oscillates around 1 percentage point, and for the BCI index, it is less than 1 percentage point. For the analysed investments in the research period, the rule that a higher average rate of return is accompanied by a higher investment risk, measured by the standard deviation of the rate of return, is largely maintained.

Finally, over 4% of the lowest rates of return for each stock indices, grouped by 50 observations, were used for the study, Table 2 presents the extreme values for each of the six tested samples.

Table 2. Extreme Values for the Six Designated Research Samples (in %)

Specification		Analysed Group of Rates of Return					
Index	Range	1 to 50	51 to 100	101 to 150	151 to 200	201 to 250	251 to 300
DJ	from	-13.842	-3.659	-2.889	-2.473	-2.243	-2.068
	to	-3.670	-2.891	-2.476	-2.245	-2.070	-1.922
S&P 500	from	-12.765	-3.899	-3.055	-2.622	-2.401	-2.192
	to	-3.909	-3.060	-2.629	-2.403	-2.193	-2.020

Source: the authors.

Data presented in Table 2 indicate that only those days when the examined indices showed declines of around 2% will be considered as the dates of events. The first sample included those events in which the examined indices recorded drops in the range of -13.842% to -3.670% for the DJ index and from -12.765% to -3.909% for the S&P 500 index. The boundaries of the remaining ranges, constituting subsequent research samples, are more similar and in each case they are within a range of 1 percentage point.

4. Research Results

4.1. Values and Statistical Significance for Average Abnormal Return

As part of the research, the statistical significance of the results obtained for the AAR and CAAR rates was calculated and assessed. The results of the average abnormal rates of return (AAR) on individual days of the longest event window (0, 21) are presented in Figure 1.

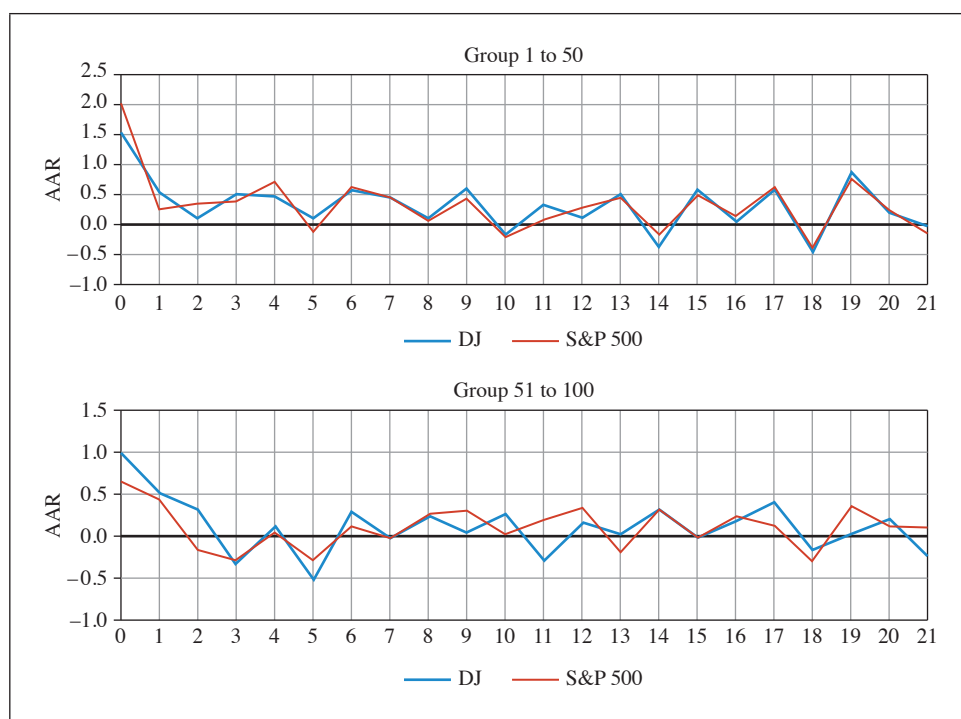


Fig. 1. AAR Rate on Individual Days of the Longest Event Window – Graphical Analysis (in %) Source: the authors.

Based on the data in Figure 1, it can be seen that the highest values of the average above-average interest rates were obtained on the day of the event, or possibly the day after the event. This means a strong reaction and increase in the price of gold at a time when the US capital market saw record falls. On the remaining days of the study, for the two samples examining the largest drops, the fluctuations of above-average rates of return did not exceed 1%.

For the other four tested samples containing drops on the US stock market, from 101 to 300, the fluctuations on individual days were even smaller and were almost entirely in the range of -0.5% to 0.5% . Such results testify to the immediate reaction of investors to the sell-off on the capital market and the increase in gold prices – the higher the analysed sell-off on the capital market, the greater the increase in gold prices. This conclusion is confirmed by the detailed results, including the value of the test statistic, the p -value (in brackets), and the significance level of the obtained result.

The initial graphical analysis of the obtained results is the basis for an in-depth analysis based on AAR rates. The results of this analysis are shown in Table 3. Table 3 presents the results obtained for the DJ index and for S&P 500 index. Based on research questions from the introduction, Table 3 contains data for the event day and the day after the event, the rest of the results of the AAR analysis can be sent on request.

Table 3. Values of Test Statistics, p -values and Significance Levels for AAR Rates in the Tested Samples for the Longest Event Window in the Case of the DJ Index

Index	Day	1 to 50	51 to 100	101 to 150	151 to 200	201 to 250	251 to 300
DJ declines	event day	6.543*** (0)	5.81*** (0)	3.772*** (0)	2.216** (0.027)	3.607*** (0)	1.83* (0.067)
	one day after the event	2.414** (0.016)	4.149*** (0)	0.837 ^{ns} (0.402)	0.43 ^{ns} (0.667)	1.742* (0.082)	0.734 ^{ns} (0.463)
S&P 500 declines	event day	8.659*** (0)	3.907*** (0)	3.219*** (0.001)	3.421*** (0.001)	1.335 ^{ns} (0.182)	2.318** (0.021)
	one day after the event	0.749 ^{ns} (0.454)	3.248*** (0.001)	2.678*** (0.007)	1.245 ^{ns} (0.213)	1.635 ^{ns} (0.102)	3.642*** (0)

Notes: The symbol *** means the significance level $\alpha = 0.01$, and the symbols **, *, ^{ns}, respectively, represent results at the significance levels $\alpha = 0.05$, $\alpha = 0.1$, and not statistically significant.

Source: the authors.

Based on the data in Table 3, it can be concluded that in the case of a DJ index drop of more than 2% (up to the 201–250 group), statistically significant, above-average and positive rates of return for investments in gold could already be observed on the day of the event. This indicates an immediate reaction of US stock

market investors and an outflow of their capital towards investing in gold. For the last examined group of investments (from 251 to 300), the value of the obtained result was statistically significant, but only at the level of $\alpha = 0.1$. This proves that the reaction of capital shifting to the gold market dissipates as we analyse lower and lower negative rates of return for the DJ index. In addition, on the day after the event, for the two groups with the largest decreases, further above-average, positive and statistically significant rates of return on the gold investment market were observed. Similar results were also obtained for the second examined index, i.e., S&P 500. In this case, also on the day of the event, statistically significant, positive, above-average rates of return were observed on the gold market. Such rates were observed for all study groups except for the group marked “201 to 250.” This is a surprising result as this group contains a larger, in terms of absolute value, decrease than the same group for the DJ index.

4.2. Values and Statistical Significance for Cumulative Average Abnormal Return

The analysis of AAR rates, although interesting, did not provide grounds for formulating an investment strategy lasting several days in the event of significant declines on capital markets. Such an opportunity is provided only by analysing the results for the CAAR rate. Figure 2 shows the obtained values for the CAAR rates in the studied research areas in a graphical form.

Based on the data presented in Figure 2, it can be concluded that the largest drops (research group 1–50) on the examined stock indices generate positive, above-average, cumulative rates of return. The value of these rates of return is approximately 3.5%, approximately 4.5%, approximately 6% and approximately 7%, respectively, for the analysed event window lengths, starting with the shortest. In the other surveyed groups, except the 251–300 group, above-average rates of return are also at a positive level, fluctuating between 1% and 2%.

It should be noted, however, that satisfactory results were obtained for the five examined groups of declines, while the last group, marked “251 to 300,” does not display high values of above-average rates of return for the S&P 500 index, and in the case of the two longest windows of events, an above-average loss was recorded. This allows for the determination of a threshold value of declines in capital markets affecting the gold market in a strong, albeit short-term, way, which is -2.070% for the DJ index and -2.193% for the S&P 500 index. It is also worth emphasising that the results obtained for the “151 to 200” group (for the DJ index) are lower than for the next group, “201 to 250.” The market reaction in this group also allows for the determination of limit values of decreases that affect the gold market in a very strong way, amounting to -2.476% for the DJ index and -2.629% for the S&P 500 index.

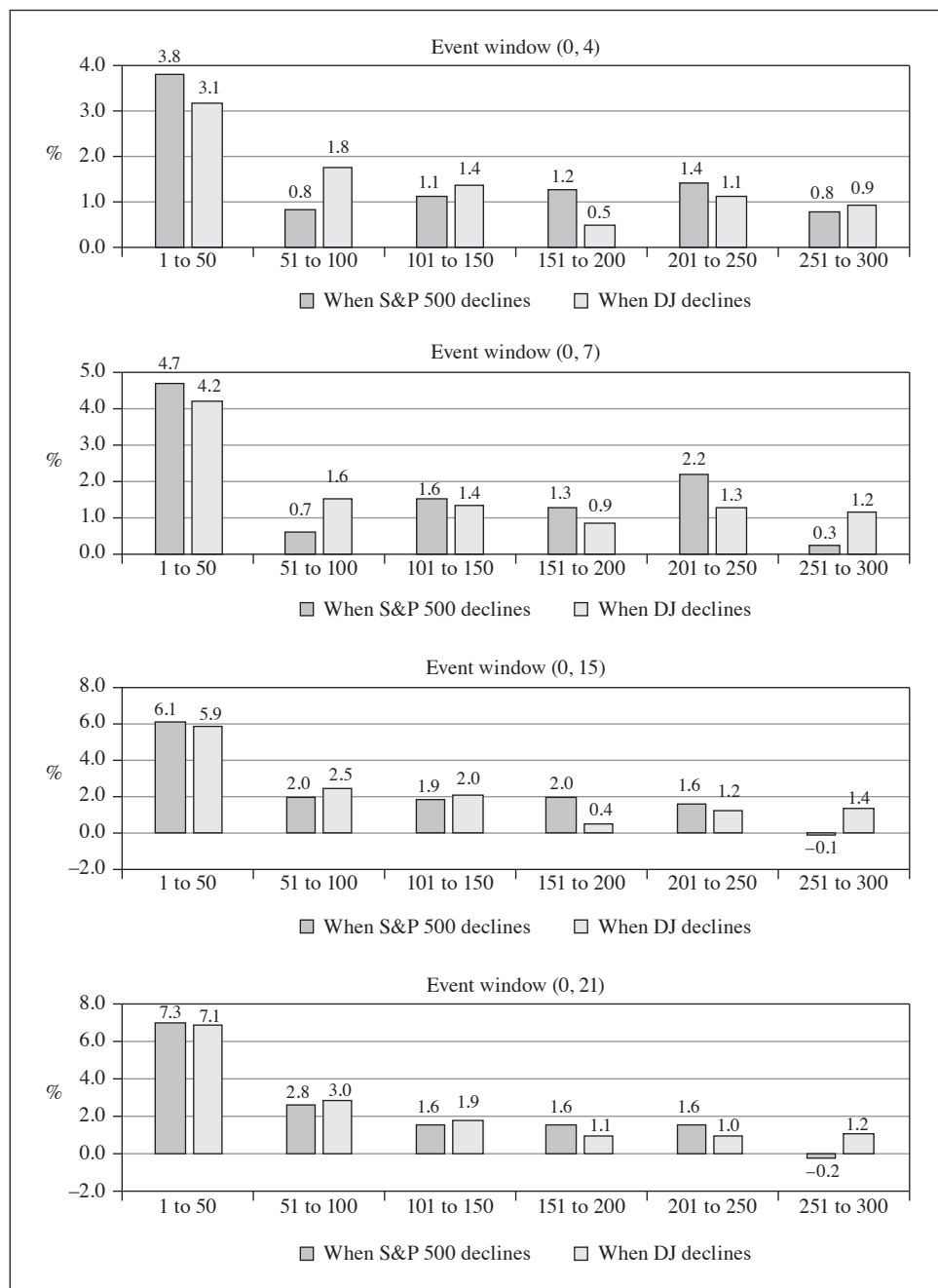


Fig. 2. CAAR Values from the Conducted Research

Source: the authors.

The observations confirmed above, based on the graphical analysis, support the values of the obtained test statistics within the studied groups and indices. Data on the value of the test statistics, the p -value level and the statistical significance of the obtained result are presented in Table 4.

Table 4. Values of the Test Statistics, p -values and Significance Levels for CAAR Rates in the Study Groups

Specification	Event Window	Group					
		1 to 50	51 to 100	101 to 150	151 to 200	201 to 250	251 to 300
When DJ declines	(0, 4)	6.053*** (0.000)	5.104*** (0.000)	2.628*** (0.009)	1.028 ^{ns} (0.304)	2.863*** (0.004)	2.726*** (0.006)
	(0, 7)	6.823*** (0.000)	3.775*** (0.000)	2.226** (0.026)	1.684* (0.092)	2.684*** (0.007)	2.670*** (0.008)
	(0, 15)	6.663*** (0.000)	4.208*** (0.000)	2.026** (0.043)	0.413 ^{ns} (0.680)	2.100** (0.036)	2.235** (0.025)
	(0, 21)	6.992*** (0.000)	4.025*** (0.000)	1.452 ^{ns} (0.147)	1.148 ^{ns} (0.251)	1.577 ^{ns} (0.115)	1.571 ^{ns} (0.116)
When S&P 500 declines	(0, 4)	6.927*** (0.000)	2.512** (0.012)	2.431** (0.015)	2.930*** (0.003)	3.207*** (0.001)	2.591*** (0.010)
	(0, 7)	7.292*** (0.000)	1.740* (0.082)	2.597*** (0.009)	2.521** (0.012)	4.081*** (0.000)	1.423 ^{ns} (0.155)
	(0, 15)	6.727*** (0.000)	2.756*** (0.006)	2.204** (0.028)	2.698*** (0.007)	1.840* (0.066)	0.383 ^{ns} (0.702)
	(0, 21)	6.985*** (0.000)	3.058*** (0.002)	1.619 ^{ns} (0.106)	1.698* (0.089)	1.345 ^{ns} (0.179)	-0.057 ^{ns} (0.954)

Notes: the same as for Table 3.

Source: the authors.

The data presented in Table 4 are the basis for the statement that, regardless of the analysed index and the assumed length of the event window, the largest decreases in the examined indices generate statistically significant (with the highest considered significance level, marked as “***”), positive, above-average cumulative returns. A similar situation occurs for the second study group marked as “51 to 100.” In the next study group, no statistically significant results were obtained for the longest considered event window, and for the remaining lengths, the obtained results usually have statistical significance at the level of $\alpha = 0.05$. Similarly, due to the statistical significance of the obtained results, the situation for the next study group is presented, but only for the S&P 500 index, while for the DJ index the results of the cumulative, above-average rates of return in the “151 to 200” group turned out to be statistically insignificant, which requires further research in the future as

the authors of this study failed to find a satisfactory answer to this phenomenon. For the group “201 to 250,” no statistically significant results were recorded for the longest event window, but for both indices, the two shorter event windows showed statistically significant results at the highest level considered. What both surveyed indices have in common is the fact that statistically significant results occurred for the shortest event window in the last analysed group.

The illustrative relationships that will help formulate a gold market strategy in the event of significant drops in the US stock market are presented in Table 5.

Table 5. Summary of the Dependencies Found on the Gold Market in Response to the Largest Drops on the US Stock Exchange

Questions	Declines in US Stock Indices					
	Bigger than –3.8%	From –3.8% to –3.0%	From –3.0% to –2.6%	From –2.6% to –2.3%	From –2.3% to –2.1%	Smaller than –2.1%
Buy gold on the event day?	Yes	Yes	Yes	Yes	DJ – yes S&P 500 – no	DJ – no S&P 500 – yes
Buy gold on the day after the event?	DJ – yes S&P 500 – no	Yes	DJ – no S&P 500 – yes	No	No	DJ – no S&P 500 – yes
Buy gold on the event day and hold it for 4 days?	Yes	Yes	Yes	DJ – no S&P 500 – yes	Yes	Yes
Buy gold on the event day and hold it for 7 days?	Yes	Yes	Yes	Yes	Yes	DJ – yes S&P 500 – no
Buy gold on the event day and hold it for 15 days?	Yes	Yes	Yes	DJ – no S&P 500 – yes	DJ – yes S&P 500 – no	DJ – yes S&P 500 – no
Buy gold on the event day and hold it for 21 days?	Yes	Yes	No	No	No	No

Source: the authors.

In Table 5, the arithmetic mean of the two examined indices was used for the limits of the presented ranges. If the answer to the questions asked was identical for both indices, then “yes” or “no” was entered in such a field. If discrepancies were found between the indices, the name of the index was given as an answer, followed by the answer to the question asked. The matrix with the results presented in this way is the basis for answering the research questions adopted at the beginning of the paper and allows for the formulation of an investment strategy in the event of signif-

ificant drops in the main indices of the US stock exchange. A description of both of the above issues is included in the summary.

5. Conclusion

Several interesting conclusions can be drawn from the conducted research. Firstly, declines on US indices exceeding 3% in one day should encourage investors to buy gold on such a day and on the following day. Its sale will be profitable even after 21 days from the moment of purchase and will allow the seller to generate an above-average rate of return from such a strategy. Secondly, drops in the analysed capital market in the range of 3% to 2.3% are an indication for investors to buy gold on the day of such drops, but buying gold the day after such an event will not be optimal from the point of view of historical data analysis. With declines of such a scale, it is also safe to hold the purchased gold on the day of the event for seven days. Drops of less than 2.3% should generate an above-average return for investors within four days of purchasing gold on the day of the event.

Ultimately, it can be concluded that the stronger the decline in the capital market, the longer the period of holding gold by investors and the longer the time to decide on the possible purchase of the precious metal (the day of the event or the day after the event). This conforms to the position that gold plays the role of a safe haven indicated in the works (Baur & McDermott, 2010; Joy, 2011; Dutta *et al.*, 2020; Salisu, Raheem & Vo, 2021; Shehzad *et al.*, 2021). Thirdly, decreases in the analysed capital indices which are smaller than 2% do not generate above-average rates of return for investors on the gold market on the day of the event and the day after it and do not allow above-average profits to be obtained in the period exceeding four days after the event, which is in agreement with the observation of Baur and Lucey (2010) regarding the effect of such a signal coming from the capital market for only a few days.

Conclusions formulated in this way should be of particular interest to investors and analysts of gold and capital markets, who, along with investment scientists, have been indicated as the main stakeholders in the text above. Based on these conclusions, it is possible to implement short-term investment strategies in the gold market. However it should be noted that we tested extremely negative quotations which are not specific to traditional investments (Cremers, Kritzman & Page, 2004). In the future, the reverse relationship should be analysed, i.e., whether above-average increases on stock exchanges cause a (negative?) reaction on the gold market, and if so, whether it has a similar duration to the reaction in the case of significant decreases. Also, identical durability described in that paper for gold should be tested for other precious metals such as silver, palladium and platinum.

Authors' Contribution

The authors' individual contribution is as follows: Marcin Potrykus 60%, Dominika Poręba 40%.

Conflict of Interest

The authors declare no conflict of interest.

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Economic and Social Wage Aspects According to 8th Sustainable Development Goal: Selected Indicators

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ABSTRACT

Objective: The objective is to evaluate and recommend indicators related to the achievement of the 8th Sustainable Development Goal (SDG) from the perspective of the economic and social aspects of work.

Research Design & Methods: The selection of 2010 as the starting point for the research, five years before the adoption of the 2030 Agenda, was deliberate. This choice aimed to underscore the transformations within the Polish economy driven by the country's socio-economic policies prior to the introduction of the 17 SDGs. Simultaneously, it served as a foundation for subsequent observations. A critical assessment of the indicators previously employed to evaluate the achievement of the 8th SDG, alongside recommendations for tailored indicators that align with the goal's principles – such as economic growth linked to decent wages – constituted a central element of the analysis.

Findings: In the years 2010–2021, the share of the minimum wage in the average salary has increased, which is justified by social motives. Its dynamic growth, in turn, is an economic rationale. Despite an increase in labour productivity, no significant increase in the share of labour in national income was observed in the period under review.

Implications/Recommendations: A notable limitation is the scarcity of publications addressing the assessment of the achievement of SDG 8, particularly in relation to the existing catalogue of indicators developed by Eurostat. This catalogue has been criticised for the lack of universality in its indicators. Expanding the range of these indicators could contribute to the development of a more comprehensive and authoritative set of measures.

Contribution: The proposed indicators for assessing the implementation of the 8th SDG in the context of decent work provide a foundation for a qualitative revision of the diagnostic indicators catalogue utilised by organisations such as Eurostat.

Article type: original article.

Keywords: Sustainable Development Goals, national economy, capital and labour, minimum wage, average wage.

JEL Classification: Q01, H10, E22, E24, E29.

1. Introduction

The achievement of political compromise in the areas of environmental, social and economic development has led to the setting of directions for future global economic development scenarios (UN, 2015; Ripple *et al.*, 2017). The Sustainable Development Goals (SDGs) – as the result of an agreement by United Nations member states – represent a kind of political compromise.

National governments have committed to protecting ecosystems, promoting equity within the framework of sustainable development, and recognising the interrelation between these goals that are important for improving human welfare. Exposing the role of local – in this case, national – policy responses is one element of the coherent policy proposed in the Agenda (Nordbeck & Steurer, 2016; Verschaeve, Delputte & Orbie, 2016; Mortensen & Petersen, 2017; Małecka, 2023). Given the wide variety of areas covered by the 17 SDGs, it is worth focusing on one of them, which concerns decent work, taking into account the economic and social aspects (Goal 8), which is essential for those who provide work. Decent work and sustainable economic growth, at the heart of Goal 8, are central to a country's development and prosperity, as well as the well-being and personal fulfilment of its people (Gawrycka & Szymczak, 2015). Goal 8 includes the promotion of sustainable, inclusive, and balanced economic growth, as well as full and productive employment and decent work for all those in work. The assumption was made

that the creation or functioning of high-quality, well-paid jobs requires sustained economic growth achieved through high economic efficiency.

According to Ward *et al.* (2016) and Parrique *et al.* (2019), such an approach fosters a concept that takes into account the separation of two critical economic aspects: economic growth and environmental protection through non-degradation. At the same time, it rejects the possibility of achieving sustainable development with the acceptance of lower economic growth and consumption (Ward *et al.*, 2016; Parrique *et al.*, 2019). The researchers propose that to measure the achievement of this objective, indicators that include the negative externalities of economic growth, including environmental and social aspects that, among others, are determined by the unequal distribution of wealth, should be taken into account.

It is difficult to disagree with the above thesis in particular that the 8th SDG, according to Le Blanc (2015), is one of the most interlinked with the other goals in particular: 1, 2, 4, 9, 11, 12, 13, 14, 15 and 16. The 8th SDG links to the 12th SDG on sustainable consumption and production through the goal of decoupling economic growth from environmental degradation and linked to the 10th SDG related to reducing social inequalities through, for example, the protection of labour rights, including those of migrant workers (Le Blanc, 2015).

A study conducted in Sweden by Weitz *et al.* (2018) has demonstrated that SDG 8 is among the goals that exert the most positive influence on other SDGs, confirming its significance for ongoing research in the field of sustainable development. The necessity of continuously improving the metrics used to assess progress has been emphasised in the findings. The study was based on an analysis of 34 sustainability objectives, with two indicators assigned to each goal (Weitz *et al.*, 2018). At the same time, the aforementioned authors stress that when the indicators adopted by the EU to assess the achievement of the SDGs are analysed, a significant degree of interconnectedness is not maintained. Only two indicators from SDG 8 are used to assess progress towards the SDGs (European Commission: Eurostat, 2023). Therefore, SDG 8 is considered the goal with the least impact.

Network analysis at the target level, considering the global aspect, may be associated with inconsistencies between the common objectives studied and the selected indicators (Le Blanc, 2015). Additionally, it has been confirmed that the analysed links of the 8th SDG, observed on a global scale, cannot be effectively assessed using the indicators recommended by the EU (Coscieme *et al.*, 2020). Among the six indicators measuring the EU's progress toward SDG 8, three are related to employment (employment rate, rate of uneducated or under-educated youth, and unemployment rate – including long-term unemployment in particular). Two indicators assess the quality of employment (the at-risk-of-poverty rate and the rate of workplace fatalities). In contrast, GDP *per capita* reflects overall economic activity

without considering its structure, particularly in relation to the labour market (European Commission: Eurostat, 2023).

The existence of correlations between some employment measures is not disputed. When examining the relationship between the number of unemployed juveniles and the overall unemployment rate, there is a negative relationship between the variables (European Commission: Eurostat, 2023).

In contrast, the value of employment and economic activity (measured by the rate of change of GDP) does not confirm the existence of a significant relationship as it is not linked to most of the other indicators of SDG 8 and does not relate to any measurable policy objective. In reality, GDP *per capita* does not consider inclusivity. The lack of information that can indicate the rate and sustainability of economic growth is also debatable (Fioramonti, 2013, 2017). Therefore, according to Coscieme *et al.* (2020), in order to replace GDP in the SDG 8 indicators set, indicators should be proposed that ensure a more exhaustive analysis of the impacts of economic growth, both locally and globally, in order to increase its coherence with the overall agenda of the SDGs.

Despite the shortcomings identified, monitoring the implementation of SDG 8 in EU countries has become an essential part of ongoing research (European Commission: Eurostat, 2023). The Eurostat report shows that the national economies of the EU member states have made significant progress towards this goal in recent years. An increase in GDP *per capita* has characterised the EU economy; there has been an improvement in the overall employment situation in the EU. The results of the survey indicate that EU countries are on track to meet SDG 8 in 2030 (Rai, Brown & Ruwanpura, 2019; Kreinin & Aigner, 2022; European Commission: Eurostat, 2023).

Referring to the discussion, it was decided to examine the degree of achievement of SDG 8, using indicators that seem relevant for assessing the achievement of the objective under study and are not included in the set of indicators recommended by Eurostat. For economic growth, the labour productivity index and the share of labour in national income were used for decent work, and the minimum and average wages were used.

To achieve the stated objective – evaluating and recommending indicators related to the achievement of SDG 8 from the perspective of the economic and social aspects of work – a study was conducted for the Polish economy. The research focused on analysing the evolution of the relationship between the minimum wage and the average wage against the background of labour productivity changes over an 11-year period (2010–2021). The article is divided into four sections: a literature review, research methodology with the results of the studies conducted, discussion, and conclusions.

2. Literature Review – Selected Issues

Work is defined in different ways depending on the criterion adopted and the scientific discipline of study. It can be treated as a source of income to satisfy human needs or as an essential factor of production that affects the efficiency of a company's operation.

The objectives of enterprises and workers are often in conflict, leading to disputes between these two groups in the market. However, it should be remembered that the appropriate use of labour resources can have a positive impact on both groups of economic entities and, consequently, on the economy as a whole. Entrepreneurs, given the right conditions for business activity, will be able to realise their goals of generating profits and strengthening their position on the market and further development through, among other things, the use of the labour factor in complementarity with capital. Employees, on the other hand, will be able to earn an income from their work that enables them to satisfy their various needs, including those of a higher order, and to carry out their work in better conditions that allow them to achieve work satisfaction. The state will also feel the benefits of being a player in the labour market. The labour income received by employees and the profits of enterprises will increase state budget revenues, including direct and indirect taxes and social security contributions paid. In addition, they will increase the possibility of financing public goods that improve the quality of life of society, especially for those who are not active in the labour market, e.g. children, pensioners, and people with disabilities.

From an economic point of view, work is one of the main factors of economic growth and development. Work has parallel social and financial functions, being interrelated and interdependent elements of a single whole. Work enables individuals to fulfil the desires of belonging to a group, the desires of having a place in society. This is because it stems from the need to give something of oneself as well as the need to belong (Phelps, 2013).

There are various motives for employees to take up work. Three are most commonly mentioned in the literature: material, social and psychological (Grabiński, 2003). Referring to the first of the above-mentioned motives for taking up work, it should be emphasised that a wage is the essential component of employees' income, enabling them to meet various types of needs. Thus, its level is economically significant, as it determines the standard of living. At the same time, pay is a cost for the employer, which influences the structure of production factors involved in production processes.

In world literature, a crucial macroeconomic issue is participation in the distribution of national income, which is defined by the relationship between wages from labour and capital. In many countries, a systematic increase in the share of wages in national income was observed after the Second World War. In contrast, the 1980s

saw a reversal of the trend. The share of capital in national income began to rise again. According to studies carried out by specialists, there are various reasons for this phenomenon. For example, Gomme and Rupert's (2004) research suggests that this was the result of a relatively higher increase in the productivity of capital in relation to labour, while Harrison (2005) pointed to the opening up of economies, globalisation processes and changes in the prices of imported raw materials. Wojtyna (2010), on the other hand, sought reasons in labour market policies.

The results of empirical studies from the turn of the 20th and 21st centuries in OECD countries confirm that the aggregate share of labour in national products was declining. According to Bassanini and Manfredi (2012), this phenomenon can be explained by an increase in total factor productivity (TFP) and capital application related to the diffusion of information and communication technologies (ICT). It should be emphasised that the impact of these determinants was, however, different for various groups of workers. The accumulation of ICT capital (technological change embodied in ICT capital), in particular, reduced the participation of the least educated in the manufacturing process. In contrast, the growth of TFP (non-embodied change combined with entrepreneurship, R&D or organisational and management solutions) had a negative impact mainly on the medium-educated and in favour of the highly skilled (Bassanini & Manfredi, 2012).

Trends of declining importance of labour in income have been observed in the US economy. A study by Elsby, Hobijn, and Sahin (2013) shows that the change in the labour share is not explained by the substitution of unskilled labour for capital or the weakening of workers' bargaining power as a result of declining unionisation. In this case, the process of offshoring labour-intensive supply chains outside the United States was a significant factor. The aforementioned authors point out that the contemporary declining importance of labour is linked to the observed trends in the trade and industry sector resulting from globalisation processes.

The macroeconomic substitution of capital and labour is combined with their significant inter-industry shifts, as Piketty (2015a) has shown in his research, emphasising shifts from industry to the service sector. It should be noted that such observations are often formulated on the margins of ongoing deliberations. It is noteworthy that labour-capital relations have different specificities in the various spheres of economic activity realisation. Therefore, the level of differentiation of the aforementioned sectoral-industrial relations in the economy directly translates into the socio-economic effects of the use of productive factors. They appear at the level of individuals or enterprises, as well as in regions and national economies, determining the existing disparities (Cyrek, 2016, 2017).

According to Piketty (2015b), the substitution of labour for capital can lead to inequalities. He points out that there are three components to income inequality, i.e. inequality of labour (wage) income, inequality arising from the ownership of

capital and the income derived from it, and the relationship between these quantities. The latter implies an overlap between wage and capital benefits and, therefore, an accumulation of these, which can be referred to as micro-, meso- and macro-economic levels. In sectoral-industrial terms, this cumulation can mean the same activities generating high incomes from labour and capital. In such a situation, structural differences between sectors, regions and economies lead to a significant accumulation of development inequalities. The lack of sectoral accumulation of wage and capital gains, on the other hand, leads to a minimisation of the impact of structural differences on income inequality. Measures aimed at levelling development could then focus on the effect of minimising wage or capital inequalities. In the case of capital inequalities, it is more difficult to pursue policies aimed at levelling income inequalities, which is due, among other things, to the free movement of capital between countries, especially in times of globalisation processes. In the case of wage inequalities, state policies in the area of social policy and wages can play an important role, especially in the area related to the setting of the minimum wage.

The minimum wage guarantee comes with economic effects. On the one hand, it increases the labour income of workers; on the other hand, it increases the operating costs of enterprises by forcing them to improve labour productivity through, for example, technological changes and by sharing income with workers, thus contributing to both social and economic objectives. Income derived from labour performs economic and social functions simultaneously through interconnectedness and interdependent elements. It, therefore, creates a complex system of flows of resources generated by the labour factor between enterprises, households and the state, linking decent work to economic development, on which the 8th SDG is based.

The choice of indicators such as the minimum and the average wage for assessing the realisation of decent work stems from a rationale related to workers' feelings about social justice in the area of sharing the income generated, their satisfaction and dignity, and the possibility of achieving the income effect of wage growth (substitution of work by leisure time). It should be noted that there are numerous publications citing different views on the role of the minimum wage as a determinant of its social and economic function (Rutkowski, 2013). In Rutkowski's (2013) view, the minimum wage fulfils two essential roles: it influences the functioning of the labour market and provides legal protection for the wage level of the lowest-paid workers. From the point of view of the economic system, the minimum wage is a guarantee of a minimum salary that is a consensus between the principles of a functioning competitive market economy and the idea of distributive justice. The dispute over the level of the minimum wage is determined by the views of mainstream (neoclassical) economics on the one hand and the ethical concept of a fair wage on the other. The minimum wage is an element of social policy, a form of external intervention

in the functioning of the labour market. The social function of the minimum wage is linked to the idea of a fair wage, i.e. the protection of workers and their families from exploitation and poverty (Rutkowski, 2013). There are problems in defining the essence of a fair wage. According to Prokop (2021), a fair wage is a wage that is “adequate,” “fair,” “acceptable” to the individual, and consistent with the principles of social justice as defined in the Polish Constitution (Article 2 of the Constitution).

3. Methodology

The selection of 2010 as the starting point for the research, five years before the adoption of the 2030 Agenda, was deliberate. It aimed to illustrate the ongoing changes in the Polish economy resulting from the implementation of the country’s socio-economic policies prior to the introduction of the 17 SDGs. At the same time, it provided a foundation for further observations. The study includes a critique of the indicators previously used in research to assess the achievement of the 8th SDG (European Commission: Eurostat, 2023). It proposes custom indicators that align with the assumptions of the 8th Goal, namely economic growth linked to decent wages. Bearing in mind that the category of minimum wage is related to the decent wage, which reflects the idea of reasonable work, the study focused on changes in the development of the ratio of the minimum wage to the average wage. Taking into account the economic growth category, which is an element of the 8th SDG, it is worth paying attention to the development of the level of the minimum wage against the background of changes in the dynamics of GDP *per capita* and labour productivity. In order to deepen research related to the distribution of earned income in the economy, changes in the share of the minimum wage in average wages relative to the share of labour in national income were assessed.

Data taken from the Social Insurance Institution (ZUS, 2022, 2023) and Eurostat (European Commission: Eurostat, 2023) were used for research related to the assessment of the achievement of SDG 8. These data refer to:

- real GDP *per capita*,
- labour share,
- minimum wage,
- average wage,
- labour productivity.

The research was conducted using the deductive method, using elements of descriptive statistics, which made it possible to examine the dynamics of change and observe the relationships between variables. The presented research results made it possible to formulate a number of conclusions and indicate whether economic or social reasons can justify the observed changes in the Polish economy.

4. Results

The research started by indicating changes in the dynamics of minimum and average wages in Poland in 2010–2021 (Fig. 1).

During the period under review, the gross minimum wage increased from PLN 1,317 in 2010 to PLN 2,800 in 2021, i.e. by 112.6%. In the same period, the average gross wage increased from PLN 3,224.98 in 2010 to PLN 5,662.63 in 2021, an increase of 75%. Thus, the share of the minimum wage in the average wage increased from 41% in 2010 to 49% in 2021. Between 2010 and 2017, the growth rate of the minimum wage was higher than the growth rate of the average wage. In 2013, the minimum wage increased by 6.7%, while the average wage increased by only 3.6%. In 2018–2019, the minimum wage grew more slowly than the average wage in the national economy, e.g. in 2018, the minimum wage grew by 5%, while the average wage rose by 7.3%. In 2020, the minimum wage increased by 15.6% and the average wage by only 5%. The sharp decline in the growth rate of the average wage in 2020 was a result of the constraint on the operation of businesses during the period of COVID-19. The increase in the minimum wage, on the other hand, was due to the statutory increase in the minimum wage set on the basis of sound economic performance in the economy in previous years. Thus, in 2020, the share of the minimum wage in the average wage was more than 50%, reaching the highest share in the period under review.

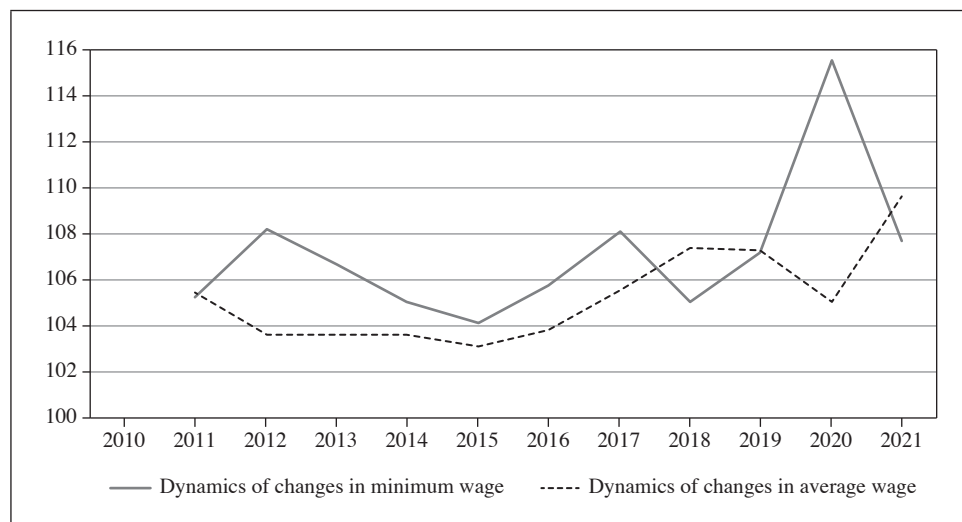


Fig. 1. Dynamics of Changes in Minimum and Average Wages in Poland 2010–2021 (in %)

Source: the authors, based on ZUS (2022, 2023) and European Commission: Eurostat (2023) data.

It is worth looking at whether the growth in labour productivity has kept pace with the dynamics of changes in the share of the minimum wage in the average salary (Fig. 2)

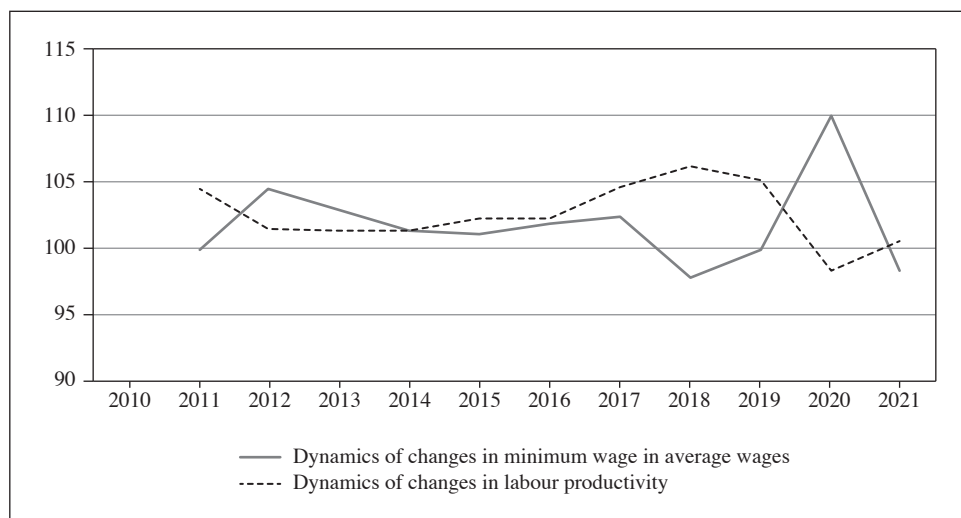


Fig. 2. Changes of the Minimum Wage in Average Wages against Changes in Labour Productivity in Poland in 2010–2021 (in %)

Source: the authors, based on ZUS (2022, 2023) and European Commission: Eurostat (2023) data.

Between 2011 and 2016, the national economy was characterised by relatively low labour productivity growth, averaging around 2% per year. It is worth noting that in 2012, labour productivity was lower than the increase in the minimum wage. In the year under review, the minimum wage increased by 8.2%, while labour productivity increased by 1.47% compared to the previous year. Thus, the increase in the minimum wage was 6.73 percentage points higher in relation to the rise in labour productivity. This was not justified from an economic point of view. This means that social considerations largely drove the increase in the minimum wage. In 2020, the minimum wage increased by 15.6% compared to the previous year. In the same year, labour productivity decreased by 1.6% as a result of the aforementioned pandemic period.

Taking into consideration the entire research period adopted for the study, from an economic point of view, such a high increase in the minimum wage was not justified by the results of changes in labour productivity in the Polish economy.

Against the background of the above considerations, it is worth looking at how the dynamics of changes in the minimum wage developed in correlation with the dynamics of changes in GDP *per capita* (Fig. 3).

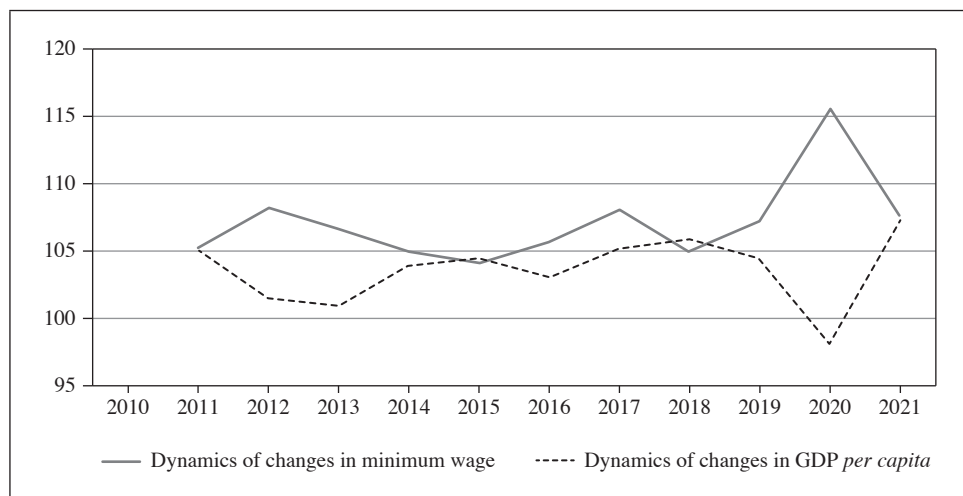


Fig. 3. Dynamics of Changes in Minimum Wages and Dynamics of Changes in GDP *per capita* in Poland in 2010–2021 (in %)

Source: the authors, based on ZUS (2022, 2023) and European Commission: Eurostat (2023) data.

During the period under review, the growth rate of the minimum wage was higher than the growth rate of GDP *per capita*. The exception was in 2018 when the growth rate of GDP *per capita* was one percentage point higher than the growth rate of the minimum wage. As mentioned, 2020 saw the highest spread between the growth rate of the minimum wage and GDP *per capita*. The growth of the minimum wage in that year was 15 percentage points higher than the growth of GDP *per capita*. It can be concluded that the observed increase in the minimum wage was the result of the social policies implemented.

5. Discussion

Referring to studies examining the relationship between changes in the minimum wage and labour productivity as factors influencing the share of labour in national income, it is worthwhile to analyse the connection between the share of the minimum salary in the average wage and the share of labour in national income. As previously noted, the distribution of national income between labour and capital has varied significantly across countries (Gomme & Rupert, 2004; Harrison, 2005; Wojtyna, 2010; Bassanini & Manfredi, 2012).

In many economies, a systematic increase in the share of wages in national income was observed until the 1980s. However, this trend reversed thereafter, with the share of capital in national income beginning to rise. Considering the diverse factors affecting changes in labour's share of national income, it is essential

to explore how these dynamics evolved in Poland, where notable changes in the minimum wage, average wage, and labour productivity were recorded between 2010 and 2021 (Fig. 4).

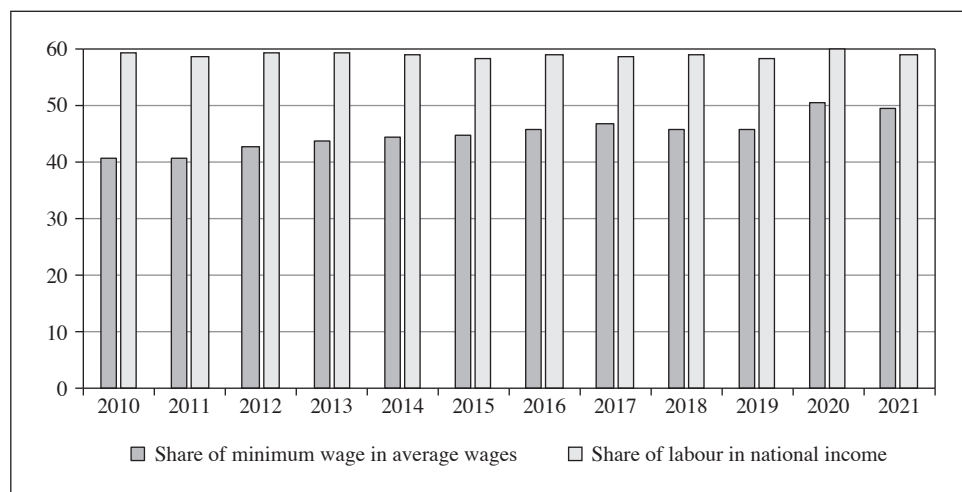


Fig. 4. Share of Minimum Wage in Average Wages and Share of Labour in National Income in Poland in 2010–2021 (in %)

Source: the authors, based on ZUS (2022, 2023) and European Commission: Eurostat (2023) data.

The labour share of national income in Poland during the period under review remained relatively stable, with year-to-year variations of ± 1 percentage point. In contrast, the share of the minimum wage in average wages increased by approximately 9 percentage points over the same period. This suggests that the minimum wage played a pivotal role in stabilising the labour share of national income. However, it is essential to consider that the results may have been influenced by the distortions caused by the COVID-19 pandemic. The systematic increase in the share of the minimum wage in average wages (an 8-percentage-point rise) underscores the consistent implementation of SDG 8, aligning with the principles of reducing inequality (Le Blanc, 2015), promoting fair pay (Prokop, 2021), and ensuring decent work to achieve economic security. These findings corroborate Fioramonti's (2013, 2017) argument that GDP *per capita* is an inadequate indicator for assessing the achievement of SDG 8. What remains noteworthy is the discrepancy between the 47% growth in GDP *per capita* and the 31% growth in labour productivity during the period under review. This divergence could be attributed to an increase in consumption levels, which poses a challenge to achieving SDG 12. These find-

ings align with the concerns raised by Ward *et al.* (2016) and Parrique *et al.* (2019), highlighting the potential conflict between economic growth and sustainable consumption.

6. Conclusions

The presented research confirms that the over 110% increase in the minimum wage observed in Poland between 2010 and 2021 was primarily driven by the social policy implemented. Nevertheless, economic factors also played a significant role, as evidenced by the concurrent increase in GDP *per capita* by nearly 48%, labour productivity by 31%, and average wages by 75.6% during the study period.

The research demonstrates that the 8th SDG was continuously implemented in Poland during the period under review. Between 2010 and 2021, economic growth, measured by the GDP *per capita* indicator – often criticised as a financial measure by many researchers – showed an increase of 47%. The realisation of Goal 8, in terms of continuous and sustainable economic growth, is further substantiated by the recorded labour productivity growth rate of 31% during the study period. This indicator, derived from the proposed analysis and research, could serve as an extension of the catalogue of indicators for assessing the achievement of SDG 8, mainly because it links national income with labour.

Referring to the main objective of the study – assessing and recommending indicators related to achieving SDG 8 from the perspective of economic and social aspects – it should be emphasised that Poland consistently implemented social policies aimed at enhancing social justice in the distribution of national income between 2010 and 2021.

During this period, the share of the minimum wage in average wages increased by 21%, leading to the conclusion that social motives largely justified this growth. Furthermore, the dynamic increase in the minimum wage (over 70%), which boosted the incomes of the less affluent, provides an economic rationale. However, despite the increase in labour productivity, no significant rise in the share of labour in national income was observed during the study period. The dynamic growth of the minimum wage, identified in the literature as a factor influencing changes in the labour share of national income, likely mitigated this effect.

Authors' Contribution

The authors' individual contribution is as follows: Each contributed a third.

Conflict of Interest

The authors declare no conflict of interest.

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The Lehman Sisters Hypothesis: Gender Differences in Risk-taking and Insights from the 2008 Polish Currency Options Crisis

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ABSTRACT

Objective: This study investigates gender differences in risk-taking behaviour, specifically in entrepreneurial decision-making, in line with the Lehman Sisters Hypothesis. The research, motivated by the 2008 Polish currency options crisis, seeks to understand the factors driving risky decisions, examining how both economic and behavioural factors – such as overconfidence and loss aversion – are influenced by the gender of the decision-maker.

Research Design & Methods: A survey of entrepreneurs from the Podkarpackie voivodeship ($N = 392$) was conducted, focusing on behavioural risk attitudes, overconfidence bias, and economic decision-making traits. The survey also addressed behaviours during the 2008 currency

options crisis. The collected data were analysed through statistical tests, decision trees, and the logit function, comparing responses between men and women.

Findings: The results confirm that men were predominantly responsible for making risky option strategy decisions, often driven by overconfidence and excessive optimism, which led to underestimation of risk. Women, in contrast, were more likely to base their decisions on external advice. These findings align with the Lehman Sisters Hypothesis, suggesting that gender diversity in leadership roles may improve risk management.

Implications/Recommendations: The study reinforces the recommendation to reduce gender inequality in leadership, as a greater presence of women in senior roles could contribute to more balanced risk-taking and potentially reduce the likelihood of financial crises.

Contribution: This research fills a gap in the literature by exploring gender differences in decision-making during a real-world financial crisis. It highlights the role of behavioural factors such as overconfidence in men and reliance on external advice in women. Additionally, it contributes to understanding gender differences in economic behaviour, including hedging strategies, currency risk exposure, and funding sources utilised by their companies during crises.

Article type: original article.

Keywords: risk attitudes, gender differences, Lehman Sisters Hypothesis, options strategies, hedging.

JEL Classification: G01, G41.

1. Introduction

The Lehman Sisters Hypothesis (LSH) posits that having more women in leadership roles in financial institutions could have mitigated the 2008 financial crisis due to women's generally more risk-averse nature. While Poland avoided a negative GDP growth rate during the crisis, the sudden weakening of the złoty caused significant losses for Polish exporters. Many used misunderstood option strategies, widely marketed by banks, which led to bankruptcies and restructurings. While much research has focused on the economic aspects of Poland's currency crisis, there is little on the role of gender differences in risk-taking, particularly in relation to the LSH.

This paper explores the differences between men and women in entrepreneurial decision-making, aligning with the LSH. It focuses on the 2008 Polish currency options crisis, where many businesses faced losses due to risky option strategies. The study aims to understand how gender influences risk-taking in business decisions, filling a gap in the literature that often overlooks behavioural factors like overconfidence and loss aversion in favour of economic analysis.

The research uses survey data from entrepreneurs in the Podkarpackie voivodeship, examining risk attitudes, overconfidence, and economic decision-making

traits. Findings reveal that while both genders engaged in option strategies, their motivations differed: Men were driven by overconfidence, leading to excessive risk-taking, while women tended to follow external advice. These results support the LSH, indicating that gender differences in risk preferences affect decision-making in high-risk scenarios.

This study contributes to the literature by highlighting gender-based differences in susceptibility to behavioural biases and economic behaviours, such as hedging strategies and exposure to currency risk. It underscores the importance of gender diversity in leadership, as it can lead to improved risk management and better decision-making during financial crises. The paper also provides practical recommendations for promoting gender diversity in leadership to foster more balanced decision-making in risky financial environments.

2. Literature Review

2.1. Repercussions of the 2008 Global Recession in the Polish Economy

Poland was the only country in the European Union, which did not experience recession during the financial crisis 2008 (Gierczyńska & Wojciechowski, 2009) (GDP growth rate was 1.6% for Poland in 2009, while the average for 27 EU countries was -4.3%, compare Table 1).

Table 1. GDP Growth Rate of the Euro Area Countries in the Years 2007–2011

State	2007	2008	2009	2010	2011
EU (27 countries)	3.2	0.3	-4.3	2.1	1.5
Euro area (17 countries)	3.0	0.4	-4.4	2.0	1.4
Belgium	2.9	1.0	-2.8	2.4	1.8
Germany	3.3	1.1	-5.1	4.2	3.0
Estonia	7.5	-4.2	-14.1	3.3	8.3
Ireland	5.4	-2.1	-5.5	-0.8	1.4
Greece	3.5	-0.2	-3.1	-4.9	-7.1
Spain	3.5	0.9	-3.7	-0.3	0.4
France	2.3	-0.1	-3.1	1.7	1.7
Italy	1.7	-1.2	-5.5	1.8	0.4
Cyprus	5.1	3.6	-1.9	1.3	0.5
Luxembourg	6.6	-0.7	-4.1	2.9	1.7
Malta	4.1	3.7	-2.4	2.7	1.6
The Netherlands	3.9	1.8	-3.7	1.6	1.0
Austria	3.7	1.4	-3.8	2.1	2.7
Portugal	2.4	0.0	-2.9	-1.9	-1.6

Table 1 cont'd

State	2007	2008	2009	2010	2011
Slovenia	7.0	3.4	-7.8	1.2	0.6
Slovakia	10.5	5.8	-4.9	4.4	3.2
Finland	5.3	0.3	-8.5	3.3	2.7
Poland	6.8	5.1	1.6	3.9	4.3

Source: Eurostat (2025b).

Many factors contributed to the non-negative growth rate of the Polish GDP, including the depreciation of the złoty, tax reform, large public investments, and consumer optimism. However, it should not be forgotten that the depreciation of the złoty led to an increase in the value of Poland's foreign debt expressed in złoty, and while the GDP growth rate for Poland remained positive, it significantly declined compared to previous years (Buszkowska & Płuciennik, 2013). From the perspective of the business sector, manufacturing and transport were particularly affected (Opałka, 2012), with total sales dropping and many companies in this sector reporting losses. Nevertheless, it seemed that the economy was coping reasonably well with the crisis. Unfortunately, imprudent foreign exchange risk management, based on the assumption that the Polish złoty would continue to appreciate (Kundera, 2010), as had been the case for at least 5 years, led to enormous losses and bankruptcies among companies that speculated on the appreciation of the złoty instead of correctly hedging their exposure to foreign exchange risk (Czapiewski & Nowaczyk, 2012; Liberadzki, 2015b).

2.2. Currency Options Crisis in 2008 in Poland

As stated earlier, despite the good condition of the Polish economy during the global crisis, many Polish companies suffered losses due to the exchange rate risk. Poland joined the European Union on 1 May 2004, and from that moment on, the Polish złoty began to strengthen. As Figure 1 shows, the PLN/EUR exchange rate was falling, from around 4.76 at the beginning of May 2004 to 3.20 in July 2008. Polish exporters made losses from year to year, due to the drop in the Polish złoty exchange rate from 2004 till 2008.

Many exporters hedged their exposure to currency exchange rate risk. Experts claim that entrepreneurs should use financial instruments which they are sure were created for hedging (Majewski, 2011). Classic instruments like selling futures contracts (short futures), selling forwards, or the purchase of a put option (long put) should be used. Instead of that, option strategies were the most popular in 2007–2008 (Lach, 2008) which were offered on the OTC market and eventually caused large losses (Liberadzki, 2015a, 2015b).

Option strategies involved a series of options expiring monthly or weekly throughout the year, typically consisting of a long put and a short call, with the call option at double the volume of the put. This setup offered a more favourable exchange rate than a forward contract and was zero-cost due to the call option issuance. However, if the trend reversed (e.g., a weakening of the złoty), exporters faced losses from the double-volume call options. The rapid trend reversal in August 2008 led to substantial losses for exporters, with losses continuing over the year due to the structure of the strategies. By March 2009, the Polish Financial Supervision Authority (2010) reported exporter losses totalling 9 billion PLN (2,000,000,000 EUR). These strategies, while promising in certain conditions, proved highly risky and led to significant financial damage when trends reversed.



Fig. 1. PLN/EUR Exchange Rate

Source: Polish Central Bank database.

Currency risk hedging can be implemented using simple financial instruments such as vanilla options, including call or put options, depending on the position taken. In more advanced strategies, complex financial instruments such as barrier options may also be utilised (Kuźmierkiewicz, 1999). One of the simpler methods of risk hedging involves the use of futures or forward contracts. For exporters exposed to the risk of a declining złoty exchange rate, a straightforward hedge would be to take a short position in a futures (forward) contract or purchase a put option. However, these basic hedging instruments present certain limitations. In the case of futures (forward) contracts, the only cost-free rate available is the futures price, which was often deemed unattractive by exporters. Conversely, with put options,

the exchange rate can be set freely, but if the rate becomes more favourable, the option itself may become expensive, which was also viewed unfavourably by exporters (Knop, 2002; Hull, 2014).

In 2007, new option strategies emerged on the Polish market, offering highly advantageous exchange rates within so-called zero-cost strategies (Konopczak, Sieradzki & Wiernicki, 2010). An example is the covered call strategy, which involves selling a call option while simultaneously holding (or potentially buying) the underlying asset (Wystup, 2006). Selling options without coverage in the underlying asset is usually classified as a speculative strategy, but it is also considered a hedging transaction by some authors (Cuthbertson & Nitzsche, 2001). However, these strategies carry significant risks of substantial losses in the event of adverse exchange rate movements, particularly in the case of a weakening złoty.

2.3. Gender Differences

If we look at the data, although, depending on the source, the statistics are different, Polish women occupy 17% of managerial positions in companies (Dun & Bradstreet, 2023) if we take into account all the companies apart from sole proprietorships. If we include sole proprietorships, this percentage grows to 44% (Eurostat, 2025a). If we look at senior positions, Polish women occupy 27.2% of such positions which is below the EU average 33.8% (European Commission, 2024). Poland's position is still above many other EU countries, but still trails behind the top-performing countries like France and Norway, where gender quotas have significantly increased female representation in leadership. Despite progress, cultural factors and the glass ceiling effect continue to challenge further advancement in gender equality in senior decision-making roles in Poland.

In 2023 Poland's score on the Gender Equality Index was below the EU's score – 61.9 (out of 100) vs. 70.2 points (EU) which puts Poland 18th place in the EU. Domains with the lowest scores in Poland were power (20th place in the EU) and social decision-making (26th place). The best performance for women in this index is in the domain of money, in which Poland was in 16th position. Poland's scores are consistently improving but at a slower pace than other EU Member States, which keeps Poland in the same place in the ranking.

Poland's figures on the participation of men and women in senior decision-making positions in enterprises reveal some interesting contrasts when compared to EU and global averages. Poland's relatively good standing can be partly attributed to cultural and historical factors, such as the strong role of women in the workforce during the socialist era. However, challenges remain, including the persistence of traditional gender roles and the glass ceiling effect, which may limit further progress.

Overall, Poland's statistics on gender representation in senior decision-making roles are comparable to or slightly better than the EU and global averages, reflecting both progress and the need for ongoing efforts to improve gender diversity in leadership.

Gender differences in decision making and management styles are subject to a growing interest in many disciplines (Powell & Ansic, 1997). Women have a lower propensity towards risk (Powell & Ansic, 1997) which among other things leads to more conservative investing (Montford & Goldsmith, 2016) and greater propensity for saving (Qiao, 2012). As a result, firms supervised by women have lower leverage and lower variability of profits (Faccio, Marchica & Mura, 2016). This is partly driven by practical reasons – more women are entering the workforce, but few rise to senior positions, leaving only a select few to make executive decisions (Lawson *et al.*, 2022).

Financial decision making, a basic activity in every firm, involves risk. Evidence from different fields: economics, psychology, and neuroscience supports the existence of gender differences in financial behaviour. In their analysis of 150 studies conducted between 1967 and 1997, Byrnes, Miller and Schafer (1999) found that women were systematically more risk averse than men. In similar vein many other studies reported analogous results, confirming higher risk aversion of women (e.g., Eckel & Grossman, 2002; Croson & Gneezy, 2009; Charness & Gneezy, 2012). Women were also found to be more loss averse (Schmidt & Traub, 2002; Gächter, Johnson & Herrmann, 2007). Studies of financial decision making related to investment systematically show that women tend to trade less actively than men (Barber & Odean, 2001), hold less risky retirement investment portfolios (Bajtelsmit & Bernasek, 1996; Jianakoplos & Bernasek, 1998) and are more likely to invest in risk-free assets (Hariharan, Chapman, & Domian, 2000).

Similar to the differences in risk and financial decision making, the conclusion that, in general, women are less confident than men is also well supported empirically. Let us begin with very general measures such as evaluations of self-esteem, as used by Bleidorn *et al.* (2016) who conducted a cross-cultural study in which they measured how much people agreed with the statement “I see myself as someone who has high self-esteem.” They asked almost 1,000,000 participants in 48 nations and in all of them they found that men's agreement with the statement was higher than women's. Overconfidence can be defined as the underestimation of confidence intervals, or as the overestimation of outcomes related to one's abilities (Fig. 2). In a study by Gneezy, Niederle and Rustichini (2003) women were found to underestimate their abilities compared to men, and they felt less competent in their abilities to solve problems. Moreover, women overestimated their past behaviour to a much smaller degree than men (Reuben *et al.*, 2012) and predicted lower performance level (Jakobsson, 2012).

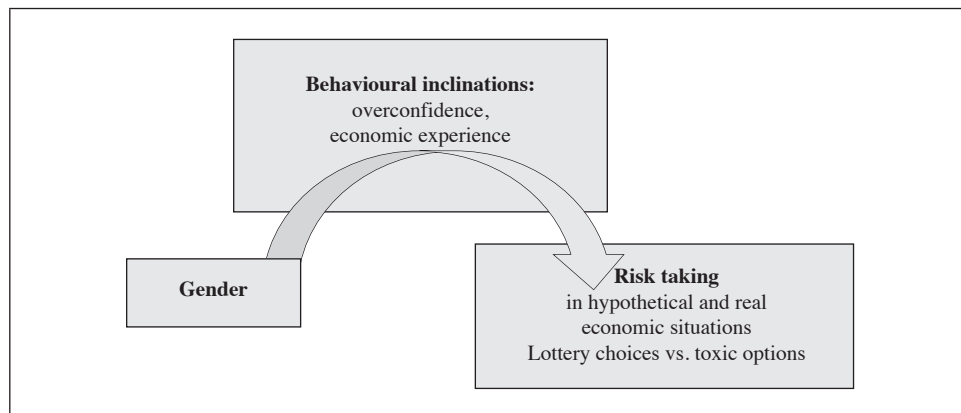


Fig. 2. Chart to Illustrate the Lehman Sisters Hypothesis

Source: the authors.

The collapse of Lehman Brothers in 2008 started the financial crisis and some commentators drew attention to the behaviour exhibited by largely male bankers as a key factor behind the crisis. The LSH, according to which big bank failures would not have happened if there had been more females at the top in banking was subsequently created, implying that more female staff in management would result in better risk management, reducing the possibility of bank failure (van Staveren, 2014). However, the LSH has been questioned. As shown by Sheedy and Lubojanski (2018) women in financial services display more desirable risk management behaviour (like e.g., questioning business practices that may create poor outcomes later; Feige, 2018), and the effect is explained by the well-known gender differences in individual risk tolerance (risk loving) (which so far supports LSH). Nevertheless, risk tolerance between women and men varied only at junior levels but disappeared at higher levels of the corporate ladder. In a similar vein, Cupples, Rasure and Grable (2013) found gender differences in risk aversion, but they also found that education played a mediating role, reducing gender differences in risk tolerance.

3. Goal and Hypothesis

As already mentioned, in 2008 Poland experienced a sharp and unexpected weakening of the złoty exchange rate against foreign currencies, which took place after almost 5 years of appreciation. The reason was the disturbances in the markets caused by the subprime crisis. As we have already explained, the collapse of the złoty impacted both importers and exporters, with exporters being affected due to their options strategies. These strategies were offered to them by banks with relatively aggressive marketing of these products and a commensurate avoidance of

threat communication. As a result of the exercise of these options, many exporters went bankrupt, others were forced to undergo restructuring. It should come as no surprise then, that in Poland it is the subject of many studies aimed at taking lessons for the future from this situation.

The LSH suggests that if more women had been in leadership positions in financial institutions, the 2008 financial crisis might have been mitigated due to the generally more risk-averse nature attributed to female decision-makers. Since risk taking might be to some extent a result of behavioural inclinations and biases of decision-makers, the goal of the study was threefold. First, the study aimed at comparison of the susceptibility to behavioural biases of men and women holding top positions in their companies. Second, the study compared economic behaviour of men and women in particular, the use of simple and complex derivatives, exposure to currency risk and hedging against currency risk, losses due to option strategies and the number of sources of funds used in the company in the past and future time perspective (as yet another aspect of potential risk aversion through diversifying sources of financing). Third, it examined the relative importance of different behavioural factors in the decision to buy toxic options in groups of male and female decision-makers.

4. Materials and Methods

4.1. Participants

The questionnaire was addressed to 392 micro, small and medium enterprises operating in the Podkarpackie voivodeship. Most of the surveyed companies were very small, 57.7% were employing up to 9 employees, 37.2% from 10 to 50 employees, only 5.1% were employing more than 50 employees. 70.4% had been operating for more than 5 years, only 6.1% up to one year, the rest 23.5% between 1 and 5 years.

The sample structure reflects the distribution of gender proportions regarding ownership of SMEs in Poland. For firms employing fewer than 9 people, women own approximately 31% of such firms. For small firms (10 to 50 employees), the proportion of women owners is 25.5%. For medium-sized firms (51 to 250 employees), this percentage is around 15.7%, and for large firms, it is only 13.3% (Dun & Bradstreet, 2023, 2024).

4.2. Procedure and Measures

The surveys were collected at entrepreneur training sessions organised by MARR (Małopolska Agencja Rozwoju Regionalnego, Małopolska Regional Development Agency), aimed at owners of SMEs.

The survey was carried out with the personal participation of the research organiser after an earlier announcement by e-mail and after arranging the date of the meeting in a telephone conversation. The survey also included questions other than those reported in this paper and took an average of 60 minutes to complete.

Respondents were asked about their involvement in option strategies in 2008, as well as questions related to economic and behavioural issues. In the group of economic questions, respondents were asked about currency risk exposure, and whether they used any simple or more advanced hedging strategies. Entrepreneurs also gave information about whether their company had experienced losses in the years 2007–2009 due to toxic options. There was also a group of questions about sources of funds that were used in the past and prospectively to be used in the future in the company (as a measure of management style). The entrepreneurs were asked to identify the sources of funds out of the presented list of 22 items: 1) self-financing, 2) retained profit, 3) sale of redundant assets, 4) depreciation write-offs, 5) owners' surcharges, 6) share issue, 7) bond issue, 8) long-term loan, 9) short-term loan, 10) loan, 11) operating lease, 12) financial leasing, 13) subsidies, 14) state subsidies, 15) EU grants, 16) factoring, 17) issue of securities other than bonds, 18) venture capital, 19) business angels, 20) supply chain financing, 21) overdraft, 22) trade credit.

Questions related to behavioural issues were classical questions from the field of economic psychology measuring cognitive reflection (CRT – cognitive reflection test), susceptibility to heuristics and biases (conservatism bias and availability heuristic), risk attitudes in the area of profits or losses, and overconfidence.

Questions in the CRT were the following: 1) A bat and a ball cost \$1.10 in total. The bat costs \$1 more than the ball. How much does the ball cost? 2) If it takes 5 machines 5 minutes to make 5 widgets, how long would it take 100 machines to make 100 widgets? 3) In a lake, there is a patch of lily pads. Every day, the patch doubles in size. If it takes 48 days for the patch to cover the entire lake, how long would it take for the patch to cover half of the lake? There were two questions examining the availability heuristic: 1) Do you think more words start with K or end with K? and 2) Do you think more people die in car accidents or through suicide attempts? These questions are classic tools for measuring respondents' propensity to succumb to the availability heuristic (see Tversky & Kahneman, 1974).

In the question on conservatism heuristics, we have adopted the classical question of Edwards (1968): Two bookbags contain 700 red and 300 blue chips, the other containing 300 red and 700 blue. Take one of the bags. Now, you sample, randomly, with replacement after each chip. In 12 samples, you get 8 reds and 4 blues. What is the probability that this is the predominantly red bag? This question was adapted to business decisions and presented as the choice of which advising company out

of two on the market. They help in granting funds for financing enterprises; it was stated that one company is 70% efficient, the other company is 30%.

In the survey there were four questions measuring the risk attitude where the respondents had to choose between a safe and a risky option. Two questions were expressed in terms of losses and two in terms of gains.

Overconfidence was measured in the form of better than average effect. Entrepreneurs were asked to give their opinions about their own knowledge or skills in different areas of everyday life. There were five statements:

- 1) I am more financially competent than the average entrepreneur,
- 2) I know politics better than the average entrepreneur,
- 3) I have more knowledge about culture than the average entrepreneur,
- 4) I have a better sense of humour than the average entrepreneur,
- 5) I am more observant when watching a movie than the average viewer.

The number of “yes” answers, where the respondents admit that they are better than the average entrepreneur, is the measure of overconfidence.

To compare the responses of women and men, we used a classical *t*-test, where no equality of variance was assumed. Next, we employed a logit function to identify significant factors that influenced the decision to use option strategies, taking gender into account. For constructing the logit model, we applied the forward selection method, i.e., we added variables to the model that significantly influenced the dependent variable (see Verbeek, 2017).

Finally, we narrowed down our analysis to compare only the behavioural characteristics between entrepreneurs who purchased option strategies and the rest of the sample, but with a gender-based division. For this purpose, we used decision trees. The use of decision trees to describe or model behaviour and decision processes has been employed for a long time by many researchers.

For example, Caliendo, Fossen and Kritikos (2010) use a decision tree to show the individual decisions of entrepreneurs taking into account different reasons to continue the investment project or to exit. Besancenot and Vranceanu (2007) use a decision tree to describe the possible decisions of managers who may work for good or bad firms and decide to buy an honest or dishonest auditor's report. Depending on the decisions made by the managers' firms they end up in different leaves of such a decision tree with different outcomes. Kogut and Phillips (1994) use the decision tree to describe the possible output of the artificial investment which was used to observe investors' decisions about continuation or early exit from the investment project. Bianchi (1995) uses a decision tree to describe different contracting situations: The existence of three different factors (uncertainty about the future, asset specificity, and opportunistic behaviour) changes free market transactions into more costly ones, but the cost depends on the combination of the fore-

mentioned three factors (which “contaminate” the free market). Stahl and Haruvy (2006) use the decision trees to describe finite extensive-form game decisions where a player on every node chooses between selfish and kind actions. Every leaf presents a different combination of kind and selfish decisions and their pay-off.

5. Results

5.1. Group Comparisons

Table 2 compares economic variables between groups of men and women. Statistically significant differences were noted between women and men in all of the examined issues. As seen in Table 2, men more frequently (within their gender group) admitted to being exposed to currency risk than women. Not surprisingly, men also more often reported (again, within their gender group) using hedging against currency risk with both complex and simple derivative instruments. The question about the number of current sources of finance, where men reported more sources, needs to be further explained by the fact that we observed a statistically significant difference in the size of firms owned by women and men in the sample. Women ran smaller firms than men, and hence it is understandable that they used fewer sources of financing. The difference in firm size also indicates a greater conservatism in women’s management of firms. Nevertheless, the question about planned future financing sources shows that as their firms develop, women plan to use more sources than men. In our view, planning for greater diversification of sources in the future also indicates greater conservatism among women, as diversification of financing sources limits potential risks associated with each form of financing (e.g., a leased asset cannot be sold, and a financial lease agreement cannot be terminated in a crisis). In our opinion, these are different aspects of the LSH. The LSH is also supported by the higher percentage of men (within their gender group) who incurred losses from using option strategies during 2007–2009. Thus, all aspects of economic decisions in firms covered by our study demonstrated greater conservatism among women when compared to men.

Table 2. Economic Variables in the Groups of Women (*N* = 97) and Group of Men (*N* = 295)

Specification	Women		Men		<i>t</i> -test (No Equality of Variance Was Assumed)		
	Mean	Standard deviation	Mean	Standard deviation	<i>t</i>	<i>df</i>	<i>p</i> -value (2-sided)
Use of complex derivatives such as option strategies (1 = yes, 0 = no)	0.03	0.17	0.15	0.36	−4.29	331.21	0.000

Table 2 cont'd

Specification	Women		Men		<i>t</i> -test (No Equality of Variance Was Assumed)		
	Mean	Standard deviation	Mean	Standard deviation	<i>t</i>	<i>df</i>	<i>p</i> -value (2-sided)
Use of simple derivatives such as currency options, futures, swaps (1 = yes, 0 = no)	0.00	0.00	0.04	0.20	−3.53	286.00	0.000
Exposure to currency risk (1 = yes, 0 = no)	0.15	0.35	0.48	0.50	−7.24	229.82	0.000
Company does not hedge against currency risk (1 = yes, 0 = no)	0.97	0.17	0.82	0.38	5.08	347.29	0.000
Number of sources of funds already used in the company	3.06	2.53	4.54	3.40	−4.56	219.01	0.000
Number of sources of funds, that are going to be used in the company	15.70	4.92	13.44	5.36	3.84	176.54	0.000
Losses in 2007–2009 due to option strategies (1 = yes, 0 = no)	0.04	0.20	0.16	0.37	−4.07	303.78	0.000

Source: the authors' own calculations.

As shown in Table 3, there are no statistically significant differences in information processing; women and men are equally affected by heuristics and cognitive biases. Both groups scored very low on the CRT, answering correctly on fewer than one question out of three (we investigated whether respondents relied on fast thinking or aimed for slow thinking). Another question addressed cognitive errors such as the availability heuristic and conservatism, where we found no differences between women and men.

Risk attitude was examined using lottery choices, based on the selections proposed by Tversky and Kahneman (1974) within the framework of prospect theory. Two lottery choices were presented in the domain of gains and losses. In both cases, differences were noted between the responses of men and women. Men were more likely to take risks in lottery choices. However, the difference was weaker in the domain of gains ($p = 0.075$)¹ than in the domain of losses ($p = 0.006$). Overconfidence, measured by the number of “better than average” responses, also

¹ In this study, a p -value of 0.1 is considered statistically significant, as sometimes accepted in econometric analysis (Wooldridge, 2016).

Table 3. Behavioural Variables in the Groups of Women ($N = 97$) and Group of Men ($N = 295$)

Specification	Women		Men		<i>t</i> -test (No Equality of Variance Was Assumed)		
	Mean	Standard deviation	Mean	Standard deviation	<i>t</i>	<i>df</i>	<i>p</i> -value (2-sided)
Number of correct answers in CRT	0.16	0.55	0.20	0.56	−0.54	166.28	0.591
Availability heuristics (1 = more words starting with the letter)	0.82	0.38	0.75	0.43	1.63	183.98	0.104
Availability heuristics (1 = more deaths caused by a car)	0.55	0.50	0.55	0.50	−0.05	163.17	0.962
Availability heuristics – number of answers coherent with the bias in two tasks	1.37	0.60	1.30	0.55	1.06	151.66	0.291
Conservatism task – correct answer: 3.26	44.36	30.97	42.93	30.84	0.40	163.18	0.693
Number of risky choices in two decision problems expressed in gains	1.15	0.83	1.32	0.68	−1.79	139.91	0.075
Number of risky choices in two decision problems expressed in losses	1.16	0.79	1.41	0.66	−2.81	142.92	0.006
Number of answers “better than the average entrepreneur” out of 5 possible	2.54	1.53	3.11	1.45	−3.22	156.95	0.002

Source: the authors' own calculations.

differed between the groups of men and women. Men exhibited higher levels of overconfidence compared to women, men gave 3.11 out of 5 “yes” answers, while women provided 2.54 out of 5 positive answers on average.

5.2. Decision Trees Explaining Decisions on Taking Position of Options Strategies

Investigating the differences between women and men in decision-making within corporate finance (adopting the perspective of the LSH), we particularly focused on risk-taking tendencies, with behavioural factors being assigned a key explanatory role due to the research gap.

Given our focus on behavioural factors and decision-making processes, using decision trees to analyse firms that experienced losses (from option strategies) deepens our investigation into gender differences in risk taking (Tables 2 and 3).

While examining the differences in risk-taking tendencies between women and men, operationalised as the purchase of option strategies, we attempted to build decision trees based solely on behavioural determinants (separately for women and men), disregarding economic factors. The dependent variable for which decision trees are constructed for women and men separately, is whether a company incurred losses as a result of option strategies in 2008 (“yes” response). The “no” response includes two subcategories: Firms that existed in 2008 and did not incur losses, as well as firms that did not yet exist. The decision tree was focused on companies that responded “yes” to the binary question regarding losses, and it reveals the relationships between behavioural factors influencing risk-taking, particularly through engagement in option strategies.

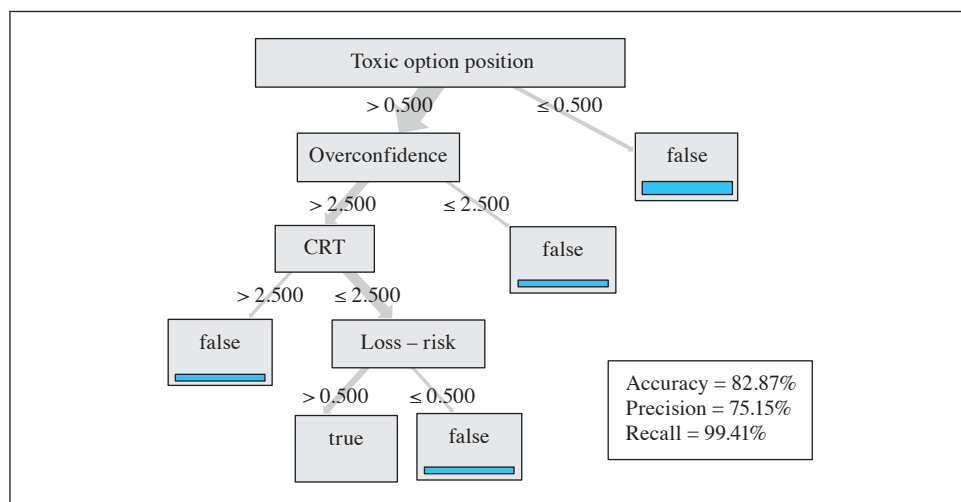


Fig. 3. Decision Tree for Male Gender

Source: the authors.

Table 4. Confusion Matrix for Male Gender (in %)

Specification	True false	True true	Class precision
Predicted false	66.28	0.58	99.13
Predicted true	33.72	99.42	74.67
Class recall	66.28	99.42	×

Source: the authors.

Figure 3 illustrates the decision tree derived from the survey results for the male gender only. Table 4 presents the confusion matrix for this tree (for the training sample). As shown in Figure 3, for men, significant factors leading to the use of option strategies included overconfidence, a low CRT score, and a high propensity for loss-related risk. In other words, men who decided to purchase option strategies were characterised by overconfidence, fast thinking (acting without deeper reflection or giving themselves time to thoroughly consider the problem), and a high tolerance for risk, even if it involved the potential for significant losses.

The overall accuracy of this decision tree was 82.87%, with a precision (how many people who actually purchased option strategies were correctly classified, relative to all those who purchased option strategies) of 74.67%, and a recall (indicating how many people identified by the model as having purchased option strategies actually did so) of 99.41%.

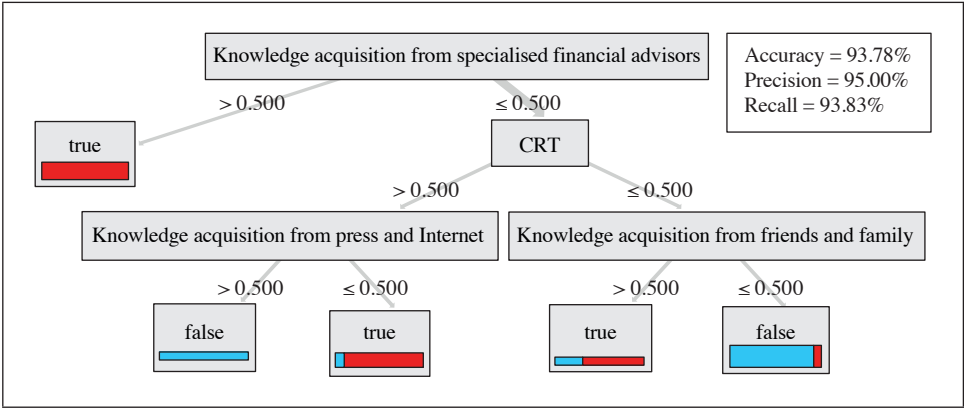


Fig. 4. Decision Tree for Female Gender
Source: the authors.

Figure 4 displays the decision tree for women. In their case, significant factors included reliance on the opinions of others and trust in financial advisors. Women who trusted financial advisors were more likely to purchase option strategies. For women who did not trust such advice, it was then the CRT score that turned out to be significant in determining the final involvement in option strategies. If a woman took time to reflect on the issue (CRT score high), then a key factor was whether she sought additional knowledge from the press and the Internet. If she made the effort to gather information, she did not purchase option strategies; if she did not, she went ahead with the purchase. In the case of fast thinking (CRT score low), consultations with family and friends were significant. Women who did

not rely on their advice did not purchase option strategies, whereas those who listened to such advice made the purchase. The overall accuracy of this decision tree was 93.78%, with a precision of 95% and a recall of 93.83% (the confusion matrix for the decision tree is given in Table 5).

Table 5. Confusion Matrix for Female Gender (in %)

Specification	True false	True true	Class precision
Predicted false	93.75	6.25	99.13
Predicted true	6.25	93.75	74.67
Class recall	66.28	99.42	×

Source: the authors.

As can be seen, the decision tree reveals a set of behavioural determinants influencing women's decisions to purchase option strategies, and these factors differ greatly from those affecting men. While men's decisions were often driven by overconfidence, women tended to be influenced by excessive trust in financial advisors and family, combined with a lack of deeper reflection and verification of information through press and Internet sources. It is worth noting that, although the decision trees do not show this explicitly, only a marginal number of women ended up purchasing option strategies. However, the trees do significantly classify risk-taking behaviour through engagement in option strategies, including in the case of women.

5.3. Logit Model of Factors Influencing Choices Regarding the Use of Option Strategies

Finally, we used the logit function to confirm significant factors that affected the decision to use option strategies. Tables 6–7 show estimated parameters of the model for coefficient and odds ratios.

Table 6. Logistic Regression Representing Determinants of Using Toxic Options, Logistic Version*

Toxic Option Exposure	Odds Ratio	Standard Error	z	$P > z $	95% Confidence Interval	
Gender_male	3.3047	1.9087	2.07	0.038	1.0653	10.2511
Overconfidence	1.9666	0.3163	4.20	0	1.4347	2.6955
Using opinions of other people	0.7195	0.0806	-2.94	0.003	0.5775	0.8963
Luck	1.8527	0.6630	1.72	0.085	0.9187	3.7361

Table 6 cnt'd

Toxic Option Exposure	Odds Ratio	Standard Error	z	$P > z $	95% Confidence Interval	
Knowledge acquisition from specialist financial advisors	2.9474	1.0309	3.09	0.002	1.4850	5.8501
Constant	0.01037	0.0099	-4.78	0	0.0016	0.0676

* Number of observations = 383, LR $\chi^2(5) = 67.58$, Prob > $\chi^2 = 0.0000$, Log likelihood = -116.47895, Pseudo $R^2 = 0.2249$.

Notes: Constant estimates baseline odds.

Source: the authors' own calculations.

Table 7. Logistic Regression Representing Determinants of Using Toxic Options, Logit Version*

Toxic Option Exposure	Coefficient	Standard Error	z	$P > z $	95% Confidence Interval	
Gender_male	1.1953	0.5775	2.07	0.038	0.0633	2.3273
Overconfidence	0.6763	0.1608	4.20	0	0.3610	0.9916
Using opinions of other people	-0.3291	0.1121	-2.94	0.003	-0.5489	-0.1094
Luck	0.6166	0.3578	1.72	0.085	-0.0847	1.3180
Knowledge acquisition from specialist financial advisors	1.0809	0.3497	3.09	0.002	0.3954	1.7664
Constant	-4.5680	0.9563	-4.78	0.00	-6.4424	-2.6936

* Number of observations = 383, LR $\chi^2(5) = 67.58$, Prob > $\chi^2 = 0.0000$, Log likelihood = -116.47895, Pseudo $R^2 = 0.2249$.

Notes: Constant estimates baseline odds.

Source: the authors' own calculations.

Table 8. Marginal Effects Calculated Based on the Logistic Regression

Variable	dy/dx	Standard Error	z	$P > z $	95% Confidence Interval		Mean of Independent Value
Gender_male	0.0616	0.0234	2.63	0.008	0.0157	0.1075	0.7493
Overconfidence	0.0435	0.0096	4.51	0	0.0246	0.0624	2.989
Using opinions of other people	-0.0211	0.0075	-2.82	0.005	-0.0358	-0.0064	4.613
Luck	0.0391	0.0225	1.74	0.082	-0.0049	0.0832	0.5430
Knowledge acquisition from specialist financial advisors	0.0921	0.0395	2.33	0.020	0.0147	0.1695	0.2161

Source: the authors' own calculations.

As can be seen in Table 8, presenting marginal effects calculated based on the logistic regression, being a man (not a woman) has a significant impact on the decision to take a position on option strategies: Being male gender increases the probability by about 6.16 percentage points (p.p.). The second significant factor is overconfidence which increases the probability of using option strategies by 4.35 p.p. The third statistically significant factor turned out to be the fact of acquiring knowledge from other people (as opposed to using only one's own opinion and knowledge) which reduced the probability by 2.11 p.p. The fourth significant factor was the belief that one is lucky in life; as it increased the probability by 3.9 p.p. The last factor was acquiring knowledge from specialist financial advisors; it increased the probability of using option strategies by 9.2 p.p.

6. Conclusions and Recommendations

A comparison of men and women making financial decisions within companies revealed that, while they differ in some respects, they are similarly susceptible to behavioural biases. There are no statistically significant differences in information processing; men and women are equally prone to heuristics and cognitive biases. Both groups scored low on the CRT and demonstrated similar susceptibility to the availability heuristic. However, men exhibited greater overconfidence, particularly in the form of the "better-than-average" effect, believing themselves superior to the average entrepreneur in different areas of life. They also displayed a higher tendency towards risk-taking.

Decision tree analysis indicated different factors influencing men's and women's decisions regarding option strategies. The results support the LSH, showing that men were more overconfident and risk-prone, with overconfidence as the primary driver of their decision to invest in option strategies. In contrast, women's key determinant was their tendency to seek advice from financial advisors, family, or friends. By analysing relationships between variables, decision trees identified pathways leading to decisions about engaging in option strategies.

The final logit model confirmed the LSH, showing that being male increased the probability of using option strategies. Other significant factors included overconfidence, reliance on external knowledge rather than personal expertise, belief in luck, and seeking guidance from financial advisors.

Although the LSH aligns with the results, other factors may also explain these differences. Some are situational, such as economic cycles and institutional sales practices, while others are individual-related, such as financial literacy.

Risk-taking fluctuates with economic conditions. During economic booms, optimism and overconfidence drive risk-taking, while downturns encourage more conservative strategies. Before the financial crisis, Poland experienced strong economic growth, partly due to its EU accession. The appreciating zloty created

economic optimism, leading many exporters to take substantial foreign currency exposure, assuming continued appreciation. Financial institutions aggressively marketed complex option strategies as cost-effective hedging tools, and with limited financial literacy, many companies engaged in speculative transactions without fully understanding the risks.

This study has some limitations. The sample includes fewer women, reflecting the lower number of female entrepreneurs in Poland, which itself aligns with the LSH. Additionally, the sample consists of entrepreneurs from the Podkarpackie voivodeship, which may not fully capture business diversity across Poland. Finally, selection bias may be present, as participants were drawn from entrepreneurial training sessions, potentially skewing the sample toward individuals open to new experiences. Future research should expand the sample and incorporate longitudinal data to analyse financial decision-making over time.

Key recommendations include increasing women's participation in financial decision-making to mitigate losses caused by overconfidence and heightened propensity for risk. Some countries, such as France and Norway, have successfully increased female leadership through gender quotas. Similar policies could be implemented in financial institutions, requiring a minimum percentage of women in top roles. The EU Directive 2022/2381 on gender balance in corporate leadership, adopted in 2022, sets a precedent for this approach.

Another strategy is offering tax relief or funding incentives for companies that meet gender diversity targets in leadership. Since women in finance often lack access to influential networks, structured mentorship programmes could help bridge this gap. Encouraging financial firms to implement blind recruitment practices and structured interviews could further minimise hiring biases.

Finally, work-life balance challenges are a common barrier to career advancement for women. Addressing these issues through parental leave policies and hybrid work models could facilitate greater female participation in executive and financial leadership roles.

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Authors' Contribution

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Conflict of Interest

The authors declare no conflict of interest.

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Business Partnership as an Element of Building Customer Value

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ABSTRACT

Objective: The main aim of the article is to try to characterise the impact of a business partnership on creating value (CVA – customer value added), based on mutual collaboration in the supply chain. The study looks at the aspect of creating added value through activities that create benefits to supply chain partners, playing an important role in creating customer loyalty, and what follows – the competitiveness of the company.

Research Design & Methods: The study used the desk research method in the field of statistical data analysis, the comparative analysis method and the method of critical analysis of literature on the subject. To obtain the primary data, a survey technique was used, the research tool of which was a research questionnaire distributed electronically (CASI) in the form of a survey

questionnaire. The survey method was supplemented by the method of telephone interviews (CATI) and face-to-face interviews (CAPI).

Findings: The research shows that establishing partnerships, especially with customers, is broadly reflected in the benefits that all entities forming a common supply chain obtain. These benefits have not only a social dimension through building partnerships, but also an economic one. As research shows, participation in a partnership has a direct impact on building long-term customer satisfaction, which naturally translates into benefits for the entire supply chain. When deciding to create partnerships with customers, enterprises try to minimise the risk of failure, and their greatest fears do not concern the aspects of the internal environment, but the economic and social situation of the world.

Implications/Recommendations: Currently, the creation of a business partnership within the framework of cooperation is becoming the basis for building the competitiveness of enterprises in the market. The effects of such cooperation are to a large extent synergy effects, leading to the development and growth of potential based on the cooperation of entities co-creating supply chains, including: suppliers, customers, manufacturers and intermediaries. In the near future, taking into account the difficult conditions of competing in a complex and dynamic socio-political environment, it will be extremely important for enterprises to intensify activities to build long-term partnerships based on trust and mutual benefits with contractors (suppliers, customers, cooperators). In this situation, business partnership will be an effective tool in the fight for customers, and at the same time it will be conducive to building the company's competitiveness in a turbulent market.

Contribution: The contribution of our research to the current scientific discourse consists of identifying the basic relationships between building partnerships in the supply chain and creating added value for the customer, which in the perspective of the volatility of the environment allows enterprises to achieve relative economic stability. This gives managers responsible for strategic decisions some guidance on how to efficiently balance the economic goals of the company and social and environmental goals related to customer satisfaction.

Article type: original article.

Keywords: partner relationship, business collaboration, added value, management.

JEL Classification: L22, L24, M21.

1. Introduction

Currently, we can observe a large increase in aggressiveness between competitors, caused by the dynamisation of the environment and by socio-political changes. Additionally, the appearance of the COVID-19 pandemic fundamentally complicates the already difficult and very limited market relationships (Sadowski *et al.*, 2021). That is why, the matter of partnership in the supply chain in times of increasing uncertainty is of particular importance. In addition, to reduce costs and risk reduction, companies strengthen their collaboration in order to increase

the ability to be competitive, merge complementary competences or acquire knowledge necessary to understand contemporary processes (Trojanowski & Kazibudski, 2021). That is why one of the key factors shaping the business value of a company is the ability to collaborate with other entities in a partnership, focus on key competences and develop relationships with suppliers and customers (Giannakis-Bompolis & Boutsouki, 2014; Navimipour & Soltani, 2016). The ongoing interaction between the environment and the organisation makes its effectiveness dependent on the efficiency of the entire supply chain, including partnership relations between all links in this chain (Richardson, Quinet & Kitajima, 2021). Partnership collaboration between these links allows for the creation of standards that are fundamental to integration. Joint efforts of multiple entities towards the commonly shared aim of satisfying market needs have a great impact on the market value of the company, which is dependent on its capital structure and on the capitalisation of the expected profits (Gruca & Rego, 2005; Peng *et al.*, 2015). Thus, the value of the enterprise depends on the expected income of the economic unit, the size of which is influenced by such factors as: the position of the company in the market, the number and quality of customers, relations with suppliers and partners, innovative or adaptive abilities, etc. Achieving the required competitiveness levels is possible, provided that an appropriate strategy is implemented that will help build long-term, trust-based relationships with the surrounding environment and particularly with customers (Kumar & Pansari, 2016). The starting point of this approach is to understand the mechanisms that control customer behaviour and the environmental factors. Following that, one also needs to understand the extent of the ability of the company to influence these factors, shape them, to create cooperation-based value. The next step is to ensure customer care, as well as individual tailoring of products. Their above-average usability should provide customers with maximum satisfaction. That, in turn, will lead to an increase in customer loyalty (Lamrhari *et al.*, 2022). These activities lead not only to gaining a competitive advantage, but also become the foundation for long-term partner cooperation with customers based on mutual benefit, including customer value proposition (CVP) (Rintamäki & Saarijärvi, 2021).

In the literature review, there is only a small number of studies discussing the impact of business partnership on creating added value for both the customer and the business in the form of mutual benefits gained from collaboration in the supply chain. This gap should be supplemented by viewing each partnership in the context of the very factors that allow the entities involved to be partners. The discrepancy in the perception of what this partnership is supposed to be makes all parties expect different things from collaboration at each stage of building the supply chain. Indicating the key objective factors and benefits of a given partnership in the supply chain will help to confront the internal perception of what this partnership is with the actual scale of involvement of everyone engaged in implementing it.

The aim of the article is to analyse and evaluate the impact of a business partnership on creating partnership-based value (CVA – customer value added) in the supply chain. The study considers the aspect of creating added value throughout the entire partnership period. The conclusion process was based on the English-language sources on the subject and own study carried out in a group of production, trade and service companies forming supply chain business partnerships in the Łódź region (Łódzkie voivodeship, Poland). The final considerations and valuable conclusions from the study may help identify key areas of value (CVA) creation in the supply chain, which significantly affect the development and competitiveness of a company in the market.

2. Partner Cooperation and Relationships in the Supply Chain – Theoretical Background

Creating a business partnership covering entire supply chains is apparent not only in business practice but also widely described in world literature (Bowersox, Closs & Cooper, 2010; Daugherty, 2011; Brauholtz-Speight *et al.*, 2020; Eggert, Ulaga & Gehring, 2020; Sheth, 2020). This is because modern companies that operate on their own can rarely compete on an equal footing with businesses that base their functioning on multi-stage cooperation with partners in the supply chain. Such cooperation brings, most of all, synergistic effects leading to the development and growth of potential that stems from cooperation of entities that co-create the supply chains (Zhang *et al.*, 2024). This includes suppliers, customers, producers, and intermediaries. In many scientific publications it is emphasised that building partnerships based on mutual relationships is the basis for creating added value, measured by the sum of benefits obtained by customers and entities interacting with them (Peng *et al.*, 2015). However, the selection of the type of relationship in the supply chain is conditioned primarily by the actual purpose of partnership and the analysed type can be joining forces to increase the ability to compete (for better margins and greater market share for coalition members) (Doz & Hamel, 2006). To achieve the intended benefits, partnerships should be founded on several factors, leading to success. Points of action in this area should be continuous and with growing maturity in mind, to guarantee long-term benefits that create economies of scale for all entities involved in partnerships in the supply chain.

Although partnerships are not considered a universal remedy for all contacts between businesses, worldwide experience shows that they can often bring the desired results (Danese & Romano, 2011; Cheng & Carrillo, 2012; Mariani *et al.*, 2022). The most crucial objective of entities cooperating in the supply chain is to achieve high efficiency of individual entities and their combined networks. This should happen as a result of coordination and integration of all activities and

processes throughout the supply chain. However, the level of partnership depends on the accurate identification of customer needs and preferences (Dash, Bruning & Acharya, 2009; Suh *et al.*, 2019). More and more product homogeneity is observed in the market, customers are more aware and more demanding. Hence, the critical condition for partner integration is that one must build unique and inimitable relationships between the business and other entities, especially with customers. Long-term customer relations are currently among the most important areas of interest for companies that want to develop and be competitive in the market (Hilton *et al.*, 2020).

Nowadays, the redistribution of funds and the thinning of the buyer's wallet mean that any funds allocated to building a business partnership are used more efficiently when they focus on the behaviour of all existing customers. This approach is aimed at shaping the additional value of the company measured by the level of its competitive advantage and the stream of benefits flowing to the customer (Itani, Kassar & Loureiro, 2019). This thesis is confirmed by the results of studies that compare the effects of companies that focus specifically on creating partner bonds with customers to the results reported by companies doing only transactional exchange (Eggert, Ulaga & Gehring, 2020; Hochstein *et al.*, 2020). Research has shown that companies maintaining partner bonds note six times higher profitability (Temporal & Trott, 2000) than those operating as single entities. This approach is also reflected in economic development, where the creation of new products takes place with the participation of the customer, which results in better and more complete satisfaction of their needs and preferences.

The allocation of funds to purchase products naturally creates customer value (Walsh, Evanschitzky & Wunderlich, 2008; Guo, Xiao & Tang, 2009; Eggert *et al.*, 2018; Sheth, 2020). The argument in favour of a business partnership is that customers understand and receive value in a variety of ways. Since the same value may be perceived differently by individual customers, it is subjective and expressed in how they assess the benefits they see in the offered product. The total value that the customer receives is the difference between the total value provided, reduced by the costs incurred by the customer. Both costs and benefits are characterised by several intangible features, such as: like or dislike, trust or lack of trust. That is why the key factor in the creation of added value is the mechanism of how it is created. The creation process is a series of dynamic, interrelated processes that optimise the entire logistics chain while creating value factors. In literature around the globe, we can come across a statement that the phenomenon of value creation, illustrated by a business model, usually takes place in a value network, which may include suppliers, partners, distribution channels and coalitions that expand the resources of an organisation (Normann & Ramirez, 1993; Karami & Madlener, 2021). It follows that the so-called external strategies, which include CR, RQ and

ECR, have the greatest share in creating this value. These strategies contribute to creating the value of a relationship, improving its quality or shortening the time of order fulfilment, which entails the opportunity to reduce the costs incurred by a single link. One should not ignore the fact that creating value for customers allows for obtaining value for the company. This makes organisations establish partnerships with their customers by implementing and applying management strategies (Wongsansukcharoen, 2022).

Effective delivery of benefits to customers requires skillful management (CRM – customer relationship management). In business, it is viewed as a combination of customer experience and customer engagement creating a joint mutually supportive concept by forming long-term relationships (Grewal *et al.*, 2017; Sigala, 2018; Hilton *et al.*, 2020). However, the concept of CRM is subject to constant development and modification. Businesses, based on their experiences and practical implementations of diverse types of CRM applications, try to improve relationship management by adding aspects or modules that they find relevant (Guerola-Navarro *et al.*, 2021). The knowledge obtained in this way is frequently limited to transactional exchange detail, which in most cases does not allow for the creation of long-term relationships with customers, and consequently generates additional costs affecting the total cost of service (Gil-Gomez *et al.*, 2020).

The way of acquiring and using appropriate knowledge about customer preferences becomes the key element in creating a partnership. Knowledge acquisition involves two types of activities: transmission and absorption. Transmission is the way of taking knowledge from the environment and passing it on to the recipient, while the absorption of knowledge, or in other words acceptance, is the assimilation and appropriate use of what we learn. The knowledge and skills used in the efficient creation of CVA are a specific result of the measurement of the value creation process, the aim of which is to offer measurable benefits to the customer, defining the value and price of the product. These benefits can be presented as the sum of the desired attributes: service and product quality, customer satisfaction, customer usefulness, price, time and cost optimisation, reliability, or timeliness of flows throughout the supply chain (Zhang *et al.*, 2013; McColl-Kennedy, 2015). Thus, the key criteria for selecting the right customers are their value and profitability, including the income they generate and the cost of providing a service to them. Companies operating in globally integrated markets, where the primary task is to increase customer profitability, should rely on the concept of value based management (Firk, Richter & Wolff, 2021). In activities undertaken within this concept, the most important thing for companies is to focus on the fundamental elements, that is intangible assets; goodwill (Sheth & Sharma, 2008; Killins, Ngo & Wang, 2021) – knowledge, experience, reputation of the company, intellectual capital, non-financial resources, hidden resources, etc. These assets, acquired, created, and controlled

by the company, determine the possibility of gaining a competitive advantage in the supply chain. Therefore, the basic principle of managing relationships in the supply chain is adapting the company's offer to customer expectations, which in turn leads to forming effective relationships with them (Zhang *et al.*, 2016). The essence of an effective relationship is measuring the outcomes of collaboration and monitoring key performance indicators of suppliers and customers within the supply chain (Eggert, Ulaga & Gehring, 2020; Prohl-Schwenke & Kleinaltenkamp, 2021). The main purpose of such measurement is to determine the extent of mutual benefits gained by both parties from the implementation of joint actions within the entire supply chain. Due to the need for the cooperation of all participants in the supply chain, it is necessary to move from individual measurements towards measuring entire processes holistically (Hervani *et al.*, 2022).

The aspect of partnership-based cooperation in the supply chain in an era of increasing uncertainty and dynamic changes in the market is one of particular importance, and so: Aside from cost and risk reduction that a partnership brings, companies collaborate closely to increase competitive advantage, merge their complementary competences, or acquire knowledge to gain new advantages (Lostakova & Pecinova, 2014). This collaboration is dictated primarily by the high level of customer volatility, their requirements, and expectations in relation to purchased products. In such circumstances, companies focus primarily on transactional activities and strong price fights, which dominates the process of building long-term partnerships within the supply chain. On the other hand, due to the economic slowdown, customers mostly expect lower costs and being able to buy products at an optimal price. They also expect actions from the company that aim to ensure their transactional security.

3. Research Methodology

Economic practice shows that a confrontational attitude of partners within the supply chain does not create a favourable atmosphere for the integration of partnership-related processes. This is because the actual full integration is determined by developing individual links on specific levels of cooperation for all partners. The actual goal of the entire supply chain operation should be long-term partnership with the customer, dependent on to what extent that partnership is internally integrated. Supply chains that operate faster and more efficiently achieve this goal successfully, gaining a competitive advantage. Managers responsible for actions leading to the achievement of the company's financial goals face a challenging task. This difficulty lies in finding a balance between economic, social, and environmental goals of the company (Trojanowski, 2020). That is why forming business partnerships allows companies to reduce costs while maintaining a high quality of services provided. To confirm this argument, selected results of a study are

presented below, conducted in companies operating in the Łódź region, which is perceived as a highly competitive and attractive investment area in Poland.

The choice of the Łódź region, located in the centre of Poland, is not coincidental. It has been made due to the specificity and location of the Łódź region, and its primary conditions exemplified by: traditional know-how, access to specific natural resources, rapid growth in demand for certain goods or services, high human capital, educated staff, and specific knowledge, all of which place this area at the forefront of regions with high innovation potential in Poland.

The main goal of the study was an attempt to determine the benefit of the CVA – that customers and companies gain by creating business partnerships with entities forming a common supply chain, the so-called partnership value (Dobiegała-Korona, 2015). Given the growing pressure of the environment, the focus was put on the aspect of creating innovative solutions in the potential partnership area as a factor affecting the competitiveness of a company. In addition, the basic dependencies between cooperation in the supply chain and creating added value for the customer (CVA) were indicated, which allows companies to achieve relative economic stability in a volatile environment. The tool for statistical calculations was IBM SPSS Statistics 29. When analysing responses to questions, in which it was necessary to determine the strength of the relationship, a measure of the dependence of features based on the values of the chi-square statistic, namely Cramér's *V* coefficient, was used for nominal variables predominating in the study.

Table 1. Sample Structure in Cross-section of the Studied Enterprise Characteristics, *N* = 74 (in %)

Period of Operation in Market ^a		Enterprise Capital		The Nature of Business Activities ^b	
Up to 5 years	13.5	Foreign	17.5	Trade	31.1
6–10 years	59.4	Polish	64.8	Service	33.8
Over 10 years	27.1	Mixed	17.7	Production	35.1

^a Due to the asymmetric distribution of enterprises, from the point of view of this variable, further analyses were divided into two categories: period of operation up to 10 years and over 10 years; ^b the nature of the enterprise's activities concerned its leading business profile.

Source: the authors, based on research.

The selection of the sample for the study was deliberate. Based on the data obtained from public administration sources available through websites and enterprise databases, a list of 364 companies (manufacturing, trade, and service) operating in the Łódź region was created. Responses were received from 79 entities; 5 questionnaires were rejected due to incomplete data. After formal and substantive verification, 74 enterprises were qualified for the analysis (production 35.1%, trade 31.1%

and service 33.8%), so the obtained return rate was 20.3%. The survey was conducted among private entities belonging to the sector of small and medium-sized companies (SMEs). As explanatory variables, three characteristics of enterprises were considered in the analysis: how long they have operated in the market, the origin of their capital and their main activity profile (see Table 1). Due to the small size of the sample, the obtained results cannot be generalised to the entire population, being only an illustrative element of the discussed subject.

The study was conducted at the turn of 2021 and 2022, using the desk research method for statistical data analysis, the comparative analysis method, and the method of critical analysis of the literature on the subject. To obtain primary data, a survey was used, where the research tool was a research questionnaire distributed electronically (computer assisted self-interviewing) in the form of a survey. The survey technique was supplemented by computer-assisted telephone interviewing and computer aided personal interview methods.

4. Research Results

Because of the cluster structure of the modern supply chain, manifested by initiating numerous interactions with other entities that operate in the market, and by impact of these chains on shaping functions and processes in companies, a specific type of cooperation appears in market economy: the so-called network supply chains (Colicchia & Strozzi, 2012; Baryannis *et al.*, 2019). They emerge because companies can gain above-average benefits thanks to partnership cooperation with customers along the entire supply chain (Fig. 1). This form of cooperation in the face of tough competition gives the opportunity to meet the needs of end buyers and effectively oppose competitors.

Over 70% of surveyed companies pointed to the desire to improve their customer service quality levels as the main reason for entering partnership with their customers. This answer dominated among manufacturing and service companies operating for over 5 years. Such a response confirms the contemporary customer-centric orientation, the most important goal of which is efficient and professional customer service related to providing added value (CVA). For nearly the same proportion of the respondents, an important goal in establishing a partnership, next to reduction of operating costs, was the wish to include customer's needs at the product design stage. This stems from the fact that most companies, to reduce production costs and maximise adaptation to customer preferences, use a number of methods that optimise product creation and design, such as quality function deployment or failure mode and effect analysis. The lowest number of respondents declared that their goal in partnerships was the micro-segmentation of markets (nearly 10%) and participation in social programmes addressed to the customer (only 7% of respondents). Irrespective of their business profile and capital, compa-

nies would unanimously admit that the quality of customer service plays a key role in building trust in partnership relations.

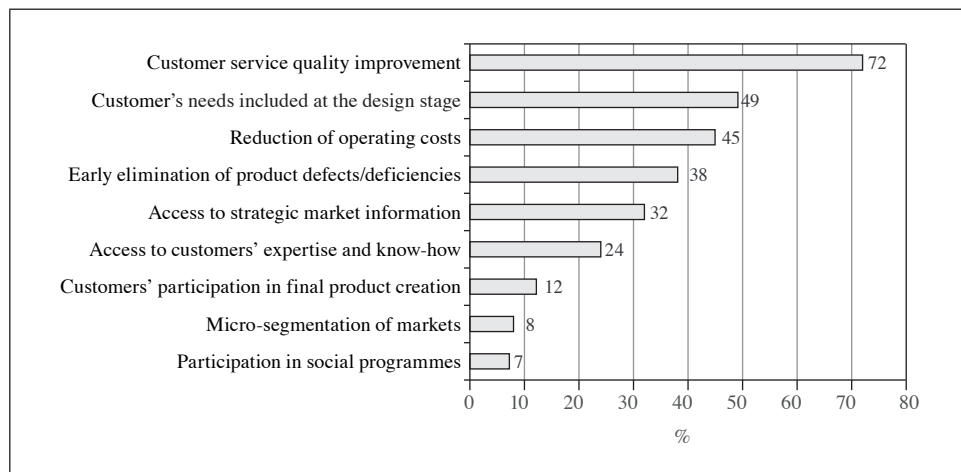


Fig. 1. Aims of Establishing Partnerships with Customers in the Supply Chain, $N = 74$

Source: the authors, based on research.

The next stage was the analysis of the relationship between the three most frequently indicated factors influencing the development of relationships with customers in the supply chain and the type of business activity of the surveyed enterprises.

The correlation analysis, conducted using the Cramér's V correlation coefficient, confirmed that there is a strong and statistically significant relationship between the type of activity conducted and the improvement of service quality (Cramér's $V = 0.612$; p -value = 0.000). All manufacturing companies indicated improvement of customer service quality as a key factor in building relationships with customers, while in the case of trading (30.4%) and service companies (72%) the role of this factor turned out to be much less important (Fig. 2).

Similar findings were provided by the analysis of the relationship between the type of business activity and the role of customer's need included at the design stage for the surveyed companies. This factor was most often indicated as important for manufacturing companies (73.1%). Slightly over half of the service companies considered this factor significant for their business, and only one in five trade companies considered this factor as important (Fig. 3). It confirmed the existence of a clear and statistically significant relationship (Cramér's $V = 0.422$; p -value = 0.001).

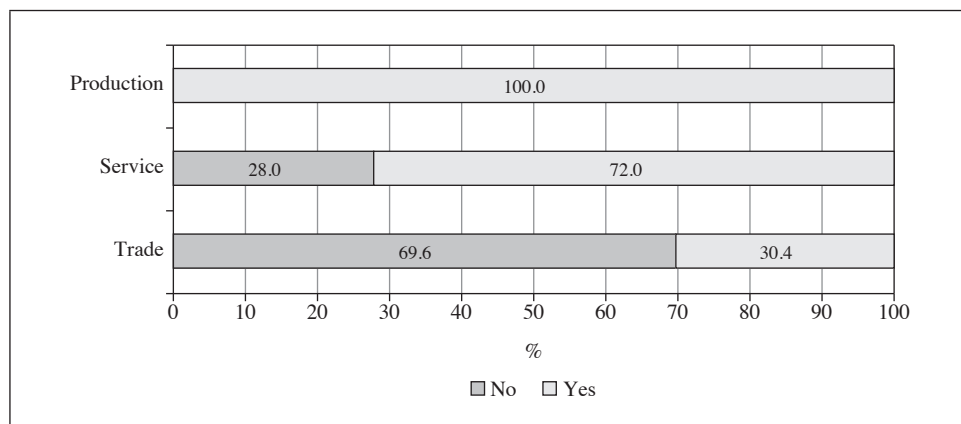


Fig. 2. The Relationship between Customer Service Quality Improvement and the Type of Business Activity of the Surveyed Enterprises

Source: the authors, based on the conducted survey.

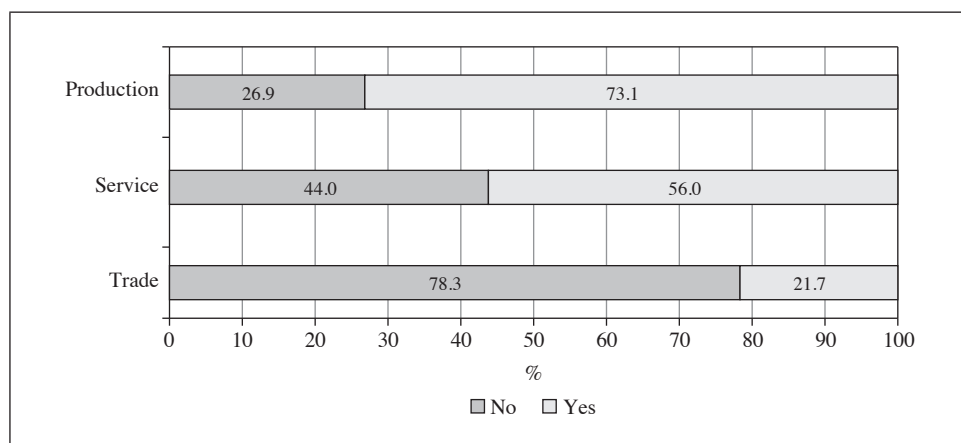


Fig. 3. The Relationship between Customer's Needs Included at the Design Stage and the Type of Business Activity of the Surveyed Companies

Source: the authors, based on the conducted survey.

The third most highly scored feature in the group of surveyed companies was the reduction of operating costs. Correlation analysis also confirmed that there is a clear and statistically significant relationship between the type of activity and the reduction of operating costs (Cramér's $V = 0.357$; p -value = 0.009). The detailed distribution of responses is shown in Figure 4.

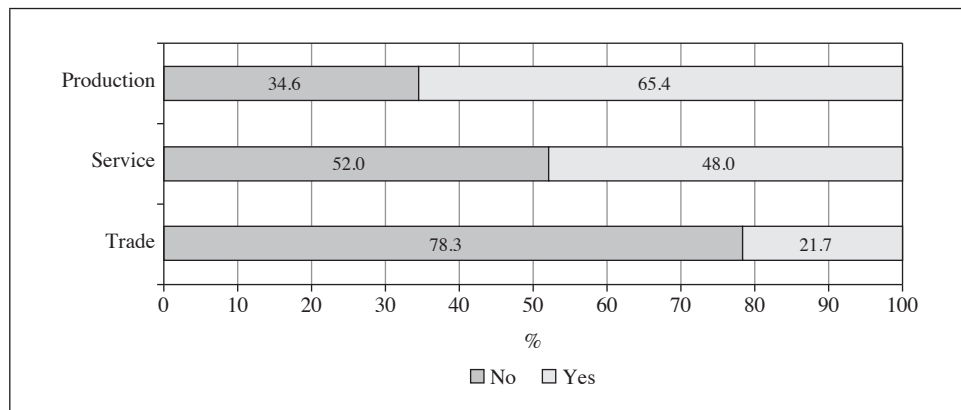


Fig. 4. The Relationship between Reduction of Operating Costs and the Type of Business Activity of the Surveyed Companies

Source: the authors, based on the conducted survey.

The customer value concept focuses on the customer and is designed to provide them with added value resulting from partnerships with companies throughout the entire supply chain. Customer's participation in a partnership is conceptualised as an interaction and connection between customers and entities that form a shared supply chain, and not only as ordinary activities related to market transactions. This stems from the fact that nowadays customer satisfaction plays a vital role in the way companies think and strategise marketing. This way, all benefits gained by customers are the result of the benefits obtained by all partners in the network supply chain (Fig. 5).

The greatest benefit for almost 75% of the surveyed companies creating partner relationships in the supply chain was the optimisation of logistics costs related primarily to transport and storage. This response came mostly by manufacturing companies with low and medium experience in the market. For more than half of the respondents, shortening the order fulfilment cycle was a measurable benefit obtained from their partnerships. Over 40% of the surveyed commercial companies improved their competitive position in the market thanks to their partner cooperation in the supply chain, while over 35% of services, trade and production companies have reduced their inventories and improved timeliness indicators. It is worth paying attention to the fact that only slightly more than 10% of all respondents indicated the improvement of the accuracy of their sales forecast as a benefit they obtain thanks to cooperation in the supply chain. Such a response rate is no surprise when we consider the dynamics of changes and market uncertainty, especially in the recent COVID-19 pandemic.

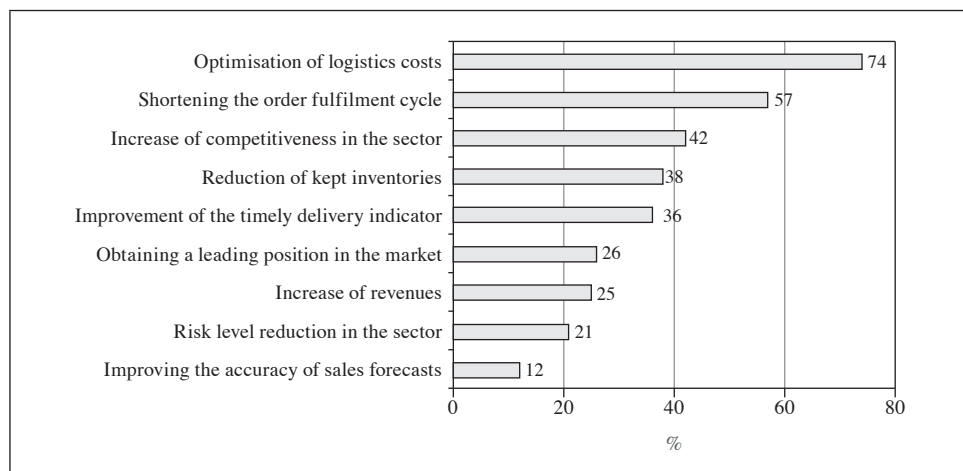


Fig. 5. Supply Chain Partnership Benefits Obtained by Organisations, $N = 74$

Source: the authors, based on research.

Additionally, a correlation analysis was conducted between the type of business activity and the three most frequently indicated factors related to supply chain partnership benefits. Only for the optimisation of logistics costs is the correlation strong and statistically significant (Cramér's $V = 0.567$; p -value = 0.000). The distribution of relative frequencies for this factor is presented in Figure 6.

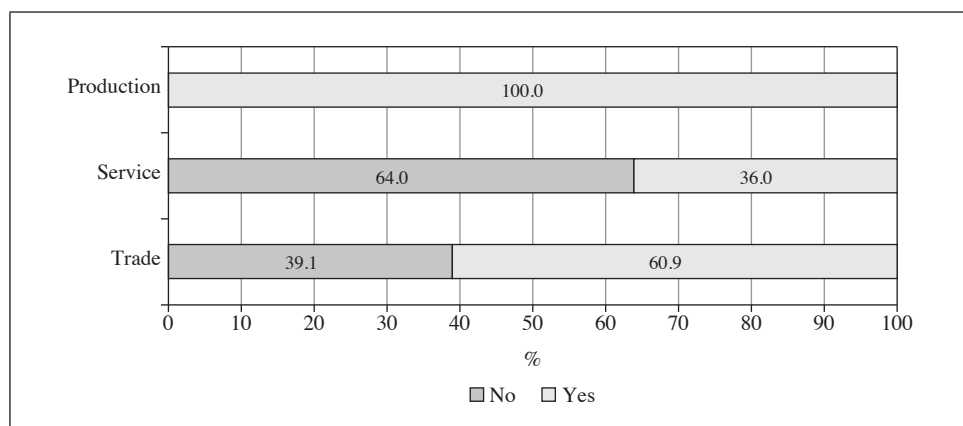


Fig. 6. The Relationship between Optimisation of Logistics Costs and the Type of Business Activity of the Surveyed Enterprises

Source: the authors, based on the conducted survey.

Another form of benefit that companies obtain from creating partnerships in the supply chain is the added value that they receive from collaborating directly with the customer. This is related to the fact that most enterprises are very motivated to encourage customers to create partnerships in the supply chain, considered to be a key tool to increase their competitiveness (Vargo & Lusch, 2016). The obtained value not only strengthens the company's brand in the market but also provides grounds for long-term development and future profits from the model based on cooperation (Fig. 7).

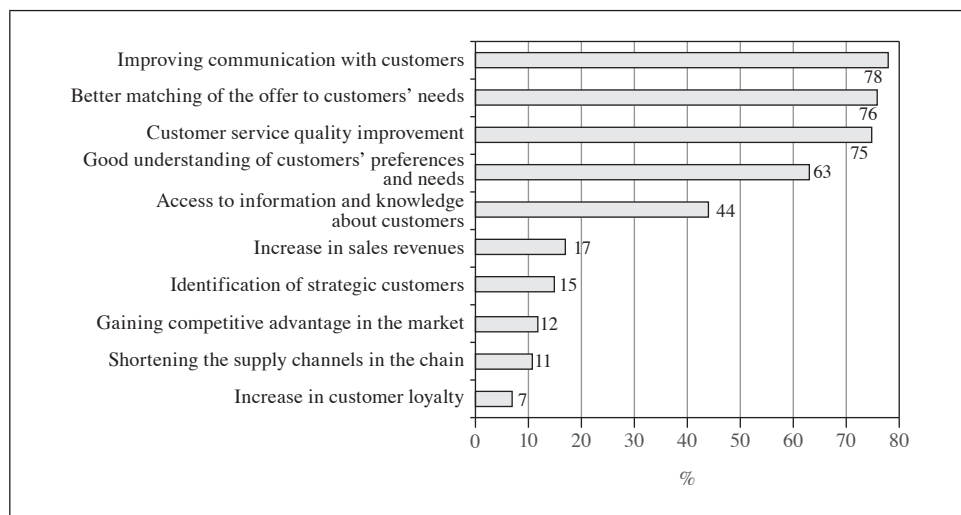


Fig. 7. Benefits Organisations Obtain from Partnering with Customers, $N = 74$

Source: the authors, based on research.

As the results of the study show, the most important benefits of partner cooperation with customers include improved communication and better adaptation of the offer to the client's needs, as well as an increase in the quality of customer service (over 3/4 of respondents indicated that was the case for them regardless of the nature of the activity and the period of operation). The grounds behind such choice of responses can be related to international research that states numerous times that professional customer service, and the resulting customer satisfaction brings economic benefits to the company, manifested in the competitive position in the supply chain (Yi *et al.*, 2021). In turn, companies were least affected by the increase in customer loyalty. This change, in the opinion of all respondents, was insignificant and only less than 10% of them indicated this factor (as before, regardless of the activity type and the period).

As mentioned before, the key benefits gained from partnership with customers turned out to be in the following areas: communication with customers, better matching of the offer to customer's needs and improvement of customer service quality. For these three areas, a correlation analysis proved that the only clear and statistically significant relationship (Cramér's $V = 0.325$; p -value = 0.020) occurs between matching the offer to the customer's needs and the type of business activity (Fig. 8).

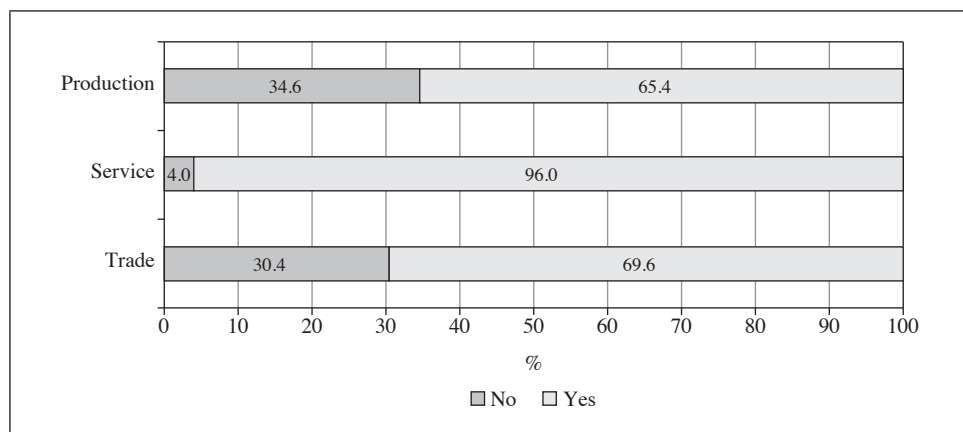


Fig. 8. The Relationship between Better Matching of the Offer to the Customer's Needs and the Type of Business Activity of the Surveyed Enterprises

Source: the authors, based on the conducted survey.

Undoubtedly, creating partner relationships significantly improves the functioning of the entire organisation. This is particularly relevant for building mutual relations with the customer because they are the ultimate verifier of the company's level of development. Providing added value (CVA) to the customer is related not only to the actions of the organisation itself, but also to the cooperation throughout the entire supply chain. Offering measurable benefits to customers positively affects the customer's relationships in the supply chain and strengthens the ties of business collaboration (Fig. 9).

The main benefit obtained by customers creating partnerships with companies in the supply chain was, from the company's perspective, comprehensive customer care in service processes – as indicated by over 65% of respondents – this answer was most often given by service companies operating in the market for more than 10 years. Over 60% of respondents stated that the elimination of unnecessary action points in the service process and a consistent and uniform system of marketing information, as well as the free flow of information (indicated by above 50% of

enterprises, primarily commercial and service), adds value to partnerships in the supply chain. In the opinion of less than 10% of respondents, operating in the market for less than 5 years, the diversification of product distribution channels is the least experienced by customers. This might be the effect of reducing the number of points of goods distribution resulting from limited mobility of people as well as nationwide lockdowns currently implemented worldwide (Sadowski *et al.*, 2021).

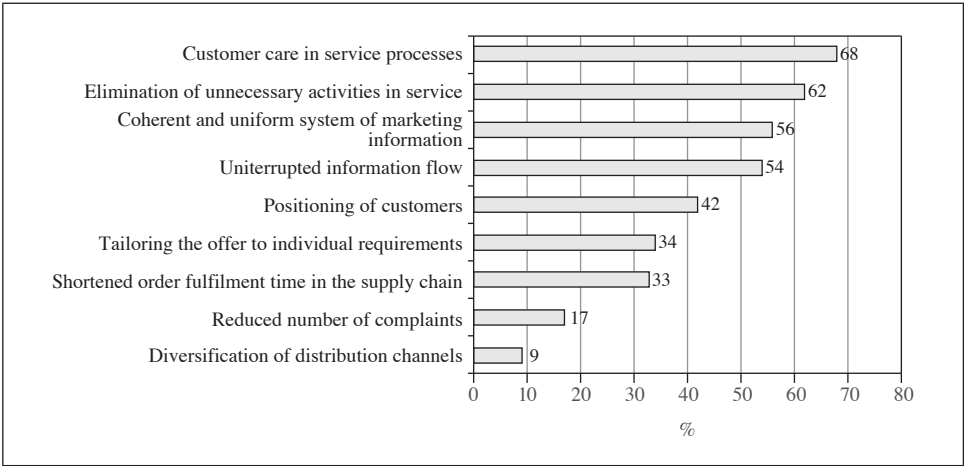


Fig. 9. Customer Value Added from Company Partnerships, *N* = 74

Source: the authors, based on research.

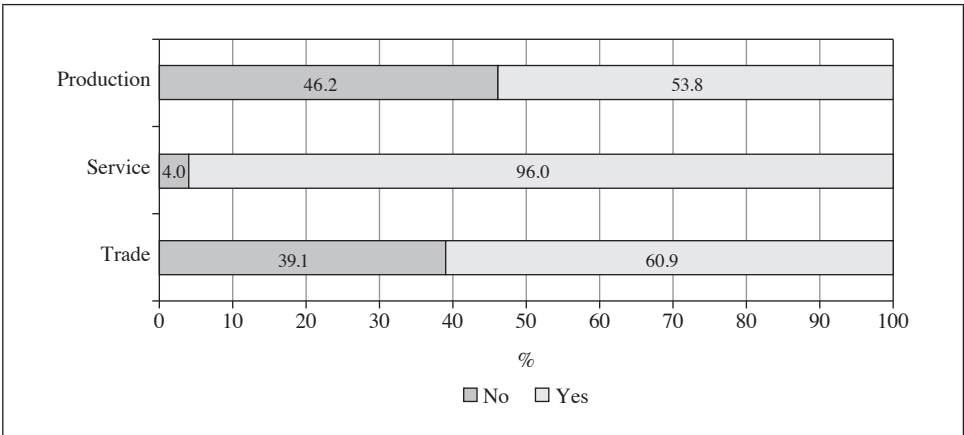


Fig. 10. The Relationship between Customer Care in Service Processes and the Type of Business Activity of the Surveyed Enterprises

Source: the authors, based on the conducted survey.

Additionally, a correlation analysis was conducted, which showed that there is a strong and statistically significant relationship between customer care in service processes and the type of business activity of enterprises (Cramér's $V = 0.407$; p -value = 0.001). The distribution of relative frequencies for the discussed factor is presented in Figure 10.

5. Considerations and Conclusion

The constantly changing market conditions, accompanied by the global economic crisis and recession in recent years, made it necessary to link entities into networks of values to respond faster and more flexibly to customer needs. In the scientific space, there are studies on customer participation, their social and structural ties, customer values and satisfaction (Carlson *et al.*, 2019; Robbert, Straus & Roth, 2019). In total, most of them include the subject of customers and their satisfaction obtained from participation in transaction processes created by enterprises, but they do not fully illustrate the customer's participation, their values and cooperation in an integrated partner chain (Yi *et al.*, 2021). Given the mixed results and complexity of integration practices, the relationship between supplier integration and value capture in an integrated supply chain is not straightforward. Therefore, there is a growing need for research that considers the synergy effect (Li *et al.*, 2022; Chavez *et al.*, 2023). Compared with supplier integration, customer integration provides benefits to the enterprise in a more efficient and straightforward way because in such a case the supply chains become customer-centric and aim to provide better added value to the customer (Huo *et al.*, 2016). Therefore, the need to maintain and manage customer loyalty has led to the need to further strengthen relationships, not only between suppliers and customers but also between all entities that form a common supply chain (Lostakova & Pecinova, 2014). This phenomenon is confirmed by the results of the study, in which over 3/4 of the surveyed companies indicated the desire to improve the quality of customer service as the main reason for establishing collaboration with customers. Most often, but not only, such a response was given by companies with a relatively short presence in the market. This results from the fact that companies entering modern markets struggle with many difficulties related to ensuring the continuity of supply chains. A number of difficulties, including disrupted supply chains, market volatility and dynamics, geopolitical policy and lack of customer loyalty, mean that partnerships created with other entities are more economically stable and provide an opportunity to stay in the market. Because in virtually every company, regardless of its duration in the market, capital size or the nature of its business, the priority is to meet the needs and expectations of customers and to provide the customer with added value (CVA), which is the sum of various above-average benefits that the customer obtains by entering into a partnership in the supply chain.

The correlation analysis confirmed that the goals of establishing partnerships with customers in the supply chain and their importance for the given entities differ depending on the type of business activity. All manufacturing companies and 3/4 of service companies indicated that improving the quality of customer service is the key factor as the goal of establishing partnerships with customers. A completely different situation was observed in the case of commercial companies for which this factor was much less important. The greatest benefits resulting from cooperation with customers are gained by service companies, which, thanks to this cooperation, improve communication with customers and are able to better adapt the service offer to their needs.

Value added is an issue that is difficult to define, as it is an abstract concept, referring to customer preferences. That is why an essential tool in identifying the needs and preferences of customers is appropriate, systematic research. Companies that systematically conduct research on business partnerships will not only gain multidimensional knowledge about their customers and partners but will succeed by gaining a long-term competitive advantage in the market. The basic axiom in value co-creation is to improve the well-being of customers and their ecosystems, by focusing on mutual benefits for both the supplier and the end user as a stakeholder in the chain (Sheth, 2020). As numerous studies show, participation in a partnership has a direct impact on building long-term customer satisfaction, which naturally translates into benefits for the entire company. These benefits are also visible in the results of our own study, where for most companies, optimising logistics costs related to transport and storage, or shortening the order fulfilment cycle was a measurable benefit obtained from their partnership. Over 40% of the surveyed trading companies improved their competitive position in the market, while over 35% of all companies reduced inventories and improved timeliness indicators. Thus, mutual value co-creation occurs when both suppliers and customers collaborate and allocate complementary resources and capabilities, which may be informal or formal. Value co-creation extends the scope of collaboration beyond immediate improvements in quality, price, and service to end users (Sheth, 2020). As evidenced by numerous postulates, participation in a partnership has a direct impact on building long-term customer satisfaction, which naturally translates into benefits for the entire chain. Thus, given the issues of customer complexity and unpredictability, their participation in the partnership is considered a critical success factor for the entire supply chain.

To sum up the conditions for shaping partnerships and offering added value to customers (CVA), one should assume that the surveyed companies establish partnerships primarily with the socio-structural aspect in mind (Fernandes & Pinto, 2019). Research results confirm this, showing that the value of cooperation translates broadly into benefits achieved by all entities in the supply chain. The most important

benefits of partnership cooperation with customers for a large part of the surveyed companies include improved communication and better adjustment of the offer to the customer's needs, as well as an increase in the quality of their service. These benefits do not only have a social dimension that comes from establishing partnerships, but also an economic aspect. The added value (CVA), manifested as customer care, faster service or a consolidated market offer that the customers receive, depends on the activities of partners throughout the supply chain. An important activity of companies towards the customer is efficient communication with them and appropriate tailoring of the offer to their needs. Other important benefits declared by respondents include the speed of response and reliability. In addition, professionalisation of service quality, attention to the level of quality throughout the post-transaction process and creation of mutual trust have a positive impact on increasing customer retention and loyalty to companies. At present, it is extremely important, given the difficult conditions of competing in a complex and dynamic environment. On the other hand, it favours the establishment of long-term, mutually beneficial, and trust-based (loyalty) relationships with contractors (suppliers, recipients, cooperators). As we can see, in this situation, business partnership becomes an effective tool in the fight for customers, and at the same time helps to build the company's competitiveness in a turbulent market.

However, the conducted survey has some limitations that indicate directions for future research. First, the study was conducted on sparse cross-sectional data obtained from a small sample with a narrow territorial scope (Łódź region) and concerned only the SME sector. This does not reflect the entire research population, and in the future in-depth research should be conducted covering a larger research sample with a wider cross-section of features, located throughout the country. This will help reduce statistical error and will allow for determining the cause-effect relationships of partnership relations. The research also does not show a synergistic effect focusing on different directions of external integration between the supplier and the customer. Future research should focus on the problem of obtaining a synergistic effect, which would be the impact of the supply chain in the process of internal integration, which is its domain. To further illustrate the validity of creating partnership relations with customers, resulting from the intensification of added value for all entities creating them, the influence of individual entities and their impact on the creation of added value in the entire supply chain should be examined.

Authors' Contribution

The authors' individual contribution is as follows: Each contributed a third.

Conflict of Interest

The authors declare no conflict of interest.

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What Makes Them Flourish? Acculturation and Socio-cultural Predictors of Adaptation among Sojourners in Mexico

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ABSTRACT

Objective: The aim of the study was to analyse the relationship between acculturation and flourishing and to identify factors that lead to better adaptation of a very particular group of migrants – sojourners in Mexico. The study employed detailed measures of acculturation according to the RAEM model to verify that they are strong predictors of flourishing.

Research Design & Methods: Flourishing refers to socio-psychological well-being and prosperity. A total of 363 sojourners (67% women) living in Mexico were surveyed. Linear regression analyses using the hierarchical-input method were performed.

Findings: Age proved to be the strongest predictor of flourishing among the sojourners. The analysis showed that participant's level of flourishing increased with the level of individualistic values, frequency of contact with compatriots, quality of contact with Mexicans, knowledge of the Spanish language, and age. Interestingly, acculturation variables were not significant predictors of the sojourner's flourishing in this study.

Implications/Recommendations: Organisations should support language training programmes and facilitate opportunities for quality intercultural contact for sojourners, while recognising that

age-related factors may be more influential than traditional acculturation measures in determining adaptation outcomes.

Contribution: The study extends the literature on acculturation to an often-overlooked type of migrants, sojourners in Mexico, and allowed us to obtain data on the predictors of their flourishing. Moreover, we focus on a particular measure of psychological well-being, as flourishing focuses on an individual's self-perceived success in different areas of life.

Article type: original article.

Keywords: well-being, flourishing, adaptation, acculturation, sojourners, Mexico.

JEL Classification: M160, F22, I310.

1. Introduction

Contact between cultures is as old as recorded history. Trade has always been one of the major factors connecting culturally diverse individuals and engaging them in various types of communication and cooperation practices. As national markets continue to open and merge, there has been steady growth in the number of individuals who decide to work abroad and organisations that assign employees to overseas projects. In terms of employee mobility, the last few years have been challenging, starting with the travel restrictions in 2020 and later Russia's aggression against Ukraine in 2022, followed by economic recession. Despite those crises and their negative impact on the migration of professionals, numerous global mobility industry reports, such as the *2023 International People Mobility Survey* (AON, 2023), Mercer's *2023 Talent Mobility Trends: Mid-year Review* (Meier, 2023) or *The Future of Global Mobility: Industry Forecasts for 2024* (Beaty, 2023), forecast change in the landscape and increase in mobility in the following years.

The Population Division of the United Nations Department of Economic and Social Affairs (UNDESA, 2021) estimated that in 2020 the total number of international migrants worldwide reached 281 million, approximately 3.5% of the world's population. However, when it comes to individuals crossing borders, we encounter challenges of terminological ambiguity (van Roermund, 2018). It remains difficult to determine with reasonable clarity who is considered a migrant and who is not, or for how long and how far a person must relocate to be defined as a migrant. To better understand different migrant groups, scholars and practitioners often focus on their migration motivations. Ward, Bochner and Furham (2001), focusing on the key concepts from the perspective of this study, which are acculturation and adaptation, distinguish four main types of migrants, referred to as intercultural travellers. These are individuals who, as a result of relocating between countries, engage in intercultural contact with members of host societies. These include tourists, immigrants, refugees, and sojourners.

Within the study presented, we focus on the latter group, i.e., sojourners, who are living in Mexico. Although Mexico is without any doubt an emigration country (McAuliffe & Triandafyllidou, 2021), it also attracts large numbers of sojourners and has been considered one of the best places to live for expats for many years (InterNations, 2024). The sojourners in our study were primarily working professionals, international students, and retirees. Our goal was to examine the relationship between flourishing and acculturation and to identify socio-cultural factors that lead to better adaptation, i.e., higher subjective well-being, of this group of migrants. Flourishing (Diener *et al.*, 2009) refers to socio-psychological well-being or even prosperity and can be considered a complementary measure of an individual's subjective well-being. Adaptation is often acknowledged as an outcome of acculturation, however, recent meta-analyses (Nguyen & Benet-Martínez, 2013; Bierwiazzonek & Kunst, 2021; Grigoryev *et al.*, 2023) have questioned the widely accepted assumption regarding the strong link between the two variables (Ward, 2024). Therefore, in the study presented, we employed detailed measures of acculturation as proposed by the Relative Acculturation Extended Model (RAEM) (Navas *et al.*, 2005) and analysed the results emphasising the specific context of the research. Moreover, we analyse whether other socio-economic factors related to cultural learning, such as cultural distance and the quantity and quality of social interactions, can be strong predictors of flourishing in the case of sojourners living in Mexico. From the organisational and managerial perspective understanding this relationship is important, as an individual's general acculturation orientations have spillover effects in the work setting as they influence key workplace variables like job attitudes, behaviours and performance (Valenzuela, Nguyen & Taras, 2021).

2. Sojourners in Mexico

Sojourners are individuals who work, study, or live abroad for a relatively short period; however, they do not intend to reside permanently in the host country (Gudykunst, 2005). They move to a destination country with specific goals in mind, intending to return to their place of origin once those goals are accomplished (Safdar & Berno, 2016). The largest groups of sojourners are international students and business people (Ward, Bochner & Furnham, 2001); however, considering the short-term and voluntary relocation, retirees can also be considered sojourners (see Gustafson, 2001; Viallon, 2012). Although they represent different types of sojourners, they all plan to eventually return home, which can determine their acculturation process.

Although the largest migration corridors in general tend to be from developing countries to larger economies (e.g., the United States, the United Arab Emirates, Saudi Arabia, and Germany; McAuliffe & Triandafyllidou, 2021), in the case of sojourners the direction of migration does not necessarily correspond to the more commonly chosen direction. This is undeniably the case for Mexico, which, on the

one hand, had around 11 million citizens living abroad in 2020 making it, without a doubt, an emigration country (McAuliffe & Triandafyllidou, 2021). On the other hand, despite this trend, for many years it has also been perceived as a top destination for expatriates (InterNations, 2024).

3. Acculturation and Adaptation of Sojourners

Individuals who transition into a new society undergo acculturation, which is defined as the process of “cultural and psychological change that takes place as a result of contact between two or more cultural groups and their individual members” (Berry, 2019, p. 10). People, however, may seek to acculturate in different ways (Padilla, 1980). From a psychological perspective, acculturation refers to the adoption of new cultural practices, values, identifications, and attitudes while also maintaining those associated with an individual’s heritage culture (Schwartz *et al.*, 2022). The currently prevailing perspective assumes that acculturation is a complex process, dependent on the context in which it occurs: who is moving, from which country to which, what are the migration circumstances and its purpose (see Navas Luque, García Fernández & Rojas Tejada, 2006; Grzymała-Moszczyńska, 2012; Bierwiazzonek & Waldzus, 2016; Czubińska *et al.*, 2018; Berry, 2019; Golińska & Kwiatkowska, 2024a). Perhaps one of the models that provides the most comprehensive concept of acculturation is the Relative Acculturation Extended Model (RAEM) proposed by Navas *et al.* (2005). RAEM takes into consideration the ethnocultural origin of migrating individuals and distinguishes between real and ideal acculturation planes, which refer to the strategies individuals put into practice and their preferences. Moreover, the framework focuses on eight different acculturation domains that can be grouped into public (political and government systems, social welfare system, work, consumer habits, and family economy) and private areas (social relations, family relationships, religious beliefs and customs, and values) (Navas Luque & Rojas Tejada, 2010; López-Padilla *et al.*, 2020).

There are particular differences in the acculturation of sojourners when compared to other “people on the move,” such as immigrants or refugees (Ward, Bochner & Furnham, 2001; Gudykunst, 2005; Bierwiazzonek & Waldzus, 2016), which might result from their relatively high status in a host country compared to other cultural travellers (Golińska & Kwiatkowska, 2024b). However, regardless of the type of migration and individual motivation, all migrants face the consequences of being removed from their everyday context, including social networks, family, regular routines, and the notion of a psychological home. Therefore, living in a new country requires adaptation to its culture.

While numerous models of migrants’ adaptation are present in the literature, the model proposed by Ward, Bochner and Furnham (2001) stands out as one of the most influential conceptualisations. The model distinguishes between psychological

and socio-cultural adaptation. The former refers to an individual's psychological and emotional well-being and life satisfaction, while the latter relates to the culturally specific skills acquired by an individual to "fit in" to a particular social and cultural environment. Changes that migrating individuals experience are often challenging or even problematic (Berry, 2019) and may result in acculturative stress, experienced as uncertainty, anxiety, or depression (Berry, 2006, 2019). It is important to note that the psychological mechanisms linking acculturation and the well-being of individuals are not fully understood (Buckingham & Suarez-Pedraza, 2019) and although adaptation can be positive or negative in nature, negative changes are studied most often (Bak-Klimek *et al.*, 2015).

Furthermore, Ward (2024) recognises that the widely acknowledged premise that acculturation is related to adaptation and that integration strategy (orientation on both maintenance of heritage culture and adoption of host culture) is the most adaptive one, has been recently challenged by meta-analyses studies by Nguyen and Benet-Martínez (2013), Bierwiazzonek and Kunst (2021), and Grigoryev *et al.* (2023). For example, by employing advanced meta-analytic techniques, Bierwiazzonek and Kunst (2021) reached the conclusion that the correlation between acculturation and adaptation is significantly weaker than previously assumed, and longitudinal evidence supporting this link is minimal at best. Moreover, the results of the meta-analysis conducted by Bierwiazzonek and Waldzus (2016) reveal that when it comes to expatriate employees' adaptation, pragmatic research most often employs socio-cultural rather than psychological adjustment measures.

In addition to acculturation orientations, various social factors can influence migrants' adaptation. Ward, Bochner and Furnham (2001) argue that the factors affecting adaptation in a new country are analogous to those involved in other transitional experiences. Bierwiazzonek and Waldzus (2016) identify three primary types of socio-cultural antecedents of adaptation: culture learning (cultural distance/novelty and social interactions), stress and coping (social resources and stressors), and family-related variables, as most frequently studied in the acculturation literature. It is important to note that studies on different types of migrants tend to focus more or less often on particular types of adaptation correlates. For example, cultural distance variables are underrepresented in the international student literature, whereas social interactions are less often assessed in the expatriate studies (Bierwiazzonek & Waldzus, 2016).

4. The Present Study

While it is important to understand the negative aspects of acculturating individuals' adaptation, we were interested in extending knowledge by examining how some individuals move beyond and thrive. Therefore, we focus on a very particular measure of their well-being, i.e. flourishing. Flourishing (Diener *et al.*, 2009)

refers to socio-psychological well-being or even prosperity and can be considered a complementary measure of an individual's subjective well-being. The concept of prosperity has its roots in ancient Greek philosophy, but in recent years, it has experienced a resurgence, becoming an inspiration for research in positive psychology (Fowers, 2015). Flourishing is a state in which an individual not only feels satisfaction with life and positive emotions but also has a sense of psychological and social development (Keyes & Haidt, 2003). Individuals experiencing flourishing are not only free of mental illness but are also full of emotional vitality and can be characterised by positive functioning in both private and social domains of their lives.

We used the explanatory design approach within the study. Taking into consideration their specific migration motivation, and in the case of Mexico, their relatively high social status, within this study we examined the relationship between sojourners' acculturation and flourishing. In light of recent discussions on the link between the acculturation and adaptation (Ward, 2024), we seek to examine if and which detailed acculturation indicators (see RAEM by Navas *et al.*, 2005) can predict flourishing. Moreover, building on previous research on antecedents of cross-cultural adaptation (Bierwiazzonek & Waldzus, 2016), we also aimed to identify which socio-cultural factors related to culture learning can be strong predictors of sojourners' flourishing. We considered predictors related to both cultural distance (individualistic and collectivistic values) as well as social interaction variables (quality of contact with Mexicans and frequency of contacts with different groups).

Considering the sojourners in our study, we focus on the culture learning antecedents of adaptation, as all individuals in a new destination inevitably undergo this process to some extent. For instance, comparing the family situations of sojourners – such as international students, professionals, and retirees – would be challenging due to their differences in age and personal life circumstances. Regarding stress and coping, our examination of flourishing, grounded in positive psychology, emphasises factors that support adaptation rather than those that potentially hinder the process.

We also asked about participants' Spanish language proficiency, previous migration experiences, age, gender, and length of stay in Mexico.

5. Method

5.1. Procedure

We employed purposive sampling to recruit participants, inviting them to complete the survey via social media groups for foreigners living in Mexico, international student networks, and, due to the difficulty in reaching the respondent group, we used the snowball technique utilising the private contacts of the first author. The survey was made available online in both English and Spanish. For questionnaires that were not originally available in both languages, a process of forward and

backward translation was used for translation. Informed consent was obtained from all study participants.

5.2. Participants

A total of 363 sojourners (67% women) aged between 18 and 79 ($M = 38.90$; $SD = 17.31$) and living in Mexico between 6 months and 10 years ($M = 3.38$; $SD = 2.67$) were surveyed. We identified three categories of sojourners in the study: international students ($n = 93$), professionals ($n = 145$) and retirees ($n = 79$). 46 participants could not be clearly assigned to any of the three groups. The sample was heterogeneous in terms of the national origin of the respondents, with participants from North America ($n = 138$), Latin America ($n = 94$), Europe ($n = 99$), and Asia ($n = 31$).

5.3. Instruments

Flourishing was measured using the eight-item Flourishing Scale (FS) developed by Diener *et al.* (2009). Respondents were asked to rate on a seven-point Likert scale their agreement with statements about their supportive and rewarding relationships, having an optimistic future, or being a good person (e.g., I am competent and capable in the activities that are important to me). Exploratory factor analysis confirmed the unidimensionality of the scale, and the Cronbach's α coefficient was very high ($\alpha = 0.91$).

To assess the acculturation variables, we used RAEM scales (Navas *et al.*, 2005; Navas Luque & Rojas Tejada, 2010). Participants responded to four questions on five-point Likert scales: two regarding culture adoption and maintenance in the real plane (*To what degree have you adopted the customs of Mexico/do you maintain at present the customs you used to observe in your country of origin?*) and two about the ideal plane (*To what degree would you like to adopt the customs of Mexico/maintain the customs of your country of origin?*). In each case, participants indicated their answers for six to eight domains representing different aspects of life (both public and private, totalling 28 items). To validate the two-factor solution (distinguishing between public and private areas in both real and ideal planes), we conducted a confirmatory factor analysis (Table 1).

The Cronbach's α for the four subscales are presented in Table 2. For the real plane scales, the internal consistency was low. However, according to Nunnally and Bernstein (1994), lower α values (0.60–0.70) can still be considered sufficient in explanatory research. Moreover, the items constituting the real plane RAEM scales (work and consumer habits domains) were positively correlated for both culture maintenance ($r(361) = 0.41$, $p = 0.000$) and culture adoption ($r(361) = 0.41$, $p = 0.000$). Therefore, we decided to maintain the four subscales solution in accordance with the theoretical model.

Table 1. Goodness-of-Fit Statistics of the Two-item Solution for the Four Acculturation Subscales

Scale	<i>Chi sqr</i>	<i>DF</i>	<i>p</i>	<i>CMIN/DF</i>	<i>RMSEA</i>	<i>LO 90</i>	<i>HI 90</i>	<i>CFI</i>
Real plane maintain	4.201	7	0.756	0.600	0.000	0.000	0.045	1.000
Real plane adopt	16.603	7	0.020	2.372	0.062	0.023	0.100	0.983
Ideal plane maintain	27.123	17	0.056	1.595	0.041	0.000	0.068	0.989
Ideal plane adopt	42.974	17	0.000	2.528	0.065	0.041	0.089	0.974

Source: the authors.

Table 2. Internal Consistency of the Four Acculturation Subscales

Plane	Public Areas	<i>n</i>	α	Private Areas	<i>n</i>	α
Real plane (acculturation strategies)	real maintain public	2	0.56	real maintain private	4	0.63
	real adopt public	2	0.58	real adopt private	4	0.75
Ideal plane (acculturation preferences)	ideal maintain public	6	0.65	ideal maintain private	8	0.78
	ideal adopt public	6	0.71	ideal adopt private	8	0.78

Source: the authors.

To measure individualistic and collectivist values, we used the COLINDEX scale developed by Schwartz and Bilsky (1990) and further adapted by Chan (1994). The scale consists of 13 items corresponding to seven individualistic, e.g., independence (self-reliance, choosing your own goals and interests) and six collectivistic values, e.g., obedience (fulfilling duties, meeting obligations). The Cronbach's α coefficients were 0.75 and 0.76, respectively.

To measure social interaction variables, we asked respondents to estimate the frequency of their contacts with Mexicans, people from their country, and other foreigners. In all cases, they rated their answers on a four-point scale (never, once a month, several times a month, several times a week). Additionally, for contacts with Mexicans, participants rated its quality on a five-point scale (from 1 – very unpleasant to 5 – very pleasant) (see Navas Luque & Rojas Tejeda, 2010).

In addition, respondents evaluated their Spanish language proficiency on a four-point scale, focusing on four aspects: understanding, reading, speaking, and writing. The Cronbach's α for this measure was very high (0.97). We also controlled for sojourners' length of stay in Mexico, gender, and age. Finally, *a posteriori*, we created an indicator of participants' other migration experiences before moving to Mexico (yes, no).

6. Results

As a part of the preliminary analysis, we calculated the correlations between the variables under the study, as well as their means and standard deviations (Table 3).

Table 3. Means, Standard Deviations and Correlations between the Variables

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	<i>M</i>	<i>SD</i>
1. Flourishing	–																		5.81	0.92
2. Real maintain public	0.069	–																	3.20	0.99
3. Real adopt public	0.185**	0.445**	–																3.48	0.85
4. Real maintain private	0.066	–0.053	0.130*	–															2.93	0.99
5. Real adopt private	0.124*	–0.091	0.116*	0.550**	–														2.86	0.89
6. Ideal maintain public	–0.043	0.498**	0.188**	–0.094	–0.096	–													3.20	0.92
7. Ideal adopt public	0.101	0.340**	0.419**	0.044	0.042	0.458**	–												3.50	0.97
8. Ideal maintain private	0.145**	–0.027	0.141**	0.514**	0.439**	–0.300**	–0.020	–											2.47	0.84
9. Ideal adopt private	0.173**	–0.124*	0.119*	0.452**	0.692**	–0.178**	–0.036	0.573**	–										2.99	0.91
10. Values Ind	0.253**	0.118*	0.067	0.187**	0.114*	0.127*	0.194**	0.078	0.110*	–									4.04	0.53
11. Values Col	0.196**	0.101	0.205**	0.095	0.173**	0.116*	0.351**	0.058	0.162**	0.390**	–								3.88	0.67
12. Frequency of contacts with co-nationals	0.199**	0.161**	0.157**	–0.031	–0.056	–0.057	0.087	0.070	0.040	0.013	0.068	–							2.57	1.19
13. Frequency of contacts with foreigners	0.173**	0.048	0.198**	0.106*	0.051	–0.083	–0.017	0.082	0.141**	0.017	0.037	0.360**	–						2.75	1.06
14. Frequency of contacts with Mexicans	0.142**	0.043	0.152**	0.139**	0.118*	–0.101	0.027	0.116*	0.127*	0.147**	0.040	0.158**	0.288**	–					3.55	0.69
15. Quality of contact with Mexicans	0.240**	–0.028	0.051	0.063	0.062	–0.183**	–0.127*	0.136**	0.113*	0.074	–0.077	0.064	0.104*	0.206**	–				4.40	0.88
16. Length of stay in Mexico	–0.095	–0.073	0.005	0.131*	–0.002	0.076	–0.085	–0.089	–0.059	0.045	–0.087	–0.173**	–0.154**	0.003	0.003	–			3.38	2.67
17. Spanish proficiency	0.027	0.227**	0.108*	0.113*	0.045	0.303**	0.352**	–0.110*	–0.092	0.257**	0.194**	–0.147**	–0.189**	0.004	–0.069	0.162**	–		2.83	1.10
18. Age	0.132*	–0.297**	–0.088	–0.132*	–0.006	–0.318**	–0.423**	0.050	0.071	–0.218**	–0.141**	0.046	0.066	–0.058	0.183**	0.130*	–0.626**	–	38.90	17.31

* $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$.

Source: the authors.

Next, we conducted linear regression analysis using the hierarchical-input method (Table 4). The assumptions for regression analysis, including linearity, independence of errors, homoscedasticity, normality of residuals, absence of multicollinearity and autocorrelation, were met. Flourishing was introduced into the model as the dependent variable, whereas other variables (acculturation, values, social interactions, contact variables, as well as length of stay in Mexico, language proficiency and age) were included in five steps. We coded nominal variables (gender and previous migration experiences) as dummy variables. All the analyses were performed using IBM SPSS software.

To control for the effect of acculturation variables in both the real and ideal planes, we entered them into the model in the first set. Only the variable for Mexican culture adoption in the ideal plane in private areas proved to be statistically significant ($F(8, 336) = 3.08, p < 0.01$). Culture of origin maintenance in the real plane in private areas was significant, but only at the level no higher than 0.10. Together, these variables explained 5% of the variance.

In the second step, we introduced two variables related to individualistic and collectivistic values. The first one was found to be a statistically significant predictor ($F(10, 334) = 5.15, p < 0.001$). Moreover, culture maintenance in the real plane in private areas became statistically significant, culture adoption in the ideal plane in private areas became significant, but only at a significance level of no higher than 0.10 and finally, also at the level no higher than 0.10, culture maintenance in the ideal plane in private areas also became a significant predictor. The percentage of explained variation in flourishing increased to 11%.

In step 3, we introduced variables related to the sojourners' social interactions. Two variables were found to be statistically significant predictors: frequency of contacts with conationals and quality of contacts with Mexicans ($F(14, 330) = 5.51, p < 0.001$). The level of individualistic values remained significant. Interestingly, following the addition of these predictors, the acculturation variables were no longer statistically significant in the model. Furthermore, they did not enter the model with the introduction of the following sets of variables (steps 5 and 6). These variables increased the level of explained variance to 16%.

In the fourth step, we included in the model the length of stay in Mexico, proficiency in Spanish, and previous experiences of living abroad, yet none of them resulted in statistically significant predictors of flourishing ($F(17, 327) = 4.54, p < 0.001$). In terms of the other variables, no change was observed in their level of significance as predictors. The fifth model explained 15% of the variance.

In the last step, we introduced demographic variables. Of them, only age proved to be a statistically significant predictor of flourishing ($F(19, 325) = 5.31, p < 0.001$); however, Spanish proficiency also became statistically significant, and sojourners' length of stay in Mexico became significant at a level of no higher than 0.10.

Table 4. Regression Analysis for Predicting Flourishing among Sojourners in Mexico

Predictors	Model 1		Model 2		Model 3		Model 4		Model 5	
	B	β	B	β	B	β	B	β	B	β
Constant	4.85		3.28		2.16		2.19		1.10	
Real maintain public	0.03	0.03	0.01	0.01	-0.02	-0.03	-0.03	-0.04	0.01	0.01
Real adopt public	-0.03	-0.03	-0.06	-0.07	-0.07	-0.08	-0.07	-0.08	-0.03	-0.03
Real maintain private	0.13	0.12'	0.15	0.14**	0.10	0.10	0.11	0.10	0.06	0.06
Real adopt private	-0.01	-0.01	-0.02	-0.02	0.03	0.02	0.02	0.02	-0.01	-0.01
Ideal maintain public	-0.10	-0.10	-0.11	-0.11'	-0.04	-0.04	-0.04	-0.04	-0.03	-0.03
Ideal adopt public	0.01	0.01	0.02	0.02	0.03	0.03	0.03	0.03	0.03	0.02
Ideal maintain private	0.08	0.09	0.02	0.02	0.03	0.03	0.02	0.02	0.08	0.09
Ideal adopt private	0.18	0.18*	0.14	0.14'	0.09	0.09	0.09	0.09	0.11	0.11
Values Ind			0.41	0.24***	0.36	0.21***	0.36	0.21***	0.38	0.22***
Values Col			0.09	0.07	0.11	0.08	0.11	0.08	0.08	0.06
Frequency of contacts with conationals					0.10	0.13*	0.10	0.13*	0.09	0.11*
Frequency of contacts with foreigners					0.06	0.07	0.06	0.07	0.07	0.08
Frequency of contacts with Mexicans					0.03	0.02	0.03	0.02	0.05	0.04
Quality of contact with Mexicans					0.18	0.17**	0.18	0.17**	0.13	0.13*
Length of stay in Mexico							-0.01	-0.03	-0.04	-0.10'
Proficiency in Spanish							0.03	0.04	0.18	0.21**

Table 4 cnt'd

Predictors	Model 1		Model 2		Model 3		Model 4		Model 5	
	B	β	B	β	B	β	B	β	B	β
Cross-cultural experiences							0.02	0.01	0.00	0.00
Gender (0 = W; 1 = M)									-0.06	-0.03
Age									0.02	0.31***
<i>R</i> <i>sqr</i> Adj	0.05		0.11		0.16		0.15		0.19	
<i>F</i> (<i>df</i>)	3.08 (8,336)**		5.15 (10,334)***		5.51 (14,330)***		4.54 (17,327)***		5.31 (19,325)***	
<i>R</i> <i>sqr</i> change	0.03 ^a		0.07***		0.06***		0.00		0.05***	

^a $t < 0.10$; * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$.

Source: the authors.

In terms of other variables previously included in models 4 and 5, they remained statistically significant predictors in model 6. The percentage of explained variation in satisfaction increased to 19%.

7. Discussion

The aim of the study was to examine the relationship between acculturation and the flourishing of sojourners who live in Mexico. We identified three principal groups of sojourners in our study: professionals, international students, and retirees. Additionally, by employing detailed acculturation measures based on RAEM (Navas *et al.*, 2005) and selected socio-cultural factors, our goal was to identify predictors that contribute to better adaptation of sojourners, focusing on their flourishing, which entails more than just experiencing life satisfaction and positive emotions (Keyes & Haidt, 2003). The level of sojourner's flourishing increased with stronger endorsement of individualistic values – more frequent contact with compatriots, higher quality of contact with Mexicans, greater proficiency in the Spanish language, and older age. Moreover, in the final model, acculturation variables did not prove to be statistically significant predictors.

As Ward (2024, p. 4) argues, the answer to the question “Does acculturation relate to adaptation?” is “sometimes yes,” and “sometimes no.” Therefore, further research should focus rather on exploring “when” and “how” the two variables are related (Ward, 2004) and moreover it should place more emphasis on the process and context of acculturation (Ward & Geeraert, 2016). As sojourners most often plan to return to their country of origin (Ward, Bochner & Furnham, 2001), the acculturation processes may have a lesser impact on their adjustment than in the case of immigrants, whose relocation is for the long-term. Therefore, even if sojourners have contact with Mexicans on a daily basis (work, university, etc.), they may be relatively less engaged in it. This could explain why the acculturation variables regarding public spheres of life did not predict flourishing in any of the models. Moreover, a higher level of individualistic values can support the pursuit of individual success and plans (e.g., getting a degree, completing a project, retiring in a favourable climate). Those who know the local language can additionally benefit, as language barriers, together with discrimination from locals, are one of the main stressors for intercultural relations (Bierwiazzonek & Waldzus, 2006). Interestingly, proficiency in Spanish became a statistically significant predictor of flourishing after the age variable was introduced to the regression model. This may be related to the fact that the majority of older participants in the study were from English-speaking countries (the US and Canada), while younger participants were often students from Latin America.

Age emerged as the strongest predictor of flourishing in the study presented. In another study that was part of the same research project (Golińska & Kwiatkowska, 2024b), we analysed the relationship between acculturation and two different measures of subjective well-being: satisfaction and ill-being (Grob, 1995), and obtained similar results. In both cases, age was the strongest predictor of psychological adjustment. We hypothesise that there might be other variables related to sojourners' age that should be unpacked in future studies to better understand the strong predictive power of adjustment.

This paper extends the literature on acculturation and flourishing by focusing on an often-overlooked group of migrants: sojourners in Mexico. Additionally, the study contributes to the ongoing discussion on the influence of acculturation on adaptation, as acculturation variables were found to be statistically insignificant predictors of flourishing. Moreover, from an organisational standpoint, understanding this relationship is crucial as one's nonwork acculturation orientations have spillover effects in the workplace (Valenzuela, Nguyen & Taras, 2021). Considering that acculturation is a process sensitive to its ecological context (Berry, 2019), the results of the study should be interpreted bearing in mind the high social status of the respondents within this study (see Golińska & Kwiatkowska, 2024a). Since the sampling in the study was purposive, the results are not representative and therefore cannot be generalised to the entire sojourner population. Moreover, the participants were heterogeneous in terms of their national origins. Although this is a common case for studies on expatriates in general (see Han *et al.*, 2022), undoubtedly, the sample composition should be considered a limitation of the study. Finally, we strongly believe that more research on acculturation should be conducted using qualitative or mixed methods to understand the subjectivity of the experiences of relocating individuals and taking into consideration their type of migration and reason for relocation.

Authors' Contribution

The authors' individual contribution is as follows: Agnieszka Golińska 70%, Anna Kwiatkowska 30%.

Conflict of Interest

The authors declare no conflict of interest.

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Comparison of the Readiness of Manufacturing Companies to Implement the Principles of the Circular Economy, Taking into Account an Organisation's Size

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ABSTRACT

Objective: The article is devoted to the readiness of manufacturing enterprises to introduce the assumptions of the circular economy (CE). The purpose of the study is to see if there are statistically significant differences between the declared readiness to adopt the principles of the circular economy among manufacturing enterprises of different sizes.

Research Design & Methods: The paper uses a literature analysis method and a quantitative method, using a survey technique in the form of a questionnaire. The survey was conducted using the CAWI method. The respondents were owners and managers of manufacturing enterprises

with registered operations in Poland. The size of the research sample was 205. The obtained data were analysed using the Kruskal-Wallis non-parametric test for independent samples.

Findings: The results indicate statistically significant differences between companies of different sizes in terms of social pressure, availability of raw materials, external support, internal capacity of the organisation, perceptions of cost-effectiveness, and readiness to implement CE practices.

Implications/Recommendations: The study provides information on the impact of various factors on the decision-making process in companies *vis-à-vis* implementing CE practices. The survey results highlight that smaller companies experience difficulty accessing resources and external support, affecting their willingness to implement the circular economy. These differences suggest the need for a more individualised approach to support policies that could consider the specificities and needs of companies of different scales of operations. Further research should focus on identifying specific barriers and opportunities to support implementing the circular economy in companies with different business profiles. It is also worth investigating the impact of organisational culture and innovation on the propensity to adopt the principles of the circular economy.

Contribution: Despite the literature on the circular economy, more research needs to be done focusing on differences in readiness to implement circular economy practices depending on the size of the enterprise. This study fills this gap by providing empirical data on the above topics. The study provides new evidence of statistically significant differences between companies of different sizes, which have yet to be sufficiently studied.

Article type: original article.

Keywords: the readiness to implement a circular economy, manufacturing enterprise, sustainable development, circular economy, level of readiness.

JEL Classification: C14, D22, Q56.

1. Introduction

The development of the circular economy (CE) is becoming an increasingly important element of global sustainable development strategies. Unlike the traditional linear model, the circular economy aims to minimise waste through efficient resource management, reuse, regeneration, and recycling. The CE model not only addresses environmental issues associated with excessive resource consumption and waste emissions but also creates new business opportunities for companies.

However, implementing circular economy principles requires significant organisational changes and investments, for which not all companies are equally prepared. A firm's readiness to implement CE can be influenced by various factors, such as resource availability, external support, social pressure, stakeholder expectations, attitudes toward sustainable development, and internal organisational potential. An important part of the analysis is understanding how the varying sizes of companies affect their ability to implement CE principles.

The aim of this article is to examine whether there are statistically significant differences in the declared readiness of manufacturing companies of various sizes to implement CE principles. The analysis includes identifying statistically significant differences in companies' readiness to implement CE principles across five key dimensions: availability of resources and external support, attitudes and perceptions toward sustainable development, perceived behavioural control, internal organisational potential, and social pressure and expectations of external stakeholders.

The results of the study will help to understand the key factors influencing the ability of companies to implement the circular economy and will highlight areas that require special attention in the context of support policies. This will make it possible to identify the barriers and challenges that manufacturing companies face in the context of implementing circular economy principles, as well as to determine which forms of support would be most effective. By collecting and analysing data from different groups of companies, the article contributes to understanding the dynamics of CE implementation in the Polish business context, providing valuable insights for policymakers, decision-makers, and management.

2. The Circular Economy Concept

Currently, the most widespread economic model is one based on a linear process, following the principle "take → make → use → dispose of" (Pikoń, 2018, p. 23). This model is characterised by a one-way flow of materials, where the end product ultimately becomes waste. In this approach, the focus is on the economic dimension, largely neglecting the significance of socio-ecological needs (Lieder & Rashid, 2016). In contrast, the CE is the opposite model. Here, the economy should be designed to maximise resource use by minimising waste generation and greenhouse gas emissions, as well as by recovering raw materials and reusing them in production.

For the purposes of further analysis in this paper, the adopted definition of the circular economy is the one established by the European Commission. In its 2015 communication, the Commission stated that "CE is an economy in which the value of products, materials, and resources (...) is maintained for as long as possible, and waste generation is minimised" (Komisja Europejska, 2015).

Some researchers view CE as an industrial economy comprising two complementary cycles of material flows: the biological and technological cycles (Aldersgate Group, 2024) (Fig. 1). The biological cycle allows a used product to re-enter the biosphere without processing, while the technological cycle focuses on high-quality products and is oriented toward maintaining or enhancing their economic value (Aldersgate Group, 2024). A used product in the technological cycle must undergo a recovery process to be converted into a raw material that can be reused in production.

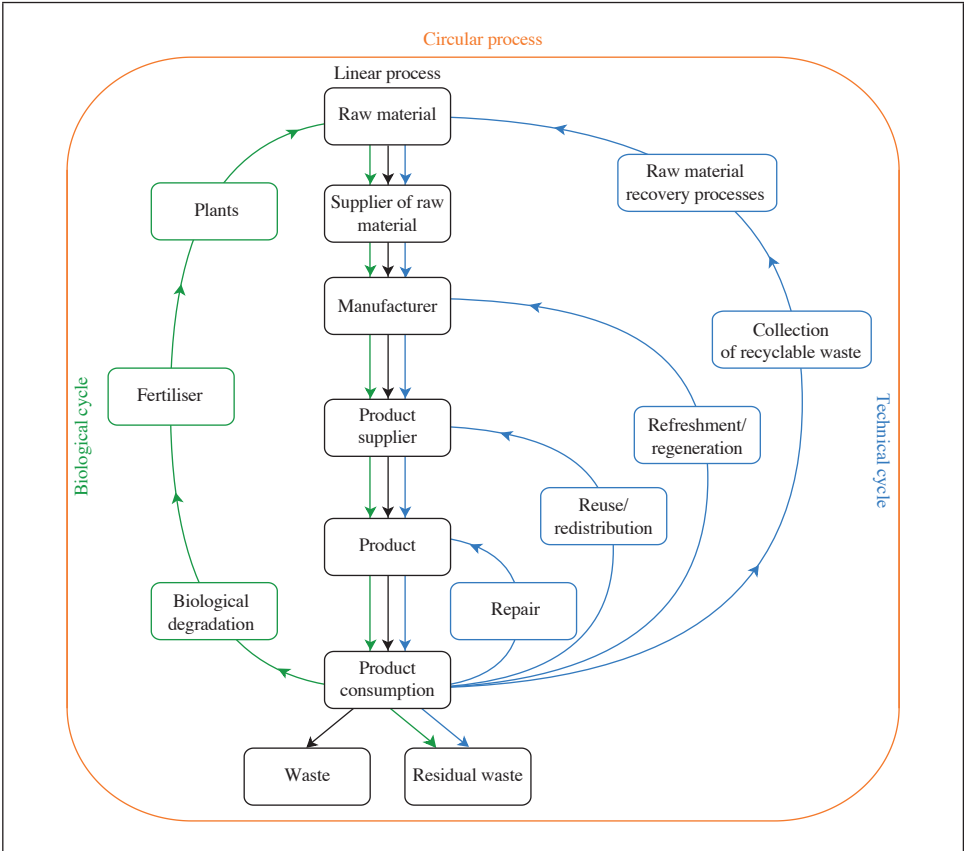


Fig. 1. Circular Process

Source: the authors, based on: Pikoń (2018) and KPMG (2024).

CE changes the function of resources in the economy, where waste becomes a valuable input for another process, and products can be repaired, reused, or upgraded instead of being discarded (Preston, 2012). Additionally, this model addresses current socio-ecological needs and its implementation aids in minimising market risks by reducing waste, stabilising raw material prices, improving logistical processes, shortening supply chains, and decreasing environmental degradation (Ellen MacArthur Foundation, 2015). In this sense, CE is considered “as a regenerative system in which resource input and waste, emission, and energy leakage are minimized by slowing, closing, and narrowing material and energy loops. This can be achieved through long-lasting design, maintenance, repair, reuse, remanufacturing, refurbishing, and recycling” (Geissdoerfer *et al.*, 2017, p. 762).

3. Readiness of Enterprises to Implement Changes

It is difficult to introduce innovations where there is no readiness for them. Therefore, many authors consider readiness a crucial element of successful organisational change, often finding its physical manifestation in plans and programmes developed by organisations (Arons, Hurlburt & Horwitz, 2011). In a broad sense, readiness is the extent to which an organisation is willing and able to implement a specific innovation (Drzensky, Egold & van Dick, 2012). In a narrow sense, readiness is the operationalisation of organisational activities that bridge the gap between evidence-based prevention and intervention strategies and their practical implementation (Scaccia *et al.*, 2015).

From a behavioural perspective, readiness is treated as the result of competence, motivation, and capabilities that determine the behaviour of an entity (Michie, van Stralen & West, 2011). Many authors emphasise that it is inappropriate to use individual readiness to describe organisational behaviour since the organisation is more than the sum of its members. Therefore, Weiner (2009, p. 1) defines organisational readiness as a “shared resolve to implement a change (change commitment) and shared belief in their collective capability to do so (change efficacy).” He points out that the level of readiness for change is determined by how much members of the organisation value the change and how they assess its three key implementation elements: task requirements, resource availability, and situational factors (Weiner, 2009). Analysing the author’s work, one can conclude that readiness is a spectrum: The higher it is, the more willing members of the organisation are to initiate changes, put in more effort, show greater perseverance, and exhibit more cooperative behaviour. The result is more effective implementation (Weiner, 2009). Conversely, as readiness decreases, the likelihood that implementation fails increases. Scaccia *et al.* (2015) propose that the organisational readiness model consists of three specific and dynamic components: motivation, general capacity, and innovation-specific capacity. While in Weiner’s (2009) model, the indicated elements of readiness occur together and interact, in Scaccia *et al.* (2015) model, they can be measured independently, providing concrete, actionable steps in each group.

In the subject literature, several works analyse in detail the influence of organisational size on its ability to adapt and implement CE principles. As Boons and Wagner (2011) note, larger companies often have better resources and adaptive capabilities, which can be key in implementing sustainable innovations. Meanwhile, smaller businesses, though generally more flexible and open to innovation, struggle with resource constraints, which may hinder the full adoption of CE principles (Boons & Wagner, 2011).

In the context of research on CE implementation readiness, some researchers, such as Kirchherr, Reike and Hekkert (2017), propose using readiness assessment models to identify key factors determining innovation implementation capacity.

Such models consider both internal and external resources, as well as cultural and strategic aspects, that can impact the effectiveness of implementation (Kirchherr, Reike & Hekkert, 2017).

Table 1. A Compilation of Selected Works on CE Implementation Readiness and Sustainable Innovations in Enterprises

Authors	Key Findings
Momete (2020)	Developing a readiness index based on economic, social, and environmental factors that assist in diagnosing the current situation and identifying EU leaders in readiness for transitioning to the CE
Singh, Chakraborty & Roy (2018)	The extended theory of planned behaviour model of planned behaviour includes environmental engagement and green economic incentives that better explain CE readiness compared to the original theory of planned behaviour model. It demonstrates the influence of attitudes, social pressure, environmental engagement, and green economic incentives on CE readiness
Prasad & Manimala (2018)	An analysis of companies' capacity to develop the CE concept in India through social innovation, showing how companies can incorporate social and economic innovation for sustainable development
Prieto-Sandoval, Jaca & Ormazábal (2018)	A systematic literature review to understand the fundamental concepts and principles of CE and their relationship to eco-innovation, indicating various ways of understanding and applying CE. CE encompasses three main elements: resource and energy recirculation, minimisation of resource demand, and value recovery from waste; a multi-level approach; CE's significance is considered a path to achieving sustainable development; a close relationship with societal innovation
Horbach & Rammer (2020)	Econometric analysis showing that CE innovations positively impact company turnover and employment growth, emphasising that CE innovations help achieve sustainable development goals by focusing on environmental, economic, and social dimensions
UI-Durar <i>et al.</i> (2023)	The growth of CE depends on leveraging knowledge resources and dynamic orientations (stakeholder orientation, sustainability orientation, organisational learning orientation, and entrepreneurial orientation). CE measurement techniques are in the early stages of development

Source: the authors.

Studies have also examined the impact of employees' specialised knowledge and environmental awareness on readiness to implement CE principles, showing that a high level of knowledge and awareness in these areas correlates with a greater willingness to introduce circular economy principles (Afteni, Păunoiu & Afteni, 2021) (Table 1). Companies that decided to implement CE often experienced changes in management and work organisation, further supporting the adaptation process (Atiku, 2020). UI-Durar *et al.* (2023) noted that knowledge management and sustainable innovations can affect companies' readiness to transition to CE. In their

view, the successful development of CE largely depends on leveraging knowledge resources and the dynamics of orientation. The authors mention orientations towards stakeholders, sustainability, organisational learning, and entrepreneurship (UI-Durar *et al.*, 2023) (Table 1).

4. Research Model

The research model was built based on a literature review, assuming that external factors such as stakeholder expectations and the availability of support and recycling resources influence entrepreneurs' attitudes in the context of the CE, which in turn correlates with their level of readiness (see Fig. 2) (Piskorz & Sitko-Lutek, 2023). Understanding and engaging various stakeholder groups is crucial for effective CE implementation (Piskorz & Sitko-Lutek, 2023).

Implementing CE principles in organisations is a complex, multi-stage process that can be supported or hindered by various factors, including societal pressure and external stakeholder expectations; the availability of resources and external support; attitudes and perceptions towards sustainable development; perceived behavioural control; and the internal capacity of the organisation to implement CE (Piskorz & Sitko-Lutek, 2023).

Societal pressure and external stakeholder expectations influence the organisation's perceived behavioural control, motivating investment in resources that support CE. The availability of resources and external support is crucial for effective CE implementation, and a lack of recycled resources may pose a significant barrier (Piskorz & Sitko-Lutek, 2023).

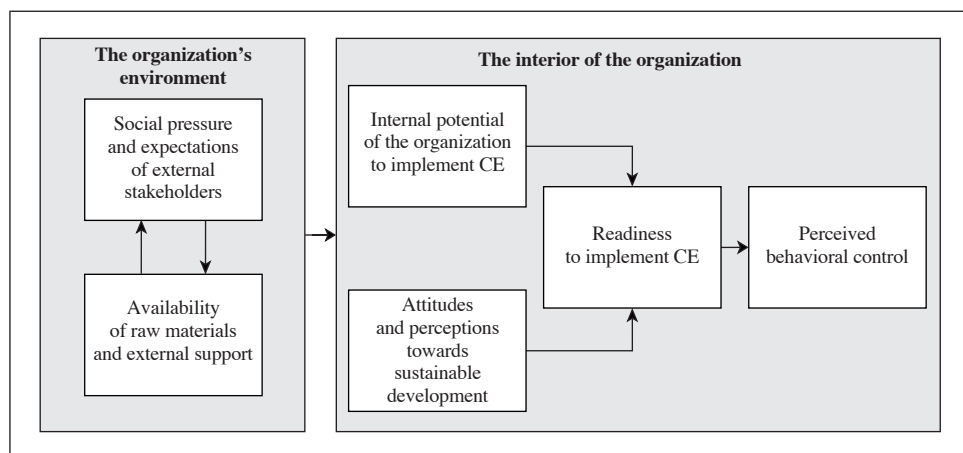


Fig. 2. A Conceptual Model of Readiness for Implementing a Circular Economy

Source: Piskorz & Sitko-Lutek (2023, p. 480).

This model assumes that organisations perceiving themselves as capable of implementing changes due to their available resources and competencies, and holding the right attitudes, are more ready to adopt CE practices (Piskorz & Sitko-Lutek, 2023). An organisation's internal capacity, including technology, finances, and ecological awareness, determines its ability to adapt and implement sustainable development practices, as these factors shape perceptions of the difficulty or ease of taking action (Piskorz & Sitko-Lutek, 2023).

5. Methodology

5.1. Purpose and Research Questions

The aim of the conducted study was to examine whether there are statistically significant differences between the declared readiness to implement the principles of a circular economy among manufacturing companies, taking into account variations in company size. Based on the developed readiness model for implementing a circular economy, the following research questions were formulated:

- Is there a statistically significant difference between company sizes in terms of social pressure and external stakeholder expectations?
- Is there a statistically significant difference between company sizes in terms of the availability of raw materials and external support?
- Is there a statistically significant difference between company sizes in terms of the organisation's internal capacity to implement a circular economy?
- Is there a statistically significant difference between company sizes in terms of attitudes and perceptions of the profitability of a circular economy?
- Is there a statistically significant difference between company sizes in terms of readiness to implement circular economy solutions in the company?

5.2. Sample and Data Collections

To achieve the study's objective and answer the research questions posed, data were collected through an online survey conducted using the CAWI (computer-assisted web interviewing) technique from 25 November to 11 December 2022.

The sampling was conducted considering the diversity of enterprises in terms of size, industry, and operational scope. The sampling criteria included enterprises operating in the manufacturing sector in Poland, specifically targeting their owners and management staff. The questionnaire was distributed by a professional research institution, ensuring a representative sample. Additionally, a random selection of enterprises from available databases of manufacturing firms was utilised.

The thematic scope included assessing companies' readiness to implement circular economy principles, analysing their involvement in practices related to this economy, and identifying potential obstacles and challenges. The survey included

companies of various sizes and operational scopes. The research sample consisted of 205 companies in total. The precise distribution and percentage share of the research sample are presented in Table 2 located in the results section.

5.3. Tool

The questionnaire was independently developed by the authors based on a review of the literature and existing research tools. The process of creating the research tool included several stages:

1. Review of the literature and identification of key variables.
2. Formulation of questions and measurement scales.
3. Content validation through consultations with experts.

When developing the questions in the questionnaire, selected scientific articles and publications related to the circular economy and research tools used in previous studies were utilised. The selected works addressed issues related to CE entrepreneurship, including emerging circular SMEs, circular firms and startups, the role of social entrepreneurship in CE practices, and the support ecosystem for circular entrepreneurship (Suchek, Ferreira & Fernandes, 2022); identification and analysis of barriers hindering CE implementation in the manufacturing sector (Badhotiya *et al.*, 2022); a conceptual model for measuring readiness for change for SMEs adopting CE (Thorley, Garza-Reyes & Anosike, 2022); analysis of management practices implemented to design a CE business model, with a focus on how companies can create and capture value from a CE business model (Ünal, Urbinati & Chiaroni, 2019); and an extended theory of planned behaviour model to explore SMEs' readiness for CE, highlighting that environmental engagement and green economic incentives are additional predictors in studying readiness to implement CE in enterprises (Singh, Chakraborty & Roy, 2018). These works provided information on key variables and measurement scales used in studies on enterprises implementing CE.

The research tool was a specially designed questionnaire consisting of 38 questions on a 5-point Likert scale (1 – strongly disagree, 2 – somewhat disagree, 3 – neutral, 4 – somewhat agree, 5 – strongly agree). The questions were based on topics including perceived profitability of a circular economy, the influence and pressures of the external environment (micro and macro) on the pace of CE adoption, the company's capacity to implement CE (technological, infrastructural, financial, intellectual, and workforce competency potential), the availability of recycled materials, and the organisation's pro-environmental actions. 5 groups of factors described in the applied research model were identified within the questions:

- 1) social pressures and expectations of external stakeholders were assigned 7 items,
- 2) availability of raw materials and external support had 4 items,

- 3) attitudes and perceptions toward sustainable development comprised 12 items,
- 4) the organisation's internal potential to implement CE included 12 items,
- 5) perceived behavioural control accounted for 3 items.

Additionally, demographic questions were included about the respondent's age and position, as well as three additional questions to determine the characteristics of the respondent's company, including size, industry, and geographic scope.

5.4. Data Analysis

The responses obtained from the respondents were placed in a proprietary database and processed using statistical methods with MS Excel and IBM SPSS software. Descriptive statistics were employed to characterise the research sample. The Kruskal-Wallis test was used to determine statistically significant differences between groups.

6. Results

6.1. Sample

The study was conducted on a cross-sectional sample of 205 enterprises. The characteristics of the research sample are presented in Table 2.

Table 2. General Characteristics of a Study Sample (Total $n = 205$)

Variable	Percentage
Company size	
Up to 9 people (micro-enterprises)	14
From 10 to 49 people (small enterprises)	19
From 50 to 249 people (medium-sized enterprises)	33
From 250 to 499 people (large enterprises)	18
500 people and more (huge enterprises)	17
Scope	
Regional	30
National	74
Foreign	49
Industry	
Food	13
Automotive/motor industry	9
Metal industry	7
Furniture manufacturing	7
Manufacturing (general)	6
Electronics	6

Table 2 cnt'd

Variable	Percentage
Wood processing/handling	4
Machinery production	4
Paper manufacturing	4
Window production	3
Energy	3
Cable manufacturing	2
Chemical	2
Packaging production	2
Cosmetic	2
Decoration/ornaments/candles	2
Others	22

Source: the authors.

6.2. Scales

The reliability of all dimensions included in the subscales was satisfactory, with values exceeding 0.70. Cronbach's alpha for each subscale was as follows: 0.73 for the subscale of social pressures and expectations of external stakeholders, 0.91 for the internal organisational potential to implement CE, 0.75 for perceived behavioural control, 0.85 for attitudes and perceptions towards sustainable development, and 0.77 for availability of raw materials and external support.

6.3. Descriptive Statistics

A detailed analysis of the basic descriptive statistics, such as means and standard deviations across all five dimensions (Table 3), allows for assessing the overall readiness of Polish enterprises to implement CE.

Table 3. Means and *SD* of All Dimensions in the Research Sample

Questionnaire Dimensions	Company Size	Mean	<i>SD</i>
Availability of resources and external support	up to 9 people (micro-enterprises)	2.76	0.68
	from 10 to 49 people (small enterprises)	2.97	0.90
	from 50 to 249 people (medium-sized enterprises)	3.52	0.89
	from 250 to 499 people (large enterprises)	3.38	0.81
	500 people and more (huge enterprises)	3.46	0.81
	overall	3.28	0.88

Table 3 cnt'd

Questionnaire Dimensions	Company Size	Mean	SD
Attitudes and perception towards sustainable development	up to 9 people (micro-enterprises)	3.46	0.62
	from 10 to 49 people (small enterprises)	3.75	0.58
	from 50 to 249 people (medium-sized enterprises)	3.82	0.63
	from 250 to 499 people (large enterprises)	3.68	0.62
	500 people and more (huge enterprises)	3.92	0.36
	overall	3.75	0.59
Perceived behavioural control	up to 9 people (micro-enterprises)	3.29	0.79
	from 10 to 49 people (small enterprises)	3.56	0.89
	from 50 to 249 people (medium-sized enterprises)	3.81	0.71
	from 250 to 499 people (large enterprises)	3.52	0.80
	500 people and more (huge enterprises)	3.72	0.80
	overall	3.60	0.81
Internal organisational potential for implementing CE	up to 9 people (micro-enterprises)	3.19	0.76
	from 10 to 49 people (small enterprises)	3.61	0.76
	from 50 to 249 people (medium-sized enterprises)	3.81	0.71
	from 250 to 499 people (large enterprises)	3.53	0.69
	500 people and more (huge enterprises)	3.68	0.70
	overall	3.61	0.74
Social pressure and expectations of external stakeholders	up to 9 people (micro-enterprises)	3.23	0.67
	from 10 to 49 people (small enterprises)	3.67	0.54
	from 50 to 249 people (medium-sized enterprises)	3.73	0.64
	from 250 to 499 people (large enterprises)	3.60	0.70
	500 people and more (huge enterprises)	3.63	0.55
	overall	3.61	0.64

Source: the authors.

For each dimension, the average ranged from 3.28 to 3.75. Considering the 5-point scale used in the questions, we observe a moderate readiness declared by Polish companies to implement the principles of the CE. The highest average was found in the dimension of attitudes and perceptions towards sustainable development, while the lowest was in the availability of raw materials and external support. The other three dimensions obtained similar average values of around 3.60.

Examining the average values obtained in the analysed areas in relation to company size, micro-enterprises demonstrated the lowest average readiness in the

areas of raw material availability, external support, perceived behavioural control, internal organisational potential to implement CE, as well as social pressure and external stakeholder expectations. Medium-sized enterprises exhibited the highest average readiness. In the area of attitudes and perceptions towards sustainable development, micro-enterprises reported the lowest average readiness, while huge enterprises reported the highest.

6.4. Analysis of Variance

The first step was to examine the data structure, including verification of whether the data follows a normal distribution. To achieve this, the Shapiro-Wilk test was conducted. Based on the test results, statistical significance was below the accepted critical value (0.05), indicating a lack of normal distribution. Due to the nature of the data – ordinal scale variables, independent observations, and a non-normal distribution – to determine whether statistically significant differences exist between the groups (5 groups), which also have unequal sample sizes, the Kruskal-Wallis non-parametric test for independent groups was employed.

The test value along with the obtained significance levels is presented in Table 4.

Table 4. Means and SD of All Dimensions in the Research Sample

Group	Test Value	Significance
Availability of raw materials and external support	23.35	< 0.001
Attitudes and perceptions toward sustainable development	12.50	0.014
Perceived behavioural control	8.08	0.089
Internal organisational potential for implementing CE	16.11	0.003
Social pressure and expectations of external stakeholders	14.14	0.007

Source: the authors.

Based on the obtained test values and the comparison of the achieved significance level with the adopted significance level of 0.05, statistically significant differences between the analysed groups (enterprise sizes) were found for 4 out of 5 groups, namely: availability of resources and external support; attitudes and perceptions towards sustainable development; internal organisational potential for CE implementation; social pressure and expectations of external stakeholders.

When comparing pairs between groups, statistically significant differences in the area of availability of resources and external support occurred between micro-enterprises and: huge enterprises, medium-sized enterprises, large enterprises, and between small enterprises and medium-sized enterprises.

In the area of attitudes and perceptions towards sustainable development, statistically significant differences were observed between micro-enterprises and huge enterprises as well as medium-sized enterprises.

For the area of internal organisational potential for CE implementation and the group of social pressure and expectations of external stakeholders, statistically significant differences occurred between micro-enterprises and medium-sized enterprises.

Delving deeper into individual items, of the 38 statements, statistically significant differences (according to the Kruskal-Wallis analysis) could be seen in 18 statements (each group contained at least 1 item with a statistically significant difference). This included all items from the group of availability of resources and external support, 7 items from the group of attitudes and perceptions towards sustainable development, 1 item from the group of perceived behavioural control, 5 items from the group of internal organisational potential for CE implementation, and 2 items from the group of social pressure and expectations of external stakeholders.

7. Summary

Based on the conducted research, it was found that the perception of the readiness of manufacturing enterprises of different sizes to implement CE principles varies. The most significant statistical differences are between micro-enterprises and medium-sized enterprises. Micro-enterprises report limited access to raw materials and external support, lower behavioural control, less internal organisational potential for CE implementation, a more sceptical attitude towards CE, and lower social pressure (including expectations from external stakeholders regarding CE implementation), resulting in potentially lower readiness for CE implementation compared to larger companies. Other enterprise groups report access to a greater number of resources, better access to recycled materials and external support, and consider the ecological aspect of their activities more important when working with external stakeholders. In almost all researched areas (except attitudes and perceptions toward CE), medium-sized enterprises show the highest readiness for CE implementation. This could be due to potentially greater flexibility in adapting their organisations to CE principles compared to large and very large enterprises. Aspects such as differences in management methods and the level of environmental awareness may also influence the declared readiness of companies to implement CE.

The results suggest that micro-enterprises need comprehensive support to better understand and implement CE principles. Educational and informational activities could focus on facilitating the implementation of more sustainable business models,

taking into account the specifics of enterprises of various sizes, scales, and industries. Support policies should be more individualised and tailored to the diverse needs of companies of different sizes.

The study highlights the differences in perceived readiness based on the size of the enterprise, pointing out which areas need improvements in the legal and economic fields to potentially impact increased readiness to implement CE principles across different groups of companies. The study results could be particularly useful to policymakers and regulators, as well as to management staff in manufacturing enterprises, as company motivations and readiness are crucial for formulating and implementing future economic and social strategies. Understanding the dynamics and perception of the circular economy in different types of companies can support the development of models and theories for CE adaptation. However, it is worth emphasising the limitations of the study due to the use of only quantitative research (a questionnaire survey), which limited the scope and detail of the analysis. The obtained results could have been influenced by the specificity of the research sample, such as the dominance of the food industry or the varying number of companies of different sizes. Therefore, further research could focus on specific industries or industry groups.

In the future, it will be worthwhile to supplement the research with qualitative studies, such as interviews with management staff and analysis of company documents in terms of the degree of CE implementation. Further research should consider differences between companies in various countries, as the legal and cultural context can significantly affect the readiness to implement CE. Additionally, repeating the study in subsequent years would be of value in order to capture the dynamics of changes in companies' readiness for the implementation of the circular economy.

Authors' Contribution

The authors' individual contribution is as follows: Kamila Piskorz 40%, Justyna Litwinek 40%, Agnieszka Sitko-Lutek 20%.

Conflict of Interest

The authors declare no conflict of interest.

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Sickness Absenteeism and Dignity-based Management in the Industrial Processing Industry in Poland

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ABSTRACT

Objective: To present the findings from an empirical study conducted among employees in the industrial processing industry in Poland, examining sickness absenteeism and related absence behaviours as a part of dignity-based management.

Research Design & Methods: The study was conducted through a survey questionnaire designed by the authors, utilising a diagnostic survey method. Data collection was facilitated by computer-assisted web interviewing (CAWI) and computer-assisted telephone interviewing (CATI). The analysis of survey results employed statistical methods, including chi-square tests, the Kruskal-Wallis test, and pairwise comparison through *post hoc* tests for significant correlations.

Findings: More than half of the survey respondents acknowledged the occurrence of sickness absenteeism, defined as the abuse of sick leave in their organisations. This issue is closely linked to an organisation's ability to inspire action among its employees, as well as to appreciate and support them. One in three respondents said they used sick leave as a retaliatory measure when

annual leave requests were denied. The analysis also revealed differences in perceptions of absence behaviours among employees in the industrial processing industry. Larger companies experienced a higher incidence of unjustified sick leave compared to smaller and micro-sized ones, and medium-sized companies reported more instances than small companies.

Implications/Recommendations: The findings from this study may prove useful for business owners, managers, and HR professionals who are dealing with issues of sickness absenteeism and dignity-based management. They can be used to build awareness of the determinants of employee absenteeism and the importance of dignity practices in management.

Contribution: This article contributes to the body of knowledge in management and quality science, particularly in human resource management. It offers insights into the ethical analysis of work environment conditions, emphasising the importance of the moral principles in professional human relationships as a means of reducing the likelihood of workplace violations.

Article type: original article.

Keywords: absenteeism, absence at work, dignity-based management, organisation, employee, industrial processing.

JEL Classification: M12.

1. Introduction

Recent surveys of HR professionals and managers have shown that one of the primary HR risks associated with employees in organisations is the abuse of sick leave and high employee absenteeism (Winnicka-Wejs, 2023, pp. 118–120). Viewing sickness absenteeism as a risk category underscores the need for a more thorough examination of its causes and characteristics, advocating for in-depth research to uncover its underlying factors (Gilga & Jurek, 2022, p. 12). This paper focuses on selected meso-level determinants of this issue, i.e., characteristics of the work environment that, alongside micro-level determinants (individual employee traits), and macro-level determinants (broader social and institutional contexts), influence the propensity for absence abuse (Steers & Rhodes, 1978, as cited in Jurek, 2021, p. 22). Special attention was given to management practices *vis-à-vis* the quality of supervisor-subordinate relations. A review of the literature for this study revealed that the concept of dignity-based management offers crucial insights for countering various forms of abuse by employees. This approach adopts a subjective perspective on the employee, resonating with deeply held human values, and promotes the integration of these values into organisational practices. The embodiment of dignity values within the organisational culture shapes intra-organisational relationships, establishes behavioural models for managers and employees alike, and encourages the development of self-control and the related ethos among employees (Ambroziak & Kosewski, 2012).

The most recent statistics from the Social Insurance Institution of Poland (ZUS) regarding sickness absenteeism indicate that the industrial processing industry recorded the highest proportion of employees on sick leave in 2022 (ZUS, 2023). This industry saw the highest percentage of days lost to sickness absence (21.9%). It was followed by the wholesale and retail trade, motor vehicle repair sector (16.3%) and the education sector (7.6%). This pattern was also observed in the percentage of individuals who received a medical certificate: The industrial processing industry came in at 20.6%, while the wholesale and retail trade, motor vehicle repair sector had 14.8%, and education 10% (ZUS, 2023, p. 140; cf. ZUS, 2019, 2020, 2021, 2022).

Accordingly, the subject matter of this study is sickness absenteeism as a form of workplace abuse in the context of selected dignity-based management practices within organisations. The subjects of the study include employees working in the industrial processing industry (see Polish Classification of Business Activities (PKD), section C, subsections 10–33, classifications; Gofin.pl, 2024). The review of the Polish and international literature covered the years 2000–2023, and the empirical study was conducted in the first quarter of 2024. Geographically, the study is limited to Poland.

An analysis of the literature on the subject has revealed that the current study fills a research gap. To date, no research has been conducted within a specific industry (industrial processing) that combines the issues of sickness absenteeism and dignity-based management. The following research questions were formulated for the study:

1. Do the selected dignity-based management practices exist within the industrial processing industry?
2. How prevalent are sickness absenteeism and other absence behaviours among employees in the industrial processing industry?
3. What is the relationship between absence behaviours (including sickness absenteeism) and selected dignity-based management practices?
4. What are the primary reasons for the abuse of sick leave by employees in the industrial processing industry?
5. How do perceptions of absence behaviours among employees in the industrial processing industry vary by gender, age, position, and company size?

In addition to the article's theoretical/exploratory objectives of exploring sickness absenteeism and selected aspects of dignity-based management in the industrial processing industry, there is also a methodological objective – to devise a research tool and analyse specific correlations, and a practical application – to generate findings useful to both theoreticians and practitioners engaged in human resource management.

2. Literature Review

2.1. Sickness Absenteeism

The issue of sickness absenteeism is infrequently addressed in the literature and academic research (Nauka Polska, 2024). A search within Polish databases (for the years 2000–2023) using the keyword “sickness absenteeism” yielded the following results: 25 publications in the National Library database (Biblioteka Narodowa, 2024) and 14 publications in the BazEkon database (2024). In the literature on management and quality sciences, the subject of absence management and identifying potential dysfunctions in this area is also seldom addressed (see Striker, 2016). Furthermore, empirical research on the abuse of sick leave is particularly scarce; in Poland, the sole data source on this matter comes from the findings of inspections conducted by the Social Insurance Institution (Gilga & Jurek, 2022, p. 8). This suggests that the phenomenon of sickness absenteeism is not well understood (Jurek, 2021, p. 20).

Sickness absenteeism, involving the abuse and misuse of sick leave, currently poses a significant challenge to the social security system and is recognised as a major problem (Jurek, 2021, p. 21; Gilga & Jurek, 2022, pp. 7–8; cf. Kujawska, 2015; Kasprowski, 2018). For instance, in 2022, a total of 27 million sick leave certificates were issued nationwide, accounting for 288.8 million days of absence. Evidence suggests that Polish workers are increasingly resorting to sick leave, and not always due to genuine sickness (Domagała-Szymonek, 2023; PulsHR, 2023).

Sickness absenteeism, a form of employee absence behaviour (see Bierla, Huver & Richard, 2013; Striker, 2016, p. 17), is a source of personnel risk for organisations (Winnicka-Wejs, 2023), a key risk factor for business operations (Aon, 2017, 2019) which diminishes their efficiency (Striker, 2021; see Aarstad & Kvitastein, 2024; Fiorini, 2024).

2.2. Dignity-based Management

Dignity-based management is a relatively recent concept in the Polish literature (Kosewski, 2007, 2008, 2012; Ambroziak, 2012; Ambroziak & Kosewski, 2012; Blikle, 2014, 2018), emerging as a response to the problem of abuse by employees. In recent years (Blikle, 2017), proponents and practitioners have aligned it with “turquoise management” (Lalloux, 2015), adapting it to the Polish context. Within the discourse on employee anomie, a limited number of Polish publications have explored “ethical, subjective management” (Sypniewska, 2016, 2019; Sypniewska & Baran, 2018; Maciejewska *et al.*, 2020). There are, however, a few documented instances of organisations in Poland implementing dignity-based practices in management, either fully or partially (for selected examples, see mozna-inaczej.com.pl, accessed: 19.12.2023).

Dignity-based management combines the ability to motivate employees through respect for their dignity with organising and structuring work processes to enable employees to preserve their personal values, thereby cultivating employee self-control rooted in dignity (Kosewski, 2012). This approach encompasses both subjective and value-based management, drawing upon so-called dignity values that are intrinsic to human nature, including honesty, fairness, integrity, solidarity, loyalty, responsibility, and professionalism. Adhering to these values not only helps one cultivate a sense of dignity and pride but also promotes the development of a friendly and supportive workplace environment characterised by mutual respect, trust, and partnership (Blikle, 2018). Acknowledging and honouring dignity within the organisation enhances the perception that the work being done is meaningful. It bolsters employees' sense of agency, strengthens their identification with the company, and improves the quality of work. It also boosts staff efficiency, thereby making the organisation more effective (Kosewski, 2012; Blikle, 2014; Sypniewska, 2016; Haarjärvi & Laari-Salmela, 2022; Ahmed *et al.*, 2023; Pirson *et al.*, 2023). The separation of labour issues from personal dignity, treating employees as objects, and uncertainty in the organisation's axio-normative system contributes to various forms of employee anomie (Ambroziak & Kosewski, 2012; Maciejewska *et al.*, 2020).

Dignity-based management forms the cornerstone of an effective organisational culture and plays a crucial role in fostering a work environment where intrinsic motivation drives employee engagement (Młokosiewicz, 2023). A higher level of work motivation leads to less absenteeism (Allebeck & Mastekaasa, 2004; see Jurek, 2021, p. 22). A sense of meaningful work, which increases employee engagement, likewise reduces absenteeism rates (Striker, 2016, p. 46), while the quality of the work environment also has a significant impact on absence behaviours (Jurek, 2021).

3. Overview of the Study Methodology

For this study, the authors designed a survey questionnaire, drawing on prior research in the field:

- question 1, pertaining to dignity-based management statements (Striker, 2016; Baran & Sypniewska, 2018; Blikle, 2018; Haarjärvi & Laari-Salmela, 2022),
- question 2, pertaining to employee absence behaviours (Striker, 2013, 2016; Jurek, 2021),
- question 3, pertaining to the primary reasons for taking sick leave (Gilga & Jurek, 2022),
- demographics questions: gender (Väänänen *et al.*, 2003; Melsom & Mastekaasa, 2018), age (Slowey & Zubrzycki, 2018), position within the company (Striker, 2016), company size (Ahn & Yelowitz, 2016).

The survey was conducted over two weeks, from 19 January 2024 to 2 February 2024. Execution of the survey was outsourced to the Department of Research, Expertise, and Consulting of the Research and Development Center at the University of Economics in Katowice, which has relevant industry databases and experience in conducting this type of market research.

The survey methodology was non-random and utilised the following techniques: telephone survey, online survey, and telephone-assisted online survey. Of the 184 questionnaires collected, 24 were rejected due to their discontinuation during the process. Finally, 160 fully completed questionnaires were provided for statistical analysis.

4. Analysis of the Survey Results

4.1. Structure of Respondents

The survey encompassed 160 participants, predominantly male and employed in managerial positions. The largest group was those aged 35–44. Respondents came from a wide variety of companies, covering all size categories (see Table 1).

Table 1. Structure of Respondents by Selected Characteristics (*n* = 160)

Characteristic		Frequency	Percentage
Gender	female	33	20.6
	male	127	79.4
Age	18–24	0	0
	25–34	11	6.9
	35–44	74	46.3
	45–54	60	37.5
	55–64	15	9.4
Position in the company	management	98	61.3
	administration	48	30.0
	manufacturing	14	8.8
Company size	micro (0–9 employees)	11	6.9
	small (10–49 employees)	76	47.5
	medium (50–249 employees)	54	33.8
	large (250 employees and more)	19	11.9

Source: the authors, based on the survey results.

4.2. Absence Behaviours among Employees in the Industrial Processing Industry in the Context of Dignity-based Management Practices

At the beginning of the survey, participants were asked to respond to specific statements concerning the companies they work for. The purpose of this question was to evaluate the prevalence of selected dignity-based management practices (see Table 2).

Table 2. Selected Practices of Dignity-based Management among Industrial Processing Companies

Statements Regarding the Company's Dignity-based Management Practices	Strongly Agree	Somewhat Agree	Somewhat Disagree	Strongly Disagree	Neither Agree nor Disagree
Employees are treated with respect, regardless of their role and position	39 24.4%	118 73.8%	2 1.3%	1 0.6%	0 0%
Employees are enabled to perform their duties without compromising their personal values (such as honesty, integrity, responsibility, etc.)	35 21.9%	123 76.9%	2 1.3%	0 0%	0 0%
Managers value the opinion of employees (treat them as partners) in addressing work-related problems, difficulties and challenges	18 11.3%	39 24.4%	13 8.1%	26 16.3%	64 40%
The company inspires action among its employees, appreciates and supports them	33 20.6%	105 65.6%	4 2.5%	0 0%	18 11.3%

Source: the authors, based on the survey results.

The data presented in Table 2 reveal that respondents were least likely to agree with the statement about managers treating employees as partners and valuing their opinions. 40% of respondents were unable to provide a definitive response to this question. The chi-square test results suggested that perceptions of dignity-based management practices depended significantly on the position held and the size of the company. In both instances, however, the correlation was weak. Individuals in manufacturing positions most frequently reported feeling that their opinions were disregarded by managers. Unlike employees from larger companies, those from micro-sized companies strongly agreed that their opinions impacted company management.

In the next question, respondents were asked to report on the prevalence of specific absence behaviours among employees at their companies (see Table 3).

Table 3. Respondent-reported Prevalence of Absence Behaviours among Employees of Industrial Processing Companies

Employee Absence Behaviour	Very Frequently	Frequently	Rarely	Very Rarely	Never
Absence (normal sickness absence)	9 5.6%	76 47.5%	59 36.9%	16 10%	0 0%
Absenteeism (abuse of sick leave)	3 1.9%	83 51.9%	12 7.5%	62 38.8%	0 0%
Presenteeism (attending work despite feeling unwell)	0 0%	0 0%	16 10%	92 57.5%	52 32.5%
Leaveism (using annual leave instead of sick leave)	0 0%	0 0%	11 6.9%	84 52.5%	65 40.6%

Source: the authors, based on the survey results.

More than half of the respondents confirmed the occurrence of sickness absenteeism within their organisations in the form of employees abusing sick leave. Table 4 presents an analysis of the relationship between the questions discussed above.

Table 4. Relationship Analysis – Kruskal-Wallis Test (Absence Behaviours and Dignity-based Management)

Employee Absence Behaviour	Probability Value (<i>p</i> -value) ^a			
	Employees are treated with respect, regardless of their role and position	Employees are enabled to perform their duties without compromising their personal values	Managers value the opinion of employees in addressing problems	The company inspires action among its employees, appreciates and supports them
Absence (normal sickness absence)	0.046	0.002	0.008	0.004
Absenteeism (abuse of sick leave)	0.055	0.035	0.047	0.012
Presenteeism (attending work despite feeling unwell)	0.564	0.514	0.806	0.831
Leaveism (using annual leave instead of sick leave)	0.330	0.231	0.148	0.416

^a In certain instances, the probability is less than 0.05 (see values in bold), suggesting that additional factors, not solely the ones highlighted in the table, may significantly affect perceptions of standard sickness absence and sickness absenteeism. However, additional *post hoc* tests ruled out these relationships.

Source: the authors, based on the survey results.

The data in Table 4 show that perceptions of normal sickness absence are significantly influenced by factors such as the ability to work in alignment with personal values, employees' belief that their opinions are valued by managers, and that the company inspires action among employees, appreciates and supports them. However, the perception of sick leave abuse significantly depended only on whether the company inspired action among employees, appreciated and supported them.

Table 5. Pairwise Comparisons – *post hoc* Tests for Significant Correlations (Abuse of Sick Leave (Q2_2) and “The Company Inspires Action among Employees, Appreciates and Supports Them” (Q1_4))

The company inspires action among employees, appreciates and supports them – pairwise comparisons Group 1 – Group 2	Test Statistics	Standardised Test Statistic	Adjusted <i>p</i> -value
Strongly agree – Neither agree nor disagree	–20.919	–1.721	0.512
Strongly agree – Somewhat agree	–23.087	–2.788	0.032
Strongly agree – Somewhat disagree	–54.364	–2.475	0.080
Neither agree nor disagree – Somewhat agree	2.168	0.205	1.000
Neither agree nor disagree – Somewhat disagree	–33.444	–1.458	0.868
Somewhat agree – Somewhat disagree	–31.276	–1.480	0.834

Notes: Number in bold denotes *p*-value lower than 0.05. Such a number indicates a relevance level of 0.05 or lower, the zero hypothesis has been rejected for the benefit of an alternative indicating a relevant dependence.

Source: the authors, based on the survey results.

Pairwise comparisons through *post hoc* tests for significant correlations demonstrated that, regarding the perception of sick leave abuse, significant differences were only observed between two groups – those who responded “strongly agree” and “somewhat agree” to questions about whether the company inspires action among employees, and appreciates them. Those who answered “strongly agree” were less likely to report sick leave abuse compared to respondents who chose “somewhat agree” (see Table 5).

4.3. Reasons Employees in the Industrial Processing Industry Abuse Sick Leave

The most frequently cited reasons for the abuse of sick leave by employees in the industrial processing industry included: absolute necessity, additional time off, and taking care of significant others or pets. One in three respondents identified sick leave as a retaliatory measure (see Table 6).

Table 6. Reasons Employees in the Industrial Processing Industry Abuse Sick Leave

Reasons for the Abuse of Sick Leave	Frequency	Percentage
Absolute necessity (such as attending an important family event)	97	60.63
Additional time off, for instance, during holiday periods or long weekends	65	40.63
Taking care of a significant other or a pet	64	40.00
Rejection of an annual leave request (sick leave as a form of retaliation)	57	35.63
The need to attend to important official matters	48	30.00
Exhaustion and/or overwork (sick leave used for additional rest)	14	8.75
Recreational trip (e.g., for fishing, mushroom picking, visiting an allotment or attending a sporting event)	14	8.75
Performing other paid work (e.g., urgent assignment)	13	8.13
Avoiding challenging tasks at work and/or interactions with colleagues I dislike	5	3.13
Manifesting dissatisfaction with workplace conditions (sick leave as a form of protest)	3	1.88
Renovation or other important household tasks	3	1.88

Source: the authors, based on the survey results.

The findings of this study diverge from recent survey research that suggested the prevalent motivation for the misuse of sick leave is the desire to extend time off work (Gilga & Jurek, 2022; cf. Glonek & Zając, 2021), rather than situations of absolute necessity. Furthermore, international research has identified various circumstances leading to sickness absenteeism, including good weather (Shi & Skuterud, 2015), important sporting events (Thoursie, 2004), birthdays (Thoursie, 2007), long weekends (Ben Halima, Koubi & Regaert, 2018), and the notion that Wednesday can be treated as a “little Saturday” (Vahtera, Kivimäki & Pentti, 2001, as cited in Gilga & Jurek, 2022, p. 8).

4.4. Differences in Perceptions of Absence Behaviours among Employees in the Industrial Processing Industry

The results of the Kruskal-Wallis test (cf. test probability values – *p*-value) indicate that company size significantly affects perceptions of normal sickness absence (similarly to Ahn and Yelowitz’s finding that absenteeism rates are nearly twice higher in large companies than in small ones) (Ahn & Yelowitz, 2016; cf. Jurek, 2021, p. 23). Similarly, perceptions of sick leave abuse were influenced solely by the company’s size. However, no correlation was found between absence behaviour perceptions and the respondents’ position or age. Further analysis revealed that

perceptions of sickness presenteeism depended exclusively on gender (cf. Table 7). While this was a rare occurrence, it was more frequently reported among women.

Table 7. Relationship Analysis – Kruskal-Wallis Test (Employee Absence Behaviours and Respondents' Demographics)

Specification	Probability Value (<i>p</i> -value)			
	Gender	Age	Position in the company	Company size
Absence (normal sickness absence)	0.268	0.232	0.422	< 0.001
Absenteeism (abuse of sick leave)	0.743	0.171	0.862	< 0.001
Presenteeism (attending work despite feeling unwell)	0.047	0.938	0.538	0.107
Leaveism (using annual leave instead of sick leave)	0.507	0.202	0.296	0.945

Notes: Numbers in bold denote *p*-values lower than 0.05. Such a number indicates a relevance level of 0.05 or lower, the zero hypothesis has been rejected for the benefit of an alternative indicating a relevant dependence.

Source: the authors, based on the survey results.

Pairwise comparisons through *post hoc* tests for significant correlations revealed that sick leave abuse was significantly more prevalent in large companies than in small and micro ones, and significantly more prevalent in medium-sized companies than in small ones (notable differences in the perception of sick leave abuse were observed between these categories of companies). Conversely, employees of micro and small companies perceived sick leave abuse to occur with similar frequency (in both types of organisations), indicating no significant differences in the prevalence of sick leave abuse between the two types of companies. Likewise, no differences were found between large and medium-sized companies in this regard.

5. Discussion of Results

The study has validated certain relationships reported on in the literature. Respondents' views on normal sickness absence were significantly influenced by the following factors: the ability to perform work in alignment with personal values, managers' consideration of employees' opinions when solving problems (treating them as partners), and the supervisors' ability to inspire action among employees, appreciate and support them. These correlations between sickness absenteeism and perceived support from colleagues and supervisors resonate with the findings of Rugulies *et al.* (2007), among others. Steers and Rhodes, on the other hand, identified employees' attitudes, understood as their values and objectives, as one of three

crucial components of the motivation for workplace attendance (Steers & Rhodes, 1978, as cited in Evans & Wallers, 2002, p. 35).

However, the statistical analysis conducted in this study did not confirm a significant relationship between feeling respected regardless of one's position and the perceptions of absence behaviours. On the other hand, Head *et al.* (2007, as cited in Striker, 2016, p. 53) identified a strong correlation between sickness absence and interactional fairness, which entails treating employees respectfully and considering their perspectives. Our study shows that dividing the concept of interactional fairness into two questions – one about respect and the other about consideration of employees' opinions – yielded divergent results for each question.

According to the survey, the perception of sick leave abuse significantly depended only on whether the company inspired action among employees, appreciated and supported them. This finding aligns with the research of Melchior *et al.* (2003) and Väänänen *et al.* (2003), who observed an increased likelihood of absenteeism in environments lacking in support from colleagues and supervisors. Other research done in Poland has also found that the absence of perceived support from supervisors can lead employees to rationalise abuse of sick leave through subjective feelings of being wronged (Sypniewska & Baran, 2018).

However, our study does not corroborate the assertion, from the literature, that the propensity for absenteeism increases with diminished employee participation (participation of employees in decision-making) (Melchior *et al.*, 2003). Furthermore, no significant relationship was found between perceptions of absenteeism and employees' belief that they can perform their duties without compromising their personal values. The literature also suggests that findings regarding the relationship between “value systems, work ethos, and absenteeism” remain inconclusive (Jurek, 2021, p. 23).

This study has certain limitations: Due to its nature as a pilot study (and thus its use of a small sample size), and its focus on a specific industry – industrial processing, the results should not be generalised to represent the entire population. The methodology adopted, which involved a survey questionnaire, allowed for an assessment of respondents' perceptions of the phenomena under study, rather than their objective occurrence, which may also be a limitation of the research conducted. Nonetheless, considering the significance of intrinsic employee motivation discussed in this paper, it is essential to recognise that individuals' perceptions of their work environment determines the various manifestations of their organisational commitment. Monitoring these perceptions is therefore crucial.

6. Conclusions

This study contributes to the ethical analysis of work environment conditions, emphasising the importance of the moral principles in professional human

relationships as a means of reducing the likelihood of employee anomie. Thus, it aligns with the principles of humanistic management theory which advocates for the adoption of a normative stance, prioritising the dignity and well-being of employees over the pursuit of productivity and wealth creation (Pirson, 2019, pp. 53–54). Sickness absenteeism, as a form of abuse by employees, is exacerbated by various factors (personal characteristics of employees, of work environment, of the social environment – such as the habitus effect, which implies that social norms and values implicitly sanction social abuse, and characteristics of the institutional environment) (Jurek, 2021). From an organisational standpoint, creating a work environment that incorporates suitable behavioural norms and value systems, which employees internalise, is crucial (cf. Striker, 2016, pp. 39–66; Jurek, 2021, p. 24). Bearing this in mind, human dignity may be the basis for building an ethos in organisational practice (Huijser & Nullens, 2024) and managers play a pivotal role in this process (Sookdawoor & Grobler, 2022, pp. 20–22; Młokosiewicz & Piasecka, 2024, p. 230).

Our findings here underscore the role of dignity-based management practices in reducing the incidence of absence behaviours (including sickness absenteeism) in organisations, offering insights for further exploration of these issues by human resource management theoreticians. To broaden the applicability of these findings, conducting a study on a representative nationwide sample would be beneficial. Expanding the study to encompass additional aspects of dignity-based management could yield a more comprehensive understanding of its effect on reducing absence behaviours. Investigating sector-specific differences in the perceived significance of dignity-based management practices in influencing sickness absence behaviour could also provide insightful data.

Furthermore, the study offers tangible practical implications for managers: The adoption of dignity-based management components within organisations is undoubtedly a critical factor in mitigating undesirable absence behaviours, including the abuse of sick leave by employees. Particularly noteworthy is the role line managers play (especially in large companies, where the supervisor-subordinate relationships might not be as close as in smaller companies) in fostering a value-based relational work environment that values and supports employees, thereby inspiring action and advocating for employee involvement in decision-making processes.

Authors' Contribution

The authors' individual contribution is as follows: Each contributed 50%.

Conflict of Interest

The authors declare no conflict of interest.

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Support from Superiors and Employee Turnover at a Manufacturing Company in Poland

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ABSTRACT

Objective: The aim of this paper was to analyse the impact of supervisor support, including the provision of appropriate induction training, on employees' decisions to leave their jobs at a Polish manufacturing company. It also undertook to show how socio-economic characteristics influence the reasons for leaving a job.

Research Design & Methods: The data was collected from people working in hazardous conditions at a manufacturing company. The company has been operating in Poland since 2016 and operates in the area of section C – industrial processing, division 10 – production of foodstuffs. 89 questionnaires were analysed. Data were collected over a period of 2.5 years. The following variables were controlled for: gender, length of service with the company, total length of service, supervisor support and provision of induction training. Subsequently, 14 reasons for leaving a job were identified and compared against the variables. The article used the chi-square statistical test and Cramér's V test.

Findings: Overwork and stress, as well as the need for change, were the most common reasons employees gave for leaving. The survey showed that the vast majority of respondents had received adequate induction training. Those who had not undergone adequate onboarding often left because they felt they had been undervalued, believed employees were treated unfairly, perceived

a poor team atmosphere and/or had poor relations with their manager. No confirmation was found that turnover was a consequence of inadequate onboarding. The article examined the relationship between the lack of support from a supervisor and the reasons for leaving a job. It has been shown that people who did not receive support cite unequal treatment of employees as a reason for resigning from work. However, men leave work more often than women due to a feeling of being undervalued and lack of promotion opportunities. No correlation was found between gender and other reasons for leaving.

Implications/Recommendations: Supervisor support can go a long way towards reducing employee stress and lowering turnover levels. Leaders actively supporting their employees can help them increase their sense of belonging and commitment to the organisation. Adapting motivation and development strategies to the specific needs of different groups of employees can help reduce turnover.

Contribution: The issue of employee turnover has attracted the attention of researchers and human resource management practitioners in companies throughout the world. Despite this, there remains a gap in the Polish literature that would indicate the relationship between supervisor support and turnover intention in manufacturing companies. This study is an important prelude to further research on Poland and in manufacturing enterprises that are struggling with high levels of employee turnover. The article makes a significant contribution to the literature by providing valuable new data that can be applied to management practice in Polish manufacturing companies.

Article type: original article.

Keywords: human resource management, perceived organisational support, superiors, turnover.

JEL Classification: J24, J53, J63.

1. Introduction

A volatile environment, fierce competition, rising operating costs, increasing customer expectations, and the need to protect key resources are all challenges companies must answer. One of the most valuable resources of any business is its people, and their commitment to their work and the knowledge they possess is the capital that allows businesses to thrive in a changing environment. To leverage this capital, business leaders face a dilemma in managing diversity and providing adequate support to prevent staff turnover. Rotation (Ozmen & Ozcan, 2022) is the process of losing employees and replacing them with new ones. It leads to high costs associated with losing skilled or long-standing employees with tacit knowledge (Van Der Laken, Van Veldhoven & Paauwe, 2018). In service firms, service quality declines as workers leave, and in manufacturing firms, productivity levels decline due to persistent labour shortages (Zhao *et al.*, 2022). The impact of turnover on business performance is discussed in almost every industry, as turnover is one of the most costly and topical management issues (Apostel, Syrek & Antoni, 2017;

Barkhuizen & Gumede, 2021) This leads organisations to look for ways to prevent staff turnover. Ilyas *et al.* (2020) argue that there is still a lack of research into turnover and its causes. They believe that the support of supervisors in small and micro enterprises is essential to reduce or eliminate stress in the work environment and that managers have an important role to play in preventing turnover. At the same time, there is a misconception in large manufacturing companies that jobs do not require advanced skills and knowledge, so high turnover is not a problem.

Management and quality sciences explain the reality organisations create and function in. The research conducted in this field should therefore be viewed through the lens of the demand for knowledge from the practice of business. Companies must strive to stay in business today. Employees are the backbone of efficient and effective organisations. Valuable knowledge can be lost if they leave or frequently change positions. Turnover is usually the result of causes that are within the employer's control, so the employer clearly has a role to play in preventing it. Common causes of turnover include a low or negative assessment of the employer or the organisation itself. This pertains particularly to employment conditions, job satisfaction, demands from superiors, and scope of duties (Cewińska, 2018). Given the impact of turnover on organisational success and productivity, these issues should be thoroughly examined (Chowdhury *et al.*, 2023).

While numerous studies have been done on employee turnover, there is still a lack of studies focused on Poland, especially in the manufacturing enterprise sector. In Poland, organisational culture and management structure can significantly affect employee turnover dynamics. However, there is a lack of studies analysing the impact of supervisor support on the reasons why employees leave Polish manufacturing companies. This article begins to fill this gap by conducting an analysis of the impact of supervisor support, including the provision of appropriate induction training (orientation or onboarding, in other words), on employee departure decisions in Polish manufacturing companies. It also shows how socio-economic characteristics influence the reasons for leaving a job. A review of the subject literature was conducted to indicate how providing employees with supervisor support affects turnover intentions. The article also refers to the theory of perceived organisational support (POS), as research (Eisenberger *et al.*, 2002) confirms that POS significantly increases employees' job satisfaction by making them feel valued and supported by the organisation. When employees feel that their organisation cares about their well-being and values their contributions, they are more likely to feel satisfied with their jobs and are less likely to leave. The article contributes to the literature by providing valuable new data that can be applied to management practice in Polish manufacturing companies.

The aim of this article is to identify the role of the manager in preventing staff turnover. To achieve this objective, research questions were formulated on the basis of the literature review:

Q1: What socio-economic characteristics determine the motives for leaving a job?

Q2: Does support from a supervisor affect the reasons for leaving a job?

Q3: Does the receipt of induction training (onboarding or orientation) have an impact on the reasons for leaving the company?

The research results can be used by human resource managers in developing plans to reduce employee turnover. The study was carried out on a single company, but the time span of the study and the comparison of its findings with those of other studies allows a basis to be established for further analysis of turnover and human resource management.

2. Literature Review

Employee turnover is inevitable and, when not too high, it can have a positive impact on an organisation. It prevents internal structures from ossifying and strengthens the company's capacity by replacing employees that lack commitment (Bednarska, 2015). High turnover, on the other hand, is a source of costs and slows development. Ju and Li (2019) showed that there is a link between employee turnover and lower productivity, which can lead to non-financial and financial problems for the organisation. Companies that take a proactive approach to managing staff turnover see greater employment stability and therefore lower recruitment and training costs.

A number of studies, across multiple industries, have documented the reasons employees resign. In most cases, financial rewards (Queiri *et al.*, 2015; Ogony & Majola, 2018) and lack of development opportunities are the leading factors (Zahra *et al.*, 2018). Krzyszkowska (2015) believes that inadequate induction training is also to blame. Other authors maintain that turnover is a consequence of supervisors being (too) demanding (Schaufeli & Bakker, 2004). Cewińska (2018) states that turnover is a result of poor relationships with superiors or colleagues, unsatisfactory working conditions, a mismatch between skills and responsibilities, and excessive workloads. Todorov (2017) holds that the causes of turnover are a lack of training and incorrect attitudes of supervisors.

Effective turnover management should focus on employees whose departure is most problematic (Skowron-Mielnik & Bor, 2015). As Baran (2015) points out, employees over the age of 50 are motivated to improve their qualifications. The company loses a valuable pool of knowledge and experience when such employees leave. Long-serving employees are a source of information about the

organisation, the industry and the work, as well as a vehicle for organisational culture. While these employees are often perceived as less effective, solutions do exist to support HR and diversity management. One quality to complements this toolbox is the attitude of leaders who can create positive relationships with their subordinates.

Supervisor support is crucial in discouraging employees from leaving their jobs (Ilyas *et al.*, 2020). Bose, Hussain and Dey (2020) point out that employees are often not informed about their performance, so feedback is lacking. Lack of feedback affects job satisfaction and often creates a sense of injustice. Kurniawaty, Ramly and Ramlawati (2019) showed that to reduce employee turnover, tools that enable employees to achieve job satisfaction must be implemented. The leader plays a key role in the creation of the organisational climate. Their role is also to provide employees with working conditions that are conducive to their development (Kopacka, 2015). Managing human resources well boosts efficiency, productivity and engagement (Lizak, 2019).

A concept that describes the positive behaviour of a leader is that of authentic leadership. Hassan and Ahmed (2011) pointed out that an authentic leader helps to align employees between professional roles and personal goals, thereby influencing their level of commitment. Engagement is linked to productivity and turnover. Alok and Israel (2012) found that an authentic leadership style increases the sense of affiliation and responsibility to the organisation. Macik-Frey, Quick and Cooper (2009) believe that positive emotions are transferred from the leader to the employees. This has an impact on their health and well-being, and also helps reduce stress.

Managers tend to retain employees who perceive their workplace as positive, i.e. low stress and where they receive support from management (Cewińska, 2018). According to Milczarek, Schneider and Gonzales (2009), one of the reasons for high turnover in companies is stress. Thai and Turkina (2013) studied the work environment and its impact on stress levels, which when high, according to Lee *et al.* (2014), reduce innovation at work. Support from managers plays a significant role in reducing employee stress levels. Kim *et al.* (2023) found that supervisor support moderates employees' emotions and behaviour and helped them develop coping mechanisms to deal with stress. Supervisors should provide both instrumental and emotional support to employees when they are experiencing work-related problems (Tews, Michel & Ellingson, 2013). Exchanges between managers and employees help reduce stress and job burnout (Dorta-Afonso, Romero-Domínguez & Benítez-Núñez, 2023).

Organisational support theory is also relevant to the questions addressed in this study. According to the theory, a high level of organisational support, and thus support from the supervisor, can increase employee loyalty and commitment, reducing the propensity to leave the organisation. In manufacturing companies,

supervisor support is a key component of this process (Stańczyk, 2018). Wang and Wang (2020) conducted a study on frontline workers in Chinese manufacturing companies. The pair hypothesised that confronting high pressure and performing repetitive tasks lead to job burnout and turnover. This led them to investigate the effect of POS on job burnout and turnover. The study showed that POS has a significant impact on mitigating burnout and turnover. In a study in the technology industry, Wu, Yuan and Yen (2023) showed that POS was effective in reducing employees' turnover intention. When employees' perceptions of organisational support are poor, there is an increase in turnover intention. Newman, Thanacoody and Hui (2012) conducted a study of Chinese multinational companies. It showed that strong supervisor support, mediated by POS, plays a key role in reducing turnover. The study suggests that employees often perceive support from their supervisors as representative of the organisation's support, which strengthens their commitment and reduces the likelihood that they will leave.

3. Materials and Methods

The data for this study were collected from people working in hazardous conditions in a manufacturing company. The work is highly stressful. The company has been operating in Poland since 2016 and operates in the area of section C – industrial processing, division 10 – production of food products. The company had a high rate of employee turnover (36% over a period of 2.5 years), providing a starting point for considering the role of the supervisor in potentially preventing turnover. The sampling was purposive; and though participation in the survey was voluntary, the questionnaire was completed by all leavers. Employees in production positions were surveyed. Due to the long period of data collection at the company (from January 2021 to June 2023), it was decided to publish the results of the pilot study. While the study concerned only this one company, it can nonetheless be a starting point for further research and a comparative tool for the results obtained. I intend to expand the study to employees of other manufacturing companies with harmful conditions.

Employees took part in the survey on a voluntary basis. They were assured that the data would be treated anonymously. Just over 100 responses were received from participants. Of those, only 89 were accepted for further analysis due to the lack of fully completed questionnaires. Data were collected in Polish. Data collection was handled by the company's HR department. 64% (57 persons) were women and 36% (32 persons) were men. This result is due to the gender structure of the company's employees. Approximately 80% of all production employees are women. According to Altahtoo (2018), turnover is a replacement process that recruits and trains new employees when a position becomes vacant due to voluntary or involuntary retire-

ment. This notion led me to include in the analysis employees who left the company upon reaching retirement age.

The following variables were controlled for: gender (Rangus *et al.*, 2020), length of service with the company, and total length of service. These variables were chosen on the basis of research (Groeneveld, 2011; Bednarska, 2015) suggesting that job tenure is related to motivation to leave a job. Cewińska (2018), on the other hand, believes that the reasons for turnover are different for women than for men, while Antonucci and Akiyama (1987) believed that this is due to, among other things, managers supporting women and men differently.

The average length of service was 5.04 years, with half of respondents having worked for less than a year. The total time spent working ranged from one month to 50 years, averaging 12 years.

The article uses the chi-square statistic test and Cramér's V test. The chi-square statistic test was used to evaluate whether there is a relationship between two variables. The Cramér's V coefficient allowed us to assess the strength of the relationship. When using χ^2 , the minimum sample size should be no less than 5 people. As this criterion was not met, continuity corrections were therefore applied to the test used (Kwasiborski & Sobol, 2011). In the empirical section, the following notations are used: χ^2 – chi-square statistic, Cramér's V strength of association, $p < 0.05$. The survey questionnaire was designed by the HR department of the surveyed enterprise and then adapted based on the literature review presented in Table 1.

Table 1. Description of the Variables

No.	Description	No.	Description
1	Underpayment (Santhanam <i>et al.</i> , 2017)	8	Excessive workload (Cewińska, 2018)
2	Feeling undervalued (Todorov, 2017)	9	Characteristics-skills mismatch on the part of the employee for the position (Cewińska, 2018)
3	Workers treated unequally (Bose, Hussain & Dey, 2020)	10	Lack of sense of purpose/purpose of the work being done (Searle, 2020)
4	Bad team spirit (Chiat & Panatik, 2019)	11	The need for change
5	Poor relations with immediate supervisor (Ilyas <i>et al.</i> , 2020)	12	Excessive workload, stress (Milczarek, Schneider & Gonzales, 2009)
6	Lacking opportunities to develop and grow	13	Personal situation/family concerns (Soomro, 2020)
7	Lack of communication and feedback from supervisor (Bose, Hussain & Dey, 2020)	14	Retirement (Altahtooth, 2018)

Source: the author.

4. Results

4.1. Assessment of the Motives for Leaving the Company in Relation to the Assessment of the Relationship with One's Line Manager – Distribution of Responses

The respondents were asked why they had left their job. The most common reasons given were excessive workload and stress (49.4%), the need for a change (34.8%), being underpaid (16.9%), unequal treatment from staff (12.4%), poor working atmosphere (12.4%) and feeling undervalued (11.2%). A small percentage of respondents cited a lack of communication and feedback from their manager (7.9%) and a poor relationship with their line manager (5.6%). Only 33.7% of respondents said that someone tried to discourage them from leaving, while 66.3% said that no one tried to keep them on the job. Those surveyed also rated what they liked most about working for the company. Respondents most frequently cited close proximity to their place of residence (59.6%), followed by relationships with colleagues (31.5%). More rarely, it was their relationship with the immediate supervisor (10.1%).

Respondents were asked whether they felt they had received adequate induction training and whether they had received adequate support from their line manager. 76.4% reported having been supported and helped at work by a line manager.

4.2. Seniority, Gender and the Reasons for Leaving

The impact of length of service and gender on the reasons for departure was assessed. Firstly, a comparison was made between women and men in terms of why they left the labour market. For this purpose, an analysis of Pearson's χ^2 test was carried out, the results of which are presented in Table 2. The result of the analyses showed that the gender of the respondent was statistically significant with regard to quitting due to feeling undervalued ($\chi^2 = 4.13$; $p < 0.05$; $V = 0.25$). Men (21.9%) were more likely than women (5.3%) to leave their job because of feelings of underappreciation. Regarding the other reasons for leaving, there were no statistically significant differences between men and women.

Table 3 shows the results of the analyses using Pearson's χ^2 tests for the relationship between the length of service in the company and the reasons for leaving the company. The results were found to be statistically insignificant ($p > 0.05$), meaning no such relationship existed. A statistically significant relationship was found only between length of service and leaving due to retirement ($\chi^2 = 26.76$; $p < 0.001$; $V = 0.55$), with those with more than 10 years of service (50%) or up to 10 years (25%) leaving due to retirement. However, this correlation is obvious and has no effect on the conclusions of this study.

Table 2. Relationship between Gender and Reasons for Leaving the Company

Variable	Gender				χ^2	p	V
	Women ($N = 57$)		Men ($N = 32$)				
	N	%	N	%			
1	8	14.0	7	21.9	0.90	0.343	0.10
2	3	5.3	7	21.9	4.13	0.042*	0.25
3	7	12.3	4	12.5	0.00	1.000	0.00
4	7	12.3	4	12.5	0.00	1.000	0.00
5	2	3.5	3	9.4	0.45	0.501	0.12
6	1	1.8	4	12.5	2.67	0.102	0.22
7	4	7.0	3	9.4	0.00	1.000	0.04
8	14	24.6	7	21.9	0.08	0.775	0.03
9	2	3.5	0	0.0	0.11	0.744	0.11
10	1	1.8	1	3.1	0.00	1.000	0.04
11	19	33.3	12	37.5	0.16	0.692	0.04
12	12	21.1	11	34.4	1.90	0.168	0.15
13	9	15.8	2	6.3	0.95	0.329	0.14
14	10	17.5	4	12.5	0.10	0.746	0.07

Notes: χ^2 – chi-square statistic, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$, V – Cramér's V test.

Source: the author.

Table 3. Relationship between the Length of Service in the Company and the Reasons for Leaving the Company

Variable	Length of Service in the Company								χ^2	p	V
	Month ($N = 23$)		Up to one year ($N = 28$)		Up to 10 years ($N = 20$)		Over 10 years ($N = 18$)				
	N	%	N	%	N	%	N	%			
1	2	8.7	4	14.3	5	25.0	4	22.2	2.54	0.468	0.17
2	1	4.3	4	14.3	3	15.0	2	11.1	1.64	0.650	0.14
3	2	8.7	3	10.7	2	10.0	4	22.2	2.07	0.557	0.15
4	4	17.4	4	14.3	1	5.0	2	11.1	1.66	0.646	0.14
5	0	0.0	2	7.1	2	10.0	1	5.6	2.22	0.529	0.16
6	0	0.0	1	3.6	2	10.0	2	11.1	3.34	0.342	0.19
7	0	0.0	3	10.7	2	10.0	2	11.1	2.67	0.446	0.17
8	7	30.4	8	28.6	2	10.0	4	22.2	3.05	0.384	0.19
9	0	0.0	2	7.1	0	0.0	0	0.0	4.46	0.216	0.22
10	0	0.0	2	7.1	0	0.0	0	0.0	4.46	0.216	0.22
11	7	30.4	10	35.7	10	50.0	4	22.2	3.49	0.322	0.20

Table 3 cont'd

Variable	Length of Service in the Company								χ^2	p	V
	Month ($N = 23$)		Up to one year ($N = 28$)		Up to 10 years ($N = 20$)		Over 10 years ($N = 18$)				
	N	%	N	%	N	%	N	%			
12	7	30.4	7	25.0	4	20.0	5	27.8	0.66	0.884	0.09
13	3	13.0	4	14.3	2	10.0	2	11.1	0.24	0.972	0.05
14	0	0.0	0	0.0	5	25.0	9	50.0	26.76	***	0.55

Notes: the same as for Table 2.

Source: the author.

The results of the analysis of the relationship between the total length of service and the reasons for leaving the company are presented in Table 4. There was a statistically significant association between total length of service and leaving due to the need for a change ($\chi^2 = 13.57$; $p < 0.01$; $V = 0.39$) and due to retirement ($\chi^2 = 36.11$; $p < 0.001$; $V = 0.64$).

Table 4. Relationship between Total Years Worked and Reasons for Leaving

Variable	Total Length of Service								χ^2	p	V
	Up to six months ($N = 22$)		Up to 10 years ($N = 32$)		Up to 20 years ($N = 17$)		Over 20 years ($N = 18$)				
	N	%	N	%	N	%	N	%			
1	1	4.5	8	25.0	5	29.4	1	5.6	7.45	0.059	0.29
2	1	4.5	5	15.6	2	11.8	2	11.1	1.61	0.657	0.13
3	2	9.1	3	9.4	3	17.6	3	16.7	1.23	0.746	0.12
4	3	13.6	4	12.5	2	11.8	2	11.1	0.07	0.996	0.03
5	0	0.0	2	6.3	1	5.9	2	11.1	2.36	0.501	0.16
6	0	0.0	2	6.3	2	11.8	1	5.6	2.55	0.467	0.17
7	1	4.5	2	6.3	2	11.8	2	11.1	1.07	0.785	0.11
8	8	36.4	5	15.6	6	35.3	2	11.1	5.96	0.113	0.26
9	1	4.5	1	3.1	0	0.0	0	0.0	1.45	0.695	0.13
10	1	4.5	1	3.1	0	0.0	0	0.0	1.45	0.695	0.13
11	7	31.8	18	56.3	5	29.4	1	5.6	13.57	0.004**	0.39
12	5	22.7	10	31.3	5	29.4	3	16.7	1.50	0.681	0.13
13	4	18.2	3	9.4	2	11.8	2	11.1	0.98	0.805	0.11
14	0	0.0	1	3.1	2	11.8	11	61.1	36.11	***	0.64

Notes: the same as for Table 2.

Source: the author.

4.3. Relationship between Supervisor Support and Training Provided and the Reasons for Leaving the Company

Whether there was a link between support from a supervisor and the provision of training and reasons for leaving was explored. The results of the Pearson's χ^2 analysis are presented in Table 5. Those who did not feel supported by their manager were more likely to leave due to feeling undervalued, receiving unequal treatment, a poor team atmosphere and a poor relationship with their manager. The strongest relationship was between lack of support from the supervisor and leaving the job due to unequal treatment of employees.

Table 5. Correlation between Supervisor Support and Reasons for Leaving the Job

Variable	Did the Immediate Supervisor Provide Support and Assistance?				χ^2	p	V
	No ($N = 21$)		Yes ($N = 68$)				
	N	%	N	%			
1	2	9.5	13	19.1	0.48	0.488	0.11
2	5	23.8	5	7.4	4.35	0.037*	0.22
3	7	33.3	4	5.9	8.77	0.003**	0.35
4	6	28.6	5	7.4	6.10	0.010*	0.27
5	5	23.8	0	0.0	12.96	***	0.44
6	2	9.5	3	4.4	0.12	0.728	0.09
7	5	23.8	2	2.9	6.98	0.008**	0.33
8	7	33.3	14	20.6	1.45	0.229	0.13
9	0	0.0	2	2.9	0.00	1.000	0.08
10	1	4.8	1	1.5	0.00	0.962	0.09
11	7	33.3	24	35.3	0.03	0.869	0.02
12	9	42.9	14	20.6	4.15	0.042*	0.22
13	0	0.0	11	16.2	2.53	0.112	0.21
14	1	4.8	13	19.1	1.53	0.216	0.17

Notes: the same as for Table 2.

Source: the author.

The relationship between receiving adequate induction and reasons for leaving was examined (Table 6). Those who did not receive adequate induction were more likely to leave due to feeling undervalued, receiving unequal treatment, a poor team atmosphere and a poor relationship with their manager. The strongest relationship was found between the lack of adequate induction training and the departure of employees due to excessive workload and stress.

Table 6. Relationship between Induction Training and the Reasons for Leaving the Job

Variable	Do You Think You Received Adequate Induction Training?				χ^2	p	V
	No ($N = 21$)		Yes ($N = 68$)				
	N	%	N	%			
1	4	19.0	11	16.2	0.00	1.000	0.03
2	6	28.6	4	5.9	6.16	0.013*	0.31
3	7	33.3	4	5.9	8.77	0.003**	0.35
4	6	28.6	5	7.4	6.67	0.010*	0.27
5	4	19.0	1	1.5	6.33	0.012*	0.32
6	2	9.5	3	4.4	0.12	0.728	0.09
7	4	19.0	3	4.4	2.94	0.087	0.23
8	10	47.6	11	16.2	8.80	0.003**	0.31
9	1	4.8	1	1.5	0.00	0.962	0.09
10	1	4.8	1	1.5	0.00	0.962	0.09
11	6	28.6	25	36.8	0.48	0.491	0.07
12	11	52.4	12	17.6	10.10	0.001**	0.34
13	0	0.0	11	16.2	2.53	0.112	0.21
14	0	0.0	14	20.6	3.69	0.055	0.24

Notes: the same as for Table 2.

Source: the author.

4.4. Relationship between Reasons for Departure and Attempts to Keep the Employee

Pearson's χ^2 test analyses were used to examine the relationship between reasons for leaving and attempts to stay, to see if employees who left for different reasons were encouraged to stay to different degrees. Based on the results of the analyses presented in Table 7, it can be seen that there was no statistically significant relationship between the reasons for leaving and the attempt to retain the employee. The only relationship found was between the attempt to keep an employee and the departure of an employee due to the need for change ($\chi^2 = 4.59$; $p < 0.05$; $V = 0.24$). Those who left because of a need for change were more likely to have experienced retention attempts (48.4%) than those who left for other reasons (25.9%).

Table 7. Relationship between Reasons for Departure and Attempts to Keep the Employee

Variable		Did Anyone Try to Persuade You Not to Leave?				χ^2	p	V
		No ($N = 59$)		Yes ($N = 30$)				
		N	%	N	%			
1	Yes	10	66.7	5	33.3	0.00	0.973	0.00
	No	49	66.2	25	33.8			
2	Yes	7	70.0	3	30.0	0.00	1.000	0.03
	No	52	65.8	27	34.2			
3	Yes	7	63.6	4	36.4	0.00	1.000	0.02
	No	52	66.7	26	33.3			
4	Yes	6	54.5	5	45.5	0.78	0.379	0.09
	No	53	67.9	25	32.1			
5	Yes	2	40.0	3	60.0	0.63	0.428	0.14
	No	57	67.9	27	32.1			
6	Yes	3	60.0	2	40.0	0.00	1.000	0.03
	No	56	66.7	28	33.3			
7	Yes	4	57.1	3	42.9	0.01	0.907	0.06
	No	55	67.1	27	32.9			
8	Yes	15	71.4	6	28.6	0.33	0.569	0.06
	No	44	64.7	24	35.3			
9	Yes	1	50.0	1	50.0	0.00	1.000	0.05
	No	58	66.7	29	33.3			
10	Yes	2	100.0	0	0.0	0.07	0.792	0.11
	No	57	65.5	30	34.5			
11	Yes	16	51.6	15	48.4	4.59	0.032*	0.24
	No	43	74.1	15	25.9			
12	Yes	19	82.6	4	17.4	2.78	0.096	0.20
	No	40	60.6	26	39.4			
13	Yes	6	54.5	5	45.5	0.78	0.379	0.09
	No	53	67.9	25	32.1			
14	Yes	11	78.6	3	21.4	0.56	0.453	0.11
	No	48	64.0	27	36.0			

Notes: the same as for Table 2.

Source: the author.

5. Discussion and Conclusions

The issue of employee turnover has attracted the attention of researchers and human resource management practitioners in companies throughout the world. Despite this, there remains a sizeable gap in the Polish literature that, if filled could shed light on the relationship between supervisor support and turnover intention in manufacturing companies. The study was also extended to verify the relationship of selected socio-economic factors with specific reasons for leaving a job. The pilot study performed is an important prelude to further research in the Polish context and in manufacturing enterprises that are struggling with high levels of employee turnover today.

The departure of an employee involves not only the loss of human capital, but also the risk of disclosure of secrets and loss of tacit knowledge. High levels of staff turnover undermine competitiveness and are an obstacle to companies' strategic objectives. A high turnover rate also leads to rising recruitment and training costs, high stress levels among the remaining staff and a reduction in overall productivity.

In the sample analysed for this paper, overwork and stress, as well as the need for change, were the most common reasons given by those who decided to leave their jobs. The literature shows that stress can be reduced and commitment developed when leaders support employees and endow them with a greater sense of belonging. The concept of authentic leadership, on the other hand, suggests that positive emotions are transferred from leader to followers, thus reducing stress, which many studies have shown to be one of the main causes of employee turnover. Those surveyed mostly reported that nobody tried to discourage them from leaving or to influence their decision to leave. This may be an indication that the assumptions of positive leadership were not in place. The study's findings on the manager's role in reducing stress and its impact on preventing turnover can therefore be confirmed and applied to further research focusing on other manufacturing companies. These will typically be characterised by low-skilled, low-social-status jobs, where turnover is high. It has been confirmed that a leader's attitude can contribute to employee retention.

The vast majority of respondents received adequate induction training, the study found. People who did not receive proper onboarding often left their jobs due to feelings of not being appreciated, unfair treatment of employees, a poor team atmosphere, and bad relations with their superior. No confirmation was found for the studies conducted by Krzyszkowska (2015), Cewińska (2018), and Todorov (2017), who suggest that rotation is a consequence of improper job induction. In light of this, it can be concluded that a lack of induction training does not translate to employee turnover.

The article examined the relationship between the lack of support from a supervisor and the reasons for leaving a job. It has been shown that people who did

not receive support cite unequal treatment of employees as a reason for resigning. Although the studies described in section 3 have proven the link between length of service and reasons for leaving, this relationship could not be confirmed in the selected research sample. However, it has been shown that men leave work more often than women due to a feeling of being undervalued and lack of promotion opportunities. No correlation was shown between gender and other reasons for leaving.

Based on the findings, key implications for the company under study were also identified:

- supervisor support can be crucial in reducing employee stress and lowering turnover levels. If leaders actively support employees, they can help increase the sense of belonging and commitment to the organisation;
- implementing authentic leadership can help reduce turnover by transferring positive emotions from the leader to the employees, which reduces stress levels;
- employees intending to leave their jobs were often not discouraged from doing so. This suggests that the company lacks communication mechanisms and retention strategies;
- the lack of support from superiors often resulted in employees feeling they were being treated unfairly, causing them to resign. Improving relationships and fairness in the treatment of employees are key to the intention to leave;
- although the majority of respondents received adequate initial training, those who did not experience this often left due to feelings of non-recognition and poor team relations. An effective induction process can reduce these negative feelings and reduce turnover;
- providing ongoing training and professional development opportunities can increase employee loyalty and a desire to remain with the organisation;
- the study found that men were more likely than women to leave their jobs due to feelings of being undervalued and lack of promotion opportunities. Adapting motivation and development strategies to the specific needs of different groups of employees can help reduce turnover.

Despite meaningful results, the study is not without limitations. First, the poll was conducted on a small sample size, and selected purposefully, which reduces the ability to generalise conclusions. This wider-scale research worth undertaking, broadening the number of respondents and the location of businesses. Exploring the reasons members of Generation Z would likely yield interesting and useful results, particularly as this generation is to become the largest group in the labour market. Undoubtedly, a more extensive study will paint a fuller picture of the reasons employees quit their jobs and the role leaders play in stemming such flight.

Conflict of Interest

The author declares no conflict of interest.

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