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HEALTH AWARENESS TOWARD DAIRY FUNCTIONAL FOODS IN HUNGARY: A REVIEW

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ABSTRACT

Recently, the development of functional food products has played an essential role in healthy behavior. The increase in knowledge of consumers spurs concerns about health and how diet directly impacts health status. Functional foods are a new type of product that provide consumers with improvements in targeted physiological functions and a healthy lifestyle. Twenty-first-century consumers are seeking foods that have beneficial effects on the body beyond the conventional known nutritional role of the food. However, many consumers are still unclear about what functionality a given represents and the intended purpose of a given food product. In the Hungarian dairy sector, most dairy products stand out as the largest segment of functional foods giving the diversity of Hungarian's functional dairy market. Several studies have looked at the trends of individual perception and consumer behavior regarding new foods in the market and their functional role in health and disease. The objective of this review is to highlight how health awareness influences the acceptance and consumption of dairy functional foods in Hungary.

Keywords: functional food, dairy, health awareness

INTRODUCTION

Generally, European markets for functional foods are less developed, compared to the US and Japanese markets (Villaño *et al.*, 2022). However, Functional food has become one of the main directions of a healthy lifestyle in food production due to its promising positive impact on health and its relationship with the use of natural ingredients (Gallotti & Lavelli, 2020; Ogori *et al.*, 2021; Šojić *et al.*, 2020). Therefore, It has attracted great interest from consumers and manufacturers who are concerned about human welfare and sustainable economic development (Putnik *et al.*, 2020). Not surprisingly, new socio-demographic trends (e.g, longer life expectancy, promotion of healthier lifestyles, better health care, etc.) supported the functional sector to become an increasingly attractive segment of the food industry with a rapidly growing market (Musina *et al.*, 2018).

Food product functionality's growing importance was recognized even before the turn of the millennium by the food industry, which accelerated the development of new products (Szakos *et al.*, 2020). However, new products have a high market failure rate, because most of them have not been preceded by a deeper exploration of

consumer demands (Menrad, 2003). That's why, many ways to improve traditional food processing have increased over the past decade, and the development of new dairy products is gaining attention due to the increase in the demand for palatable, healthy, well-made more sustainable products. Ultrasonic processing or sonication is a promising alternative technology in the food industry as it can improve the technology and functional properties of dairy and dairy products (Carrillo-Lopez et al., 2021).

Importance of functional foods

Due to the understanding of the connection between food and human health, consumer interest in the consumption of healthy foods promoting is growing worldwide, and this has led to the come of a new category of foods, the so-called functional foods (Kandyliis, 2021). The benefits of functional food provide added value to consumers but cannot substitute the main properties of conventional foods (Galanakis, 2021). However, functional foods current consumers may achieve a modern and positive impression of themselves (Grochowicz et al., 2021). These kinds of products provide consumers with better alternatives for achieving a sustainable and healthy lifestyle. Such are found to be different from a given food referred to as a healthy diet by nutrition experts (Eliseeva et al., 2021). In general, the attitude toward both functional foods and their consumers is favorable, so such a concept represents a sustainable trend in a multi-niche market (Siro et al., 2008). The study of Baba et al., (2016), found that retaining health-related consumer interests may be an important issue in food consumption, and thus also in the development of new products to fulfill their need. And also, consumer attitudes to functional food products in light of concerning diseases have already been investigated in general terms (Plasek et al., 2020). A study on Hungary by Szakály et al. (2014) concluded that “in the current situation, there is no other choice than to bring the public’s attention to food products that possess an extra nutritional advantage. Additionally, owing to their ingredients, functional food products can help to prevent a variety of chronic diseases (Alkhatib et al., 2017).

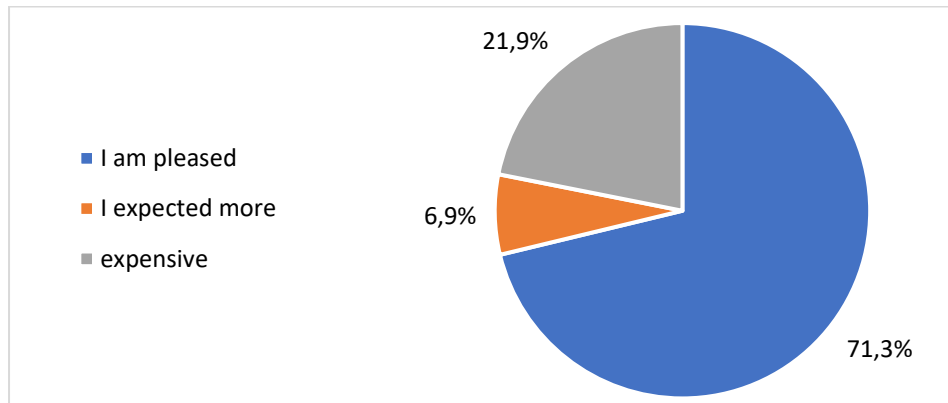
Customer Attitude Toward Functional Food

Food and nutrition play a fundamental role in treatment and prevention (Szakály et al., 2014). Healthy behavior is a complex system that involves many aspects such as physical activity, mental health, hygiene, and avoiding harmful recreational drugs to supplement informed dietary choices, in addition to the awareness about environmental sustainability issues (Macassa, 2021). A study by Szakály et al. (2012) has indicated many significant relationships between lifestyle, healthy behavior, and demand for functional and healthy food products, and it was shown that most consumers choose to eat dairy products as part of their diet as they believe that it is effective in enhancing their health compared to other substitutes. The study of Szabó-Szentgróti et al. (2017), found that when examining how well consumers know the producer and the brand and what the difference is between them, it became clear that people who concede themselves consciously live healthy know the manufacturer and do not confuse them with the definition of brand/branding. However, consumer

behavior and buyers' habits in Hungary have changed extensively, especially during and after the first wave of COVID-19 (Madarász et al., 2022). This creates a new type of consumer expectation for the market, whether it be the price of special diet products or the willingness to pay extra costs (Ali & Ali, 2020). Thus, a study showed that consumer acceptance of functional foods is far from being unconditional, with one of the main conditions for acceptance of taste, besides, product quality, price, convenience, and trustworthiness of health claims (Melovic et al., 2020; Szakály et al., 2019). However, consumers seek to evaluate functional foods first and foremost as foods (Baker et al., 2022).

A study conducted by (Balogh et al., 2020b) conducted on (n=160) Hungarian respondents found that the experience of consumers with functional foods, the majority of respondents (71%) are satisfied with these foods shown in Figure 1. Satisfaction with functional foods was likely among those who live in the city with a higher income level and within this, it was more common among women (Balogh et al., 2020b). And also, consumers who find these foods expensive probably have lower incomes or are simply unwilling to pay more than usual (Balogh et al., 2020b). And the explanation for marking the “I expected more” option might be that they did not experience or notice a significant beneficial effect on their body in the long term, or they did not fulfill their expected needs. Furthermore, the response rate of men was more decisive (Balogh et al., 2020b).

Figure 1: Respondents' satisfaction with functional foods



Source: Balogh et al. 2020b, p. 166

Factors influencing consumer choices for functional foods

Nowadays, consumers are increasingly seeking to find products that are safe and natural, have a generally recognized safe status, and are manufactured using innovative methods of sustainable and/or environmentally sound technologies (Vőneki et al., 2015). For this reason, the term “functional food” is becoming more common in the social and scientific fields, so the industry is continuously investing in the enhancement of manufacturing that can provide products with additional benefits for the consumer's health (Putnik & Kovačević, 2021). It was shown that health benefits and motivation for

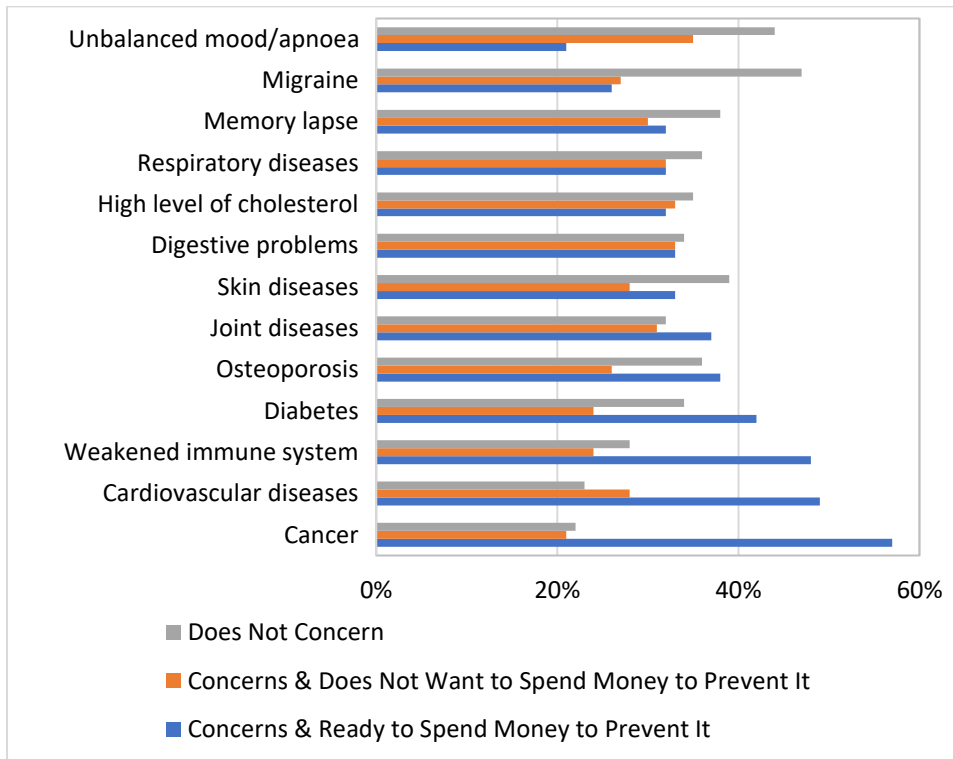
using functional food are the strongest positive determinants of acceptance (*Topolska et al., 2021*). In another hand, regardless of socio-demographic factors, inadequate nutritional knowledge background could limit functional food acceptance (*Baker et al., 2022*). Because of the complex nature of consumer motivations and expectations, proper strategy for functional food design, technological development, and marketing are crucial (*Topolska et al., 2021*). It should be emphasized that the health problems of family members increase consumers' interest in functional products (*Topolska et al., 2021*). Furthermore, people who regard functional food as a necessary product are perceived as innovative (*Gutkowska & Czarnecki, 2020*).

Functional Food And Disease Prevention

Many factors have resulted in the widespread of non-communicable diseases such as changes in lifestyle, less physical activity, and improper nutrition and caused to the extent that today they pose serious health issues, and a significant ratio of deaths are connected worldwide (*Diepeveen et al., 2013*). Globally, 41 million people die from non-communicable diseases annually, which constitutes 71% of all deaths (*WHO, 2021*). Of these, almost 15 million people are between the ages group 30–and 69. Cardiovascular diseases show the biggest risk (17.9 million deaths) followed by diseases related to cancer (9.0 million), respiratory diseases (3.9 million), and diabetes (1.6 million) (*WHO, 2021*). In Hungary, non-communicable diseases are considered an as main problem for society (*Novák et al., 2022*). Based on the statistical data of the World Health Organization, it was concluded that in Hungary the average number of years spent in good health was 66.8 years in 2016, and the average life expectancy was 76 years (*WHO, 2016*). This means that the Hungarian spends an average of 8–9 years suffering from some disease. Statistical data show that in Hungary, diseases related to cardiovascular, malignant tumors, chronic respiratory diseases, diabetes, and some other non-communicable diseases accounted for 94% of all deaths in 2016 (*WHO, 2016*).

Lifestyle changes are the most preferred methods for most diseases, such as for the prevention of cardiovascular diseases and unbalanced moods, and a high level of cholesterol, while dietary food supplements are chosen to avoid a weakened immune system (*Plasek et al., 2020*). Research results showed that those who were concerned about modern lifestyle diseases displayed a more positive attitude toward functional food products and had a larger potential of accepting and consuming them to prevent diseases (*Plasek et al., 2020*). Consumers are concerned about the risks that they can get from non-communicable diseases and they are worried about them, depending on the disease, only a small group of the aware is not going to make financial sacrifices to avoid them. It is important to highlight that with several diseases, the smallest ratio of respondents chose dietary supplements (*Plasek et al., 2020*). Results indicate that consumers of functional food are more concerned about diseases related to cancer. This is the only disease where; besides lifestyle changes, consumers consider taking medicaments as the best option. furthermore, the main health problems people are most affected and worried about compared to the acceptance of mitigation and prevention that might get from consuming functional foods are shown in *Figure 2*.

Figure 2: The attitude of respondents towards different health problems and their propensity to spend money to decrease the probability of their occurrence.

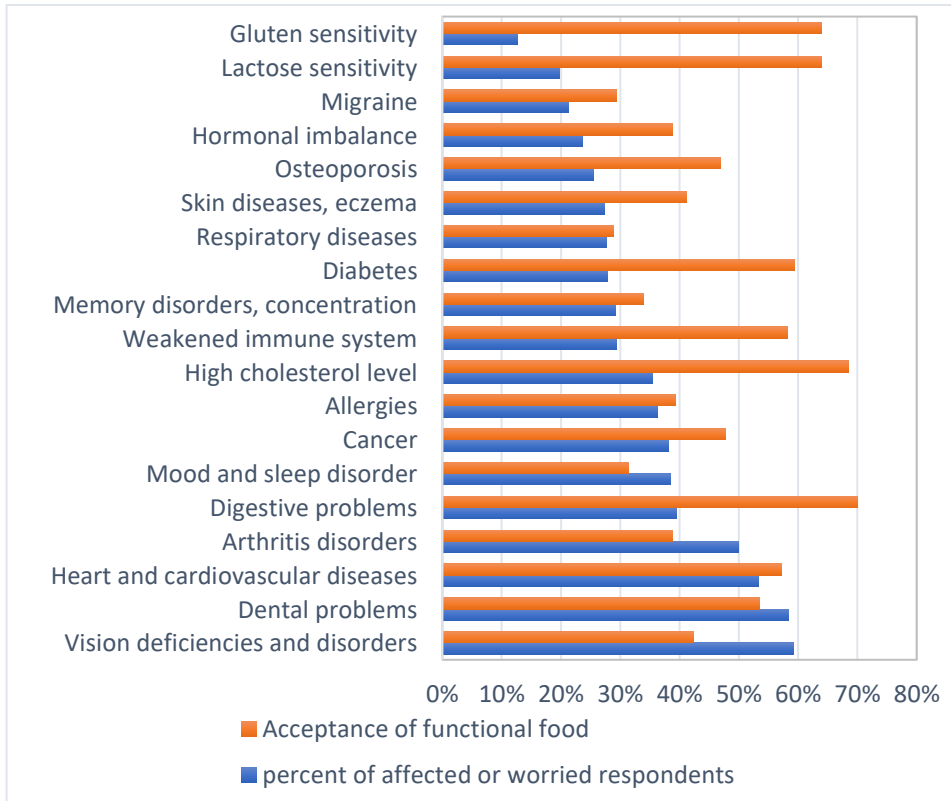


Source: *Plasek et al., 2020, p. 5.*

In another study (*Németh et al., 2020*) conducted on Hungarian customers (n=1002) concerned with lactose intolerance, more people choose not to consume dairy products when they are experiencing unpleasant symptoms and it is usually because of their lack of knowledge. Instead of legal definitions, consumers get their information about the functional food properties through advertisements and labels (*Németh et al., 2020*). Moreover, another study also explains that concerning disease prevention, the consumer gender does not have a significant effect on choosing functional foods (*Plasek et al., 2020*). Numerous literature sources (*Kraus et al., 2017; Meyerding et al., 2018; Verneau et al., 2019*) said that leading role of gender, age, and completed education as fundamental key demographic factors influencing the consumption of functional foods. Significant differences between men and women were found in the field of functional food components, which are significantly more important for women than for men. And also, young consumers are more open to high-technology food processing. *Szakos et al. (2020)* conducted a study on a Hungarian group of (n=1002) respondents who demonstrated in *Figure 3* who would be willing to pay to prevent or mitigate these health problems, and also those who consider themselves concerned/worried but would not like to spend more money on

it. The other group could also be a likelihood target group for product development due to their involvement. Moreover, the inclusion of foods with functional components in the diet can be carried out without further expenses, despite other solutions such as (dietary supplements, medicines, and medical treatments).

Figure 3: Assessing the worrisome/affecting health problems of Hungarian consumers and the suitability of functional foods to prevent or mitigate these problems



Source: Szakos et al., (2020, p. 63.)

DISCUSSION & CONCLUSIONS

Health awareness and consumer acceptance of the new trend concept of functional foods have been widely discussed as key success factors for market orientation, consumer-led product development, and successfully negotiating market opportunities (Baker et al., 2022). Many studies showed that consumer acceptance of functional food products is far from being ultimate, with one of the main conditions for acceptance connecting to taste, besides the quality of the product, price, convenience, and trustworthiness of health claims (Melovic et al., 2020; Szakály et al., 2019). It can be said

that consumers are becoming more and more aware of the risks of non-communicable diseases and they are worried about them, and depending on the disease, only a small group of the concerned is not willing to pay extra money to avoid them (Plasek et al., 2020). However, consumers are aware of the importance of nutrition in maintaining health but there is still a significant lack of knowledge to help them make good decisions (Balogh et al., 2020a). Furthermore, the relationship between attitudes towards functional foods, and beliefs about functional foods, the attributes of functional foods was explained in the more consumers believe in the health-protecting effect of functional foods, the more positive their attitudes towards those foods, and the more they are willing to pay a premium for them (Szakály et al., 2019).

The consumption of dairy products is significantly declined and they are often poorly judged by consumers, and also it is unwise to completely exclude this group of foods even among those who are lactose intolerant (Németh et al., 2020). This is because consuming milk as part of a healthy diet has undeniable positive physiological effects (Németh et al., 2020). Undoubtedly, functional foods provide one of the most favorable and dynamically improved segments of the food industry (Grochowicz et al., 2021). Besides that, there are many factors supporting the concept of functional food products like the increasing consumer awareness and knowledge in combination with new scientific research in various domains and understanding of consumer demand which require a product chain approach as a part of a successful food industry innovations (Topolska et al., 2021). Furthermore, dairy-based lactose-free products consumer, the target group choose that kind of products features: lactose-free label; rich in calcium, vitamins, and fiber, and free of carbohydrate, sugar, and gluten, and also only 2 out of 3 lactose sensitive customers use lactose-free products orderly, so it can be concluded that the level of knowledge and background of this disease, its treatment, and the importance of lactose-free dairy products among these persons is not enough, and this could be solved with education, advertisement, and other information opportunities (Szabó et al., 2021).

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IS ORGANIC FOOD GOOD FOR HEALTH AND THE ENVIRONMENT?

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ABSTRACT

Global organic food consumption has increased significantly in the last decade. Organic product agriculture is a one-of-a-kind technique that strikes a balance between environmental sustainability and consumer safety by developing a good client relationship with the end customer or consumer group. According to environmental studies, organic farming is less damaging to the environment than traditional agricultural methods. Recent studies show that customers who eat organic foods have lower pesticide exposure, which results in fewer human diseases. Organic food has more nutrients. However, the evidence to support this is lacking, and no well-designed human study has shown any direct health benefits or disease prevention benefits from consuming organically produced food. Furthermore, some researchers mention that for some types of plants, the nutrients in the case of conventional products were better. This study aims to identify the benefits of organic foods over conventional foods and consumers' beliefs about health and environmental benefits associated with organic foods. Secondary data for this research have been gathered from different international journals and the Internet, utilizing information from a variety of scholarly publications. The author addresses the present state of organic farming, as well as the benefits and disadvantages of consuming organic and conventional food,. The article has also investigated the effects of organic and conventional food production on both health and the environment.

Keywords: organic farming, organic food, biodiversity, chemical fertilizer, organic fertilizer

INTRODUCTION

Over the past two decades, organic food production has developed from a loosely organized network of local producers to a global system of legally controlled commerce connecting the various sites of production and consumption, both socially and physically. Broadly defined as “traditional agriculture”, it is regarded as one of the most feasible alternatives for the long-term growth of the agri-food sector. This is achieved through expanding local production and consumer networks, as well as

organic farming and fair trading. As agriculture has become more modernized, the market for agricultural food items has expanded. However, the expansion of agriculture was associated with the increased usage of synthetic fertilizers and pesticides. However, research has proved that some types of these synthetic fertilizers and pesticides (Organochlorine Pesticides) can be harmful to both health and the environment (Nicolopoulou-Stamati *et al.*, 2016) as a result a growing number of individuals are turning to organic foods to meet their nutritional needs (Vihijayan & Lalitha, 2021).

Many consumers show their preferences for organic food when they are asked to think about well-being and foods (Ares *et al.*, 2015). They feel pleasure and happiness when they consume products (Vega-Zamaro *et al.*, 2014). It is believed that the consumption of organic foods show responsible behaviour both ecologically and socially since they are grown without the use of chemical fertilizers or pesticides that are detrimental to the environment and people (Dickson-Spillmann *et al.*, 2011). The popularity of organic foods has increased worldwide in recent years. The idea that organic foods are more ecologically friendly and healthier than conventionally produced goods has increased the demand for organic foods. It is well known that organic foods are those that are grown without the use of synthetic agents such as synthetic pesticides, synthetic antibiotics, and chemicals (Dahm *et al.*, 2009). Throughout the manufacturing process, including handling, processing, and marketing, certified organic requirements are followed. Organic fruits and vegetables, dairy products, cereals, pulses, oils, and cosmetics are all created with their environmental impacts in consideration. Even ready-to-eat meals are created with environmental considerations in mind.

However, there are certain controversies about whether organic foods are healthy, or whether they are not significantly different from conventional ones. Although many people would assure that organic food is the best, certain farmers use “natural fertilizers” in growing their organic foods. The question is, how “natural” are those fertilizers? As organic pesticides are also used in organic foods. “How dangerous are these organic pesticides and do they make organic food less safe to eat than conventional food?” (Norwood *et al.*, 2015). The truth that many people do not want to accept is that synthetic materials are utilized in the production of both organic and non-organic foods whereas pesticides and fertilizers are two examples of synthetics that are used in the production of both organic and non-organic foods.

Furthermore, sustainably produced natural raw materials are used in organic agriculture and other strategies were employed in this type of agriculture like biological pest control, biofertilizers application, and crop rotation (Durán-Lara *et al.*, 2020). Hence, natural fertilizers and pesticides are used by organic farmers, unlike traditional agriculture processes in which farmers used synthetic pesticides, fertilizers, and growth regulators which drastically increase crop productivity, and for milk and meat production, antibiotics and hormones were used in animals to improve the efficiency of production (Epule *et al.*, 2015). A holistic production system is involved in organic farming which is seen as the rejection of the use of harmful chemicals, pesticides, fertilizers, etc., and by this means detrimental impacts on the environment are minimized. Therefore, it is advantageous for the environment and conservation

of natural resources. Soil health and yield growth can be achieved by this kind of farming which favors the extensive use of biological control pesticides, microbial fertilizers, and organic materials (*Massimi & Haseeb, 2019*).

This study aims to describe the advantages and disadvantages of using organic food products from health and environmental aspects. The study will also provide an insight into the pros and cons of conventional products. Besides, this study will provide an insight into the most important studies and their results related to the topic of this study in the last decade. Therefore, it will be important for scholars and even practitioners to get a brief look at the current literature and results related to this topic. A thorough review of the literature will offer a better understanding of the sustainability approach associated with the production and consumption of organic products and the health benefits linked with organic products.

To achieve the purpose of this study, conventional literature review methods will be used to present a comprehensive and critical review of current knowledge related to the topic of this study. Finally, the study will draw conclusions and make suggestions for potential researchers for future directions.

ORGANIC PRODUCTS VERSUS CONVENTIONAL PRODUCTS

Around 40% of arable land is used by agriculture worldwide, and it is a major cause of environmental problems. However, in the past few decades, shown in agricultural production produced tremendous gains, but malnutrition and hunger are still a big challenges to overcome, on the other hand, the demands for agricultural products are continuously rising (*Larsen et al., 2021*). With this growing demand for agricultural products and pressure on increasing the productivity resulted in the use of pesticides in non-organic farming globally, in spite of the fact that chemicals pollute groundwater and surface water. This is very hazardous to aquatic life as well as to those of us who consume or use water in our gardens (*Baker-Dowdell, 2018*). Organic farming is often seen as a much more ecologically friendly method of food production. The lack of synthetic pesticides and the rise in the quantity and variety of plants enhance biodiversity and soil quality while reducing pollution from fertilizers and pesticide waste (*Korres et al. 2019*). On the other hand, organic foods are seen as healthy foods by a majority. This is mainly because such food is believed to be healthy and does not cause any harm to the human body. Many people would opt to buy organic foods to reduce the potential risks of catching diseases such as cancer and other serious medical conditions (*Crinnion, 2010*). In addition to that, many people who consume organic foods believe that their energy and fitness levels increase, hence increasing the demand for such foods. This literature review will offer an insight into the growth in demand for organic foods and their health and environmental benefits. Also, it will provide a brief comparison of these products with conventional products and the pros and cons of conventional products.

Organic products

Organic foods are referred to by various terms interchangeably, for example, ecological, free of pesticides, biological, eco-friendly, natural, and alternatively

produced (Schifferstein & Ophuis, 1998). The processes of organic food production and their treatment are different from conventional food production (McCluskey, 2000). As the production system of organic foods avoids the use of synthetic chemicals, and additionally livestock do not receive any chemical preventive treatment as may happen with conventional food input components. Therefore, the residues of such chemicals in organitonaic end products are not likely to exist (Schifferstein & Ophuis, 1998). Organic production can be defined as “an ecological production management system that promotes and enhances biodiversity, biological cycles, and soil biological activity. It is based on minimal use of off-farm inputs and on management practices that restore, maintain, and enhance ecological harmony” (Winter & Davis, 2006). On the other hand, organic foods are defined as those foods that are “processed by biological, mechanical and physical methods in a way that maintains the vital quality of each ingredient and the finished product” (Kabl et al., 2010).

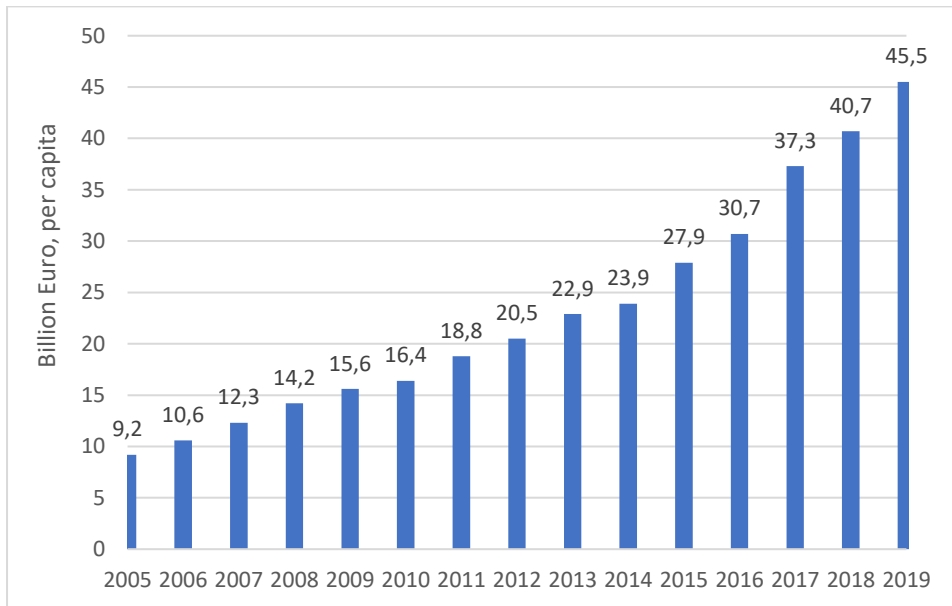
Furthermore, according to Bublitz et al. (2013), a growing number of studies in the literature investigated the impact of health and well-being on the decision-making regarding foods and products. This makes consumers critical of their food choices and the production system of agricultural products that may impact the environment. Therefore, it is necessary to find ways for sustainable development of agricultural products to support the increasing population and reduce the detrimental impact on human health and the environment (Larsen et al., 2021). In this regard, the areas of organic food farmlands are growing rapidly, in 2019, the areas of farmlands utilized for organic production in the EU’s total area increased to 14.6 million hectares. Similarly, in Europe, the organic market grew by 8 percent in 2019 and it achieved a growth of €45.0 billion (FIBL, 2021). This drastic change in the growth of organic products can be due to consumer confidence in it and concerns towards environmental and health risks associated with the conventional food system. According to Van Huy et al. (2019) , the drivers of increasing demand for organic food are busy lifestyles, health concerns, and global environmental problems.

Across the globe, the organic food market has expanded significantly. In 2016, the global organic food sale was around 90 billion US dollars which increased six times compared to its expansion in 1999. As the USA is the biggest market for organic products, the sale of organic food has grown from \$3.4 billion in 1997 to over \$45 billion in 2017, which is an increase of 15 times (Van Huy et al., 2019). The reason for this is that consumers consider organic food as healthier, safer, tastier, and more environmentally friendly (Padel & Foster, 2005; Van Huy et al., 2019). The growth of EU organic retail sales is presented in *Figure 1*. The demand for and sales of organic produce is gradually increasing since 2005.

According to research of dietary history, bio-food purchasers purchased 17 percent more fruit on average than the rest of the population. Around 50 percent of individuals who bought organic goods consumed 250 g of fruit daily, whereas the other 40 percent consumed less. The biological buying indications show that 65 percent of organic food consumers are regular, and 52 percent of organic products are bought on an irregular basis. According to differences in organic fodd consumption by gender, women are more likely to consume at least 250 g of fruit

every day than men, with 54 percent for eating and 44 percent for buying. It was also found that there were statistically significant differences between consumers of organic and non-organic food, as well as differences between organic male and organic female consumers (Eisinger-Watzl et al., 2015). Several studies emphasized that the consumption and purchase of organic products have extensively been connected to perceived health advantages (Chen, 2009).

Figure 1: European Union Organic Retail Sales Growth from 2005-2019



Source: Pawlewicz, 2019; FIBL, 2021.

However, Lusk (2013) elaborates on some of the misconceptions that people have about organic foods. He challenges the misconception that organic food has not been exposed to any kind of pesticides or herbicides. This is the first misconception that people have. They believe that all foods that have been labeled as “organic” have not been exposed to any chemicals. However, the label does not guarantee that organic foods are free from contaminants. Secondly, there is no confirmed proof that keeping agricultural land free of pesticides is better for the environment. The production and distribution of organic food does not guarantee that they pose no risks for the environment. The working conditions of the farmers and those who process these foods may not be one hundred percent conducive to the safety of the environment. Working conditions here refer to the working hours, the number of physical and psychological complaints related to work, and the effect of barn conditions on health. For example, farmers as poor workers may be exposed to hazardous conditions, heat stress, including pesticide exposure, shortage of enough clean drinking water, and shade. Working conditions are therefore perceived as an indicator of food safety, product quality, plus social dimensions, and animal welfare, and therefore the bad

working conditions result in compromised food quality (NFWM, 2020; Duval et al., 2021)

However, it is believed by many consumers that the toxicology and nutritional value of organic foods are higher than those of conventional substitutes (Hoefkens et al., 2009). A study conducted by Pino et al. (2012) surveyed around 291 consumers and their purchasing habits of organic foods, these consumers were classified as occasional or regular buyers. They found that ethical motivations influence the purchasing behavior of “regular organic food consumers” while food safety concerns impact the buying intention of “occasional consumers”. Another study reported that environmental concern was a major factor that affects the purchase and consumption of organic food (Tsakiridou et al., 2008). Also, Davies et al. (1995) reported that food and health risks are important concerns for organic food buyers in comparison to conventional food buyers. Likewise, another study found that food safety is the most crucial predictor of the attitude toward organic foods is. Hence, there are several pieces of evidence that organic food buyers believe that their concern for health and the environment is a major factor which is conducive to their deeper trust in organic foods more than conventional foods.

Conventional products

In simple terms, conventional foods are those foods that are grown using chemical fertilizers whereas organic foods are agricultural products that are mainly grown and processed without the use of any fertilizers. When it comes to animal husbandry, farmers use antibiotics and growth hormones to improve the growth and general well-being of the animals. This is the major difference between organic foods and conventional foods. In conventional farming, farmers use chemicals. These chemicals have detrimental effects both on the environment and human beings. However, these foods are safe for consumption since there are no records of anyone who has suffered from any forms of illness because of taking conventional foods. Organic farming, on the other hand, avoids the use of chemicals in the growing and processing of foods. Since there are no chemicals used, this makes such plants and crops are safe both for human consumption and the environment.

When it comes to animal farming, conventional farmers use antibiotics and growth hormones to improve the growth of the animals and prevent them from any diseases. In organic farming, farmers allow their animals to roam freely, and these animals strictly feed on organic foods. From the ecological perspective, pesticides and other synthetic chemicals used in traditional agriculture are not always avoided. Land cultivation, chemical percolation, particularly in sloping regions, illicit pesticide usage, wind drift, spray drift from conventional farms, filthy soil water, irrigation water, as well as transportation, processing, and storage, may contaminate these goods (Tamm et al., 2007). Some soil has become so polluted by former agricultural practices that it may not even be viable for organic farming after three years. To transform a field from a conventional farm into an organic farm may take several years as land must not be improved?? with prohibited chemicals for three years before organic cropproduction. However, herds of animals can get converted into organic by giving them 80 percent organic feed for at least nine months and

afterwards, 100 percent organic feed for three months. It is necessary that animals take 100 percent organic feed in order to be sold as organic food, however, these animals can be given mineral and vitamin supplements (*Winter & Davis, 2006*).

Major new research comparing residue levels in organic and conventional veggies has been published (*Baker et al., 2002*). The authors utilized data from the Farmers' Market Surveillance Program, the California Department of Pesticides Marketplace Surveillance Program, and Consumers Union on commercial goods without regard to market claims (assumed to be conventionally grown). A total of 94,000 food samples were collected and analyzed statistically. Pesticide residues (at least one kind) were detected in organically produced fruits and vegetables about one-third less often as in conventionally grown fruits and vegetables (*Baker et al., 2002*). The apparent increase in residues in both organic and conventional products has been attributed to improvements in analytical technology and the lowering of detection thresholds for several residues. According to *Baker et al. (2002)*, total contamination rates for conventional commodities were almost tenfold higher (26.7% of 60,642 samples) than for organic goods. When the findings of the three data sets were pooled, organic samples had significantly lower residual levels in approximately 69 percent of cases.

According to *Norwood et al. (2015)*, human beings are constantly exposed to natural pesticides in their everyday life. Many of the plants we eat produce their own pesticides to guard themselves against pests. If humans are exposed to an unsafe dosage of pesticides, then it can cause cancer and several neurological illnesses like Parkinson's disease. To provide the answer to the question that organic foods contain pesticides, *Norwood et al., (2015)* stresses that organic foods contain fewer pesticide residues in comparison to conventional foods. This claim ignores the use of "natural" pesticides which are allowed to be used by organic farmers. These natural pesticides are minerals, biological agents, and chemicals that exist in nature and are not required to be converted into chemicals in big factories and by advanced chemistry. Hence, they are safer than the chemicals used for conventional farming.

ADVANTAGES AND DISADVANTAGES OF ORGANIC AND CONVENTIONAL PRODUCTS

Nutritional differences

Consumers assume organic food is healthier than conventionally cultivated vegetables, but the evidence is mixed. No significant differences in carbohydrate or vitamin and mineral content have been found. Organic foods may contain fewer nitrates than conventional food, which may be desired given the connection between nitrates and gastrointestinal cancer and methemoglobinemia in newborns. In 21 of 36 (58%) studies (*Williams, 2002*), organic green vegetables including spinach, lettuce, and chard had higher vitamin C contents than conventionally grown veggies. Other research has shown increased total phenols in organic vegetables compared to conventionally cultivated produce, suggesting antioxidant advantages (*Asami et al., 2003*). Studies comparing organic and conventional food have had mixed outcomes (*Forman et al., 2012*). A systemic study that was done in 2009 showed that the nutritional content of food was influenced by several variables, including farm

location, soil characteristics, seasonal climate, harvest ripeness, storage, and testing time. In fact, the number of nutrients mentioned in different papers is enormous and the authors, therefore, categorized them into 11 categories. Remarkably, only three nutrient categories, namely nitrogen concentration, titratable acidity, and phosphorus were found to be different between conventional and organic food (*Dangour et al.*, 2009). In 2008, researchers examined the nutritional differences between organic and conventional food samples from 236 matched pairs. The results of this study showed that in terms of total phenolics, vitamin E, vitamin C, quercetin, and total antioxidant capacity, organics outperformed conventionally farmed food by an average of 80%. The conventional products had more potassium, phosphorus, and total protein, which are all important ingredients of traditional fertilizers, but they also had lower total protein content (*Benbrook*, 2008). Furthermore, *Lombardi-Boccia et al.* (2004) observed that conventional plums (cv. Shiro) were the greatest sources of total polyphenols compared to organic ones. Conventional plums were more abundant in quercetin (54.1%), while organic plums were more abundant in myricetin (22.2%) and kaempferol (183.3%); caffeic acid, chlorogenic acid, and quercetin were the most abundant components in both organic and traditional fruits. In contrast to these findings, *Gastol* (2013) showed no differences in polyphenol concentration between organic and conventional vegetable juices from celery, carrot, and red beet. *Valverde et al.*, (2015) found no differences in total phenols and flavonoids levels in broccoli cultivated over two years in a split-plot factorial system experiment. *Granato et al.* (2015) observed no difference in the total phenolic content of organic and conventional purple grape juices.

Natural toxins

Organic agriculture may be more susceptible to natural toxins, such as phytotoxins and mycotoxins, due to stressed plants that, in the absence of pesticide protection, initiate a defensive response against pests, producing secondary defense-related metabolites, as well as a lack of fungicide applications that may facilitate fungal infections (*Pussemier et al.*, 2006; *Mithöfer & Boland*, 2012). Additionally, organic farming is estimated to benefit biodiversity by boosting species richness by more than 30% when compared to conventional farming. While this is beneficial for ecosystem variety, it may also contribute to increased synthesis of natural defense-related toxins to mitigate plant harm (*Tuck et al.*, 2014). Additionally, resistant crop variants are often utilized in organic farming to compensate for the absence of synthetic pesticides and thereby limit plant illnesses, while conventional farming focuses on high-yielding crop strains. As a result, organic plants probably devote more energy to the creation of natural poisons than conventional plants, which may utilize that energy to expand. These viewpoints suggest that organic crops may have greater quantities of natural poisons than non-organic crops (*Brandt & Mølgaard*, 2001).

Another types of toxins that are associated with organic agriculture are fungi, molds such as *Aspergillus*, *Penicillium*, and *Fusarium* that are widely found in organic agricultural foods and feeds (*Vršek et al.*, 2014). These fungi create mycotoxins such as aflatoxins (B1, B2, G1, and G2), which are carcinogenic and cytotoxic (*Liu et al.*, 2015; *Liu & Wu*, 2010). Furthermore, most mycotoxins are heat resistant and may be

passed down the food chain (Vrček et al., 2014) producing substantial health threats as well as significant economic losses (Gourama, 2015). Taking this into consideration, mycotoxin contamination has been extensively researched and documented, especially by the European Food Safety Authority (EFSA). Due to the absence of fungicides in organic farming, concern has developed that this agricultural technique may be more contaminating than conventional farming (Escobar et al., 2013).

It is also important to mention toxics such as toxic metals and metalloids (i.e., copper, cadmium, lead, chromium, nickel, zinc, aluminum, and arsenic) which may be found in agricultural products due to numerous environmental conditions such as water, soil, and air, fertilizer (Vrček et al., 2014; Cooper et al., 2011), and also may be found due to the nature of the production method used (Rossi et al., 2008). While many heavy metals and metalloids are critical micronutrients for plants and animals, excessive ingestion may be harmful (Alloway, 2013). The use of mineral fertilizers in conventional farming, which is forbidden in organic farming, has raised concerns among scientists owing to rising amounts of unwanted metals in soils and foods (Vrček et al., 2014; Yang et al., 2013). Organic farming, on the other hand, depends on Cu fungicides, which are connected to a harmful metal buildup (Yang et al., 2013; Krejčová et al., 2016).

Taste of food

When it comes to customers' perceptions of the taste and flavor of organic goods, Theuer (2006) finds no significant variations in taste and organoleptic quality, which does not indicate that organic products taste better than conventional food. Theuer (2006) adds that these studies do not provide information on soil properties or management strategies, which limits the relevance of the findings. According to Reganold et al. (2010), organic strawberries taste better than non-organic strawberries. Additionally, perception is influenced by a variety of complex cognitive processes, including informational framing, expectancies, training, and attitudes (e.g., environmental concern) (Sörqvist et al., 2013).

Environmental aspects

An important issues in the organic debate are whether organic farming practices are less harmful to the environment, more productive, and less costly than conventional methods. Many surveys and research have compared organic and conventional agricultural practices. Many people feel that organic farming is better for the environment since it does not utilize or release synthetic pesticides into the environment, some of which may affect soil, water, and local animals (Oquist et al., 2007). Organic farms are also regarded to be better at supporting various ecosystems, including plant, insect, and animal populations, than conventional farms, due to measures like crop rotation. Organic farms consume less energy and create less trash per unit area or production (Hansen et al., 2001). Organically maintained soil has better quality and retains more water, which may enhance output in dry years.

Environmental-conscience.com (2021) has summarized the main issues related to the environmental impact of conventional food production and farming as follows:

conventional farming may damage the soil as excessive use of fertilizers and pesticides can degrade the soil over time, leaving farmers unable to produce enough food in the future. It may also let pests develop resistance and conventional pesticides may cease to function in a few years. As a result, many farmers may be unable to keep pests out of their fields and may lose a large portion of their annual harvests to pests. Furthermore, as a result, conventional food production plants may become relatively weak and susceptible to disease as a result of being genetically engineered to enhance food production and productivity. At times, plant diseases may spread rapidly and drastically reduce food output for years, if not decades. Additionally, conventional agriculture is frequently criticized for depleting our planet's resources, as everything is optimized for profit and yield maximization, and the majority of conventional farmers are unconcerned about our ecosystems and the negative effects of conventional farming on our planet (*environmental-conscience.com*, 2021). Moreover, through conventional farming and the use of pesticides and chemical fertilizers, and deforestation related to intensive farming, many species may become endangered or even extinct shortly and overall biodiversity loss may lead to an ecological imbalance in the long run, with rather unclear effects on our planet and also on humanity. Not only many animals may disappear since their natural habitats may get destroyed, but also many insects may vanish due to the excessive use of chemical substances in conventional crop production, and this may hurt nature in the long run. Which may also lead to significant pollination problems (*environmental-conscience.com*, 2021).

Economical aspects

It is critical to recognize that conventional food production may boost employment possibilities, accelerate production, decrease farmer costs, mitigate the danger of global conflict, and improve the global nutrition balance. However, these economic advantages may make it difficult for organic food producers to compete as their costs are higher, not many customers are ready to pay high prices for organic food, and marketing and selling their goods will be difficult and expensive (*environmental-conscience.com*, 2021). However, the impulse to acquire organic goods is primarily not driven by health concerns. It is a more complicated idea that is influenced by a variety of things. Apart from health, they include a deep concern for environmental sustainability and food system resilience, risk perception, and cultural norms, and are rooted in ecological, ethical, and political convictions (though religion does not seem to be a significant factor) (*Aertsens et al.*, 2009; *Kabl et al.*, 2012; *Læssøe et al.*, 2014). As a result, organic food producers may benefit from these factors in achieving positive attitudes toward their organic products and concentrating their marketing efforts on the individuals who are delighted by such products, which may eventually result in customer loyalty (*Naz et al.*, 2021; *Dias et al.*, 2016).

To provide a better understanding of the consumer's perception of organic and conventional products, the authors summarized the key findings of some of the recent studies. *Table 1* shows the key findings which reflect the drivers/barriers and a comparison of organic and conventional products.

Table 1: Key findings of previous studies on organic and conventional products.

Authors	Country/ Sample size	Type of Product	Key Findings
<i>Danner & Menapace, 2020</i>	USA, 1069	Organic and conventional food	It found that the main drivers of organic food purchases are health and food safety. Taste, nutritional value, and quality all play a role in converting consumers from conventional to organic food. The high cost of organic food remains a deterrent.
<i>Drugona et al., 2020</i>	USA, 1009	Organic and conventional wheat products	Their findings on organic bread consumption show that consumers value price and taste. Also, consumers believe organic products are overpriced and inferior to conventional products, such as organic bread. So, the high cost and inferior taste of organic wheat products (like bread) deter consumers from buying them.
<i>Feil et al., 2020</i>	Brazil, 1997	Organic and conventional products	The findings show that consumers' attitudes towards organic food are unrelated to their intentions. It means they don't intend to buy organic food. Women and college students are the main drivers of organic product purchases. Women are more concerned about buying organic food, and education increases knowledge about organic products, changing consumer buying behavior.
<i>Ostapenko et al., 2020</i>	Ukraine, 82	Organic and conventional agriculture produce	There are no stable organic markets in Ukraine due to the low price difference between organic and conventional products. Products like pig meat have huge price differences between conventional and organic farming. Consumers prefer conventionally grown meat over organically grown meat. Organic farms have lower land profitability than conventional farms.
<i>Rahman et al., 2021</i>	Systematic literature review worldwide	Organic and conventional fresh fruits, vegetables, and cereals	They found that consumers are willing to pay more for organic fresh produce than conventional fresh produce. Organic produce is thought to be free of synthetic fertilizers, herbicides, fungicides, and insecticides. Constants in organic farming are sugar content and soluble solids. The latter is dependent on the growing conditions.
<i>Śmiglak-Krajewska & Wojciechowska-Solis, 2021</i>	Poland, 1108	Organic	Consumers' preferences for organic produce are influenced by health-related values, according to researchers. Consuming organic food is based on the principles of organic farming which does not use chemicals. Health, sustainability, material quality, and environmental preservation are the main drivers of organic food consumption today.
<i>Taghikhab et al., 2021</i>	Australia, 1003	Organic and conventional wine	Environmental awareness is linked to the willingness to pay a premium for organic wines. The main reason to buy organic wines is health benefits. Despite their health and environmental beliefs, one of their studies clusters preferred conventional wine. Impulsiveness caused by negative emotions leads to spontaneous purchases of conventional wine.

RESULTS AND DISCUSSION

Why is it important to use organic food products? According to the literature review on the current topic, consumers tend to use organic food products for three main concerns that are health concerns, environmental concerns, and social norms (*Chekima et al.*, 2017; *Mørk et al.*, 2017; *Ghali*, 2020; *Rana & Paul*, 2020) on the other hand, the consumption of conventional food products is also determined by three influencing issues: the lack of awareness on the importance of using organic food, low financial viability, and the price of organic food which is relatively high (*Denver & Christensen*, 2015).

The review of the literature also showed that many previous studies have examined and explained the reasons for using organic products in more detail. According to *Aschemann-Witzel et al.*, (2015) the major reason for people to shift toward organic food was related to health concerns. Customers nowadays are more informed about the relationship between food and health (*Annunziata & Pascale* 2009). A great deal of previous studies have correlated using conventional food with different negative health issues like gaining extra weight, and increased rate of heart attacks (*Lusk*, 2013). Furthermore, using organic food according to USDA helped some patients to reduce their allergies and sickness since it has fewer chemicals and pesticides (*Baker-Dowdell*, 2018). Despite this, *Lusk* (2013) has mentioned that some people do not use organic food products and he related that to behavioral economics explaining that people are not patient enough to use healthy things and make a diet. They always prefer to use tastier and easier food to consume despite the fact that it is unhealthy.

An important reason why people tend to use organic or nonorganic food products is related to social norms and socio-demographic characteristics of the customers. For example *Zanoli & Naspetti* (2002) found that although Italian consumers understood the connection between using organic food and health, they tend to prefer nonorganic food since they allocate a great importance to food taste in their choices. Another study among Kurdish consumers found that specific characteristics of the food such as freshness compensate for being non-organic (*Ali*, 2021). Whereas a study among British and Danish consumers shows that these consumers prioritize the taste of the food and its freshness over its health threats (*Wier et al.* 2008). A study on Danish customers also (*Denver & Christensen*, 2015) found that consumers' economic background, the location of their residence, and their educational level were important in their choice for organic food; Customers in better economic situations, living in urban areas, and with higher education are more likely to purchase organic products and follow organic dietary recommendations; however, the availability of organic product selling points was an important indirect variable. Whereas it could be seen in some studies that consumers preferred organic food over non-organic like Belgian consumers who care about health, low level of pesticides, environment, and finally the taste and quality of food (*Aertsens et al.*, 2011). Similarly *Śmiglak-Krajewska & Wojciechowska-Solis* (2021) found that health concerns and food quality were the main motivating factors of Polish customers to consume organic food.

Many studies have mentioned the importance of organic food for the environment since organic food depends on minimizing pesticides and chemicals as

much as possible which will result in better quality and healthier water and soil which will make food production more sustainable. That's why an increasing number of consumers will use organic food products (Korres et al. 2019; Baker-Dowdell, 2018).

CONCLUSION AND FUTURE STUDIES

The current study aimed to review literature that described consumer behavior toward organic products and to describe the disadvantages and advantages of organic and conventional food products.

The organic food industry is growing all over the world, and soon organic food will be in every household. Furthermore, organic foods are seen by customers as being more nutritious and of better quality. Organic food is better for the health and the environment. Using organic food products will promote health and environmental stability. Many farms are shifting toward sustainable solutions where the use of pesticides and chemicals is very low. The ban on mineral and synthetic fertilizers that have a detrimental impact on organic crop components is one of the fundamental bio-based agricultural concepts. Although many studies have highlighted the health benefits of organic food, some studies have argued that for some types of crops, there is no significant difference in nutrients between organic and conventional food products. Furthermore, other studies contend that organic food may increase the levels of various types of toxins in plants, potentially affecting human health.

On the other hand, some studies have found a connection between conventional food products and their negative effects on human health, for example, being overweight and having a heart attacks. Despite these negative effects, there are some benefits of conventional food production such as reducing the level of some toxins in plants that may exist due to, for example, the type of water, soil, and fertilizer. And achieving some economic feasibility for farmers and customers alike. For different reasons, customers are using conventional products in their daily consumption, mainly related to the lack of awareness, high prices of organic products, financial viability, and relatively better taste in some cases. It could be noticed that social norms are important influencing factors in making purchasing decisions related to organic food. Different social factors have a role in affecting this decision, and it varies from culture to culture and country to country.

Future research may provide a more systematic review of recent studies focusing on culture and social norms. Also, it would be nice if future research focused on a specific type of product and tried to understand its consumption separately, which would allow more reflection on the quality of the output products, making them acceptable for both researchers and businesses. Finally, future research can look at the long-term environmental benefits of organic food to find the best farming method.

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CIRCULAR ECONOMY: AN ANALYSIS FOR TURKEY

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ABSTRACT

Circular Economy has emerged in need of an alternative economic model to reduce the environmental hazard and improve sustainability. This study analyzed four different indicators of Circular Economy, namely: resource productivity, renewable energy consumption, domestic material consumption and the generation of municipal waste based on secondary data to depict the volume of circular practices in Turkey in a frame of Circular Economy and environmental performance. Main findings of the paper show that Turkey is lagging behind the EU average regarding circular economy practices and environmental performance. On the other hand, increased levels of Renewable Energy Consumption may help to reduce CO₂ emissions.

Keywords: Circular Economy, Turkey, sustainability, resource productivity, decoupling, environment

INTRODUCTION

Nature is moving circularly in an infinite cycle of materials, whereas humans and their current way of living keep flowing linearly. Especially after the Second World War, both production and consumption processes caused the rise of environmental problems. The idea of sustainability started to emerge after realizing how the current system had been damaging our natural environment and a need for an alternative model was essential. Hence green economy, blue economy and circular economy have emerged as the most popular concepts (Onder, 2018). The simplest definition of circular economy stands as; “The economy in which products, materials, and resources last as long as possible and waste is kept at the possible lowest level” (European Commission, 2015). This concept necessitates a restorative industrial system, conversion into renewable energy, reduction of toxic chemicals and prevention of waste, which is being summarized as 3R: reduce-reuse-recycle (Kalmykova et al., 2018). “Reducing” however, is the essential part of the system in order to minimize the harm in the first place. Recycling per se does not lead the way towards circularity and an efficient implementation of sustainability requires a change in consumption and production patterns (Sapmaz Veral, 2019).

Turkey, being among the developing economies in the world and in the EU harmonization process, needs a better policy and understanding of environmental concepts especially within its economic development frame. OECD states that “Turkey is the eighth largest OECD economy and the fastest growing. The country’s

rapid economic development and population increase are likely to aggravate environmental pressures” (OECD, 2019, p. 4).

In Turkey the Circular Economy concept has not been properly developed nor it is understood accurately. The policies and strategies are not being implemented thoroughly yet. However, primarily with the collaboration and guidance of EU institutions and regulations, the country has made a progress in this context. Environmental policies have become an essential part of national development plans where The Ministry of Environment and Urbanization is the main actor of the policy making and implementation process.

The main objective of the present paper is to make a review on Turkey from a Circular Economy approach. In the theoretical background the concept of Circular Economy and various indicators together with a country overview have been explained briefly. Specific indicators have been chosen for an assessment depending on data availability and their prevalence in the field. In the analysis part firstly, decoupling trends between resource efficiency, domestic material consumption and GDP (Gross Domestic Product) have been analyzed. A second analysis demonstrates the relationship between renewable energy consumption and CO₂ emissions. As a final analysis, the graphs depicting the data for 2016 municipal waste generation, resource productivity and domestic material consumption have been given in a comparison to some of the EU countries. In the conclusion section recommendations are- given towards a better understanding, system and implementation.

THEORETICAL BACKGROUND

The Concept of Circular Economy and Indicators

China and the European Union have presented the Circular Economy (CE) concept as a solution to live in balance with the natural environment and close the loop of the product life cycle (Prieto-Sandoval *et al.*: 2016). This concept originates from the idea of integrating economic activity and environmental well-being in a sustainable way. “... aims at reducing both input of virgin materials and output of wastes by closing economic and ecological loops of resource flows” (Haas *et al.*, 2018, p. 765). One of the main targets of CE is to increase the harmony between economy, environment and society by focusing on resource efficiency and waste (Valavanidis, 2018).

Along with the circular economy concept, the development of more recent theories such as regenerative design, performance economy, cradle to cradle, biomimicry and the blue economy may be regarded as an important step towards the further elaboration and improvement of this concept (Ghisellini *et al.*, 2016).

EASAC (the European Academies' Science Advisory Council) grouped several indicators related to circular economy such as: sustainable development, environment, material flow analysis, societal behavior, organizational behavior and economic performance. They also evaluated that non-material measure indicators should also be taken into account for monitoring progress towards a CE. In their circular economy indicators report they state that indicators by industrial sector on critical raw materials, of social change, infrastructure, human resources and changes in business models, an indicator showing the extent to which waste was being

transformed to secondary raw materials, water indicators may also be desirable to be included in the indicator sets for the circular economy (EASAC, 2016).

Decoupling of resource use and environmental impact from economic activities are the important priorities in Circular Economy. Therefore, resource efficiency, waste reduction and tracking material flows are all important concepts, however, those do not show the real environmental impact of resources extraction and use (EASAC, 2016).

Progress towards a circular economy should ultimately lead to a measurable reduction of the total amount of primary raw materials that are extracted from the environment, as well as the total amount of landfilled or incinerated waste. Hence, most of the abovementioned indicators focus on material inputs, waste outputs and recycling rates. On the other hand, the share of secondary materials in total material consumption is also crucial to measure the degree of “circularity” of a specific economy (ESPON, 2019).

Environmental Performance and Circular Economy Approach in Turkey

Turkey, with a population slightly over 82 million and approximately 9.000 US dollars per capita GDP (World Bank, 2020), is a developing country facing severe environmental issues. Among the root causes of environmental problems faced by Turkey, factors such as inter-regional differences of development levels, inequalities in income distribution, high rate of population growth, lack of cohesion between environmental and economic development objectives, lack of legal and institutional regulation, inadequate public awareness and inclusion in terms of environmental protection play a substantial role (Kızılboga & Batal, 2012).

Candidacy for EU membership has brought a new perspective and targets in Turkey’s environmental action agenda where the need for harmonization to and implementation of EU legislation is mandatory as a candidate country.

OECD’s environmental performance review for Turkey 2019 states that Turkey has partially decoupled its economic growth from resource use and environmental hazard, however still more effort is needed in the transition process towards a low carbon circular economy (OECD, 2019).

Turkey must adopt a comprehensive material resource policy and promote a separate collection of municipal solid waste, reducing biodegradables going into landfills and incineration of hazardous waste. The European Commission states that “The preparation of waste management plans at the local level, in line with the Waste Framework Directive, is ongoing” (European Commission, 2018). According to OECD Report 2019, “Material productivity is below the OECD average but did however start to grow in the recent years” (OECD, 2019, p. 5).

Currently, recycling rate in Turkey is still lagging behind the EU and developed countries as per “Municipal waste recycled and composted in Europe chart” provided by European Environment Agency (EEA, 2020).

According to the data regarding environmental spending and employment obtained from the Turkish Statistical Institute for 2016, overall environmental spending was realized as 1.2% of GDP. Among all environmental spending, waste management services constituted 40.4%. Income generated by environmental

activities belonged to the public sector with 58.9% share and 41.1% to business. The most substantial spending on environmental activities is realized by the public sector, whereas the environmental employment is realized rather high in the private sector (*Turkish Statistical Institute, 2017*).

When we consider environmental management in two levels as central and local, local governments' responsibilities become substantial for providing services for public benefit considering environmental problems. An important feature of environmental problems is that they are specific to the place where the hazard originates and hence, local authorities in the origin of the problems play a primary role in preventing and resolving them. When local administrations are financially dependent on the central government, they cannot use initiatives in a broad sense to solve the local issues, which generate problems in policy making and functioning. Local authorities should be able to set local environmental taxes and use these tax revenues to prevent and eliminate environmental problems (*Kızılboga & Batal, 2012*).

Fundamental drawbacks regarding the waste management in Turkey can be summarized as follows: Inadequate coordination and cooperation among various organizations in power, need for a better taxation policy for environmental services provided, lack of awareness and education, political concerns averting local needs and local authorities, "save the day" policies which result in inefficient use of financial sources, and lack of resource, staff, and equipment due to low amount of investments. (*Gulec & Pekkuksen, 2018*) Proper data collection, research and analysis are essential factors to reflect the status quo and for developing efficient environmental and circular strategies and policies which Turkey is in need.

Turkey, with vast farmlands and a large population should use the advantages of energy production based on renewables and wastes, and develop policies in this direction.

The choices in the stages starting from the definition of environmental problems to the setting the priorities, policies for the solution, and the reflection of these to the implementation can lead to different environmental policies. In this case, in addition to the consistency of environmental policies within, it is necessary to ensure compliance with economic and social policies. In this context, it might be concluded that environmental policies are not only related to the protection of the environment, but also indirectly with other fields such as law, finance, urbanism and industrial policies.

MATERIALS AND METHODS

Although the primary goal of this paper is to show the degree of circularity with a comparative analysis, some restrictions have been encountered due to the data availability to make an accurate assessment regarding the main circular economy indicators. Finally, an analysis has been made to reflect the decoupling trends between economic growth, resource productivity and domestic material consumption. Another analysis has been made to demonstrate the relationship between Renewable Energy Consumption and CO₂ emission in Turkey. Comparison for Resource Productivity, Domestic Material Consumption, and Waste Generation data have also been analyzed on graphs.

Decoupling refers to breaking the link between environmental hazards and economic advantages, which means decoupling indicators measure the decoupling of

environmental pressure from economic growth over a given period. A lot of the variables that feature in decoupling indicators also appear in the concepts of resource efficiency, resource intensity and resource productivity. Decoupling is usually conceived as an elasticity focusing on changes in volumes, whereas efficiency and intensity are more concerned with the actual values of these ratios. “The decoupling concept has however no automatic link to the environment’s capacity to sustain, absorb or resist pressures of various kinds A meaningful interpretation of the relationship ... will require additional information.” (OECD, 2003, p.13)

Resource productivity is an indicator for the effectiveness with which an economy or a production process is using natural resources and it reflects the output or added value generated per unit of used resources. It is calculated as the ratio between GDP and Domestic Material Consumption (DMC) - a variable used in material flow accounting. DMC measures the weight of the materials that are physically used in the consumption activities of the domestic economic system. As per its circularity measurement character, one can expect that the lower the per capita value of the DMC is, the less primary material input is expected to flow into the system (OECD, 2008).

The data for Resource Productivity, Domestic Material Consumption and Municipal Waste Generation have been obtained from Eurostat Environment Database for the year 2016 due to the availability of data for all the chosen countries of this year. Data used in the analysis of decoupling of resource productivity, economic growth and domestic material consumption have also been obtained from Eurostat for the period 2009-2016. Decoupling trends for Turkey has been illustrated on a graph that has been reproduced based on another graph that was previously provided by Eurostat for EU countries. (Eurostat, 2019)

Time series data for CO₂ emissions and Renewable Energy Consumption (REC) have been obtained from the World Bank’s World Development Indicators database. CO₂ emissions data as a representative of Greenhouse Gas Emissions (metric tons per capita- Carbon dioxide emissions are those stemming from the burning of fossil fuels and cement manufacture. They include carbon dioxide produced during the consumption of solid, liquid and gas fuels and gas flaring) range the period 1990-2014. REC (% of total final energy consumption - Renewable energy consumption is the share of renewable energy in total final energy consumption.) data covers the period 1990-2014 (World Bank, 2019)

For testing the correlation between REC-CO₂ emissions, the analysis has been made in Minitab and EViews programs. Raw data have been converted with a calculation of annual change for each year. The data for the indicators of the decoupling trend (namely DMC, RP and GDP) have been indexed to the base year.

RESULTS AND DISCUSSIONS

Decoupling Trends between Resource Productivity, Domestic Material Consumption and GDP in Turkey

Resource productivity in the EU increased by 38.8 % between 2000 and 2016 and despite the decline in domestic material consumption since 2007, GDP has nevertheless continued to grow. This suggests that the EU has partly decoupled

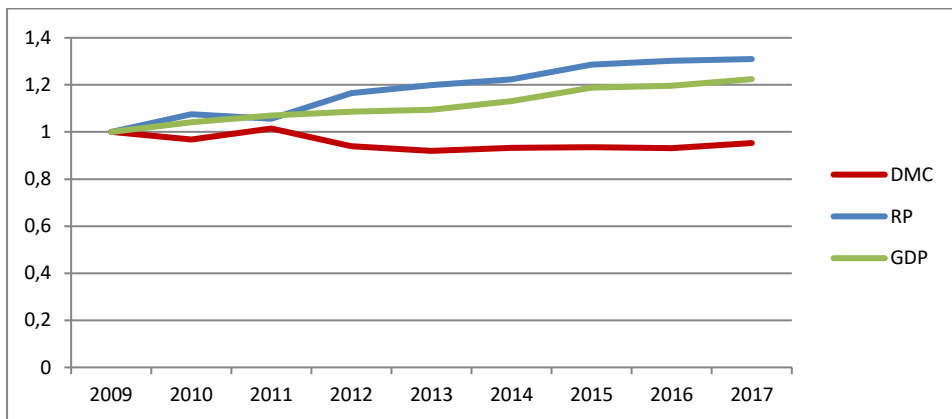
economic growth from resource use. Like material consumption, resource productivity also significantly varies between Member States, although it has been improving in nearly all of them. (*European Parliament, 2017*)

Observation of a potential decoupling of an economy from resource consumption is mainly based on an analysis of the relationship between GDP and DMC per capita. “The idea behind decoupling is that economic growth is possible without harming the environment or with lowering the negative environmental effects of growth (i.e. when resource consumption decreases and at the same time economic production increases). The opposite of decoupling is recoupling (or relinking). In this case both indicators have the same sign, but the change rate of resource use is higher than that of the economic production” (*ESPON, 2019, p. 22*).

“Relative decoupling is achieved when economic growth is exceeding growth in material use. In contrast, achieving economic growth at the same time decreasing overall material use is called absolute decoupling. While both cases entail an increase in efficiency in raw material use, only the latter can be seen as a means towards lowering the pressures on the environment.” (*Materialflows.Net, 2020*)

Figure 1 and *Figure 2* show the decoupling trends for EU 28 and Turkey respectively.

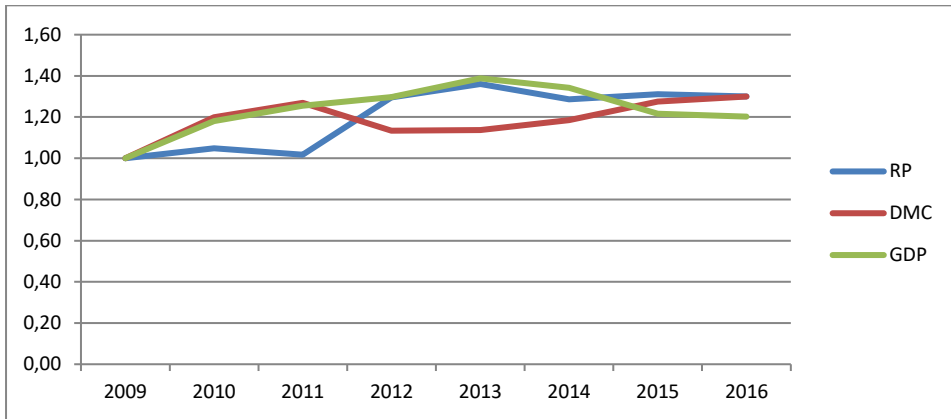
Figure 1: Resource productivity (Euro per kg DMC) in comparison to GDP (Euro per capita) and DMC (tonnes per capita) in EU-28



Source: Based on *Eurostat, 2019*

Figure 1 shows that despite the decline in domestic material consumption in EU 28, GDP has nevertheless continued to grow, which suggests that the EU has partly decoupled economic growth from resource use. On the other hand, when we look at *Figure 2* (as reproduced based on the Eurostat’s previous graph), which depicts fluctuations in different periods, however considering the recent trends, it can be argued that DMC has been increasing together with a decrease in GDP, which means we cannot talk about a DMC independent economic growth. One might expect a decrease in Resource Productivity shortly, where an absolute recoupling may be observed in Turkey. In this case one cannot talk about a clear decoupling trend in Turkey.

Figure 2: Decoupling Trends of GDP (euro per capita), Resource Productivity (Euro per kg DMC) and DMC (tonnes per capita) in Turkey



Source: Based on *Eurostat*, 2019

Increasing resource productivity through improved efficiency and reducing resource waste through circular economy with recycle and remanufacture can at a great sense lower both resource consumption and GHG emissions. Such measures can also result in highly desirable social benefits such as more equitable access to resources and reduced pollution. In order to reduce both GHG emissions and other pressures on environment and resources, economic growth should not cause the environmental and resource degradation and a circular economy targeting reduce, reuse and recycle must be a key strategy (UNEP, 2015).

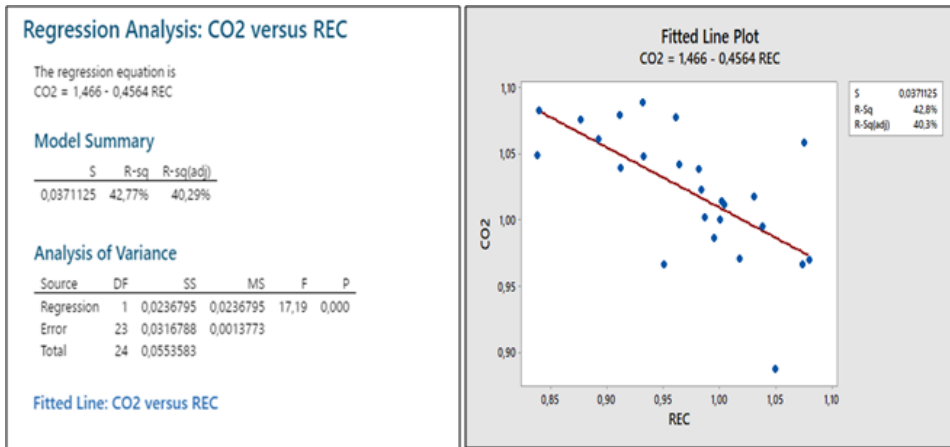
Renewable Energy Consumption and CO₂ Emissions

Climate change is one of the biggest challenges the world is facing today, therefore renewable energy sources provide an excellent opportunity to mitigate the greenhouse gas emissions. Optimal use of renewable energy sources can help to tackle the environmental challenges (Keleş & Bilgen, 2012). The use of renewable energy sources instead of traditional energy sources is seen as the most effective method against the threat of climate change and global warming. However, neither the policy practices nor empirical researches on this issue are sufficient yet (Özbuğday & Erbas, 2015). One of the main principles of Circular Economy includes “renewability” where renewable energy is the main source to reduce fossil energy dependence therefore enhancing the resilience of the economic system (Ghisellini et al., 2016). Reducing CO₂ emissions and conversion to renewable energy consumption therefore constitutes an important part of circularity.

Since air pollution is a critical environmental problem in Turkey, renewable energy sources are vital for ensuring the safety of Turkey's future energy supply in terms of both being a sustainable source of energy and environment friendly. In addition, Turkey's geographical location and climate conditions provide important advantages in terms of renewable energy sources (Keleş & Bilgen, 2012).

Despite the drastic increases in energy prices, the strong appetite for the growth in the world increases energy demand and thus this increase is satisfied by fossil fuels. However, this increase in prices could help to accelerate the trend towards the utilization of renewable and sustainable energy sources that are thought to be costly (Soytas & Sari, 2009).

Figure 3: Results of correlation test between REC and CO₂ emissions



Source: World Bank, 2019

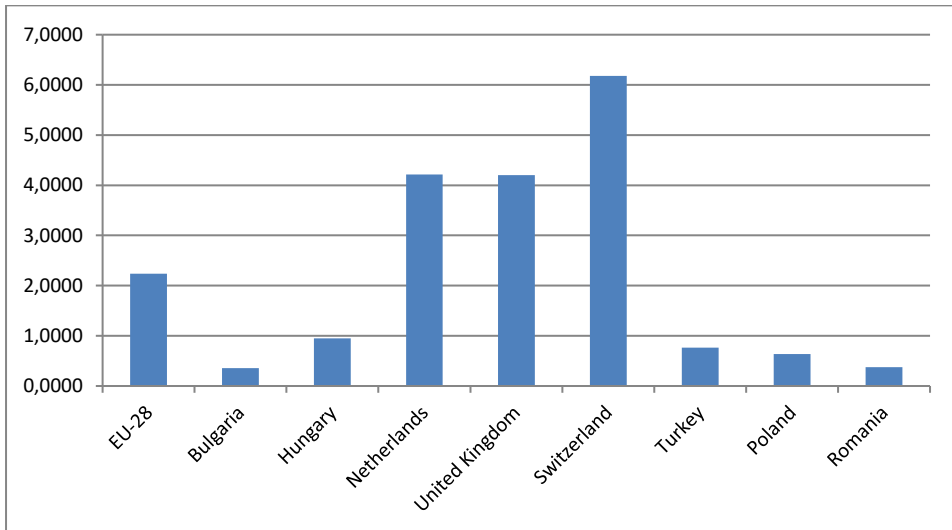
In Figure 3 the first results of the analysis show a negative correlation between REC and CO₂ emissions, meaning that one unit increase in REC results in 0,05 unit decrease in CO₂ emissions. Similarly, the empirical results of the study made by Sekeer & Cetin (2015) on the relationship between renewable energy consumption and carbon emissions by incorporating economic growth, population density and trade openness as potential determinants of environmental pollution function in case of Turkey over the period 1960 to 2010 shows that renewable energy consumption has a negative effect on carbon emissions in the long run. This negative correlation can lead us to a middle ground of two different approaches in environmental studies: climate change and circular economy, which in fact goes hand in hand, however having different focus points and indicators. Increased levels of REC (as a part of circular economic approach) can result in decreased levels of CO₂ emissions being in the core of climate change debates.

Comparison of Resource Productivity, Domestic Material Consumption and Municipal Waste Generation

For this analysis, certain EU countries have been selected regarding their resource productivity (the lowest- Bulgaria and Romania-, the highest- UK, Switzerland and the Netherlands and the ones performing similar to Turkey- Hungary and Poland) as of 2016 (due to the restrictions of data availability) and three graphs for Resource Productivity, Domestic Material Consumption and Municipal Waste Generation

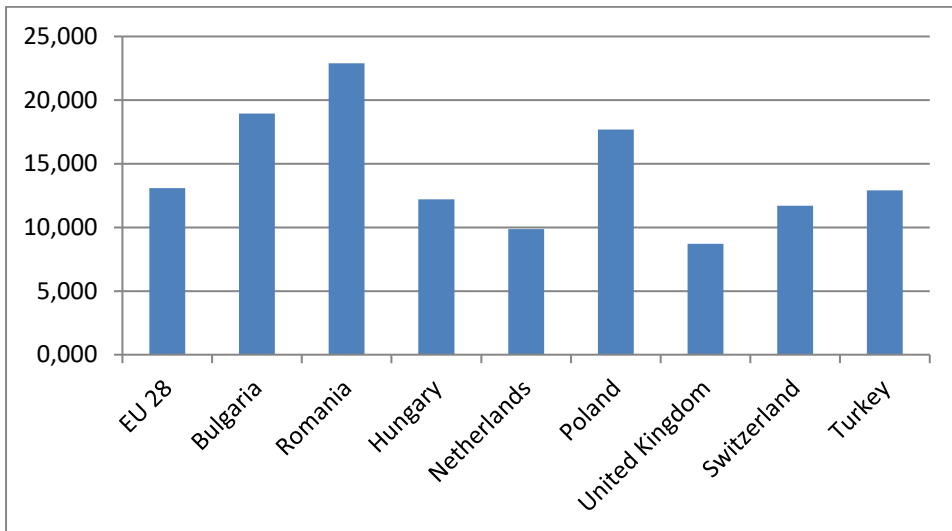
have been elaborated based on the statistics from Eurostat (2019) to show a comparison between Turkey and other selected countries which can be seen in figures 4,5 and 6 respectively.

Figure 4: Resource Productivity, Euro per kg, 2016



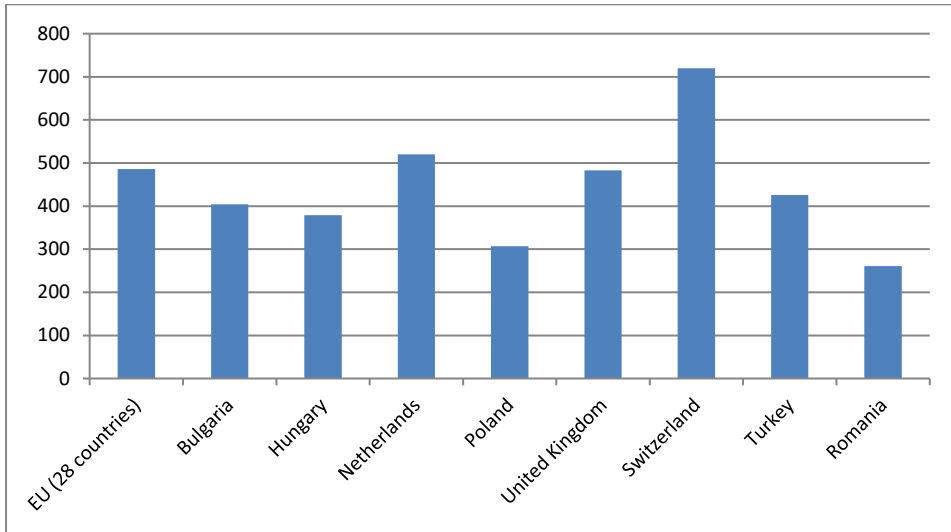
Source: Eurostat, 2019

Figure 5: Domestic Material Consumption, tons per capita, 2016



Source: Eurostat, 2019

Figure 6: Generation of Municipal Waste, kg per capita, 2016.



Source: *Eurostat*, 2019

The graphs summarize that for the year 2016 Turkey performs close to the lowest group in terms of resource productivity, whereas its domestic material consumption remains above the ones which are the highest performers of RP. The generation of municipal waste amount is above the lowest performers of RP as well as its counterparts, but still below the countries with high resource productivity. It performed weakly regarding resource productivity. Domestic Material Consumption and Municipal Waste Generation have been observed close to the higher group of EU countries and EU-28. As Resource Productivity shows us the rational trend between GDP and Domestic Material Consumption ($RP = \text{GDP}/\text{DMC}$), one can conclude that low resource productivity would stem from either low levels of GDP or high levels of domestic material consumption. In this case both are valid for Turkey and to some extent this explains its low resource productivity (Turkey's GDP USD per capita for 2016 was the third lowest in this group depending on OECD data).

CONCLUSIONS AND RECOMMENDATIONS

Circular economy is a remarkable sustainable development strategy that has great potential to reduce environmental harm, increase material and energy efficiency and create new opportunities for businesses and communities as well as is relevant for all types of territories, yet it will be implied diversely in accordance with local conditions.

The main difference between sustainable development and circular economy is their macro and micro-level characteristics respectively. "If the application of circular initiatives brings better results towards sustainability, then the circular economy becomes a tool for sustainable development" (*Valavanidis*, 2018, pp.5).

This study has analyzed four different indicators of Circular Economy, namely: resource productivity, renewable energy consumption, domestic material consumption and the generation of municipal waste to demonstrate the volume of circular practices in Turkey in a frame of Circular Economy and environmental performance. The paper's main findings show that Turkey is lagging behind the EU average regarding circular economy and environmental performance. On the other hand, the analysis also shows that increased levels of Renewable Energy Consumption may help to reduce CO₂ emissions in Turkey. In terms of decoupling economic growth from material use and resource productivity, a clear decoupling trend could not be observed in the case of Turkey. This reveals the fact that Turkey has not seemed to be quite successful to sustain its economic growth without putting a pressure on the environment (or creating environmental hazard in other words) or being independent from resource consumption so far.

For further studies it may be recommended to include more variables to test the impacts on environmental degradation and the degree of circularity with more effective results. So far, it can be concluded from the given literature that there is no consensus on a common framework regarding the CE (the reason can be attributed to the fact that it is place specific, the implementation and policies vary in different places in regards to differences in development and growth, technology and education levels, available resources, structure of the population and the economy, geographical conditions etc.). Improving a common understanding and policy of the concept may lead to better practice all around the world.

Turkey has a significant potential in terms of combustible renewables and waste energy sources. The findings of the study have shown that the use of these kinds of renewable energy sources may contribute to the reduction of carbon dioxide emissions. Therefore, policy makers should conduct new incentive policies and investments for combustible renewables (biogas and biomass), municipal waste and industrial waste, as well as measures to encourage renewable energy sources. In particular, the use of agricultural areas in this way with the technological developments and evaluation of the waste can be estimated to be much more effective. It is necessary to give importance to training that ensures environmental awareness in every sector and to ensure active participation of local governments, public and non-governmental organizations in the management process. It is also important to prioritize environmental planning, ensure balanced and healthy urban development, eliminate conflicts in the management level and ensure cooperation between local governments as they are the drivers for the implementation of circular economy. Local governments can play the key role to bring private and public stakeholders together, define the needs of the society and certain places as being the first level governance, urban planning, waste regulations, policies and roadmaps. To tackle the systematic problems, collaborative governance may be helpful by sharing the visions, expertise and experiences (for instance multi-topic governmental networks such as EUROCITIES, ICLEI, and the Covenant of Mayors including circular economy focus areas). The city of Milan for example has had the opportunity to share the experiences of Tokyo, Seoul and San Francisco regarding food waste collection and exceeded the EU food waste recycling target through an A C40 waste

and resource network event. Local city networks are also valuable, like in Scotland and Portugal, creating a regional network and knowledge exchange. The CircE Interreg project brings together European regions and cities to share and learn from each other for a transition to CE. Other networks focusing on specific circular economy elements also exist, such as the Sharing Cities Alliance that brings together cities working on sharing economy policies (*Ellen MacArthur Foundation*, 2019)

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TESTING THE TWO-STEP MODEL OF MARKETING KRISHNA CONSCIOUSNESS IN EUROPE

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ABSTRACT

Krishna Consciousness is a new religious movement, which has gained higher and higher importance in the past decades in Europe. During multiple researches between 2013 and 2020 (Bence, 2014; Bence-Kiss, 2020) a two-step model was identified, in which Krishna-conscious communities of Europe attract people outside the religion as tourists to rural communities in the different countries, where they gain more knowledge about the religion in informal, non-pressing ways. The Transtheoretical Model of Behaviour Change (TTM) (Prochaska & DiClemente, 1983) may be applied to analyze the behavior through which people transform from tourists to actual members of the religious community via a set of behavior changes. The objective of this study was to test the applicability of this concept previously found (Bence-Kiss, 2020) on two countries, which have not been part of the initial research: France and Italy. Online content analysis, observations and in-depth interviews were applied to identify the general structure of the religious community in each country; and the results were compared to the previous findings, confirming that the two-step model and TTM may also be applied to analyze the involvement in Krishna Consciousness in these countries as well.

Keywords: religious marketing, marketing religion, marketing mix, tourism marketing

JEL codes: M31, N34, L83

INTRODUCTION

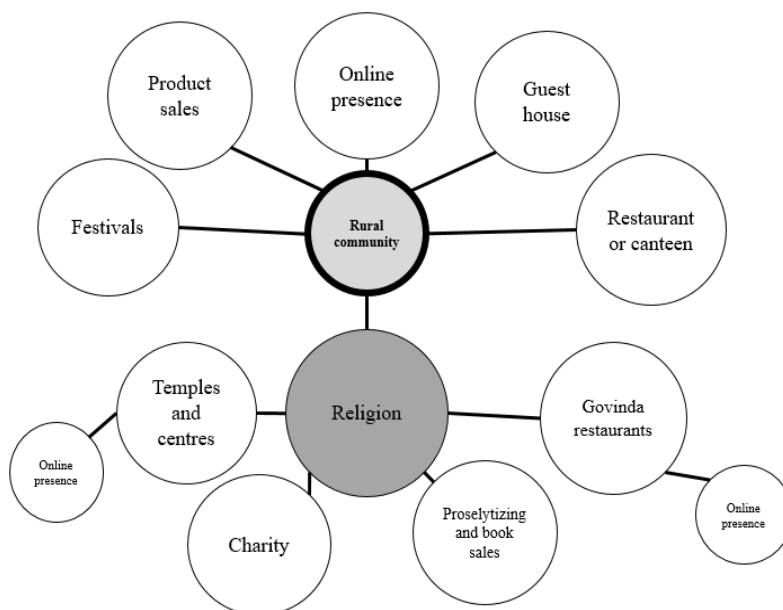
Being a relatively new field of study, the literature of religious marketing is still somewhat limited; especially in terms of the different religions studied. The subject of this study, Krishna Consciousness has also received moderate attention concerning the marketing activities, even though among the public the religion is known for its promotional activities, initiated by people stopping pedestrians on the streets, and introducing the religion to them. Nowadays, the International Society for Krishna Consciousness is a large international religious organization owning numerous temples, centers, farms and educational institutions and its sub-organizations all over the world are organizing a great variety of religious festivals all through the year. Being able to raise the interest of thousands of people in countries both geographically and culturally far from India is a great achievement worth studying, as it may teach us a lot about marketing religions efficiently in the 21st

century (Bence, 2014; Bence-Kiss, 2020; Goswami, 2001; Harvey, 2000; Isvara, 2002; Kamarás, 1998; Klostermaier, 2000; Rochford, 2007; Wuaku, 2012).

Previous researches

Previous studies between 2014 and 2020 covered the countries of Europe, identifying those with the highest level of activity concerning marketing. More enhanced and diverse marketing activities targeting people not involved in Krishna Consciousness could be observed in the countries where farming or rural communities are present, while temples, restaurants and educational institutions focused mainly on the audiences already involved in religious life. *Figure 1* represents the molecular model of the seven communities of six countries examined – Hungary, Belgium, Germany (two communities), the United Kingdom, Sweden, the Czech Republic and Italy – aggregating the most common institutions and marketing practices related to them. The molecular model was created after the analysis of each country with a farming community, creating each model separately and aggregating their contents; therefore, it contains those elements and institutions, which may be found in more than one country (Bence-Kiss, 2020; Shostack, 1977; Srinivasan, 2012).

Figure 1: Molecular model of marketing Krishna Consciousness in countries with farming communities



Source: Bence-Kiss, 2020

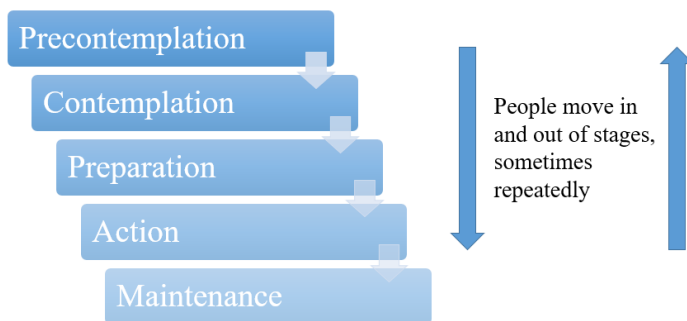
As seen in *Figure 1*, the activities and facilities grouped around the rural communities are not purely religiously bound; additional elements, such as guest houses, restaurants and product sales appear, which seemingly do not fit into a sacred place, but are characteristic of a religious tourist destination described by Terzidou *et al.*

(2017): religious locations (visited both by religiously and non-religiously motivated tourists), where additional facilities have appeared to fulfil the needs of the visitors, regardless of their motives (Lengyel, 2004; Irimiás-Michalkó, 2013; Terzidou et al., 2017).

This implies that these farming communities are more than just another institution of the religious life; the analysis has proven the presence of tourist destinations with religious characteristics. As it was visible in Figure 1, devotees managed to partially overcome the boundaries of religious economics and received larger freedom in the marketing mix by shifting the focus on tourism, which suggests the possibility to analyze rural communities separately, by using the 7P of services marketing, as in the case of other tourist destinations (Aminbeidokhti et al, 2010; Bence, 2014; Kolos & Kenesei, 2007; Mendoza Vargas & Culquita Salazar, 2019; Piskóti, 2007; Sheikhi & Pazoki, 2019).

The previous researches (Bence-Kiss, 2020) have also shown that the Transtheoretical Model of Behavior Change (TTM) may be applied to analyze the behavior of people during the process of getting acquainted and engaged with a religion. The Transtheoretical Model of Behavior Change (TTM) is a model developed by Prochaska and DiClemente (1983) to conceptualize the intentional changes in human behavior. The model aimed to interpret what processes people fighting addictions or seeking for a healthier life are going through. It was tested and validated on twelve different health behaviors and showed consistency in the stages and processes of change. The model identified five stages of behavior change: Precontemplation, Contemplation, Preparation, Action and Maintenance, as Figure 2 shows (Newcomb, 2017; Prochaska & DiClemente, 1983; Szabó, 2016; Szakály, 2006; University of Maryland, 2020; Velicer et al., 1998).

Figure 2: The stages of change in the Transtheoretical Model of Behavior Change



Source: Based on Newcomb, 2017

Promotion tools of a religious community may also be aligned to the TTM distinguishing the promotion tools, which may be applied the most efficiently in each phase and there is a significant relationship between the exposure to the different promotion tools and the stage of behavior change the respondents are in. Communities devoted to Krishna Consciousness apply the rural communities – and the wide range of their promotion opportunities due to the tourism product created – to attract those

in the Contemplation phase and educate them about Krishna Consciousness in an informal, invisible manner. Through this educational process people may step forward, towards the Preparation phase, where they already start to get involved in the religion by changing certain behavior patterns. It is also important, however, not to stop in this phase, since those in the Preparation – or even in the later, Action and Maintenance phases – may easily fall back after a while without support to keep on with the changes they have made. This implies that promotion tools need to follow all the stages of behavior change, always focusing on the needs of the current phase of the individuals (Bence-Kiss, 2020; Newcomb, 2017; Prochaska & DiClemente, 1983; Szabó, 2016; Szakály, 2006; University of Maryland, 2020; Velicer et al., 1998).

MATERIALS AND METHODS

The aim of the current research was to test the applicability of the TTM by analyzing the structure of the religion in the different countries and finding similarities and differences to the patterns observed previously. Qualitative research methods similar to those of the previous research (Bence-Kiss, 2020) were used to analyze the communities of New Mayapura (FRA), Prabhupada Desh and Villa Vrndavana (ITA) With the help of online content analysis the online presence of each country within the sample was analyzed (including the data published in the ISKCON database and the websites and social media sites (Facebook, Instagram, YouTube) of each community), with special respect to the direction of the communication (internal, towards the members of the Krishna-conscious community or external, towards those not involved in the religion). With the help of the content analysis the molecular models of each country were created based on the work of Shostack (1977) and Srinivasan (2012) applying the modifications to the model, like in the previous research (Bence-Kiss, 2020): the molecular model does not represent the tangible and intangible elements of a service, but the physical appearances and communication methods in which the religious community is present. The modified model therefore includes all the institutions and communication tools, which contribute to spreading the religion.

In the next phase of the qualitative research observations and in-depth interviews were carried out. During the structured observations – based on a predetermined script following the elements the 7P of services marketing – the molecular models were validated and updated with the elements unseen in the online content analysis.

The in-depth interviews were carried out partially in person, but – due to the circumstances caused by the pandemic – partially online. The script was the same in both cases; the online interviews took place via Zoom calls while the personal ones in the rural communities. In these communities three interviews were arranged – one online and two in person – in the summer of 2021, all with devotees working in the fields of communication, guest management, tourism or in the general management.

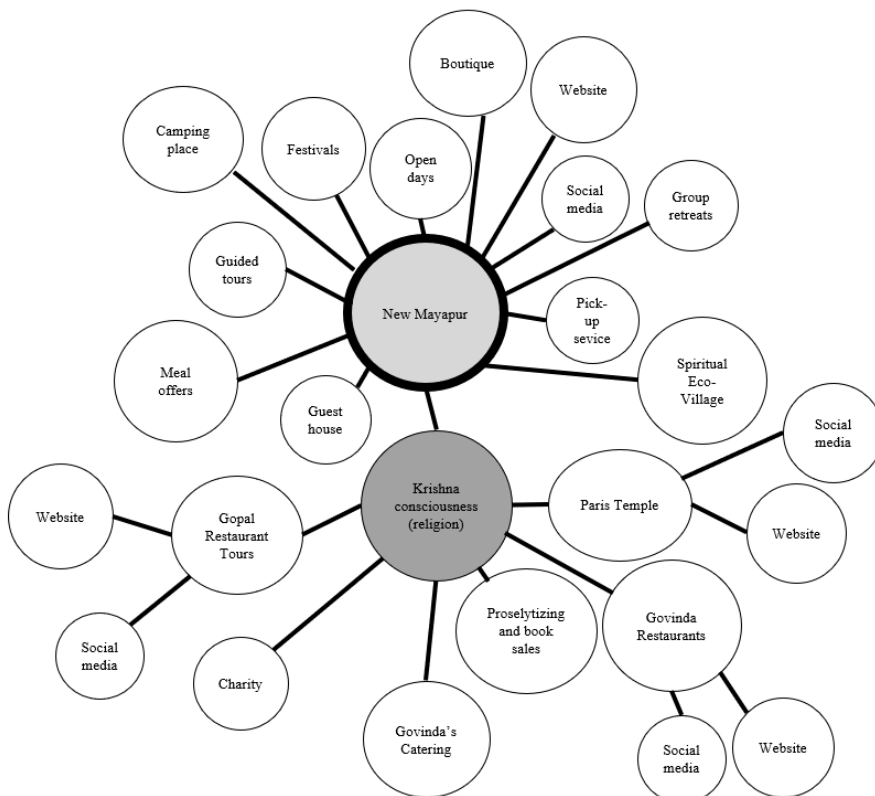
RESULTS AND DISCUSSION

The analyses carried out in France and Italy have immediately shown that there are going to be similarities to the countries examined before: in both countries there is

one rural community operating, which is also promoted as a place for visit, not just for devotees but for the wider public (*Figure 3* and *Figure 4*). The remaining institutions (temples and local centers, restaurants and educational institutions) operating in both countries generally focus on the communication with those already involved in the religious life in a way (via nutrition or yoga practices), their online presence generally focus on information about these areas. The other activities bound to religion show the same pattern as in other European countries, as well: charity activities are carried out to help the local community while devotees also proselytize and sell books to spread the word about Krishna in larger towns regularly.

In *Figure 3* we can see that in France there is a company called Govinda's Catering, which is not strongly bound to the rural community but this is also mainly operated by the devotees of New Mayapura. According to the content analysis, as *Figure 3* shows, all the activities, which are dedicated to provide information about Krishna Consciousness to non-devotees are related to New Mayapura.

Figure 3: The molecular model of France



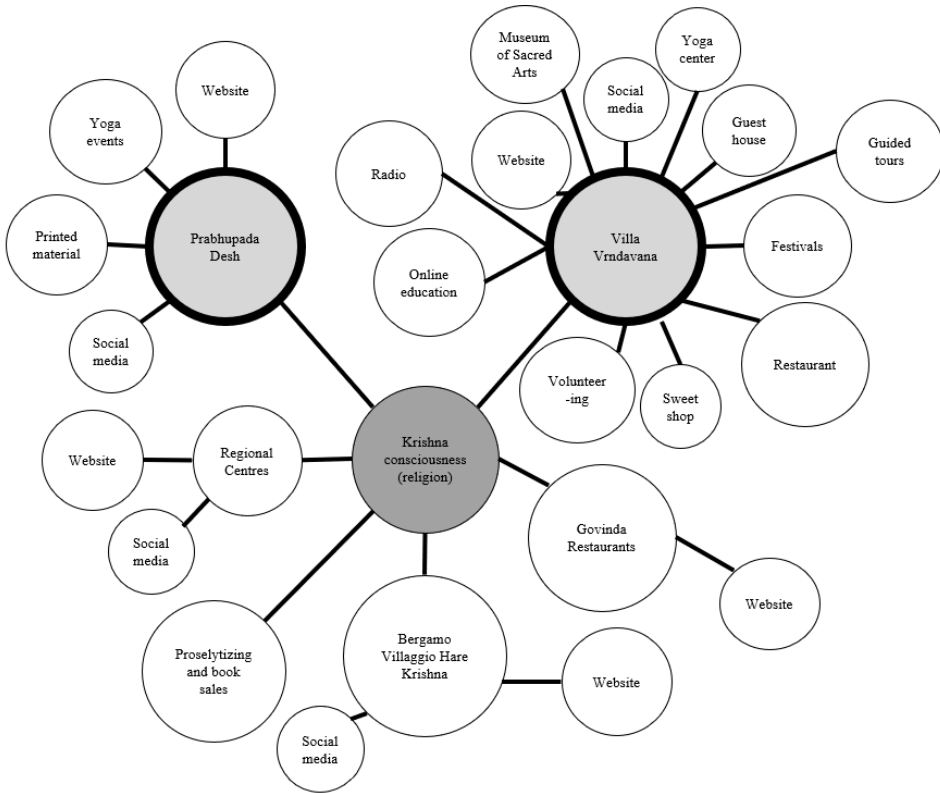
The observations and the in-depth interview have, however, also revealed that these activities are currently not so enhanced as they were a couple of decades ago. Formerly, in the 1970s and '80s New Mayapura was the European headquarters of

Krishna Consciousness, organizing huge festivals, operating a school and being home to approximately 200 devotees; but the loss of a visionary leader, financial issues and the inability to be self-sufficient brought decadence to the life of the once flourishing community in the '90s. Yet nowadays vision and progress have been brought back by dedicated devotees, who operate a guest house, created the Spiritual Eco-Village and guide and provide meals for the visitors. According to the in-depth interviews currently there is no active advertising of the community besides the website and social media, since they would not be able to fulfil the needs of the visitors arriving. The plans of the community include improving the guest house, building a yoga hall and a restaurant, which is going to enable them to organize more festivals than the one currently being held.

The facilities in progress such as the yoga hall and the restaurant all serve the purpose of fulfilling the needs of wider public beyond the devotees; and the enhanced focus on festivals (formerly attracting 5-10000 visitors each) shows the intention to attract people in Contemplation phase to get more acquainted with the religion. The current members of New Mayapura see the opportunity for progress in creating a self-sustainable community – nowadays three quarters of the inhabitants needs in food are fulfilled from their own grounds –, which is an important tool not only to attract people in the Contemplation stage but also support those who move up to the Preparation, Action and Maintenance stages. The example of New Mayapura has clearly shown that even a prosperous rural community may fall back and lose its role if the necessary actions are not taken not only to attract and involve but also to retain the individuals whose attention and interest have already been raised. According to not only the French interviewees but also to numerous devotees in different communities of Europe (Bence-Kiss, 2020), self-sufficiency – achieved like in Krishna Völgy in Hungary – is one of the key factors in retaining devotees efficiently since this provides stability and support to those in further phases of behavior change, such as Preparation, where nutrition is a key factor.

The Italian Villa Vrndavana community has already stepped on a similar path by trying to achieve the level of self-sufficiency their own lands allow while also selling some products externally such as olive oil, vegetables or wood to local business partners, which provides them with a certain level of income, as well. Villa Vrndavana follows a strategy focusing on individuals both in the stage of Contemplation, and on those further on at the level of Preparation, Action and Maintenance. For those in the Contemplation phase – as *Figure 4* shows – Villa Vrndavana offers a rich tourist experience including festivals, guided tours, catering, possibilities to stay overnight, yoga events and sweets on sale. Festivals, once again, have been named as the most important attraction to involve those not in connection with the religion yet. At the same time, volunteering opportunities and online education are also available for those who are beyond Contemplation phase and would like to get more deeply involved in Krishna Consciousness. The community organizes a large number of cooking sessions, feasts and puts a huge emphasis on catering since they have rightly realized that this is a very important aspect of involvement into the religion, and one of the most important drivers in the Preparation phase.

Figure 4: The molecular model of Italy



Prabhupada Desh, the other community of Italy stands out of the line of the communities examined so far, differs both from those examined in the previous research (*Bence-Kiss, 2020*) and the subjects of the current analysis. Except for yoga events the community does not plan to open up more for the public; they intend to keep their community as a place for retreat focusing on the devotees and not on those outside the religion. This community operates a website and social media pages as well, but the focus is mainly on the religion and not on the visitors or attracting new participants: they focus on those already in Action on Maintenance phase rather than those less involved. This shows that it is not totally uniform how Krishna-conscious communities utilize rural communities throughout the different stages of the TTM but also underlines the importance of such communities in the life of Krishna Consciousness in Europe.

CONCLUSIONS

The most important result of this qualitative research is the validation of the research results of the previous research (*Bence-Kiss, 2020*) carried out in seven communities of six countries. This research, covering three communities of two countries has

resulted in the creation of the molecular models of the Krishna-conscious communities of France and Italy, which match the previously drawn, aggregated molecular model, showing the same pattern as in other, previously examined countries. This means that it is true for France and Italy, as well, that rural communities of Krishna Consciousness - known as tourist destinations - are applied as the most important tools of promoting the religion. During the two-step method – just like in the countries examined previously – the first step means the attraction of people in the Precontemplation, and especially in the Contemplation phase of TTM to visit the tourist destination, decreasing the perceived cost, which would have been incurred by promoting to join the community. This result supports the applicability of TTM in France and Italy, just like in the countries examined previously to create the marketing communication strategy of Krishna Consciousness and improve it further to attract more people.

ACKNOWLEDGEMENT

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MONETARY POLICY AND STOCK MARKET LIQUIDITY IN EMERGING MARKET ECONOMIES: A LITERATURE REVIEW

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ABSTRACT

In the era of globalization, the financial systems of all countries have faced severe challenges and their negative impacts such as overheated economy, high inflation, stock market crash, financial crisis, and other financial collapses. It has raised significant concerns influencing the effects of macroeconomic policies and responses of the financial system of each country all over the world even in normal times and turbulent times in various respects. And stock markets in emerging market economies are no exceptions. Indeed, it is proven by more and more studies that have been implemented to assess stock market liquidity in emerging market economies in different periods and the impacts of certain macroeconomic drivers on monetary policy. This study aimed to systematically review the literature on monetary policy and stock market liquidity measures and how monetary policy affects stock market liquidity. The study summarized the essential findings and approaches in the extant literature. Numerous reputable academic databases were used via a systematic methodology of literature review. Generally, this study sheds light on the crucial macroeconomic role of monetary policy as a potential determinant of stock market liquidity in different timelines. Recommendations and theoretical discussions given by researchers provide an overall review of the relationship between monetary policy and stock market liquidity in emerging market economies.

Keywords: Monetary policy, stock market liquidity, emerging market economies, impact of monetary policy on liquidity

INTRODUCTION

The lack of liquidity of markets directly impacts the whole financial system and indirectly impacts the whole economy, impeding their usual and operational way of functioning. As a “prism” to observe economic developments, the stock market is one of the most vital areas of an economy. Accordingly, stock market liquidity is of prime importance even to the economy and can be considered as an indicator of investment sentiment and a direction of money flow. Ellington (2018) stated that lower liquidity levels adversely hold economic growth back during the period of crisis. In line with a supportive view, studies of Nas et al. (2011) and Smimou (2014) defined stock market liquidity as a relevant parameter in forecasting the future state of the economy. Meanwhile, a country's macroeconomic environment is influenced

by its monetary policy, which impacts the financial markets (*Gust & López-Salido, 2014*). Furthermore, the severe challenges that all countries' financial systems have faced in the era of globalisation and one of the severe consequences, namely the Global Financial Crisis of 2007-2009, have indicated the outstanding importance of the liquidity of financial system in general and stock market liquidity in particular. More specifically, aligning with the growing importance of market-oriented economies and economic alliance with developed markets, enhancing stock market liquidity in emerging market economies has become more significant to attract high capital inflow from the rest of the world, provide “an efficient and viable alternative to bank financing”, and help boost and sustain growth.

As a result, it drove questions of the insight correlation between macroeconomic policies and stock market liquidity to the limelight. This is proven by more and more studies implemented to assess the stock market liquidity in emerging market economies in different periods and which macroeconomic drivers affect it. A great number of theoretical and empirical researchers have continuously addressed liquidity issues via its macroeconomic and microeconomic drivers. Thereby, the relationship between monetary policy and stock market liquidity has become one of the hot topics in financial research as many economists consider the monetary policy the most important macroeconomic policy (*Maskay, 2007*). As such, how monetary policy influences the stock market liquidity in emerging market economies has been of vital interest to policymakers, investors and scholars during normal times and even more so during times of crisis.

The primary aim of this study is to systematically disclose the distinct influences of monetary policy on stock market liquidity in emerging market economies. Based on theoretical and empirical studies, this research classifies and organises the literature and provides an important review of the relation between macroeconomic management policies (monetary policy in specific) and stock market liquidity from different perspectives.

With the above brief overview about the importance of stock market liquidity and crucial macroeconomic role of monetary policy in the field of financial research, the study has had an extensive review of the literature with the significant focus on the concept of monetary policy and liquidity measurement, transmission mechanisms of monetary policy and the stock market, factors impacting stock market liquidity and the relationship between monetary policy and stock market liquidity in emerging market economies in different timelines.

MONETARY POLICY MEASURES, AND TRANSMISSION MECHANISM OF MONETARY POLICY AND STOCK MARKET

Monetary policy measures

Conducting monetary policy (MOP) is crucial for central banks or a country's monetary authority to achieve price stability (low and stable inflation) and control economic fluctuations. MOP is defined as monetary measures conducted by the Central Bank to impact economic activities, price stability, employment and stability of the long-term interest rates (*Okpara, 2010*). There are two common types of MOP

comprising contractionary MOP (called a tight MOP) and expansionary MOP (called an easy MOP)¹. The contractionary MOP is applied when inflation is a problem, and the economy needs to slow down by curtailing money supply. In contrast, expansionary MOP is employed when the economy is in recession, and unemployment is a big problem.

MOP responses have their most direct and immediate impacts on the larger financial markets: government and corporate bond markets, mortgage markets, markets for consumer credit, foreign exchange markets, stock markets, and many others. MOP influences financial markets (stock market in particular) and economic activity differently.

Many studies have assessed the connection between financial markets (especially the stock market) and MOP under the different circumstances of domestic and international monetary policies. These have used various MOP variables as indicators of MOP's impact to estimate their correlation. More specifically, from different perspectives, different researchers have investigated the relationship between MOP and stock market liquidity (SML) in different quantity and quality of MOP measures, relating to influential features of MOP. For instance, only one MOP measure (Chu, 2015; Hervany et al., 2017; Marozova, 2020); three MOP measures (Onyele et al., 2020); four measures (Octavio et al., 2013; Debata & Mahakud, 2018; Igbiosa & Ubummwangho, 2019); six MOP measures (Goyenko & Ukhov, 2009); and so forth. It is noted that it is the same quantity of MOP measures, but different quality features are considered in different studies.

Researchers have commonly employed several MOP measures as standard indicators that could capture the results of MOP's influence, such as the interest rate, monetary aggregates, exchange rate, economic growth rate, inflation rate (CPI) and the Treasury bill rate.

Transmission mechanisms of monetary policy and stock market

MOP transmission is a process in which MOP changes are expected to affect aggregate demand, output and price level in the economy (Meltzer, 1995), and the stock market is no exception. There are at least six main sub channels in three channels relating to MOP transmission to economic activities (especially a stock market) (Mishkin, 2013).

Interest rate channel: The traditional view reflects a decrease in nominal interest rate (i), a fall in real interest rate would cause a rise in investment spending (I), increasing aggregate demand and a rise in output (Y). The critical point is that a fall in the actual cost of borrowing would promote investment.

$$M \uparrow \Rightarrow i \downarrow \Rightarrow I \uparrow \Rightarrow Y \uparrow$$

Interest rates are a type of asset price and are considered the primary transmission channel in Keynesian conception.

Exchange rate channel: MOP impacts the exchange rate via interest rates. An expansionary MOP would increase the money supply, causing a reduction in interest

¹ <https://businessjargons.com/types-of-monetary-policy.html>

rates. Under conditions of perfect capital mobility and substitutability of financial assets, capital would flow out, and domestic currency would depreciate (E). Accordingly, depreciation would make the country's exports more attractive to foreigners; an increase in net exports (NX) would result in greater aggregate demand leading to a rise in output (*Mishkin*, 2006).

$$M \uparrow \Rightarrow i \downarrow \Rightarrow E \uparrow \Rightarrow NX \uparrow \Rightarrow Y \uparrow$$

Tobin's q theory channel:

Tobin index = $Q = \text{market value of the company} / \text{replacement cost}$

If $Q > 1$ and high mean that the stock's market value is higher than the replacement cost of the company's assets. If the index $Q < 1$ and low, the new investment demand will decrease. As the central bank expands its money supply M, Stock prices (Ps) tends to increase, increasing Q and demand for new investments:

$$M \uparrow \Rightarrow Ps \uparrow \Rightarrow Q \uparrow \Rightarrow I \uparrow \Rightarrow Y \uparrow$$

Bank lending channel: An increase in money supply via a rise in bank reserves would raise the banks' ability to enlarge lending. Banks would provide available loans to new borrowers dependent on bank loans. This will encourage more consumption spending in purchasing semi-durables and business investments. When investment increases, it will stimulate investment demand in the stock market.

$$M \uparrow \Rightarrow \text{Bank reserves} \uparrow \Rightarrow \text{Bank deposits} \uparrow \Rightarrow \text{Bank loans} \uparrow \Rightarrow I \uparrow \Rightarrow Y \uparrow$$

Balance sheet channel: The balance sheet channel emphasises collateral's role in decreasing moral hazards. An expansionary MOP causes rises in financial and physical asset prices, raising the market net worth of companies and the value of collateral, company cash flow and ultimately the company's creditworthiness. Moreover, an increase in asset prices raises the ratio of liquid financial assets to household debt, thus lowering the probability of financial distress and increasing consumption and housing investment (*Mishkin*, 2001).

$$M \uparrow \Rightarrow i \downarrow \Rightarrow Ps \uparrow \Rightarrow \text{Firms' net worth} \uparrow \Rightarrow \text{Adverse selection} \downarrow,$$

$$\text{Moral hazard} \downarrow \Rightarrow \text{Lending} \uparrow \Rightarrow I \uparrow \Rightarrow Y \uparrow$$

Cash flow (Money supply) channel: The money supply channel viewpoint is that an expansionary MOP increases bank reserves and releases the constraints to banks' ability to create more loans, and as a result, the short-term interest rate falls (e.g., *King*, 1986; *Ramey*, 1993; *Romer et al.*, 1990; *Thornton*, 1994).

STOCK MARKET LIQUIDITY MEASURES AND FACTORS IMPACTING STOCK MARKET LIQUIDITY

Stock market liquidity measures

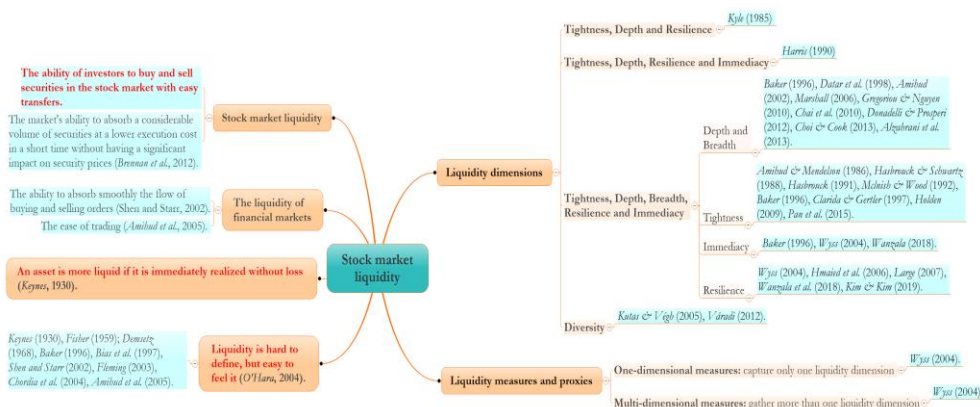
Liquidity has become a topic of many investigations in the financial literature for many years, especially SML. More importantly, SML is primarily essential to the national economy and is regarded as a relevant parameter in forecasting the future state of the economy (*Nas et al.*, 2011; *Smimou*, 2014). Nevertheless, *O'Hara* (2004)

stated that “liquidity is hard to define but easy to feel it”. An early definition of liquidity can be found in *Keynes* (1930), and it has been identified with different angles in research (e.g. *Shen & Starr*, 2002; *Amihud et al.*, 2005; *Brennan et al.*, 2012). SML is an essential market characteristic whose presence enhances the well functioning of the market and vice versa. In the stock exchanges, SML reflects the investors’ ability to buy and sell securities in the stock market with easy transfers.

Liquidity is a large concept covering multiple dimensions. In general, there are mainly four dimensions in market liquidity, including Depth, Width /or Tightness, Immediacy, and Resiliency. Market depth essentially demonstrates the level of supply and demand of the securities traded in a financial market. Market tightness is defined at a minimum conversion cost. Market immediacy indicates the speed of transactions of a given size at a given time. Market resilience is defined as the ability of the market to restore a reasonable market price during a flow of newly generated orders. However, depending on the liquidity proxies used, the relationships are not consistently correlated, suggesting that liquidity is an elusive multidimensional concept (*Stoll*, 2000; *Chai et al.*, 2010). Due to its multidimensional nature, many measures have been employed to assess overall market liquidity. First and most notably, *Kyle* (1985) refers to an asset's static dimensions (tightness and depth) and resilience. *Harris* (1990) completes the dynamic dimensions with immediacy. Following *Kyle* (1985) and *Harris* (1990), *Baker* (1996) conceded that market liquidity is a function of three characteristics of a liquid market, namely depth, breadth, and resiliency. Moreover, *Baker* (1996) concurred that immediacy reflects the processing of the order and the speed of settlement, and tightness implies low transaction costs. More specifically, the measurements of the “depth” and “breadth” dimensions have been enormously utilised compared to the other dimensions. The “tightness” dimension has been concerned with adequately assessing liquidity measurement while the “immediacy” dimension is implicit. Additionally, the “resilience” dimension has been employed by several studies. Lastly, the “diversity” dimension is disclosed by *Kutas & Végh* (2005) and *Váradi* (2012). It is not easy to measure and capture all aspects of liquidity in a single measure due to its multidimensional characteristics; hence, there are different liquidity measures. (*Wjss*, 2004). The results from multiple measures of liquidity can point to various conclusions (*Benić & Franić*, 2008).

Furthermore, liquidity measures are divided into one-dimensional and multidimensional ones (*Wjss*, 2004). These measures were evaluated based either on intraday (high-frequency) data or daily, weekly, monthly, quarterly, yearly (low-frequency) data. Although measures based on high-frequency data have mostly been employed in reality, they offer more accurate estimations of liquidity proxies. *Hasbrouck* (2009) and *Goyenko et al.* (2009) evidenced that low-frequency measures can be fairly used over high-frequency ones to measure liquidity. Some liquidity measures have been benchmarked using high frequency and order-driven developed countries' stock markets. However, low-frequency measures can be evaluated against benchmarked measures in emerging market economies (EMEs). (*Figure 1*)

Figure 1. Definitions and measures of stock market liquidity



Factors impacting stock market liquidity

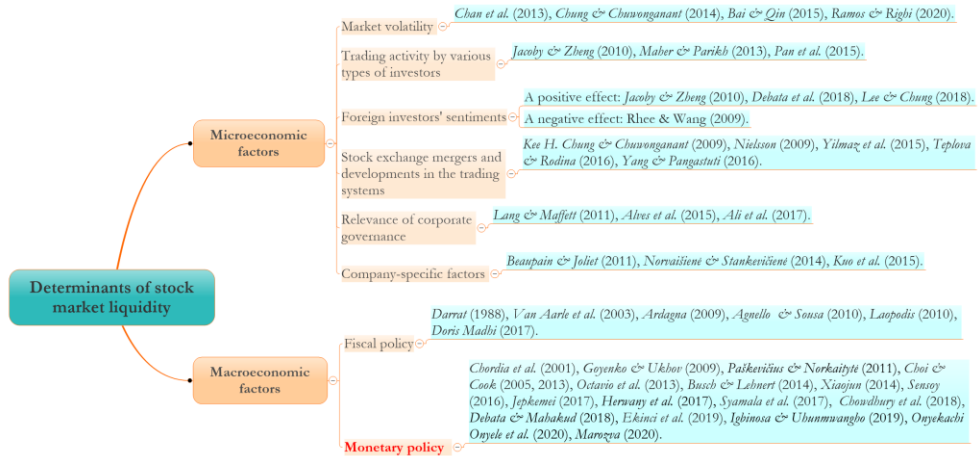
Numerous research in market liquidity provides analyses of the different factors posing a threat to market liquidity or enhancing market liquidity. In general, although liquidity and its components have crucial importance in the healthy functioning of the financial markets, its measurement remains complex and not complete. Hence, it is not surprised to assume that the microeconomic factors are not the only liquidity determinants but also macroeconomic factors (primarily MOP) that may influence the liquidity quantity and quality in the market.

For microeconomic factors, there are some common factors determining market liquidity. Market volatility has been defined as a significant determinant of stock liquidity. Besides, trading activity by various types of investors is determining factor, especially institutional investors. Moreover, foreign investors' sentiments have a positive effect on market liquidity or a negative effect on market liquidity. Additionally, the impacts of stock exchange mergers and developments in the trading systems have been considered as prominent factors of SML. Some studies have also presented evidence that the relevance of corporate governance determines SML. Furthermore, company-specific factors have been identified as a significant impact on stock liquidity. (Figure 2)

For macroeconomic factors, studies have found that macroeconomic policy announcements have significant impact on liquidity, including fiscal policy and MOP. Many economists consider MOP as the most critical macroeconomic policy (Maskey, 2007). More and more research has conceded the influential role of MOP on SML in various contexts. Octavio et al. (2013) indicated that an expansionary MOP announcement positively affects the SML of small-sized stocks. Busch & Lehnert (2014) revealed that expansionary MOP measures and imposition of short-selling bans in the stock market improve stock liquidity. Regarding the EMEs, Syamala et al. (2017) explored that the Indian SML is strongly affected by the policies regulated and announced by its government and financial institutions. By contrast, Sensoy (2016) and Ekinici et al. (2019) conceded that EME is extremely sensitive to the

macroeconomic announcements made by developed countries, particularly announcements concerning MOP. In terms of macroeconomic policies, *Chowdhury et al.* (2018) disclosed that MOP mainly determines market liquidity across different stock market sectors along with the fiscal policy. (Figure 2)

Figure 2. Factors impacting stock market liquidity



EMERGING MARKET ECONOMIES

EMEs and their alternatives such as “emerging markets or emerging economies or emerging economy countries” have become familiar concepts for businesses, policymakers and academic researchers in recent decades even though no official definition of an emerging market exists. EMEs have enormously contributed to the global economy via the critical role of being the primary driver of global growth, particularly GDP growth and consumption.

During the changing of the world economy, the term “emerging markets” is increasingly common in the news and reports. This term was coined by World Bank economist Antoine van Agtmael in 1981 when he worked for the International Finance Corporation (IFC), a division of the World Bank. Mr Agtmael spent the weekend dreaming up the term “emerging markets”, with the hope of evocation in “progress, uplift and dynamism”². It is obvious that the label has proven wildly successful. Figuratively speaking, the World Bank created “emerging markets”, dramatically influencing the global business world (*Gwynne et al.*, 2003). Emerging markets are the countries whose economies are increasing fast, and they are in a transition phase to a market economy (*Simon*, 1997).

Generally, an emerging economy can be identified by five significant characteristics. An emerging market economy has low to middle per capita income. It is a nation whose economy mimics a developed nation but does not fully meet the classified

² https://en.wikipedia.org/wiki/Emerging_market#cite_note-veconomist-9

requirements³. Besides, they have rapid growth, meaning a high economy's growth rate. From 1980 to the present, although there has been a significant fluctuation in the economic growth of the EMEs and developing economies, their real GDP growth rate is always higher than in advanced economies (*Figure 3*). Furthermore, their third characteristic is high volatility. It can be caused by three factors: natural disasters, external price shocks, and domestic policy instability. The growth of these economies requires a lot of investment capital. Nevertheless, capital markets are less mature in emerging economies than what is seen in the developed markets. It is the fourth characteristic: currency swings. They do not have a good achievement of foreign direct investment. It is usually hard to get complete information about listed companies on their stock markets. Selling debt (e.g. corporate bonds) may not be easy on the secondary market. All these components increase the risk. It also means that investors, who are willing to do ground-level research, can get a greater reward⁴. If it is successful, the rapid growth can also lead to the investors' fifth characteristic, higher-than-average return. It is because many of these countries somewhat concentrate on an export-driven strategy. The companies pursuing this strategy will profit, boosting higher stock prices for investors. A higher stock price a higher return on bonds cost more to cover the additional risk of emerging market companies⁵. This quality makes EMEs attractive to investors. Not all EMEs are set up to become breakout nations; thus, suitable investments. They must also have little debt, growing labour market, and a not corrupt government. In addition, the most powerful EMEs are like through a series of characteristics such as massive natural reserves as both volume and diversity, competitiveness is more visible in the industrial sector, and agricultural and consumer markets are robust (*Sechel & Ciobanu., 2014*).

Figure 3. Real GDP growth of emerging market and developing economies (2000, 2018 and 2021)



Source: https://www.imf.org/external/datamapper/NGDP_RPCH@WEO/OEMDC/ADVEC/WEOORLD

³ <https://www.investopedia.com/articles/03/073003.asp>

⁴ <http://www.nasdaq.com/article/what-is-the-difference-between-a-developed-emerging-and-frontier-market-cm140649>

⁵ <http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.385.6473&rep=rep1&type=pdf>

DISCUSSIONS ON THE RELATIONSHIP OF MONETARY POLICY AND STOCK MARKET LIQUIDITY IN EMERGING MARKET ECONOMIES

Regulators and policymakers have recognized that the stock market plays an essential role in transmitting the effects of MOP on actual economic activities. Changes in MOP implementation made by a Central Bank of each country can significantly influence financial markets. If the Central Bank adopts a countercyclical MOP, it will result in a negative relation between inflation and stock returns, while if it adopts a procyclical MOP, a positive relationship will be observed (*Sellin, 2001*). The relation between the stock market and MOP has been explained through asset pricing theory. As a result, extensive literature on MOP (including mainly MOP shocks, MOP adjustments, MOP announcement, the transmission mechanism of MOP) and stock market (such as stock price, stock index, stock returns, stock market performance, stock market volatility, etc.) has been explored and conceded time by time (*Figure 4*). MOP can influence the stock market via different channels, such as the interest rate channel, the credit channel, the asset price channel, the exchange rate channel and the expectations channel (*ECB, 2010*).

Figure 4. The relationship between monetary policy and stock market



Likewise, related studies in developed and developing countries, mixed evidence of the impact of MOP on liquidity have been gathered in EMEs from the theoretical and empirical literature. More specifically, MOP variables may positively or negatively influence the SML in the short- and long run, or during crisis periods; or no relationship between these two variables exists; or a causal relationship between them exists.

Many studies of the MOP-SML nexus tend to focus on a specific single market of EMEs (like China, India) to evaluate the precise impact of MOP on SML. Besides the single market, areas (like Asian-Pacific Region, Latin American Markets, Southeast Asian stock markets, ASEAN-5 Countries) or groups of some correlated

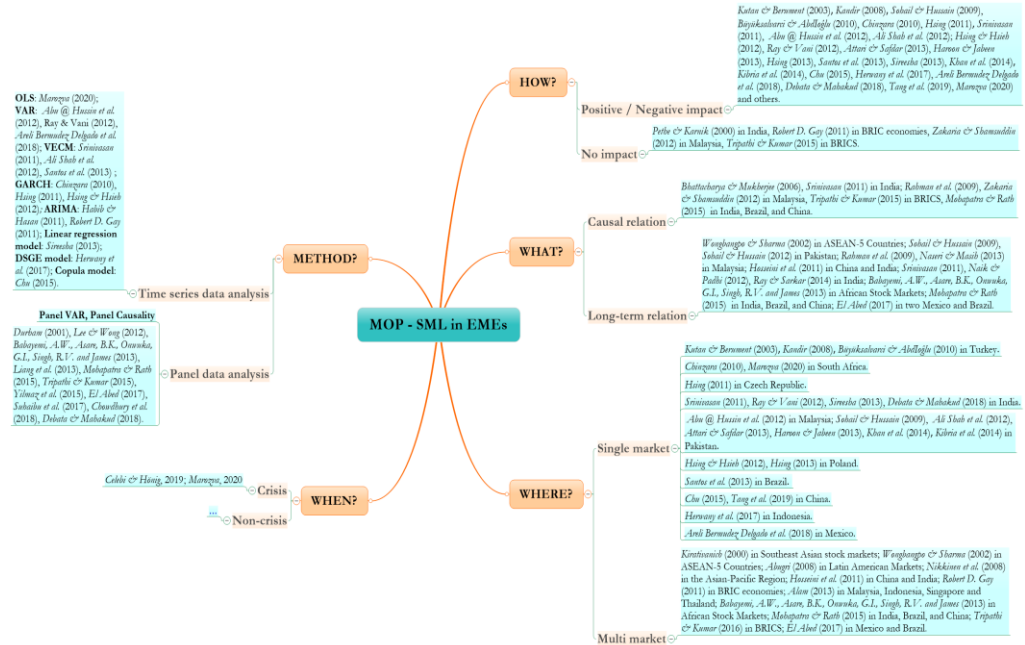
economies (like BRICS) are commonly selected to investigate the potential correlation between MOP and SML.

Moreover, a majority of studies examining the relationship between MOP and SML have been conducted with a focus on advanced economies (e.g., *Watanabe, 2004; Chordia et al., 2005; Bredin et al., 2007; Gregoriou et al., 2009; Jain et al., 2011; Ciccarelli et al., 2013; Jannsen et al., 2019*; and others).

In addition, most of the research has no significant timeline separation for crisis periods, for instance, between the Global Financial Crisis period and the Normal period (e.g., *Celebi & Hönig, 2019; Marozza, 2020*).

Numerous authors have studied the linkage between MOP and liquidity in the stock market via different econometric models. Methodologically, with the data sample selection, most existing studies have investigated the connection between MOP and SML in developed, developing and EMEs, focusing entirely on time-series analysis. Especially some typical models preferred to apply are Vector Autoregressive (VAR) or Ordinary Least Squares (OLS), or Vector Error Correction Model (VECM) (*Figure 5*).

Figure 5. The relationship between monetary policy and stock market in emerging market economies



CONCLUSION

The current study has summarized literature on liquidity in stock markets of EMEs and the macroeconomic management of MOP using a systematic literature review methodology.

Firstly, this study gave a deeper understanding of liquidity and MOP by reviewing the existing theoretical and empirical research on the topic. Many researchers have created multiplicities of proxies (measures) on SML to summarise different characteristics and dimensions of liquidity. These measures have evaluated liquidity at various levels in various markets. On MOP, many measures with different angles have been applied to give an overview of MOP's impact and the Central Bank's role.

Secondly, different MOP implementations affect the stock market in general and SML in specific. Based on applying various methods, most scholars demonstrate that the relationship between MOP and SML variables is asymmetric, and MOP can have asymmetric effects for several reasons. Besides, empirical results showed that the nature of the relationship is subject to liquidity measures used and tends to depend on the data sample of analysis.

Thirdly, in an attempt to analyze the relationship of MOP and the stock market with a lack of timeline separation between the Crisis period and Non-crisis period, although MOP effect varies among different countries, many researchers have the similar result on impact level.

From an overall perspective, the noticeable findings given by researchers provide a panorama of a relation between MOP and SML in EMEs. Thus, a systematic literature review identifies directions and broadens future research.

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