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# RESEARCH ON ATTITUDES TOWARD MINIMALISTIC DESIGN IN MARKETING COMMUNICATIONS

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/ IZVORNI ZNANSTVENI RAD

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## ABSTRACT

The marketing industry has been grappling with the challenge of declining attention spans and disengagement among individuals towards marketing messages they come across for an extended period. Marketers find it increasingly hard to reach, effectively communicate with, and convert their audiences. A possible way out of this situation can be minimalism. Minimalism in marketing is based on the “less is more” approach, focusing on a smaller number of visual elements and/or short wording constructions. This study examined overall attitudes toward minimalism, including its influence on buying decisions and the relationship between minimalistic design elements and liking of marketing communication. It was found that all age groups have a positive attitude toward minimalism and applying its principles in shopping behaviour. However, millennials rated it better than Gen Z and Gen X. Respondents were asked to judge three different variations of product packages, outdoor ads, logos, posters, and web homepages with different levels of minimalistic design, using a five-point liking scale. Marketing communication with minimalistic elements was preferred over the non-minimalistic one, but it cannot be concluded that younger populations like it more. Minimalism will influence higher liking of all different marketing communication means, and it should be used more in the future across different target groups, considering age. The issue can be to have a clear understanding of what customers perceive as minimalistic elements.

**KEY WORDS:** minimalism, marketing strategies, marketing communication, branding, aspect and significance of minimalistic marketing

## 1. INTRODUCTION

In today's fast paced and information saturated world, the field of marketing communication faces an ongoing challenge of capturing and retaining audience attention. As attention spans decline and individuals become increasingly disengaged with traditional marketing messages, a captivating solution can be minimalism. Authors of academic publications emphasize how minimalism has influenced marketing, particularly in terms of product design (Chou, 2011), logo (Iancu & Iancu, 2017), advertising (Kumar et al., 2018), packaging (Favier, Celhay & Pantin-Sohier, 2019), web and user interface design (Sani & Shokooh, 2016). All these studies have minimalism in focus and its relationship to advertising awareness, brand awareness, brand perception, product usage or different kinds of improvements in digital user interface. With a minimalistic approach, marketing communications can have higher awareness and break the clutter, but awareness and liking are not the same. This article addresses one simple question: Can usage of minimalistic design in marketing communication increase its liking? Usually, this kind of research has been used as a pretesting tool with the main function of launching the best evaluated advertising, logo, or web page to the market and it is never focused on minimalism only. Besides that, as independent variables many other communication elements are used, like headlines, colours, visuals, tone of voice and other communication elements. Here, the focus is on minimalistic design only.

Needless to say, ads with less visual, textual and auditory elements require less time for the brain to process. People just don't feel like they have enough time anymore to spend on various brands' ads with cursive text and complicated visuals.

That's exactly why minimalism presents itself as an obvious solution to many marketing problems and is proving to be more of a natural tendency for humans rather than a simple trend (Frielinghaus, 2022). The key question is: Will customers prefer different marketing communications more due to minimalistic design elements? This study aims to answer that question, and give clear direction of future development of marketing communications to companies and communication agencies.

## 2. PREVIOUS RESEARCH

The need for simple and efficient experiences extends to all aspects of life, from digital platforms to physical spaces (Lee & Kim, 2017; Mathras & Hayes, 2019; Pangarkar, Shukla & Taylor, 2021; Schenker, 2021). Minimalism is timeless and classic, as both a philosophy and a design concept. It enforces thinking towards simplicity and consistency. This in turn captures the consumer's attention if characteristics of minimalism are applied. These characteristics are „less is more“, usage of negative space, visual harmony, colours and contrast etc. (Odak, 2021).

Physique, as one of brand identity elements, was in focus of most previous research about minimalism and its role in marketing and marketing communication (Kapferer, 2014). Brand physique can be reflected in logo, product design, packaging, web design, or user interface in different digital channels.

Logos are regarded as a crucial visual component that links the consumer to a brand and shapes their emotional perceptions (Park et al., 2013). Scholars examining logo design underscore the significance of simplicity and minimalism in achieving a greater level of recall and recognition (Pimentel & Heckler, from Iancu & Iancu, 2017). The literature suggest that simple elements are easier to recall since they need less processing power and less attention. A logo should be connected with identity, meaning, likeability, and familiarity, and it should have a natural and harmonious design (Van Grinsven & Das, 2014). Based on above mentioned research results, minimalism used in logo design does not always have positive influence on brand perception and image.

The product design philosophy of minimalism involves simplifying a subject to its most essential elements. It originated from the minimalist aspects of Modernism and is often perceived as a response to abstract expressionism, as well as a connection to post-modern art (Fried, 1967). The design of a product should not only meet the functional requirements, but it should also take into consideration the psychological needs of consumers regarding the product's appearance (Chuang, Chang & Hsu, 2001). The concept of minimalist design prioritizes the use of fundamental geometric shapes as outlines and incorporates a limited number of similar shapes to achieve design cohesiveness. It also incorporates tasteful, uncomplicated, bright colour palettes, natural textures and hues, and precise and refined finishing touches (Chou, 2011). Fisher (1999) suggested that minimalist design can be defined as aesthetic reductionism, which involves utilizing geometric elements and advanced surface techniques to create aesthetically pleasing product designs.

The design of product packaging is a component of brand elements utilized to communicate the identity of a brand (Kotler & Keller, 2012). In fact, a number of research studies in marketing, design, and semiotics contend that the level of complexity or simplicity in packaging design affects how customers view a brand (Pracejus, Olsen & O'Guinn, 2006; Cavassilas, 2007; Orth, Campana & Malkewitz, 2010; Pieters, Wedel & Batra, 2010; Orth & Crouch, 2014; Thomas & Capelli, 2018). At the same time, Favier, Celhay and Pantin-Sohier (2019) came with the conclusion that simplicity in packaging design does not have a positive impact on creating elements of brand image like honesty or reliability.

Minimalism has been extensively used during the last few decades in all forms of digital communication. The rise of online business transactions and the increase in number of users has led many e-commerce companies to adopt minimalist design to be more memorable to consumers, as brands that use minimalism are highly associated with consumers' memory. Additionally, research suggests that consumer purchasing behaviour is influenced by loyalty to a brand (Malik, Ghafoor & Iqbal, 2013). Many users face the challenge of navigating complex and disorganized websites, which can be overwhelming due to an excessive number of subjects, convoluted links, and cluttered visual elements. This can lead to confusion, difficulty in achieving the main goal, and ultimately result in users leaving the website. In the last twenty years, minimalism has gained significant traction as a design approach for user interfaces in websites. Designers and developers realized that by eliminating unnecessary elements and utilizing Gestalt principles to organize visual elements, audience confusion can be reduced, and a wider range of individuals can effectively interact with the website (Sani & Shokoo, 2016). Nadkarni and Gupta (2007) distinguish between two types of complexity in websites: objective complexity, which refers to the cues present in the stimulus itself, and perceived complexity, which is related to an individual's subjective perception of the design. Drawing on the distinction between objective and perceived visual simplicity level (VSL), Eytam, Tractinsky and Lowengart (2017) propose that people tend to rely on perceived VSL in pre-use situations when making decisions about product preferences and choices. Pre-use situations occur when individuals are unable to try out a product and must evaluate it based solely on its visual design. These scenarios are

common, such as when consumers are in an electronics store comparing several models of the same product or when users have multiple options of the same product to choose from to complete a task. In these instances, because there is no direct interaction with the product, customers draw that information for evaluation from design elements. Therefore, rather than objective measurements that can be obtained by using the product, it is the product's perceived complexity that affects the evaluation process. The decision to utilize a simple versus complicated design comes under the brand's plane of expression and conveys distinct brand signals to the consumer, similar to the usage of one color over another (Cavassilas, 2007 from Favier, Celhay & Pantin-Sohier, 2019).

With the emergence of smartphones, the initial design trend was realism, or skeuomorphism, which aimed to make the user's transition from the physical world to the digital world smoother and more familiar. As digital tools became more advanced and users became more comfortable with them, a shift towards flat design emerged, and this trend has now evolved into the current trend of minimalism in design (Moreno, 2021). Apple has been working toward a simple UI design across the iOS upgrades. The calculator is a nice illustration of this change.

**Picture 1.** Example how Apple developed minimalism in their products



Source: [www.sympli.io](http://www.sympli.io)

Minimalism in UI/UX design often can be characterized as simple, clear, expressive, well-composed and appropriate, highly functional, extensive usage of white and negative space. Three main benefits of using minimalist UI design are: easy usage, fast to load and easy to maintain (Rajput, 2022). The simplicity of minimalist UI design allows intuitive user flows and clear user journeys, which means that users are unlikely to encounter unwanted CTAs, buttons, banners, or pop-ups that may cause confusion. Due to their bare-bones UI, web and mobile apps with minimalist design load much faster than their traditional design counterparts as they do not burden servers with unnecessary components. Minimalist design is highly recommended if your target audience has devices with slower internet connectivity. Because minimalist design incorporates fewer components and clickthroughs, maintaining a web or mobile app with this type of UI is much easier. Upgrading or servicing such a system is also effortless due to the small number of components involved. This results in cost savings for enterprises in the long run, as maintenance expenses are lower (Moreno, 2021, [onsightapp.com](http://onsightapp.com)).

Minimalism is an effort to bring order to a composition that may be overly complicated. While many people assume that minimalist design is simple due to its lack of aesthetic elements, it is important to consider the true purpose of a website or mobile application. Its primary role is to be functional and facilitate efficient usage. Minimalism has excelled in this regard, as its ease, simplicity, and clarity contribute to an enjoyable and comfortable user experience.

### 3. METHODOLOGY

Quantitative research was used to collect the data from respondents regarding their attitudes about minimalism and the effect of minimalism and minimalistic approach on marketing communication. The questionnaire was distributed in the period from 17 to 19 September 2022 through various channels, including WhatsApp, Instagram Story, Reddit, Discord, and Facebook Groups. Snowball sample was used for data collection, which refers to a non-probability sampling technique in which participants are initially selected based on specific criteria, and then additional participants are recruited through referrals from the initial participants. Initial base was selected from graduate students of digital marketing at the Algebra University College. The snowball distribution method was used on WhatsApp, where the participants were requested to forward the questionnaire to their own contacts. The main goals of research were:

- to gain insight into perceived advertising exposure exhaustion,
- to determine familiarity with minimalism and attitudes toward it and get insights is there any differences based on age and personal monthly income,
- to explore usage of minimalism principles in purchase decision making process,
- to determine difference in liking of minimalistic marketing communication based on the age of the respondents.

For research, six different examples of marketing communications were used, each displayed in three different variants that differ in degree of applied principles of minimalism, in terms of adding or leaving out certain visual elements. In each example, the order of variants was random to make sure that the order does not affect the participants' answers. The participant rated variants of each example on the Likert scale from 1 to 5, where 1 indicated „fully dislike“ and 5 indicated „fully like“ the shown visuals. Following examples of marketing communication were used in research: logo, packaging, outdoor ads, poster and web homepage.

Considering above mentioned goals, six hypotheses in total were developed, out of which three are the main. The focus was on overall attitudes toward minimalism, usage of minimalism in purchase decision making process and liking of minimalism in marketing communication.

The hypotheses were, as follows:

*H1: Overall, respondents have a positive attitude toward minimalism.*

*H1a: Younger respondents have a more positive attitude toward minimalism than older respondents.*

*H1b: Respondents with higher personal monthly income have a more positive attitude toward minimalism than respondents with lower personal monthly income.*

*H2: There are more respondents who make purchase decisions based on minimalism principles than respondents who do not use these principles in purchase decisions.*

*H3: Liking of minimalistic marketing communication is higher than liking of non-minimalistic marketing communication.*

*H3a: Younger respondents have a higher liking of minimalistic communication than older respondents.*

In 3 days, online survey was filled by 550 respondents. Out of those, 61.3% were male and 38.7% female. Age structure was not representative for Croatian population, because share of younger respondents was higher than in population. In the sample, there were 47.3% of respondents younger than 25 years old (Generation Z), 43.5% of respondents between 26 and 41 years old (Generation Y or Millennials), and 9.3% of respondents between 42 and 57 years old (Generation X).

### 4. FINDINGS

Advertising is a part of marketing communication. Significant number of consumers believe that advertising keeps them informed about products and services in the market. However, a large percentage of them also think that products don't live up to the claims made in advertisements. While numerous people find advertising enjoyable, many consider it to be irritating and more manipulative than informative. Only a small portion of consumers (approximately 20%) agreed that advertised brands are superior to non-advertised ones (Mehta, 2000). Results from this research are in-line with above mentioned, because 92.5% of respondents think they are overly exposed to advertising, and 67.5% perceived that ads have too much information in general.

Attitude toward minimalism was measured with four statements, on a 5-point Likert scale, where 1 means “completely disagree” and 5 means “completely agree”. Before these four questions, respondents were asked about their familiarity with concept of minimalism: „I am familiar with the concept of minimalism, as well as its meaning, characteristics, and scope“. In total, 9.9% of them are not aware of minimalism and to them the concept was explained.

The statements were as follows:

1. I have a positive opinion about minimalism.
2. I believe that living by the principles of minimalism makes me happier.
3. I apply the principles of minimalism when it comes to removing unnecessarily things around me.
4. I apply the principles of minimalism when it comes to decorating my home.

On average, 58.8% of respondents agree with statements about minimalism which means that H1 can be accepted because respondents have positive attitude toward minimalism. Means and standard deviations for all four statements are shown in Table 1. The statements are listed from highest to lowest mean, ranging from 3.49 to 4.09.

**Table 1.** Attitudes toward minimalism (Means)

Statements	Mean	St. Dev.
I have a positive opinion about minimalism.	4.09	0.91
I believe that living by the principles of minimalism makes me happier.	3.58	1.08
I apply the principles of minimalism when it comes to removing unnecessarily things around me.	3.53	1.12
I apply the principles of minimalism when it comes to decorating my home.	3.49	1.15

Source: Quantitative study by authors

The research covered three different age groups, popularly called Gen Z, Millennials and Gen X. Generation X are people born between 1965 and 1980. They are independent, pragmatic, and technology savvy. Millennials were born between 1981 and 1996. They are extremely comfortable with technology and digital communication, open-minded and globally oriented. Finally, Gen Z are people born after 1997. They are digital natives, diverse, realistic and fully creative (Dimock, 2019). In H1a, it was assumed that younger generation have a more positive attitude toward minimalism overall. In Table 2, answers of different generations are shown for all four statements.

**Table 2.** Attitudes toward minimalism by age groups (Top 2 Boxes)

Overall statements about minimalism	Top 2 Boxes		
	Gen Z	Millennials	Gen X
S1: I have a positive opinion about minimalism.	70.4%	79.5%	75.5%
S2: I believe that living by the principles of minimalism makes me happier.	49.2%	59.8%	46.9%
S3: I apply the principles of minimalism when it comes to removing unnecessarily things around me.	52.0%	59.0%	47.0%
S4: I apply the principles of minimalism when it comes to decorating my home.	51.2%	57.7%	36.7%

Source: Quantitative study by authors

Average of all statements for each generation are as follows: Gen Z – 3.59, Millennials – 3.79 and Gen X – 3.57. Kruskal-Wallis test was used for testing results because of function skewing to the positive side (Kolmogorov-Smirnov test for all three samples have Z above 6 and  $p < 0.05$ ). Only for statements “I have a positive opinion about minimalism” ( $p = 0.006$ ) and “I apply the principles of minimalism when it comes to decorating my home” ( $p = 0.040$ ), null hypotheses can be rejected on significance level 0.05. Using post-hoc testing significant difference was found among Gen Z and Millennials for S1 ( $p = 0.002$ ) and Millennials and Gen X for S4 ( $p = 0.010$ ).

It means that hypothesis H1a can be accepted partially because Gen Z and Millennials have better attitude toward minimalism, but, on the other hand, Millennials are a generation which finds the closest relationship with minimalism and in two out of four statements this relationship is statistically higher compared to Gen Z.

**Table 3.** Kruskal-Wallis test for attitudes toward minimalism by monthly income (significance level 0.05)

Overall statements about minimalism	p
I have a positive opinion about minimalism.	0.158
I believe that living by the principles of minimalism makes me happier.	0.596
I apply the principles of minimalism when it comes to removing unnecessarily things around me.	0.172
I apply the principles of minimalism when it comes to decorating my home.	0.052

Source: Quantitative study by authors

Table 3 shows attitudes toward minimalism by personal monthly income. Significant difference among income categories was not found. It means H1b can't be accepted.

Kotler and Armstrong (2018) define purchase decision as a process which goes through five stages: problem recognition, information search, evaluation of alternatives, purchase decision, and post-purchase behaviour. In this study, influence of minimalism on purchase decision was tested with two statements:

1. I am applying the principles of minimalism when it comes to my shopping habits.
2. I used to decide on a product or service because it incorporates and promotes minimalism.

For measurement, a 5-point Likert scale was used. Mean for first statement was 3.51 (sd=1.06) and for second 3.17 (sd=1.31). For both statements it was a high number of „Neither agree or disagree“ answers (Statement 1 – 30.5%, Statement 2 – 26.7%), which means that respondents still do not have a clear understanding and/or attitudes toward minimalism. Nevertheless, based on results, the second hypothesis can be accepted, because majority of customers have been led by minimalistic principles in buying decision process.

Last two hypotheses relate to attitudes toward minimalism in marketing communication. Five different elements of marketing communication were tested for H3: product label, outdoor ad, logo, poster, and web homepage. Measurement was done on a five-point liking scale, where 5 means fully like and 1 means fully dislike. For measuring statistical differences were used t-test for independent samples. It's a common yet erroneous belief that the t-test and linear regression are solely applicable to outcomes with a normal distribution. Both the t-test and linear regression analyse the average of an outcome variable across distinct subjects. Although these tests are valid even with minimal sample sizes when the outcome variable follows a normal distribution, their primary advantage lies in their applicability to any distribution when working with large samples (Lumley et al., 2002).

**Picture 2.** Tested product labels

Source: <https://www.a2591.com/2010/12/minimalist-effect-in-maximalist-market.html>

The third product on Picture 2, obviously, has the most minimalistic design, while the second is the most complicated because of lots of additional design elements. Average liking for first and second product was 2.95 and third product had the highest liking, 3.88 with 73.3% of respondents who liked the product label. Means were tested with paired t-test and Product 3 in both tests had p value lower than 0.05.

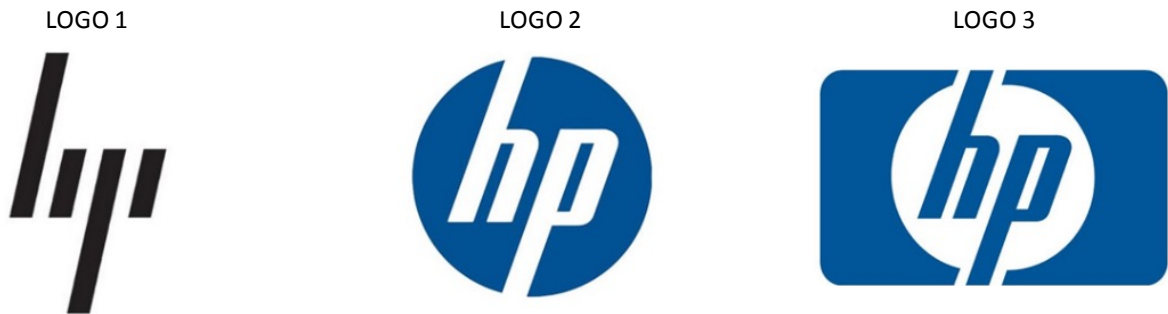
Picture 3. Tested outdoor ads



Source: <https://www.adamnac.com/mad-men-fyc>, <https://billboardprints.com/minimal-billboard-advertising-campaigns/>, <http://thefilmexperience.net/blog/2015/3/28/attending-the-mad-men-black-and-red-ball.html>

Second outdoor was evaluated as the most liked with mean of 3.87. First example had average liking of 3.18, although it is the most minimalistic design, with just two elements, while the Outdoor 3 had average 2.57. Means were tested with t-tested and for all three tests result was  $p < 0.05$ . Second hypothesis can be accepted because minimalistic outdoor ads got higher liking.

Picture 4. Tested logo



Source: <https://logolook.net/hp-logo/>

First logo had the highest score, 3.78. Last two tested logos had lower liking average, Logo 2 – 2.52 and Logo 3 – 2.98. It is obvious that first logo is fully minimalistic in comparison with other two and additionally using black instead of blue colour. Results of all t-test were  $p < 0.05$ .

Picture 5. Tested posters



Source: <https://id.pinterest.com/pin/864198615980770918/>, <https://campfire.pictures/pin/the-walk-illustrated-movie-poster-key-art/>

Posters for launch a new movie were the next communication mean which was tested in study. Based on the results respondents most liked Poster 2 (Mean=3.83), after that Poster 3 (Mean=3.73) and finally Poster 1 (Mean=3.07). In this case the most minimalistic poster (Poster 3) did not get the highest score, but the difference between posters two and three is not significant ( $p > 0.05$ ).

Picture 6. Tested web homepages



Source: <https://www.pinterest.com/pin/843439836456833833/>, <https://www.websiteplanet.com/website-builders/mailchimp-website-builder/#overview>, <https://www.nichepursuits.com/emma-vs-mailchimp/>

In testing web homepages average liking for Web 1 was 3.74, for Web 2 it was 3.64 and for Web 3 liking score was 2.33. First and second homepage have significantly higher liking compared to Web 3 ( $p < 0.05$ ). These two examples are not the same from design point of view and Web 3 using more different colours and design elements (e.g. visual). Based on results of testing five different means of marketing communication, third hypothesis can be accepted because in all given tests minimalistic concepts were better liked than communication with complex structure and design. In some cases that difference was statistically significant. The main assumption of H3a is that younger respondents like minimalistic marketing communication more, compared to the older generations. In Table 4, marketing communications with the highest liking scores are marked in green. In three out of five tests, Gen X prefer minimalistic concepts more than younger generations, but only Logo liking has p value below 0.05. Based on these results, H3a cannot be accepted, because age does not influence difference in liking of minimalistic marketing communication.

Table 4. Liking of marketing communication by age

Marketing Communication	Gen Z	Millennials	Gen X	
Product 1	2.87	2.97	3.29	
Product 2	3.05	2.93	2.49	
Product 3*	3.92	3.82	4.00	$p > 0.05$
Outdoor 1*	3.12	3.21	3.35	$p > 0.05$
Outdoor 2	3.90	3.90	3.51	
Outdoor 3	2.60	2.48	2.82	
Logo 1*	3.93	3.74	3.24	$p > 0.05$
Logo 2	2.42	2.47	3.31	
Logo 3	3.02	2.99	2.73	
Poster 1	3.16	2.95	3.14	
Poster 2	3.86	3.83	3.69	
Poster 3*	3.65	3.83	3.86	$p > 0.05$
Web 1*	3.82	3.68	3.67	$p > 0.05$
Web 2	3.71	3.54	3.80	
Web 3	2.36	2.32	2.24	

## 5. CONCLUSION

Minimalism in marketing communication refers to the practice of using a simple and straightforward approach to convey a message to the target audience. This approach involves using only the necessary elements, such as images, text, and design, to create a clear and concise message. The goal of minimalism is to communicate the message effectively without any unnecessary distractions or clutter. This style can be used across various marketing mediums, such as print ads, websites, social media, and more.

Quantitative research was done on 550, dominantly younger, respondents using snowball sampling method. In the first part of questionnaire, they were asked overall attitudes about minimalism and in second part five marketing communication elements, with different level of minimalism were tested. Overall, all generations have positive attitude toward minimalism, but Millennials are a slightly stand out compared to two other groups. Respondents have been using minimalism during making decisions in buying process. Minimalistic marketing communication are more liked by all respondents but in some cases, it is not clear what is their perception of minimalistic design. Again, there is not clear distinction between generation and no unequivocal conclusion that one generation likes minimalistic communication more than the others.

The general conclusion is that advertisers should more often use a minimalistic approach in all aspects of building their brand image. The minimalistic design in marketing communication has an impact on liking of communication means. Minimalism is appealing to all generations and even more to Millennials than Gen Z.

The main limitations of this research include the sample structure (smaller share of older population), a low number of tested examples of marketing communications (five), and the lack of focus on one category of products or services. From these limitations our future research suggestions arise. In the next studies researchers should include more marketing communications forms like TV commercials, digital videos and other digital communication tools and platforms. It is not clear if there is a difference in using minimalism in different industries (consumer vs. business) or different brands (product vs. service). This may offer future research directions.

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## ISTRAŽIVANJE STAVOVA PREMA MINIMALISTIČKOM DIZAJNU U MARKETINŠKIM KOMUNIKACIJAMA

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### SAŽETAK

Marketinška industrija već dugo osjeća kako zakon opadajućih povrata utječe na raspon pažnje i interes ljudi prema bilo kojem obliku tržišne komunikacije kojoj su izloženi. Marketinškim stručnjacima sve je teže doseći publiku, učinkovito komunicirati i osigurati konverzije. Jedan od mogućih izlaza iz ove situacije je minimalizam. Minimalizam u marketingu temelji se na pristupu „manje je više“, fokusirajući se na manji broj vizualnih elemenata i/ili kratke konstrukcije teksta. Ovo istraživanje ispitalo je opća stajališta prema minimalizmu, uključujući njegov utjecaj na odluke o kupnji te odnos između minimalističkih dizajnerskih elemenata i sviđanja marketinške komunikacije. Utvrđeno je da sve dobne skupine imaju pozitivan stav prema minimalizmu i primjeni njegovih principa u ponašanju tijekom kupovine. Međutim, Milenijalci su ocijenili to bolje od Generacije Z i Generacije X. Ispitanici su bili zamoljeni da ocijene tri različite varijacije pakiranja proizvoda, vanjske oglase, logotipe, plakate i početne web stranice s različitim razinama minimalističkog dizajna koristeći ljestvicu sviđanja od pet stupnjeva. Marketinška komunikacija s minimalističkim elementima više se sviđala nego ne-minimalistička, ali nije moguće zaključiti da mlađa populacija ima veću razinu sviđanja takvih oglasa od starije. Minimalizam će utjecati na veće sviđanje svih sredstava marketinške komunikacije i trebao bi se više koristiti u budućnosti među različitim ciljnim skupinama s obzirom na dob. Izazov bi jedino moglo biti kako utvrditi što kupci smatraju minimalističkim elementima.

**KLJUČNE RIJEČI:** minimalizam, marketinške strategije, marketinška komunikacija, brendiranje, aspekt i značenje minimalističkog marketinga

# TRADE OPENNESS AND GDP GROWTH NEXUS: THE CASE OF OECD COUNTRIES

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## ABSTRACT

Economists have argued about the relationship between trade openness and economic growth for a very long time. Despite garnering a lot of attention in the literature for more than a century, we still don't have a satisfying response to this subject. This study aims to examine the relationship between trade openness and GDP growth in the case of OECD countries, in the period from 1988 to 2020. In order to tackle data heterogeneity across countries and to form a robust (outlier resistant) regression, a quantile regression is used. Furthermore, panel dynamic GMM was used due to "more countries than time-period case". Main findings of the paper validate the hypothesis that trade openness facilitates economic growth. Most of the explanatory variables have been significant in the regression models obtaining predicted signs of the regression coefficients, in accordance with the economic theory. The quantile regression modelling showed discrepancies between different quantiles. For tau equal to 0.25 the value of regression coefficient related to trade openness variable was negative.

**KEY WORDS:** trade openness, GDP growth, OECD countries, quantile regression, panel GMM

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## 1. INTRODUCTION

One of key questions in theory of international economics is whether higher trade openness facilitate economic growth. The percentage of exports and imports to a country's GDP is frequently used to gauge how open that country is to trade. Economic growth, on the other hand, refers to an increase in a country's overall output and income levels over an extended period of time. Despite several empirical studies in the wake of trade liberalization asserting a favorable effect of trade openness on growth, such as Edwards (1998) and Lee, Ricci and Rigobon (2004), this controversy is still going strong today. According to Rodriguez and Rodrik (2000), it is still unclear how trade openness and growth are related. According to Capolupo and Celi (2008), it is unclear if trade and growth are positively associated from both a theoretical and an empirical standpoint. On the other hand, openness can promote growth, according to Chang, Kaltani and Loayza (2009). The majority of recent investigations have not yet reached a final conclusion. Fetahi-Vehapi, Sadiku and Petkovski (2015) concluded that trade openness has a positive effect on economic growth, in contrast to Huchet, Le Mouël and Vijil's (2018) finding that trade openness has a negative impact on the growth of countries that specialize in low-quality goods. A 10% increase in trade shares corresponds to a 0.4% increase in growth rate, according to Dao (2014), who also found that trade openness, as measured by trade shares, has a positive effect on economic growth.

According to Fatima et al. (2020), there is a negative correlation between GDP growth and trade openness. A country's GDP growth may be negatively impacted by trade when there is a low degree of human capital accumulation in that nation. The purpose of this study is to investigate the connection between trade openness and GDP growth for 38 countries that are members of the Organization for Economic Co-operation and Development (OECD). The relationship between trade openness and GDP growth in the context of OECD countries was previously studied by Idris et al. (2018). The authors evaluate the link between openness and economic growth in 86 developing and OECD countries from 1977 to 2011 using the Generalized Method of Moments (GMM) estimations. Empirical evidence suggests that openness generally promotes economic growth in OECD and emerging countries. The endogenous growth theory, which holds that trade openness encourages growth, is in agreement with this. The following describes the research hypothesis for the paper:

*H1... Trade openness has positive impact on economic growth in the OECD countries*

For this purpose a cross-country panel regression analysis, in the period from 1988 to 2020, has been conducted. Alongside trade openness variable, TRADE, nine control variables, which affect economic growth, have been incorporated into analysis. The novelty in this paper in regards to previous research is the use of quantile regression for OECD countries which improves estimated model uncovering patterns in which the effect of trade openness could vary across countries. Furthermore, it efficiently tackles the problem of outliers due to data heterogeneity among countries. There are five sections in the paper. Following the introduction, the literature review discusses and expands on empirical studies on the relationship between trade openness and GDP growth. A cross-country panel regression is estimated in the technique and data section utilizing the PLS estimator, the FE, RE, and quantile regression models, as well as the dynamic panel GMM model. The description of the variables and the data sources have also been thoroughly examined. The primary findings of the analysis have been presented in the results and discussion section. The last part describes the paper's limitations in more detail and makes suggestions for additional research.

## 2. LITERATURE REVIEW

The intensity of the correlation depends on the estimation model specification, however there is often a positive correlation between GDP growth rates and various openness indices, Harrison (1996). Yanikkaya (2003), however, found no link between trade liberalization or openness and economic development. Dufrenot, Mignon and Tsangarides (2010) used a quantile regression approach to investigate the relationship between trade and growth in developing nations. In both the long and short timeframes, it is discovered that there are different relationships between trade and growth. Countries with low growth rates experienced a bigger impact from trade openness on growth than did those with high growth rates. Sakyi et al. (2012) use data from a heterogeneous panel cointegration study to examine the relationship between trade openness, growth, and development for middle-income countries. Middle-income countries' level of external openness has been crucial to their development, but not to their rate of economic expansion. On the other side, Ulaşan (2014) showed that there isn't a solid connection between trade openness and long-term economic growth.

Fetahi-Vehapi, Sadiku and Petkovski (2015) investigated how trade openness affected economic growth in 10 SEE countries between 1996 and 2012. According to the results of the estimation using the GMM method, the baseline per capita income and other explanatory variables are a prerequisite for the positive effects of trade openness on economic growth. There was, however, no conclusive evidence connecting these two variables. From 1965 to 2014, Keho (2017) looked into the connection between trade openness and economic growth in Cote d'Ivoire. It was shown that trade openness had a positive impact on economic growth both immediately and over time. Huchet, Le Mouël and Vijil (2018) found that countries that export commodities of novel varieties and greater quality expand more quickly. Their estimation was based on a GMM estimator that built a panel of 169 countries between 1988 and 2014 using an endogenous growth model. Trade openness seems to have a negative impact on the economic growth of countries that specialize in low-quality items. Burange, Ranadive and Karnik (2019) investigated the connection between trade openness and economic expansion in the BRICS countries. It reveals growth-led trade in services hypotheses for China, India, and South Africa, as well as growth-led export and import hypotheses for China. No clear causal link is found between Brazil and Russia, though. These findings emphasize the need for specific policy considerations depending on the various national settings that make up the BRICS group. In their investigation of the relationship between trade openness and economic growth in Lesotho, Malefane and Odhiambo (2021) discovered that there is no discernible link in either the short- or long-term, regardless of the trade openness metric utilized. According to the study, Lesotho's authorities should concentrate on fostering infrastructure and human capital development in order to achieve the required economic growth threshold for reaping the full benefits of trade openness.

Omoke and Opuala-Charles' analysis on the instance of Nigeria (2021) emphasizes the critical significance of institutional quality in the relationship between trade openness and economic growth. The research shows that whereas import trade negatively affects economic growth, export trade positively benefits it. The study also highlights the importance of boosting Nigeria's governance in order to minimize the detrimental consequences of import trade and maximize the growth-enhancing potential of trade openness. According to Islam, Alsaif and Alsaif (2022), the labor force, government consumption, and trade openness all have a significant impact on economic growth in Saudi Arabia. The analysis shows that government consumption favorably affects GDP in the short run but loses significance over time, whereas trade openness and labor force have a positive impact on economic growth in both the short and long runs. To encourage long-term economic growth in the nation, policymakers should prioritize increasing trade openness, streamlining government spending, and supporting a trained and productive labor force. Using the ARDL cointegration method, Tafirenyika, Tafirenyika and Adeyanju (2023) investigated the effects of exports, imports, and trade openness on Namibia's economic growth. The findings show that whereas exports and trade openness have large and positive connections with economic growth, imports have a considerable negative link with it. The results confirm the significance of export promotion, trade liberalization, and active involvement in international markets for Namibia's economic development.

### 3. DATA AND METHODOLOGY

This article examines this relationship between GDP growth and trade openness in the case of OECD countries from 1988 to 2020. The study uses ten explanatory factors and one dependent variable, GDP growth, which is measured in constant 2010 U.S. dollars. The gross domestic product (GDP), plus any applicable product taxes and minus any applicable subsidies, is the sum of all the value created by all domestic producers in an economy. The explanatory (control) variables alongside trade openness variable, TRADE, Trade (% of GDP) are AREA, Surface area (in square kilometres), CAB, Current account balance (% of GDP), GFCF, Gross fixed capital formation (annual % growth), GGFCE, General government final consumption expenditure (% of GDP), LEAB, Life expectancy at birth, total (years), POPG, Population growth (annual %), SE, School enrollment, secondary (% gross), TARIFF, Tariff rate, applied, simple mean, all products (%) and TOT, Terms of trade adjustment (constant LCU)

World Development Indicators, World Bank (2023), has the statistics for the selected variables. Coastal waterways and places under water are included in the surface area calculation of the country's total area. Net exports of products and services, net primary and secondary income, and the current account balance are added together. Land improvements, plant, machinery, and equipment purchases, road and railroad construction, etc. are all included in gross fixed capital formation. All current government current outlays for the procurement of goods and services, as well as outlays for national security and defense, are categorized as general government final consumption expenditures. Life expectancy at birth is related to the number of years a newborn is projected to live when mortality rates at the time of a baby's birth remain stable across time.

Population growth is the average annual increase in the number of people living in a given nation. The ratio of overall enrollment to the number of people with a secondary education is known as secondary school gross enrollment. The unweighted average of all effectively applied rates for all items subject to tariffs determined for all traded goods is known as the simple mean applied tariff rate. The relative cost of exports in relation to imports, calculated as the difference between export and import prices, is known as the terms of trade. The total of goods and service imports and exports expressed as a percentage of GDP is the trade variable that measures trade openness. Cross-country panel regression models are being used to estimate the effects of trade openness and explanatory variables. Equation 1 presents the cross-country panel regression model.

$$(GDPG)_{it} = \beta_0 + \beta_1 AREA_{it} + \beta_2 CAB_{it} + \beta_3 GFCF_{it} + \beta_4 GGFCE_{it} + \beta_5 LEAB_{it} + \beta_6 POPG_{it} + \beta_7 SE_{it} + \beta_8 TARIFF_{it} + \beta_9 TOT_{it} + \beta_{10} TRADE_{it} + \varepsilon_{it} \quad (1)$$

The first models to be estimated are the pooled OLS, fixed effects, and random effects models. Dynamic Panel Generalized Method of Moment (GMM) regression models will also be employed in addition to the aforementioned models (Equation 2).

$$(GDPG)_{it} = \beta_0 + \beta_1 GDPG_{i,t-1} + \beta_2 AREA_{it} + \beta_3 CAB_{it} + \beta_4 GFCF_{it} + \beta_5 GGFCE_{it} + \beta_6 LEAB_{it} + \beta_7 POPG_{it} + \beta_8 SE_{it} + \beta_9 TARIFF_{it} + \beta_{10} TOT_{it} + \beta_{11} TRADE_{it} + \varepsilon_{it} \quad (2)$$

It yields consistent results when there are several endogeneity sources present, such as "unobserved heterogeneity, simultaneity, and dynamic endogeneity" (Wintoki, Linck & Netter, 2012:588). The Arellano and Bond's (1991) publication introduced the panel generalized method of moments (GMM) estimation for dynamic panel data models. This approach gets over the endogeneity and serial correlation issues in panel data analysis by using lagged difference instruments. The Arellano-Bond GMM estimator is often used in empirical studies to examine the dynamics of panel data and has significantly contributed to the econometric literature on panel data analysis.

Empirical regularity on the beneficial effect of trade openness on growth may not be applicable for specific subsets of countries if there is a heterogeneity bias in the data. According to Dufrenot, Mignon and Tsangarides (2010), the use of quantile regressions beats the standard approaches since it may be used to spot patterns in which the impact of trade openness may vary among countries. It allows for the discovery of heterogeneous effects and provides robustness against outliers. It also incorporates fixed effects to account for individual and temporal features. Data with non-normal distributions can be analyzed using this method, as well as the conditional distribution of variables in panel data sets. Quantile regression models the quantiles of the dependent variable given a series of conditioning factors. The concept was first introduced by Koenker and Bassett (1978), who provided estimates of the linear connection between regressors X and a certain quantile of the dependent variable Y.

#### 4. RESULTS AND DISCUSSION

The paper's key findings will be summarized and presented in this section. Table 1 presents descriptive statistics for the variables. There are 938 total observations. According to the methodology section, there are 10 explanatory factors and one dependent variable, GDP growth.

**Table 1.** Descriptive statistics of variables

Stat./ Variable	AREA	CAB	GDPG	GFCF	GGFCE	LEAB	POPG	SE	TARIFF	TOT	TRADE
Mean	762003.3	-0.35	2.49	3.44	18.99	78.05	0.55	105.04	3.91	1.43E+10	88.11
Median	131960	-0.75	2.63	3.25	19.34	78.53	0.49	102.8	2.78	-1.11E+09	71.97
Maximum	9879750	16.11	24.37	100.93	28.11	84.35	2.89	163.93	18.83	5.43E+13	377.84
Minimum	2590	-22.93	-14.83	-47.45	8.11	68.77	-2.25	49.48	1.03	-7.04E+13	18.12
Std. Dev.	2056772	5.13	3.33	9.82	4.01	3.4	0.75	17.32	2.52	7.27E+12	50.82
Skewness	3.91443	-0.12	-0.64	0.96	-0.37	-0.55	-0.55	0.6	2.62	-1.12	2.25
Kurtosis	16.95	4.34	8.19	16.29	2.65	2.59	3.72	5.08	11.07	42.47	10.49
Jarque-Bera	10011.96	73.14	1117.53	7057.06	27.27	55.3	20.71	226.98	3627.96	61095.98	2990.33
Sum	7.15E+08	-3.37E+02	2340.31	3231.16	17821.27	73217.78	519.54	98535.8	3675.37	1.34E+13	82648.71
Sum Sq. Dev.	3.96E+15	2.48E+04	10451.18	90414.84	15118.35	10894.37	535.04	281389.8	5973.83	4.95E+28	2420789
Observations	938	938	938	938	938	938	938	938	938	938	938

Source: Author's calculations

Statistical metrics such as mean, median, maximum, minimum, and standard deviation are provided together with descriptive statistics of the variables. The logarithmic transformation of some variables was not feasible since they had both positive and negative values.

**Table 2.** Correlation matrix of explanatory variables

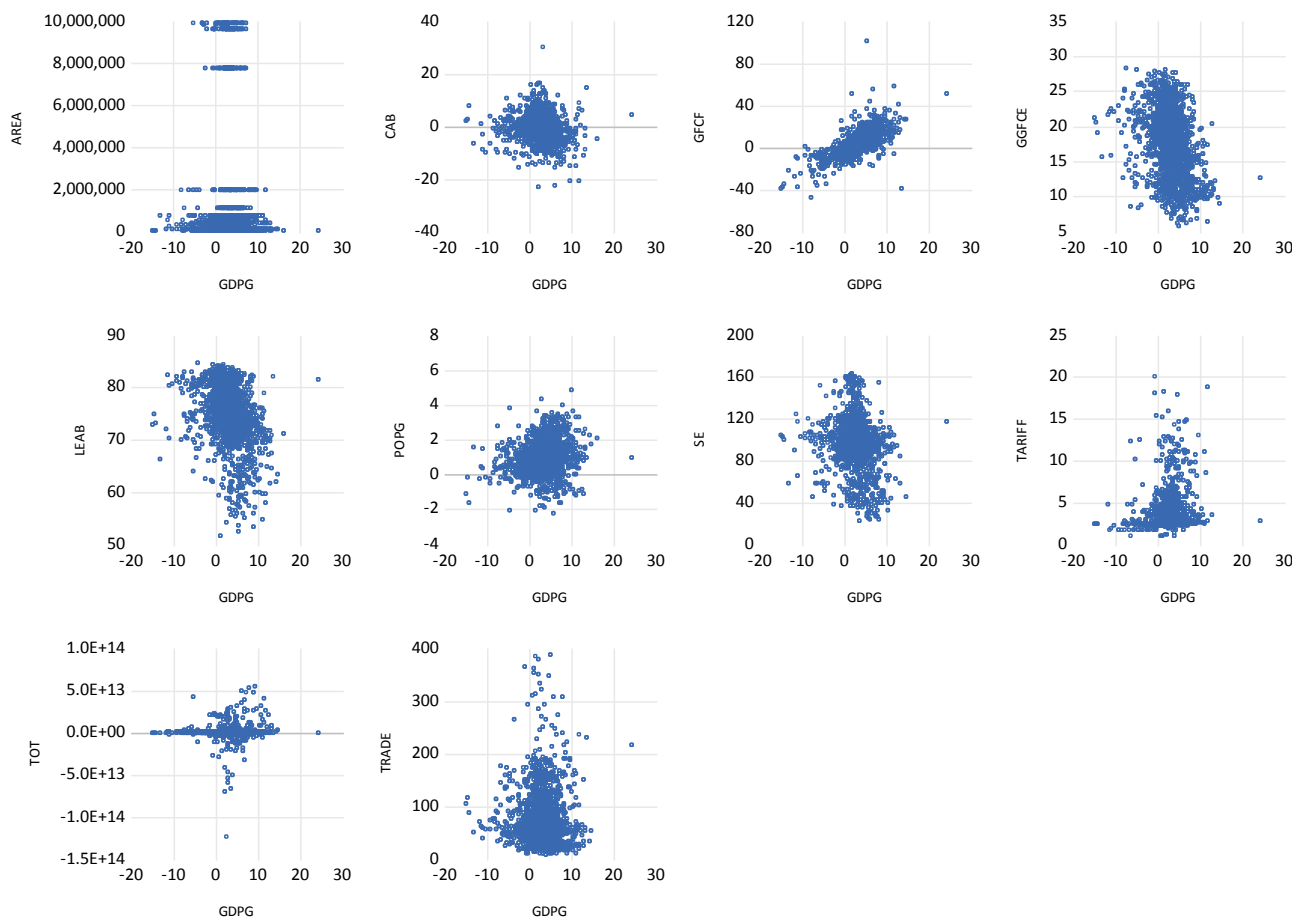
	AREA	CAB	GFCF	GGFCE	LEAB	POPG	SE	TARIFF	TOT	TRADE
AREA	1	-0.075**	-0.222	-0.096***	0.06*	0.214***	0.004	0.112***	-0.007	-0.255***
CAB	-0.075**	1	-0.156***	0.058*	0.411***	0.11***	0.212***	-0.024	-0.013	0.181***
GFCF	-0.222	-0.156***	1	-0.171***	-0.166***	-0.015	-0.058*	0.091***	0.021	0.079**
GGFCE	-0.096***	0.058*	-0.171***	1	0.22***	-0.263***	0.499***	-0.441***	-0.065**	0.038
LEAB	0.06*	0.411***	-0.166***	0.22***	1	0.289***	0.48***	-0.34***	-0.066**	0.071**
POPG	0.214***	0.11***	-0.015	-0.263***	0.289***	1	-0.067**	0.32***	-0.011	-0.061*
SE	0.004	0.212***	-0.058*	0.499***	0.48***	-0.067**	1	-0.397***	0.04	0.155***
TARIFF	0.112***	-0.024	0.091***	-0.441***	-0.34***	0.32***	-0.397***	1	-0.029	-0.291***
TOT	-0.007	-0.013	0.021	-0.065**	-0.066**	-0.01	0.04	-0.029	1	-0.046
TRADE	-0.255***	0.181***	0.079**	0.038	0.071**	-0.061*	0.155***	-0.291***	-0.046	1

Standard errors in parenthesis, \* denotes significance under 10%, \*\* denoted significance under 5% and \*\*\* denotes significance under 1%

Source: Author's calculations

Table 2 shows the correlation matrix of the explanatory factors together with the correlation coefficient values and its level of significance. Since GDPG is a dependent variable in the model, it was excluded from the correlation matrix. The explanatory variables do not have any significant strong positive or negative correlations. It implies that the regression estimations shouldn't have a multicollinearity issue, making the conclusions more trustworthy. GDP growth is shown as a dependent variable in Figure 1 together with ten explanatory variables.

**Figure 1.** GDP growth versus explanatory variables



Source: Author's calculations

Table 3 displays the achieved and expected signs of the explanatory factors as suggested by economic theory. For the variables LEAB, SE, and TRADE, the predicted signs of the regression coefficients should be positive. Higher life expectancy at birth, enrolment in education, and trade, in accordance with economic theory, should promote economic growth. The impact of GGFCE on the fiscal policy measure is unclear because there are regional differences in the effectiveness of government operations. On the one hand, public investment initiatives can favorably impact growth, yet excessive government expenditure can increase a nation's debt, so limiting its ability to grow, according to Dao (2014). The regression indications for the GGFCE, CAB, and POPG variables, on the other hand, ought to be negative. In relation to the population variable, the relationship between population and economic growth is still debatable, according to Peterson (2017). The terms of trade variable TOT should have a positive regression sign, according to Dufrenot, Mignon and Tsangarides (2010). According to Silajdzic and Mehic (2017), tariff barriers have not had a negative impact on economic growth in the selected transition countries. There is no obvious correlation between a country's size and economic growth. According to a number of studies, tiny countries suffer disadvantages because of how their size hinders economic expansion. On the other hand, according to Brito (2015), many tiny countries are experiencing faster rates of economic growth.

**Table 3.** Signs of regression coefficients related to explanatory variables in various models

Variable/sign	Model/sign							Expected sign
	POLS	FE	RE	PGMM	QR1	QR2	QR3	
AREA	-	-	-	-	+	-	-	+/-
CAB	-	-	-	-	-	-	-	-
GFCF	+	+	+	+	+	+	+	?
GGFCE	-	-	-	-	-	-	-	-
LEAB	-	-	-	-	-	-	-	+
POPG	+	+	+	+	+	+	+	+/-
SE	+	+	+	+	+	+	+	+
TARIFF	+	+	+	+	+	+	+	+
TOT	+	-	+	+	+	+	+	+
TRADE	+	+	+	+	+	-	+	+

Source: Author's calculations

The findings of the panel regression models in the case of 38 OECD nations for the years 1988 to 2020 are shown in Table A1 in the Appendix. Regression models such as POLS, FE, RE, PGMM, and quantile models are used to estimate the models. There are 938 total observations. The calculated regression models' adjusted R-squared values, which vary from 0.35 to 0.6, are quite good. To distinguish between the POLS and FE models, a redundant fixed effects test was performed. The outcomes show that the FE model fits the data better. Additionally, Hausman test shows that the FE model fits the data better than the RE model. In the majority of regression models, some explanatory factors - such as AREA, CAB, and TARIFF - were not significant. These variables are highlighted in in Table 3. As predicted by economic theory, the obtained regression coefficient for the trade openness variable, TRADE, is significantly positive. The positive and significant relationship between the trade openness variable and economic growth was confirmed by the PGMM model. Different quantiles differed, as seen by the quantile regression modeling. The value of the regression coefficient for the trade openness variable was negative for tau equal to 0.25. Additional study should be conducted, ideally on a country-by-country basis, to get results that are more exact.

The results from Idris et al. (2018) significantly supported the idea that trade openness generally causes OECD nations to experience higher growth. It was discovered that government spending in the OECD countries virtually advanced development. The outcomes of this study are comparable to earlier outcomes. Trade openness promotes economic growth, according to panel GMM and cross-country panel regression models. The findings of the quantile regression modeling, on the other hand, revealed discrepancies between various quantiles, highlighting the need for a more thorough examination.

## 5. CONCLUSION

The purpose of the study was to examine how trade openness and GDP growth in 38 OECD countries over the period of 1988 to 2020. The study's key findings can be summed up as follows: The central hypothesis of the paper is supported by the following findings: (1) trade openness and economic growth are positively and significantly correlated; (2) quantile regression analysis revealed differences across quantiles; and (3) the signs of the regression coefficients for the control variables were, for the most part, consistent with economic theory. The limitation of the article results from the absence of data for specific variables or countries. The analysis may be subject to endogeneity issues because the direction of causality between trade openness and GDP growth is not explicitly addressed. This makes it challenging to show a causal connection and opens the door to competing theories or reverse causality. Future studies should examine the connection between GDP growth and trade openness, ideally by country. The results of this study can act as a strong starting point for a comprehensive analysis of the growth literature using state-of-the-art econometric techniques, both theoretically and empirically.

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## POVEZANOST IZMEĐU TRGOVINSKE OTVORENOSTI I EKONOMSKOG RASTA: SLUČAJ OECD ZEMALJA

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### SAŽETAK

Dugo su vremena ekonomisti raspravljali o povezanosti između trgovinske otvorenosti i gospodarskog rasta. Ovo pitanje privlači veliku pozornost u ekonomskoj literaturi više od jednog stoljeća, no još uvijek ne postoji zadovoljavajući odgovor. Cilj rada je istražiti neksus trgovinske otvorenosti i rasta bruto domaćeg proizvoda (BDP) u slučaju zemalja OECD-a, u razdoblju od 1988. do 2020. godine. Kvantilna regresija korištena je zbog problema heterogenosti podataka, dok je dinamički GMM model značajan zbog slučaja "više zemalja negoli vremenskih razdoblja". Glavni zaključci rada potvrđuju hipotezu da trgovinska otvorenost olakšava gospodarski rast. Većina eksplanatornih varijabli bila je značajna u regresijskim modelima s predviđenim predznacima regresijskih koeficijenata prema ekonomskoj teoriji. Kvantilno regresijsko modeliranje pokazalo je odstupanja između različitih kvantila. Za tau jednak 0,25 vrijednost koeficijenta regresije vezana uz varijablu otvorenosti trgovine bila je negativna.

**KLJUČNE RIJEČI:** trgovinska otvorenost, ekonomski rast, OECD, kvantilna regresija, panel GMM

## Appendix 1

**Table A1.** Panel regression models for investigation of nexus between trade openness and GDP growth, OECD (38 countries), 1988-2020

Independent variable/ Model	POLS	Fixed effects	Random effects	PGMM	Quantile regression (tau=0.25)	Quantile regression (tau=0.5)	Quantile regression (tau=0.75)
Constant	14.11250*** (2.33982)	21.76625*** (4.41835)	16.22598*** (2.55897)	4.58105*** (4.46510)	7.61619*** (2.01916)	12.84296*** (2.37533)	15.15058*** (3.09728)
GDPG(-1)				0.10097*** (0.02671)			
AREA	-3.58E-08 (3.76E-08)	-1.66E-06 (-2.97E-06)	-4.21E-08 (4.63E-08)	-4.59E-08 (5.33E-08)	-1.25E-08 (2.27E-08)	-1.71E-08 (2.74E-08)	-1.05E-08 (-2.91E-08)
CAB	-0.02361 (0.01629)	-0.05719*** (0.02137)	-0.02468 (0.01739)	-0.11343*** (0.02996)	-0.00207 (0.01906)	-0.03554** (0.01652)	-0.03136* (0.01949)
GFCF	0.22226*** (0.00769)	0.19958*** (0.00777)	0.21804*** (0.00739)	0.36761*** (0.03773)	0.25894*** (0.01248)	0.23778*** (0.01735)	0.22508*** (0.01699)
GGFCE	-0.09835*** (0.02300)	-0.50465*** (0.05523)	-0.14515*** (0.02708)	-0.06114* (0.03447)	-0.11403*** (0.02170)	-0.08256*** (0.02202)	-0.09965*** (0.02412)
LEAB	-0.16393*** (0.03055)	-0.178896*** (0.06460)	-0.18324*** (0.03388)	-0.05812*** (0.05511)	-0.08991*** (0.02547)	-0.14209*** (0.02855)	-0.16321*** (0.03833)
POPG	0.41646*** (0.11795)	0.41031** (0.20114)	0.42672*** (0.13182)	0.50033*** (0.17114)	0.28806** (0.12431)	0.37559*** (0.10138)	0.29399* (0.15426)
SE	0.01463*** (0.00555)	0.01830** (0.00813)	0.01825*** (0.00603)	0.00802*** (0.00787)	0.02111*** (0.00438)	0.00980** (0.00456)	0.01011* (0.00597)
TARIFF	0.06517* (0.03892)	0.03135 (0.05005)	0.05030 (0.04104)	0.10337 (0.06705)	0.02634 (0.03816)	0.00769 (0.03910)	0.08203* (0.05030)
TOT	1.58E-14 (1.02E-14)	-6.37E-15 (1.02E-14)	1.10E-14 (9.77E-15)	1.91E-14 (1.53E-14)	8.88E-15 (1.54E-14)	7.20E-15 (1.74E-14)	1.99E-14** (7.65E-15)
TRADE	0.00314** (0.00162)	0.00043 (0.00629)	0.00281*** (0.00194)	0.00253*** (0.00215)	-0.00266* (0.00144)	0.00429** (0.00178)	0.00951*** (0.00238)
<b>Diagnostics</b>							
Adjusted R-squared	0.55758	0.60406	0.54933	0.35914	0.36428	0.35991	0.37465
S.E. of regression	2.22141	2.10147	2.17567	2.68869	2.46822	2.24197	2.54250
Prob. (F-stat.)	0	0	0				
Mean dep. variable	2.49500	2.49500	2.49500	2.39463	2.49500	2.49500	2.49500
S.D. dependent variable	3.33974	3.33974	3.24923	3.35862	3.33974	3.33974	3.33974
Prob(Quasi-LR stat.)					0	0	0
Quasi-LR statistic					820.3952	906.1364	731.9492
Quantile dep. variable					1.14358	2.63053	4.19494
Durbin-Watson	1.82933	1.92404	1.87360	2.08585			
Redundant FE	Cross-sect. F 3.941, Prob. 0.0 Cross-sect. Chi-square 142.33478, Prob. 0.0						
Hausman test	Chi-Sq. Stat. 75.37, Prob. 0.0						
Observations	938	938	938	849	938	938	938

Standard errors in parentheses, \* denotes significance under 10%, \*\* denoted significance under 5% and \*\*\* denotes significance under 1%

Source: Author's calculations

# TOWARDS A CONCEPTUAL MODEL OF MEASURING THE INFLUENCE OF SERVICE INNOVATION ON BUSINESS PERFORMANCE<sup>1</sup>

REVIEW PAPER  
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## ABSTRACT

The purpose of this paper is to develop a conceptual model that can be utilised to measure the influence of service innovation on business performance. The complexity adaptive theory is adopted as an overarching theoretical lens in this paper. A literature review of previous studies on the influence of service innovation on business performance for the period 2010 to 2023 was conducted to achieve the research objective of this paper. This paper argues that the impact of environmental factors in the relationship between service innovation and business performance should not be neglected. Future research directions are provided in this paper.

**KEYWORDS:** business performance, services, service innovation, service organisation, innovation management

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## 1. INTRODUCTION

According to Cadwallader, Jarvis, Bitner and Ostrom (2010), the concept of service innovation remains loosely defined which triggers a need to explore and reconceptualise it. This view is supported by Toivonen and Tuominen (2009) who point out that it is problematic to define “service innovation”, since there is no common understanding and meaning of the concept. Toivonen and Tuominen (2009) added that the service innovation definition includes an introduction of a new service which can imply invention; and contrasting views persist concerning how innovation should be defined and evaluated. This paper aims to explore various definitions to deal with the vagueness of the concept and further develop a conceptual model that can be tested to determine the influence of service innovation on business performance.

The next section will examine divergent perspectives of service innovation and identify unique and shared characteristics in definitions of service innovation.

## 2. THEORETICAL BACKGROUND

This section commences by reviewing literature on service definition, service innovation definition, evolution of service innovation and types of innovation to make the current study understandable and meaningful.

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<sup>1</sup> This paper is based on the dissertation: Makgopa. S. S. (2020) The influence of service innovation practices on business performance. (Doctoral dissertation, University of Pretoria).

## 2.1 Perspectives of the concept “service”

The concept “service” needs to be briefly revisited before the concept “service innovation” can be defined. Existing literature uses the difference between services and goods as a basis to define the service through service attributes (Zeithaml, Parasuraman & Berry, 1985; Ding & Keh, 2017). According to Ding and Keh (2017), services marketing literature traditionally characterised intangibility as the most critical distinguishing attribute between services and goods, but in practice service production and consumption often involve intangible and tangible elements. Practical examples of intangible attributes of service include service responsiveness and reliability; while tangible service attributes include the service scope, décor and furnishings. Since the focus of this study is on the service innovation practices of service organisations offering tangible and intangible services, a practical approach is followed which involves tangible and intangible attributes of service such as vehicle sales, maintenance services and spare part sales offered by such organisations (retailers). Service organisations represent car manufacturers at the point of sale and act as a means of continuous contact between motor vehicle manufacturers and their customers who have purchased and taken delivery of their vehicles (Fraser, Watanabe & Hvolby, 2013).

Karpen, Bove, Lukas and Zyphur (2015, p. 90) state that S-D logic provides a service-based view as the main reason for exchange made possible primarily by resources, such as employees knowledge and capabilities, and are realised through value co-creation processes. Market participants combine resources interdependently while determining the value of the related experiences at personal level in terms of personal advancement. For instance, customers interact with service organisations that provide services such as transportation, social status and emotional and sensory experiences. During any interaction with an organisation’s available resources such as employees, websites, and products or services, customers, as network participants, co-create their own experiences by incorporating and potentially turning resources into valuable results. An organisation’s role is to facilitate and enhance customers’ experiences, ultimately benefitting the organisation in a form of knowledge and financial revenues, for example. Therefore, resources and the capabilities of employees are generated in organisational practices and support the reciprocal value creation through mutual service-driving resource deployments. Lusch and Vargo (2014) pointed out that S-D logic presents the main theoretical breakthrough by stressing that the division of goods or services is counter-productive, but with S-D logic, the main change is that service is totally supplier-centric and has now turned into a stakeholder-centric concept that views goods as packaged services.

## 2.2 Defining service innovation

Durst, Mention and Poutanen (2015) demonstrated that “service innovation” is an ambiguous term in literature and that there is a fragmented understanding of the concept and its impact on business performance. Durst et al. (2015) uncovered that less than 13 research papers conducted in the period 2009 to 2014 focused on service innovation with fragmented definitions of the concept. “Service innovation” is a broad concept that encompasses a considerable number of distinct dimensions.

According to Kindström, Kowalkowski and Sandberg (2013), organisations that aim to manage the complexities associated with service innovation and take complete advantage of the service innovation benefits must attend to the wide range of components related to service delivery. This implies that service innovation is perceived as a multi-dimensional, taking service innovation design and implementation into account. Brown and Osbourne (2013) defined service innovation as “The intentional introduction and application within a role, group or organisation of ideas, processes, products or procedures, new to the relevant unit of adoption, designed to meaningfully benefit the individual, the group organisation or wider society”; Fernandes, Ferreira and Raposo (2013) defined service innovation as the mechanism by which organisations design and launch new products or services, processes and systems necessary to meeting changes both in market. Kuo, Kuo and Ho (2014) defined service innovation as “a new way of business thinking to reform relatively conservative and inflexible operational procedures and processes, which can transform organisations to better meet the needs of their markets”.

When the above definitions of service innovation are taken into consideration, it implies that innovations that are only new to the organisation and not to the market (customers) should not be considered as innovations. However, it should not be ignored that the benefits of innovations for developing organisations are measured in economic value; although this has changed in recent definitions. Lusch and Nambisan (2015) pointed out that some researchers consider service innovation as an outcome or change instead of defining the value from a customer perspective. For the purpose of this study, service innovation will be defined as follows: Service innovation refers to new idea generation and implementation of intentional incremental innovations that are new to the market which include new processes, new products or service on the existing services, new procedures, designed to benefit the customers, the organisation, and other stakeholders.

### 2.3 The complexity adaptive theory

According to Levin (1999), the key fundamental inferences arising from the theory of complexity is that order naturally occurs in systems, no matter how simple, complex, non-linear or chaotic the system is. This theory involves choosing the area(s) of competition; setting strategic performance aspirations; or setting the strategic stance in the market, for example; competition strategy being the first mover and fast follower. The new management logic also requires internal processes that facilitate all kinds of emergent processes as self-generated sources of dissipative energy such as improvisation, product or service champions and emergent strategies. In addition, the new management logic requires openness to bottom-up processes and acceptance of effective equational outcomes. In this paper it is argued that managers' perceptions of the implementation of service innovation practices or activities of service organisations can be explored by also taking the business environmental factors that influence the relationship between service innovation practices and business performance into account. This paper supports the theory of complexity by arguing that the complex and dynamic nature of the business environment presents opportunities and threats. However, service organisations are required to evaluate environmental effects differently to make effective sense of the information provided by environment. The argument in this paper is that some environmental factors, such as environmental dynamism and environmental competitiveness, can promote the development and implementation of service innovation activities, while some of these environmental factors may obstruct the effective implementation of service innovation activities and the benefits of service innovation.

## 3. RESEARCH METHODOLOGY

The principles of systematic review suggested by Jesson, Matheson and Lacey (2011) include mapping the field through a scoping review; a comprehensive search; quality assessment; extraction of data; synthesis and writing-up. In this paper, the researcher started by developing a research plan with a research purpose, research questions, relevant keywords; and developing inclusion and exclusion criteria. The purpose of the paper was to review literature to determine key variables for developing a conceptual model that can be used to determine the influence of service innovation on business performance and the influence of environmental factors between the preceding variables. Articles were selected if their abstracts contained the keyword "service innovation"; "business performance", "environmental competitiveness" and "environmental dynamism" Inclusion and exclusion criteria were outlined: articles published in the period 2010 to 31 May 2023, peer-reviewed academic articles published in English and available on the google scholar. The search was undertaken from 5 October to 31 May 2023, and the review of articles was conducted by reading and identifying variables investigated and summarising the main results. The researcher first read through the abstracts to verify if the pre-defined criteria had been adhered to. Following this procedure, articles were selected and the researcher categorised the results of the studies according to themes which assisted the researcher in developing the definition of service innovation and measures of service innovation where the literature indicates limited knowledge.

### 3.1 Measuring the influence of service innovation on business performance

Innovation in organisations is viewed to be key ingredient in organisational competitiveness and survival. Sethibe and Steyn (2017) argued that to achieve successful innovation, innovation performance should be measured accurately. Shin, Sung, Choi and Kim (2015) share the same view. They all emphasise that there are several methods for measuring organisational performance and classify these methods into two main categories, namely financial and non-financial performance measurement. Sethibe and Steyn (2017) argue that to measure the financial aspects of organisational performance, researchers could use either accounting-based measures such as profit growth or maximisation, sales growth, return on assets (ROA), return on sales (ROS), return on equity (ROE) and/or ROI; or stock market measures, profit growth or maximisation, growth and non-financial measures include customer satisfaction and retention, market share, competitiveness, reputation, branding and quality. Despite the limitations of financial business performance measures, profit growth or maximisation remains one of the key measures of business performance (Sethibe & Steyn, 2017). Some researchers (e.g. Grisseemann, Plank & Brunner-Sperdin, 2013; Chen et al., 2017) emphasise that innovation brings service innovation within organisations, which leads to improved business performance. In this paper financial and non-financial performance are explored as measures which can be used to determine the influence of service innovation on business performance.

The next sub-sections provide a discussion on previous literature about the relationship between variables that are used to develop hypotheses that can be tested to measure the influence of service innovation on the business performance of organisations, particularly service organisations.

### 3.2 Service innovation and business performance

In this paper three constructs are identified that can be used to measure business performance, namely financial performance (profit growth/maximisation), organisational competitiveness, and organisational reputation. A brief discussion will be provided on the influence of innovation practices on the constructs leading to the development of hypotheses to be tested in the current study.

### 3.3 Innovation and financial performance

The relationship between the constructs “service innovation” and “financial performance” (profit growth) is presented in table 1 and subsequently discussed.

**Table 1.** The relationship between the constructs service innovation and financial performance

Proposed relationship	Authors
Service innovation H1 Financial performance (profit growth)	Al-Ansari et al., 2013, p.166 Dekoulou & Trivellas, 2017 Bigliardi, 2013 Likar et al., 2014

Al-Ansari et al. (2013) conceptualised business performances as the measures that determine how well an organisation manages its internal resources and adapts its external business environment into financial performance which can take the form of increased sales, profit, stock market shares, return on equity and non-financial performance measures such as reputation, competitiveness, branding and quality. The financial measures refer to objective measures such as profit growth, the average sales revenue and market share. Previous studies confirmed the positive influence of innovation on the financial performance of organisations (Bigliardi, 2013; Al-Ansari et al., 2013; Dekoulou & Trivellas, 2017; Makgopa, 2020). Dekoulou and Trivellas (2017) revealed that innovation has a direct influence on customer value; which, in turn, has a positive impact on financial performance. However, Likar et al. (2014) uncovered that the effect of innovation on business performance varied among organisations due to the different positions of organisations in the market. Hristov and Reynolds (2015) revealed that retailers use financial measures such as sales and time-related market share, profit margins and a number of product ranges to measure innovation performances. In another study, Muhamad et al. (2023) argued that innovative work behaviour and organisational commitment contribute towards successful business performance such as increased sales, profits, satisfaction, market share, high productivity, employee loyalty, and low employee turnover. With the mixed findings in the preceding studies taken into account and different authors’ perspective on the impact of innovation in organisations, the question was asked: Does service innovation practices or activities have the same or different influence on financial performance of service organisations? Based on this question, the hypothesis depicted in figure 1 was tested in this study:

*H1: Service innovation practices have a significant positive influence on financial performance (profit growth) of service organisations.*

### 3.4 Innovation and organisational competitiveness

The proposed relationship between the constructs “service innovation” and “financial performance” is presented in table 3 and subsequently discussed.

**Table 2.** The relationship between service innovation and organisational competitiveness

Proposed relationship	Authors
Service innovation H2 Organisational competitiveness	Ferreira, Fernandes & Ratten, 2017 Prajogo, 2016 Bellini et al., 2016

Innovation is accepted as a critical source of competitive advantage; and retail organisations are looking for innovations that can increase their competitiveness (Bellini et al., 2016). Ferreira, Fernandes and Ratten (2017) confirmed that innovation has a positive impact on an organisation's competitiveness; and they further uncovered that the entrepreneur profile proves to be critical to the growth of an organisation, since it triggers entrepreneurial activities and innovativeness. In another study, Prajogo (2016), who affirmed the positive influence of innovation on business performance (competitiveness), also argued that a strategic fit between organisational strategy and the business environment in which the organisation operates is necessary to realise this relationship. Farida and Setiawan (2022) examined and discovered the existence of the positive impact of innovative business strategies on the competitive advantages in small and medium enterprises (SMEs). Considering the findings of the mentioned studies, the question was asked: Does service innovation have a positive influence on the business performance (competitiveness) of service organisations? Based on this question, the hypothesis depicted in Figure 1 was tested in this study:

*H2: Service innovation practices have a significant positive impact on the business performance (organisational competitiveness) of service organisations.*

### 3.5 Innovation and organisational reputation

The relationship between the constructs "service innovation" and "organisational reputation" is presented in table 3 and subsequently discussed.

**Table 3.** Relationship between the constructs service innovation and organisational reputation

Proposed relationship	Authors
Service innovation H3 Organisational reputation	Ferreira et al., 2017 Dekoulou & Trivellas, 2017 Sethibe & Steyn, 2016 Prajogo, 2016 Bigliardi, 2013

Innovation is considered to be the key driver of business performance in terms of profit maximisation, organisational reputation image and the competitive advantage of the organisation on the basis of delivering customer value, providing customer satisfaction and customer loyalty (Ferreira et al., 2017; Dekoulou & Trivellas, 2017; Sethibe & Steyn, 2016; Prajogo, 2016; Bigliardi, 2013). Tehseen and Sajilan (2016, p.32) alluded to organisational reputation, which is an asset in today's highly competitive retail business which needs to be nurtured and maintained over time to achieve competitive advantage in the market. Hristov and Reynolds (2015) uncovered that retailers use non-financial measures such as customer insight, brand track and store image to measure innovation performances. Sethibe and Steyn (2017, p. 4) affirmed that an increase in market share, reputation image, branding, customer satisfaction and increased productivity are the most popular non-financial-based measures of organisational performance. With the findings of the preceding studies and the impact of innovation on the reputation of organisations taken into account, the question that was asked is: How does service innovation have the positive or contrasting impact on the reputation of service organisations? Based on the above question, the following hypothesis was developed and tested in the current study:

*H3: Service innovation practices has a positive influence on service organisations' organisational reputation.*

### 3.6 Moderating role of business environmental factors

In the current study, two environmental constructs are used to determine their moderating role in the relationship between service innovation practices and the business performance of service organisations. Therefore, the next subsection presents a discussion derived from previous literature on the moderating role of these constructs leading to the development of two hypotheses tested in the current study.

### 3.7 Moderating role of environmental dynamism and environmental competitiveness

The proposed moderating role of environmental dynamism and environmental competitiveness in the relationship between the constructs "service innovation" and "organisational performance" is presented in table 4 and subsequently discussed.

**Table 4.** The moderating role of environmental factors (environmental dynamism and environmental competitiveness)

Proposed relationship	Authors
Service innovation H4 Environmental competitiveness organisational performance	Prajogo, 2016, p.242. Omri, 2015, p.200.
Service innovation H5 Environmental dynamism organisational performance	Perez-Luño, Gopalakrishnan & Cabrera, 2014, p.500.

Prajogo (2016) revealed that managers should seek to maintain a match between the innovation strategies of organisations and the conditions of their environment, such as environmental dynamism and environmental competitiveness, since these factors in the external environment can moderate the relationship between the innovation strategies and performance of organisations. Omri (2015, p. 200) pointed out that organisational performance does not only depend on innovation strategy, but also on environmental conditions, such as environmental dynamism and environmental competitiveness. Environmental dynamism involves the level of volatility or instability and uncertainty due to continuous changes in a business environment in which the organisation operates and environmental competitiveness refers to the intensity of competition in the business environment in which the organisation operates which is characterised by price wars, tight profit margins and tight cash flows brought by strong competitors (Prajogo, 2016, p. 242). Omri (2015, p. 201) revealed that environmental dynamism has a negative interacting effect on innovation output and organisational business performance.

In another study, Perez-Luño, Gopalakrishnan and Cabrera (2014) postulated that the environmental dynamism and competitive business environments push organisations to initiate innovations in their main businesses; and this environmental dynamism has been proven to have a more significant influence on innovation, considering that quick change and uncertainty require rapid organisational response and adaptation which can be addressed by innovation. With the findings of the preceding studies on the impact of environmental factors in the relationship between innovation activities (product and process innovation) on the business performance in organisations taken into account, the following question was asked: Do business environmental factors (environmental dynamism and environmental competitiveness) influence the relationship between service innovation practices and business performance of service organisations? Based on the above question, the following hypotheses were developed and tested in the current study:

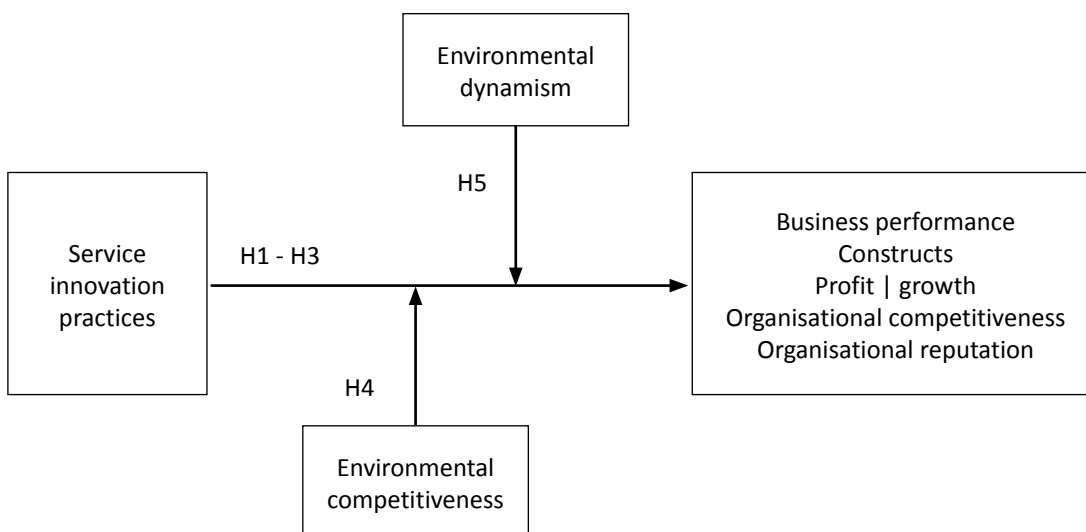
*H4: Environmental competitiveness moderates the relationship between service innovation practices and business performance such that the higher the environmental competitiveness the weaker the relationship between service innovation practices and business performance of service organisations.*

*H5: Environmental dynamism moderates the relationship between service innovation practices and business performance such that the higher the environmental dynamism the stronger the relationship between service innovation and business performance of service organisations.*

The next section provides a literature theoretical model derived from the literature.

### 3.8 Literature conceptual model development

Figure 1 on the next page illustrates the literature conceptual model in that it shows all the variables used for hypotheses development. There are six research variables, namely, service innovation (practices), business performance (profit growth, competitiveness, and organisational reputation) and environmental factors (environmental competitiveness and environmental dynamism) which can be used in hypotheses testing to address the research question: to determine the influence of service innovation practices on business performance (profit growth, organisational competitiveness, and organisational reputation) of service organisations. Therefore, service innovation practices are considered to be a predictor variable and business performance (financial performance, organisational competitiveness, and organisational reputation) are dependent variables to address second research objective, namely, to examine the role of environmental dynamism and environmental competitiveness as factors that affect service innovation practices in delivering business performance of service organisations. Thus, environmental competitiveness and environmental dynamism can be used as mediating or moderating variables.

**Figure 1.** Variables and constructs

#### 4. DISCUSSIONS AND CONCLUSIONS

As discussed in the preceding section, previous studies argued that organisations that consider the adoption and implementation of service innovation, which is highly valued by customers, tend to have high organisation competitiveness, organisational reputation and maximise profitability (Dekoulou & Trivellas 2017; Al-Ansari et al., 2013; Bigliardi, 2013). Dekoulou and Trivellas (2017) uncovered that innovation has a direct influence on customer value; and, therefore, has a positive influence on financial performance. However, Likar et al. (2014) uncovered that the effect of innovation on business performance can differ among organisations due to the different positions of organisations in the market. This paper argues that by increase innovative activities service organisations can improve service innovation that brings more value for customers, achieving higher business performance (financial and non-financial business performance). In addition, this paper argues that the influence of service innovation on business performance tend to be moderated by environmental dynamism and environmental competitiveness. Prajogo (2016) revealed that managers should strive to maintain a match between the innovation strategies of organisations and the conditions of their environment, such as environmental dynamism and environmental competitiveness, since these factors in the external environment can moderate the relationship between the innovation strategies of organisations and their performance. In another previous study, P´erez-Lu˜no et al. (2014) postulated that the environmental dynamism and competitive business environments push organisations to initiate innovations in their main businesses, and environmental dynamism has been proven to have a more significant influence on innovation.

#### 5. MANAGERIAL IMPLICATIONS

This paper on service innovation contributes to understanding what a service innovation is. Secondly, it assists managers of service organisations in measuring the influence of service innovation on business performance, emphasising the importance of the moderating role of the environmental factors of the mentioned variables, particularly environmental dynamism and environmental competitiveness. Sharing a general view of service innovation in this paper contributes to theory building on the concept and research to use service innovation in a practical way without ignoring the environmental factors in which service organisations operate.

#### 6. LIMITATIONS AND FUTURE RESEARCH DIRECTIONS

The current paper has certain limitations. Like other literature reviews in marketing and service management, the study included papers published in academic journals and excluded books and conference papers that could have been relevant. In addition, the study only included research on innovation, service innovation, business performance, environmental competitiveness and environmental dynamism, using our selected search terms in the title, abstract, or keywords. In

particular, this limitation could affect the sample of articles used to arrive at the conclusion of this paper. The literature on innovation might use other related terms, particularly on environmental factors, such studies as environmental instability and market competitiveness, are not included; the paper instead focused solely on articles that define the concept of service innovation. As a result, many articles that do not explicitly define service innovation are not included. In order to advance understanding of service innovation, further research should address these identified shortcomings.

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## PREMA KONCEPTUALNOM MODELU MJERENJA UTJECAJA INOVACIJE USLUGA NA POSLOVNI UČINAK<sup>2</sup>

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### SAŽETAK

Svrha ovog rada je razviti konceptualni model kojeg je moguće koristiti za mjerenje utjecaja inovacije usluga na poslovni učinak. Teorija adaptivne složenosti usvojena je kao sveobuhvatni teorijski fokus u ovom radu. Kako bi se postigao cilj istraživanja u radu, proveden je pregled literature prethodnih studija o utjecaju inovacije usluga na uspješnost poslovanja za razdoblje od 2010. do 2023. godine. U ovom se radu tvrdi da se ne smije zanemariti utjecaj okolišnih čimbenika na odnos između inovacije usluga i poslovne uspješnosti. U radu su prikazani budući smjerovi istraživanja.

**KLJUČNE RIJEČI:** poslovni učinak, usluge, inovacija usluga, organizacija usluga, menadžment inovacija

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