

Personal Financial Management: Digital Age as Moderating variable Consumptive Behavior of Indonesian Sandwich Generation

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Abstract. In the era of digital financial products, the sandwich generation needs to practice good financial management. This fully digital era makes it easy to buy on every transaction and even search on digital platforms if needed. It's jam-packed with both cashless and cardless electronic payment transactions, with discounts on every transaction. This leads to an increase in the percentage of consumer behavior among productive generations, millennials and Gen Z. This study analysis using SmartPLS 3 software was conducted to provide appropriate personal financial management based on personal income and financial planning using in the digital age as a moderating variable for the sandwich generation on their consumptive behavior. Our results show that the types of moderating effects of personal income & digital age on consumptive behavior act as predictor moderation, whereas the type of moderating effect of financial management & digital age on consumptive behavior act as quasi-moderation. The practical implication of the results of the study is consumption behavior carried out by the sandwich generation supported by the digital era can have a significant impact if rarely get used to financial planning even with high personal income.

Keywords – Financial Planning; Personal Income; Consumptive Behavior; Sandwich Generation

I. INTRODUCTION

Financial success is an aim that current millennials and generation Z aspire to achieve [1], This is also the hope of the Sandwich Generation, the adult generation responsible for caregiving for three generations at once, his parents, himself and their children [2][3]. The study of personal financial management aims to overcome the difficulties of financial management by the personal income of the sandwich generation, create a financial plan suitable for individual assets, and ensure good financial security and early retirement [4] to minimize the existence of next-generation sandwiches. To implement issues related to financial management, one must consider how to develop good spending habits and have a good idea of money by focusing on investments and the money that serves them [5].

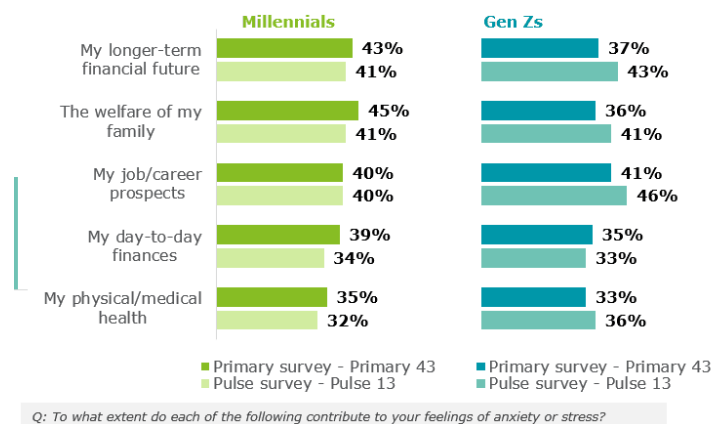


Figure 1. The Generations Feelings of Anxiety or Stress. Graphs From The 2020 Deolitte Millennials Survei

The survey results in **Figure 1** were conducted on millennials in 43 countries and generation Z in 20 countries, showing the results of concerns about their personal financial situation if they are in a situation similar to the covid outbreak again and find it difficult to recover their finances. In the following survey, it was discovered that few people experienced these difficulties because they were used to saving in combination, and the stress levels of the two generations also decreased [6]. According to the OCBC Financial Fitness Index in 2021 [7], the digital generation in Indonesia has lower financial literacy than the general population, ranking 37.72 out of 100 total scores, much lower

than Singapore's position last year at 61. **Figure 2.** The proportion of Z generation and Millennial generation in Indonesia based on data [8] the results of the 2020 population census show that the Z generation accounts for 27.94% or 74.93 million of the total estimated population, indicating that all of these generations are productive generations, while the sandwich generation accounts for 25.87% or 69.38 million.

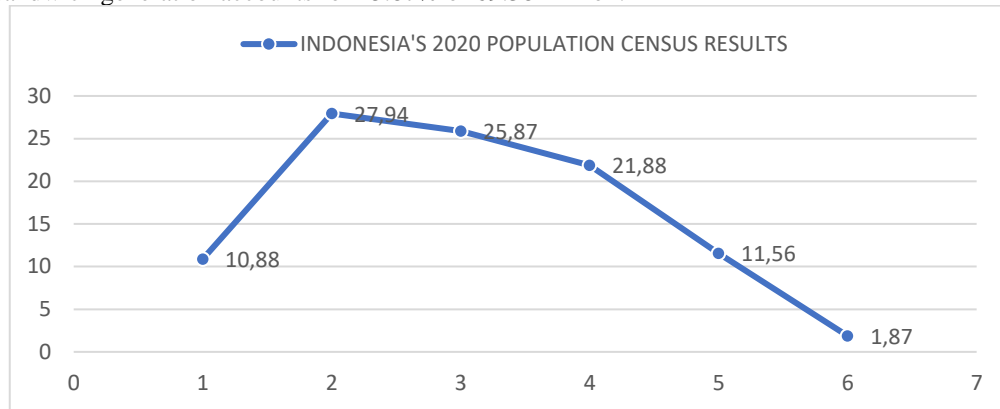


Figure 2. Indonesia Population Census Results. From Statistics Indonesia

Based on the most recent, the current sandwich generation consists of the millennial and z generations [9]The characteristics described in the profile present demographics, technology access, role, and participation in economic, social, and political fields. This phenomenon has existed since the 1990s, particularly in the female gender[10][11] and it satisfies the needs of two generations at the same time. Personal income across generations demonstrates that having low skills also has an impact on earning low income [12] When an individual's income is low but their expenditures are not well conceptualized in terms of revenues and expenses [13], they do not have a good financial plan. Personal financial management can also be seen in how they choose investment products based on their income and financial literacy [14], by selecting investments with moderate risk, making this a good step in dealing with the sandwich generation problem.

Planning to manage finances [15] is important to do as early as possible in the current economic development. Planning entails making decisions about investing[16], saving, and debt. The development of digital services[17], particularly in the economic field, as well as an increase in the price of goods, imply that there is accuracy in financial management. Based on research conducted by [18] financial planning is one of the tools for determining and self-evaluating the choices that have become decisions, designing the right strategies, and putting them into action in order to achieve financial goals. Poverty and income, basic needs and health, and the environment are all linked in the context of poverty reduction [19].

Consumption ideology is conceptualized by merging systemic viewpoints, social groupings, and social realities as beliefs, wants, and ambitions exhibited in consumer behavior [20]. Based on research from [21] there has been a decline in overall consumption during the Covid-19 pandemic, but there has been a significant increase in the sale of luxury brand product. Similarly, the fast fashion industry has its own characteristics like high volatility, short cycles, low pricing, and impulsive consumer decisions [22] discusses the consumption needs of the millennial generation by adopting the theory of planned behavior because this generation is the generation with the largest consumption of fast fashion. [23] Highlighting generation z's lifestyle continuance choices based on limitless exposure to social media and internet information sources shared, being aware of ethical issues prevalent in society and doing what they can at this stage of life to make a positive impact, reducing consumption of clothing and choosing recycling out of awareness and a strong desire for ethical and environmental issues. However, the act of buying hedonic products is carried out because it is a form of revenge as well as a form of compensation with policies that are prohibited or limited during a pandemic [24].

Table 1. Evaluations of previous Personal Financial Framework

Framework	Author(s) (Year)	Covered
Personal Financial Management Method and Investment Strategies Based on The Concept of Quantitative Thinking.	Xuemei (2021)	Analysis of problems regarding the investment process and personal financial management.
Investment Decision Judging From Personal Income, Financial Literacy and Demographic Factors.	Rita Tri (2021)	Research in Tasikmalaya, Indonesia. Find out the behavior taken in determining family investment from personal income.

Investment Interest and Consumptive Behavior of Student Investor : Between Rationality and Irrationality	Jandi (2019)	Research among students in North Sulawesi, Indonesia. About Investment trends and Consumptive Behavior.
The Need to Promote Digital Financial Literacy for The Digital Age	Peter J (2019)	Digital financial literacy is becoming an increasingly important aspect education for the Digital Age. That individuals will become more responsible for their own financial planning, including to retire.

Table 1. describes the findings of the Personal Financial Management research on the generation sandwich. The study [25][26][27][28] as a results, there is hope in the cross-generational research to obtain an explanation of financial success by describing the proper personal financial management for the sandwich generation with digital use that has been adapted to the Indonesian culture. According to the research by Solarzh and Swacha [29] digital financial product services, consumers can make online payments, transfer funds, and also loan applications to purchase insurance policies and stock investment management with various types of consumer behavior that are conscious, unconscious, and even refuse to be made aware of their consumption behavior [30]. However, Y.K Lee [31] found that the impact of digital technology on the technostress sub-dimensional is negatively related to the intention to use financial technology and research by R.Nathan [32] found that financial literacy has a negative impact on financial technology, implying that they perceive financial technology as a non-essential tool for transactions but are strong in traditional tools. Because the consumer's deliberate behavior becomes the first use of the application on their mobile device [33]. We, therefore, posit the following our hypothesis:

H1. Personal Income has a direct effect on Consumptive Behavior

H2. Personal Financial Planning has a direct effect on Consumptive Behavior

H3. The Digital Age affect the size of the role of Personal Income on Consumptive Behavior

H4. The Digital Age affect the size of the role of Personal Financial Planning on Consumptive Behavior.

Personal financial management, with accuracy in determining scale priority, is self-control and financial success realization. [34] explain how important it is for every individual to have proper financial planning and strategy. The sandwich generation, in particular, faces complex challenges as they attempt to support three generations at the same time. In research conducted by [35] the sandwich generation has difficulty managing personal finances; however, this can be overcome by increasing financial literacy and religiosity, which aims to demonstrate shopping behavior and how to use money appropriately.

II. METHODS

2.1 Data Collection

The philosophy of positivism that underlies the quantitative research approach, where this study emphasizes the approach to objective phenomena, is then studied using quantitative methods such as a quantitative descriptive study that seeks to describe a social phenomenon and collecting data using random samples and statistical analysis [36]. Between the independent variable and the dependent variable, there is a relationship that allows it to be influenced by other variables, such as moderating variables that can strengthen or weaken the relationship between the independent variable and the dependent variable [37]. Working-age in Sidoarjo City, East Java, Indonesia is one of the sample's characteristics.

2.2 Survey Development

The measurement of Personal Financial Management the sandwich generation by the consumptive behavior were measured using a four-point likert scale with ranked as (1 = Every Time, 2 = Often, 3 = Rarely, and 4 = Never). However Digital Age and Consumptive Behavior were measured by some adopted measuring items. Using a Four-point likert scale with ranked as (1 = Never, 2 = Rarely, 3 = Often, and 4 = Every Time). This Study have a collect data take simple random samples with questionnaire starts on October 15, 2022 until January 15, 2023, were distribute via online-based survey google form. A survey approach was utilized and distributed to the target participant that designed based on the previous measurement large used in the relevant literature of the sandwich generation and a total of 100 responses were involved for further analysis.

2.3 Data Analysis

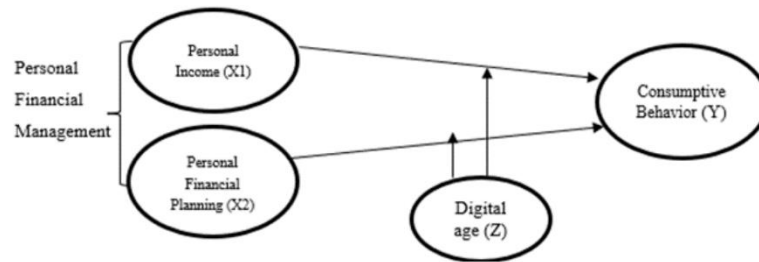


Figure 3 . Conceptual Framework

Moderated regression analysis (MRA) testing hypothesis estimated moderation using SEM-PLS (SmartPLS 3). Moderation analysis has the main objective of testing the differential effect between the "independent variable and the variable determined as a moderator function"[38]. Then analysis Figure 3. of moderation this For testing Digital Age as variable moderator connection among personal financial management generation of sandwiches as Income and Planning is called the dependent variable in behavior consumptive as independent variable. According Solimun, Mathematical models moderating variables and interaction with type moderating classification on table 2 of hypothesis Figure 3 between variables is as follows [39]:

$$Y = b_0 + b_1X_1 + b_2X_2 + b_3Z + e$$

$$Y = b_0 + b_1X_1 + b_2Z + b_3X_1*Z + e$$

$$Y = b_0 + b_1X_2 + b_2Z + b_3X_2*Z + e$$

Testing of the moderating effect can be done as see from the significance of the coefficient b_3 from the interaction of independent variables and moderating variables.

Table 2 : Type of Moderating Clasification

Type Moderating	Coefficient
Absolute Moderation	<i>b1 and b2 not significant b3 significant</i>
Pure Moderation	<i>b2 not significant b3 significant</i>
Quasi Moderation	<i>b2 significant b3 significant</i>
Homologiser Moderation	<i>b2 not significant b3 not significant</i>
Predictor Moderation	<i>b2 significant b3 not significant</i>

Table 3. above is a guide to the structure of the research questionnaire for personal financial management of generation sandwich with digital age as moderating variable consumptive behavior has research indicator of four variables with questionnaire item and major reference.

Table 3 : Research Questionnaire Structure Guide

Variable	Item Questionnaire	Major Reference
Personal Income	<ul style="list-style-type: none"> Monthly Fixed Income Profession Financial burden for families 	J.Chen [2022]
Personal Financial Planning	<ul style="list-style-type: none"> Awareness Perspective Preferences Risk Perception 	Ningrum [2021]
Digital Age	<ul style="list-style-type: none"> Digital Acces & Usage Mobile money or other digital financial transaction 	Lyons [2021]
Consumptive Behavior	<ul style="list-style-type: none"> Intention The purpose of using Shopping frequency 	Giandi [2020]

III. RESULTS AND DISCUSSION

3.1 The Respondents Answer

Table 4. The Results of The Respondents Answer

Items	The Answers	Percentage of Answer
Gender	Male	27%
	Female	73%
Age	1981 - 1996	60%
	1997 - 2005	41%
Variant of Family Burden Conditions	Single, With Parents and Sibling or Grandparents	31%
	Single, With Parents, Siblings and Grandparents	29%
Profession	Married, With a Family and Parents	25%
	Married, With a Family, Parents and Sibling or Grandparents	15%
Fixed Income	Students have a Job	21%
	Worker	17%
	Worker and have a business	46%
	Entrepreneur	16%
Fixed Income	± IDR 2.000.000 IDR	28%
	IDR 3.000.000 – IDR 5.000.000	36%
	IDR 6.000.000 – IDR 10.000.000	22%
	≥ IDR 10.000.000	14%

From the data based on table 4. It can be seen the 100 respondents indicated sandwich generation by the collect data online-based survey shows the characteristic of the respondents based on Gender, Age, Variant of Family Burden Conditions, Profession and Fixed Income of the Respondents dominated Female percentage of 73% and 27% Males for gender. Then the Age of Respondents for the millennial generation percentage of 60% and 41% for the Z generation. The majority of Family burden conditions the respondent with a percentage of 31% are Single with parents and siblings or grandparents, as many as 29% respondent are single with parents, siblings and grandparents, the respondent as Married with a Family and Parents percentage of 25%, a total 15% respondent are married with a family, parents and siblings or grandparents.

From the data based on table 3. The next characteristic profession of respondent as students have a job with a percentage of 21%, dominated as a worker and have a business percentage of 46% meanwhile a worker percentage of 17% and then as Entrepreneur percentage of 16%. Based on the characteristic of Fixed Income dominated IDR 3.000.000 – IDR 5.000.000 percentage of 36%, ± IDR 2.000.000 percentage of 28% and IDR 6.000.000 – IDR 10.000.000 percentage of 22 %, the last fixed income for the characteristic ≥ IDR 10.000.000 with a percentage of 14%.

"I will buy a product if it is accompanied by a discount and a certain bonus"

■ Never ■ Rarely ■ Often ■ Every Time

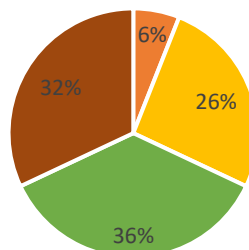


Figure 4. The key findings of answering the questionnaire about the consumptive behavior

The results based on Figure 4. Respondents choose to buy a product at Every Time if it's accompanied by certain discounts and bonuses, a percentage of 32%. As many as 36% of the respondents prefer to buy a product often if it is accompanied certain discounts and bonuses. A Percentage of 26% choose to rarely buy a product if it is accompanied by certain discounts and bonuses. And the last respondent chooses never to buy a product based on certain discounts and bonuses with a percentage of 6%.

"I purchase products or services on a digital platform. (shopee, tokopedia, lazada etc.)"

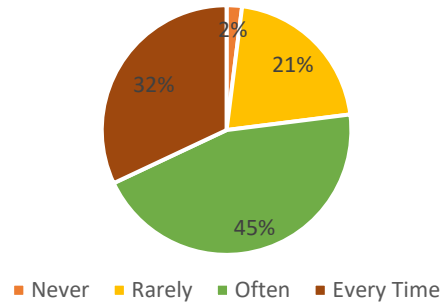


Figure 5. The key findings of answering the questionnaire about the Digital Age

The questionnaire about the digital age is based on figure 5. The respondents every time do purchase a product or service on a digital platform percentage of 32%. Often do purchase products or services on a digital platform percentage of 45% of respondents. Meanwhile, 21% of respondents rarely do purchase a product or service on a digital platform. Only 2% of respondent never do purchase a product or service on a digital platform.

Results of personal financial management are based on figure 6. Respondents never prepared a budget with a percentage of 28%. As many as 37% of respondents rarely make a budget. 25% of respondents often prepared a budget and only 10% of respondents every time make a budget.

"I do the preparation of expenditure budget (daily, monthly or yearly)"

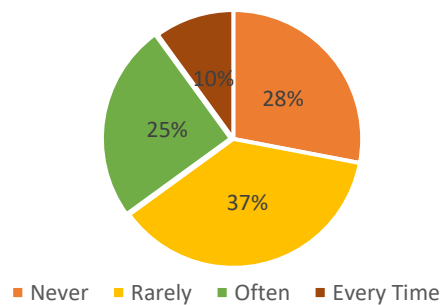


Figure 6. The key findings of answering the questionnaire about the Personal Financial Planning

3.2 Validity Test

Convergent validity test. Based on the data below, it can be seen that the AVE values of all variables are greater than 0.5, thus, it can be concluded that this study has fulfilled the convergent validity requirements. This research model had good accuracy and precision, so that the convergent validity is fulfilled.

Table 4. The results of variable convergent validity test

Variables	Average Variance Extracted (AVE)	Conclusion
Consumptive Behaviour	0,682	VALID
Digital Age	0,625	VALID
Financial Planning	0,638	VALID

Moderating Effect 1 DA*PI	1,000	VALID
Moderating Effect 2 DA*FP	1,000	VALID
Personal Income	0,716	VALID

Reliability and Cronbach's Alpha Test

Composite and Cronbach's alpha reliability. Based on the table below, all variables have composite reliability values of greater than 0.8, thus, it can be concluded that all variables are reliable. And then it can be seen that all variables have Cronbach's Alpha values which are greater than 0.8, it can be concluded that all variables are reliable.

Table 5. Composite and Cronbach's alpha reliability test

Variables	Composite Reliability	Cronbach's Alpha	Conclusion
Consumptive Behavior	0,915	0,883	Reliable
Digital Age	0,893	0,850	Reliable
Financial Planning	0,925	0,905	Reliable
Moderating Effect 1 DA*PI	1,000	1,000	Reliable
Moderating Effect 2 DA*FP	1,000	1,000	Reliable
Personal Income	0,801	0,801	Reliable

Determination coefficient. Based on the table 6, it can be seen the R-square of variable consumptive behaviour is 0.582 also means that 58,2% is explained by the model.

Table 6. Effect size for path coefficient

Variables	R Square	R Square Adjusted
Consumptive Behavior	0,582	0,560

The goodness of fit evaluation. Marko [44] interprets the GoF value of 0.1 for small GoF, 0,25 for medium GoF and 0.36 for large GoF value. Based on the calculation 0,672 is value the GoF. The Value is greater than 0.36, it is included in the large GoF category. It is fit and feasible to use. The value is obtained from the average AVE value.

$$\begin{aligned}
 GoF &= \sqrt{AVE \times R^2} \\
 &= \sqrt{0,777 \times 0,582} \\
 GoF &= 0,672
 \end{aligned}$$

3.3 Hypothesis test

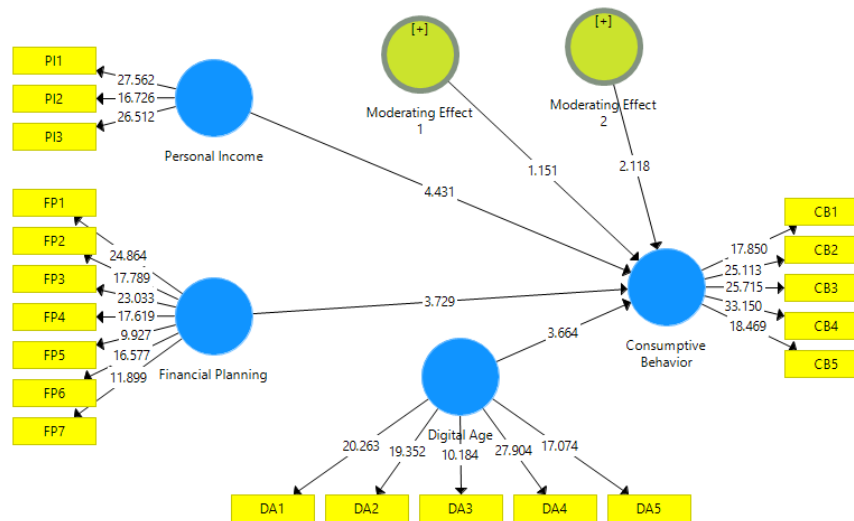


Figure 7. Hypothesis test

Direct effect test. Based data on table 7, it can be seen that the P values of Personal Income, Financial Planning, Digital Age and moderation effect 2 DA*FP of Consumptive Behavior are less than 0.05. Thus, it can be concluded that have impact on consumptive behavior. However, the P values of moderation effect 1 DA*PI of consumptive behavior are greater than 0.05. Thus, it can be concluded that have no impact on consumptive behavior.

Table 7. The results of output path coefficient direct effect test

Variables	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (O/STDEV)	P Values
Digital Age -> Consumptive Behavior	0,283	0,289	0,077	3,664	0,000
Financial Planning -> Consumptive Behavior	-0,260	-0,261	0,070	3,729	0,000
Moderating Effect 1 -> DA*PI Consumptive Behavior	0,095	0,097	0,083	1,151	0,250
Moderating Effect 2 -> DA*FP Consumptive Behavior	0,125	0,124	0,059	2,118	0,035
Personal Income -> Consumptive Behavior	0,412	0,405	0,093	4,431	0,000

Result of moderation test. The data on table 8, shows the types of moderating effect of personal income & digital age on consumptive behavior acts as predictor moderation. However, the types of moderating effect of financial management & digital age on consumptive behavior acts as quasi moderation.

Table 8. The result of moderation test

Variables	Effect of Moderating Variables	Moderating Effects	Conclusion
Moderating Effect 1 -> Consumptive Behavior (Personal Income*Digital Age)	Significant	Significant	Predictor Moderation
Moderating Effect 2 -> Consumptive Behavior (Financial Planning*Digital Age)	Significant	Insignificant	Quasi Moderation

In this study, we explore the consumer behavior of the sandwich generation which is burdened by more than one generation, both married and single, from budgeting arrangements and income earned. The results obtained from this study describe that Indonesian people in the sandwich generation live in Sidoarjo with an average income of 36% in the range of IDR 3.000.000 – IDR 5.000.000 in a month related to city minimum wage [45] is more than IDR 4.000.000 with a combination of having a profession as an employee and having a side business such as MSMEs [46][47] due to caring for two generations simultaneously in a family. This generation's consumption behavior is supported by technological advancements for marketplaces on existing online sites, such as increasing payment diversity and discounts. It can be seen that 2% of respondents did not use online sites, and 6% did not shop despite being offered a discount on a product [48].

The results given by respondents have financial planning with a percentage of 10%. Financial management [49] particularly budgeting for the sandwich generation, is something that must be done in addition to personal income received with existing family burdens, as the influence of social media technology and influencers [50] who promote a product or service for a generation that is closely related to digital technology causes existing expenses to be larger and out of control. If this occurs, and it is discovered that the generation lacks an understanding of debt management, the consumption lifestyle will result in a disparity in their income. The decision to save and invest [51] for financial freedom remains low in the sandwich generation, owing to the relatively low income with complex expenses, as well as a lack of financial literacy, which makes the decision to invest unimportant to this generation.

Based on the **(H1)** Personal Income and Digital Age variable have a positive significant with the consumptive behavior of the sandwich generation. Similar to findings as observed in the study by J. Wang [52] going deeper, the demand for goods such as housing, utilities, and transportation, is greater among the rich due to their income elasticity, for carbon dense goods with increased income with their high spending resulting in a widening of the HCEs gap between poor and rich individuals. [53] based on their clothing, accessories and social media pages people observe how they choose to spend money, but fundamentally many financial decisions are not observable (e.g. how people handle debt, taxes, and retirement planning). About other people's financial decision making processes in family relationships influences a variety of behaviors, including spending habits, decision about the financial structure of bank accounts and finances. Results of our research are in line with this study, showing that **(H2)** personal financial planning of the sandwich generation has a negative significant with the consumptive behavior.

The results of research Gubangco et al. [54] unemployment and increasing prices in the market can affect the behavior of consumption because they don't have income, this is one reason for deciding to make loans through applications and ultimately tends to make adjustments to their consumption, our research proves that **(H3)** Digital age as moderation of personal income does not moderate for the consumptive behavior of the sandwich generation. However **(H4)** digital age as moderation of financial planning the sandwich generation as a quasi moderation for the consumptive behavior. Similarly the result of empirical studies conducted by M. Hasan [55] the overall economy, from budgeting to consumption behavior has a significant influence on the practical use and service of financial technology.

IV. CONCLUSIONS, IMPLICATIONS AND LIMITATIONS

In this article, we have explored the consumptive behavior of the sandwich generation with digital age as a moderator. Personal Income, Financial Planning, and moderating effect of digital age significantly affect the financial planning of consumptive behavior of the sandwich generation. However, moderating effect of digital age does not significantly affect the personal income of consumptive behavior of the sandwich generation. Digital acts as a quasi moderation on the financial planning and as a predictor moderation on the personal income of consumptive behavior of the sandwich generation. Fintech innovation has the potential to considerably increase household consumption on a national scale.

Theoretically, this research providing a perspective on consumption behavior carried out by the sandwich generation supported by the digital era can have a significant impact if rarely get used to financial planning even with high personal income. Discusses how the advancement of digital technology can be used to help the sandwich generation overcome financial difficulties. However, the challenges of managing finances, debt, consumption, and investment still require a lot of attention, at least from the government, in order to minimize the problem of the sandwich generation. Through the use of influencers or celebrities to educate, educational videos and images that are simple to understand and entertaining to watch on social media. In accordance with the circumstances, inform and advise, as well as select a pattern of good financial management. Furthermore, the sandwich generation in Indonesia, with its culture, is mostly difficult to refuse someone's request, as well as easy to persuade and imitate, buying things that are not really necessary, so they choose to buy products with debt regardless of their financial situation.

This study has been conducted in accordance with scientific procedures, however, it still has limitations, namely:

1. The consumptive behavior of the sandwich generation in this study only consists of 3 variables, namely Personal Income, Financial Planning and Digital Age, meanwhile, there are many other factors that can affect the consumptive behavior of the sandwich generation such as control of the financial, environment, and habit.

2. This research only focused of the sandwich generation, which is located in sidoarjo Indonesia so that the results of this study cannot be generalized.
3. The use of questionnaires, sometimes, makes the answer given by respondents do not show real situation, thus, open questions need to be added.

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Conflict of Interest Statement:

The author declares that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.