Management Review: An International Journal, 16(1), 62-92 (June 30, 2021).
ISSN: 1975-8480 eISSN: 2714-1047

Personal Finance and Housing Cooperative Model for University Employees

Glenn Villapando
University of Santo Tomas, Philippines
Email: villapandoglenn1@gmail.com

Tomas Tiu
University of Santo Tomas, Philippines
Email: tstiu@ust.edu.ph

Received May 30, 2021, Revised Jun. 26, 2021, Accepted Jun. 30, 2021

ABSTRACT

This study focuses on assessing the personal finance and the development of a housing cooperative as model for the employees in different universities. The study uses the structural equation modelling to determine the significance of individual questions in the different variables on the demographic indicators in modeling their overall contribution the respondents' choice of a housing cooperative model. The results show that questions related to savings, expenses and debt management are significant under alpha = 0.05 towards the demographic indicators using the confirmatory factor analysis. With respect to the cross tabulation using the cluster analysis in terms of age, civil status, gender, education and income of the respondents, the results showed that model 2 is more preferred with 45.7%. Models 2 and 4 were better preferred among those respondents with income of USD 700 to USD 1,000 because the terms of repayment is from 10 to 15 years in semi-monthly payments. The polynomial regression analysis

Management Review: An International Journal, 16(1), 62-92 (June 30, 2021).
ISSN: 1975-8480 eISSN: 2714-1047

also revealed that money management has a p-value of 0.022, savings management has 0.038, and expenses and debt management has 0.034 all of them showed the significant levels with respect to the housing cooperative models and among the demographic indicators such as civil status with a p-value of 0.053, gender has 0.003, and income has 0.060 are the ones that also demonstrated a significant contribution to the respondents' choice of a housing cooperative model. All have significant factors except with the demographic profile in education are related to the modelling of a housing cooperative.

Keywords: Personal Finance, Housing Cooperative, Demographic indicators, University employees, Structural Equation Modelling

INTRODUCTION

In the context of our everyday living, people need to be satisfied first with physiological needs, which relate to basic needs such as sustenance for food, clothing, and shelter. But one of the essential fundamental aspects of our physiological conditions is a shelter, which is to own a home. Housing is one of the most expensive critical needs fulfillment in any country. It has become one reason why it remains a problem throughout the developing world (Herbst, 2010). It is the third crucial basic need for food and clothing (Fadairo & Olotuah, 2013).

During the 2007-8 crisis, grassroots urban movements and non-profit organisations started promoting cooperative housing as an affordable and decommodified housing alternative (Cabre & Andres, 2018; Larsen, 2019; Pointelin, 2016; Scheller & Larsen, 2020). Houses reflect the most important indices of human development. Therefore, nations must invest in healthy growth and provision of citizen's housing needs. (Marunga & Mberengwa,

2014). With this regard, one of the solutions for solving housing issues is an introduction of a housing cooperative, which provides ample opportunities to members of the cooperative to have non-profit accommodation (Lipej & Turel, 2018). In line with cooperatives' introduction, the study proposes introducing a cooperative housing model to different university employees since everybody's dream, especially the professors and employees from various universities, to own a house.

A cooperative is an autonomous and duly registered association of persons with a common bond of interest, who have voluntarily joined together to achieve their social, economic, cultural needs and aspirations by making equitable contributions to the capital required, patronizing their products and services and accepting a fair share of the risks and benefits of the undertaking following the universally accepted cooperative principles (RA 9520, 2008).

They manage them democratically and meet the goals of the members. As an organization, a cooperative has its own culture founded on internationally accepted principles of cooperative organization that emphasize member ownership and control, servicing members' and thereby community needs, and collective norms (Stoll, Poon, & Hamilton, 2015). The success of any organization depends upon the management strategy on how to implement the competitive tools for quality management. In this competitive era, there is evolution of different quality enhancement tools for total quality management (Pradhan, 2017). In which case good quality management is also important in the proper implementation and management of housing cooperatives.

Financial management helps create a comfortable experience in the personal lives of people to ensure a secure future and freedom to spend money to keep us happy. The importance of financial planning and management is reflected in all areas of personal and business life. No matter their financial capacity, all individuals

must learn and study financial management and adapt it to improve their lives (Bhatt, 2011). The importance of good personal financial management practice is that it improves the standard of living of the people, leading to good health and that financial stress reduces considerably. Besides that, it also enables the individual to make better financial decisions, which reduces poverty, reduces debts, and increases savings and investments (Bhatt, 2011).

The purpose of this study is to develop housing cooperative model as a viable model tool to be adopted by university employees, to determine which from among the housing cooperative models would best suit as a cooperative housing model to university employees and to assess how the respondents' demographic profile and personal financial management practices influence their decision to acquire a housing unit from the housing cooperative. It also aims to determine the demographic profile of the respondents in terms of their age, civil status, gender, educational attainment and average monthly income, which from among the different housing cooperative models would best suit the formulation of a cooperative housing model to university employees, is there significant relationship in terms of personal financial management and the development of a housing cooperative and is there a significant relationship in terms of the demographic profile of the respondents towards the development of a housing cooperative?

THEORETICAL FRAMEWORK

Cooperatives compose the associations of persons who combine their capital to create and form businesses. They democratically manage them and meet their members' goals. A cooperative as an organization has its own founded culture on internationally accepted cooperative organization principles that concentrate on

member control and ownership, service members, and meeting the community's needs and collective norms (Stoll *et al.*, 2015).

Three fundamental aspects differentiate co-operatives from other business organizations like capitalist or state firms (Leclerc, Guihur & Marcoux, 2020). The statement from the International Co-operative Alliance on Co-operative Identity (ICA, 1995) defines (a) a set of values (self-help, self-responsibility, democracy, equality, equity and solidarity); (b) a set of ethical values (honesty, openness, social responsibility and caring for others); and (c) a set of principles (voluntary and open membership, democratic member control, member economic participation, autonomy and independence, education-training-information, co-operation among co-operatives, concern for community), that shall guide co-operatives decisions.

Cooperative synergism theory is the mutual relationship between lending institutions and housing cooperative societies. In this article, a different angle of cooperative synergism occurs where cooperative synergism refers to the combination of individual housing cooperatives to form a large consortium. It is generally believed that merging housing cooperatives to form a consortium will make them more viable as they benefit from economies of scale (Paradza & Chiriza, 2017). Cooperativism in housing has yielded considerably heterogeneous sectors in regard to size, historical trajectory, tenure regimes and institutional and organizational forms. The cooperative label has been attached to a wide variety of housing models, some of which embody commodified or state-provided housing in all but name. Such a broad denomination has blurred the specificity of cooperative housing as a non-state, collectively managed and (partially) decommodified alternative, the criteria most in tune with the housing commons framework guiding our approach (Mara Ferreri & Vidal, 2021).

Management Review: An International Journal, 16(1), 62-92 (June 30, 2021).
ISSN: 1975-8480 eISSN: 2714-1047

Housing cooperatives also raises critical questions about housing affordability and autonomy from external factors such as market pressure or shifts in housing policies and aims. This relates both to the short and long-term, for example, low monthly costs in contrast to high initial down-payment or the increase of property value in relation to social inclusion in housing cooperatives. New approaches to regulations are needed that enable a larger housing project to work as a whole political and economic terms, and needs to be embedded in a wider urban and socio economic context. This potential for greater social benefits and socio-spatial innovation is what gives cooperative housing the possibility to become transformative and key to a just city. Housing cooperatives can become a viable housing supply model that can grow and provide long-term affordable and decent homes, while maintaining a degree of political awareness in the social agendas of the cooperatives through direct engagement with and responsibility to others (Avilla-Royo & Bilbao, 2021).

Personal finance is about meeting personal financial goals, whether it's having enough for short-term financial needs, planning for retirement, or saving for your child's college education. It all depends on your income, expenses, living requirements, and individual goals and desires—and coming up with a plan to fulfill those needs within your financial constraints. To make the most of your income and savings, it's important to become financially literate, so you can distinguish between good and bad advice and make smart decisions (Flores, 2016). Financial management deals with managing money in all areas of life. Financial management includes personal financial management and organization management. Personal financial management helps us manage our home's finance, which includes budgeting, saving, investing, debt management, and other aspects related to personal money whereby an individual can achieve personal goals (Bhatt, 2011).

Since the field of finance is considerably broad, when it comes to real-world personal decisions, it is both financial knowledge and practical skills that largely determine the financial performance of an individual. The right personal financial decision assumes not only knowledge of theoretical financial concepts but a hands-on financial experience. One's financial, experiential learning, i.e., math skills, number-crunching, data organization and analyses, computational skills, information search practice, or decision-making scripts are likely to outweigh the relative value of more general knowledge and abilities (Čavojová & Hanák, 2014).

In developing your budget, a budget is a plan stated in the financial term. Plan means goal or target or aims that you want to be accomplished in time. Achieving a goal requires specific activities, programs, and procedures for you to meet it successfully. The most basic and first step you must do is to organize your finances. Managing your finances means identifying your current situation, which needs an assessment of what you have, your expenses, how far your expenses can sustain you and your family, and how much more is left to you (Flores, 2016).

Conceptual framework and research propositions

This study is based on the different theories and review of literature. Figure 1 presents the conceptual framework of the study. Our first research objective is to develop housing cooperative models as viable model tool to be adopted by university employees. This refers to the four cooperative housing models that were being developed using the cluster analysis. The next step is to determine which from among the four housing cooperative models would best suit as a cooperative housing model for university employees also using cluster analysis approach.

This study also aimed to assess the relationship of the individual questions towards respondent's demographic profile which refers

to the age, civil status, educational background, gender and average income and the personal financial practices in terms of money, savings, expenses and debt management practices. And also which influences the decision of the respondents to acquire a housing unit from the four housing cooperative models.

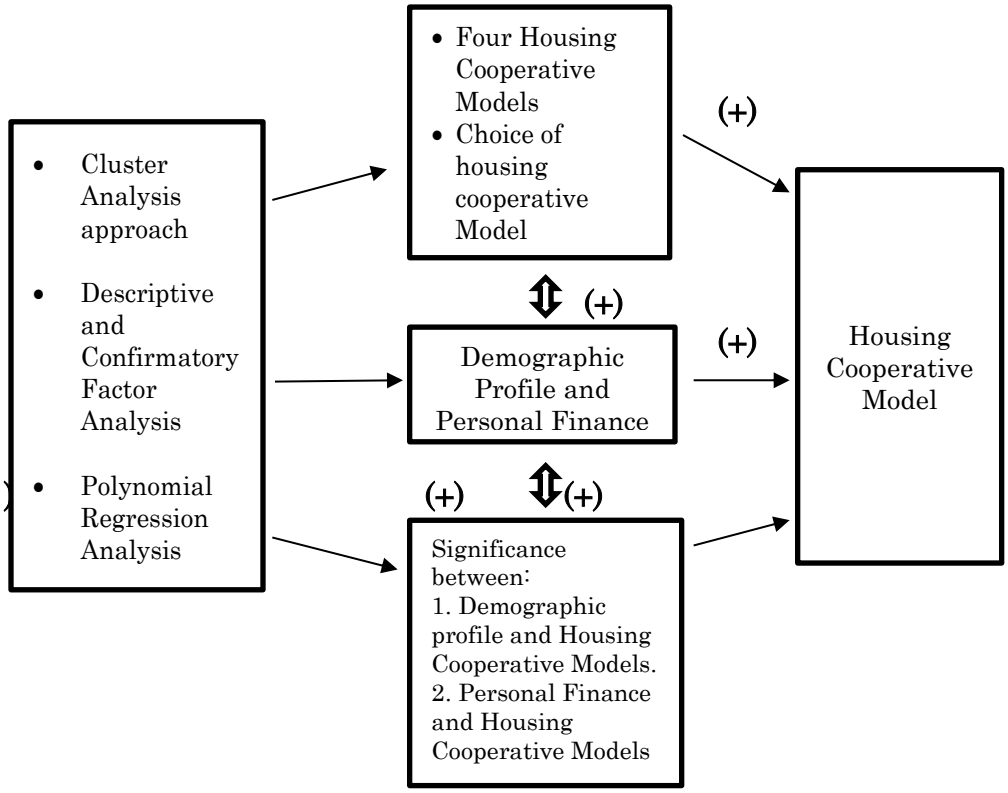

Figure 1. Conceptual Framework

Two hypotheses are being analyzed, The first hypotheses is to determine the link if there is a significant relationship between the demographic profile and personal finance practices of respondents and the housing cooperative models and the second is to determine the link if there is a significant relationship between personal finance practices and the housing cooperative models. A higher positive effect with regards to the formulation and choice of housing cooperative model is expected towards the demographic profile, personal finance practices of the respondents and the hypotheses. There is also an expected positive relationship in the aspect between the formulation and choice of housing cooperative model, Demographic profile and personal finance practices and the hypotheses towards the housing cooperative model.

In order achieve the following research objectives, the study used the different statistical tools in the structural equation model through the cluster analysis, descriptive analysis, confirmatory factor analysis and polynomial regression analysis.

Sampling procedures

The respondents of the study who were the subjects of gathering data were based on the different members of housing cooperatives in the Philippines. There are 201 respondents that are being tested from different members of housing cooperatives and cooperatives offering housing loan registered under the Cooperative Development Authority. The Neyman Equation through Stratified sampling method was used to distinguish housing cooperatives from all kinds of cooperatives. A maximum of 200 members per housing cooperative multiplied by 15 housing cooperatives = 3,000 members at 95% confidence level. Consent addressed through the different Chief Executive Officers or administrative officers from the selected housing cooperatives, seeking permission to survey their members.

Management Review: An International Journal, 16(1), 62-92 (June 30, 2021).
ISSN: 1975-8480 eISSN: 2714-1047

Research instruments

The study referred to related theories, literature discussing the history, principles, and established cooperative housing models from other authors. The study used the quantitative method by a survey design in questionnaire form of multiple type questions that was undertaken to obtain the views, ideas, and opinions of cooperative members. The survey questionnaire is divided into three: The first section contained details about the demographic profile of the respondents. The scale is divided into five dimensions: age (18 – 65 years old), civil status, educational attainment, gender, and average monthly income.

The second section is composed of different questions related questions related to the personal financial management practices of employees. This instrument is subdivided into four dimensions: Money management practices, Savings management practices, Expenditure management practices, and Liabilities/Debt management practices. The design also uses a five-point Likert scale type of questions. Where the five-point Likert scale, where 5 = Always, 4 = Seldom, 3 = Sometimes, 2 = Often and 1 = Never.

Finally, the third section is composed of questions related to the proposed formulation of cooperative housing models. The first section includes inquiries related to the financial aspect of the respondents. The second section is composed the establishment of the housing cooperative. The third section consists of the cooperative administration, and the last section is composed of the cooperative's organization.

The internet was also used as one of the primary sources of research information for this study. The internet has provided several sources of information about different journals related to personal finance and housing cooperative models, supporting the present study structure which was conducted for this study in

connection with the formulation and viability of the housing cooperative.

Data gathering procedures

Before the survey was conducted to the respondents, a letter of consent was addressed to the different Chief Executive Officers or administrative officers from the selected housing cooperatives and asked permission to survey their members. When the letter of consent was approved by the different respective administrative officers of the different housing cooperatives, the survey was conducted to the respondents-employees from top management to their staff members. Before the survey questionnaire was given to the respondents, an interview was first made through the Facebook messenger for those who are qualified to answer the questionnaire. The survey questionnaire in google form together with the informed consent form was sent through the Facebook messenger with a link. The respondents then answered the google form the questionnaire as truthfully as possible. After which, the respondents had submitted their responses on the questionnaire also via online. After the online data were being collected from the respondents, the data were all recorded and tallied using the Microsoft excel; after which the data are being processed and analyzed using the SPSS Statistical System version 2019.

Another research instrument used is the structural equation model though the descriptive statistics analysis, confirmatory factor analysis, cluster analysis to classify the most common types of housing cooperative models and the polynomial regression analysis. SEM is a collection of statistical techniques that allow a set of relations between one or more independent variables (IVs), either continuous or discrete, and one or more dependent variables (DVs), either continuous or discrete, to be examined. Both IVs and DVs can be either measured variables (directly observed), or latent

variables (unobserved, not directly observed). SEM is also referred to as causal modeling, causal analysis, simultaneous equation modeling, analysis of covariance structures, path analysis, or Confirmatory Factor Analysis. The latter two are special types of SEM (Ullman, 2006).

The measurement model includes the relationships between the latent variables and its manifest variables (Kline, 2015; Tarka, 2017). The analysis included a cross tabulation with regards to the age, civil status, gender, education, and income of the participants with the housing cooperative models. The confirmatory factor analysis was used to determine the significance of the individual questions with the demographic profile and the polynomial regression analysis are also used. Also, the polynomial regression analysis was used to determine the significant levels between the demographic profile and personal finance with the housing cooperative models.

The Structural Model is defined as:

$$\eta = B\eta + \Gamma\xi + \zeta \qquad \text{Equation (1)}$$

where η is the vector of endogenous latent variables, ξ is the vector of exogenous latent variables and ζ is the latent stochastic term. B and Γ are the coefficient matrices for the endogenous and exogenous latent variables, respectively

$$y = \Lambda y\, \eta + \varepsilon \qquad \text{Equation (2)}$$

$$x = \Lambda x\, \xi + \delta \qquad \text{Equation (3)}$$

x is the vector of manifest indicators of the exogenous latent variables, y is the vector of manifest indicators of the endogenous

latent variables, Λ is the vector of random parameters to be estimated, and δ and ε are the stochastic terms for x and y, respectively (Acock, 2013).

RESULTS AND DISCUSSIONS

Descriptive statistics

A total of N = 201 respondents participated in the survey. Among them, 87 or about 43.5% are aged 18 to 30 years of age. This represents most of the respondents, indicating a largely young (Generation Z to Millenials) respondent makeup. Another 20%are of age 31 to 40 years, while 32.5% are 41 to 50 years. Only a total of 4% are aged older than 50 years.

Majority of the respondents are also either married or separated. Specifically, 55.2% of the respondents are separated, while 22.9% are married. Despite the young generational composition, only 19.4% of the respondents are single. The sample is divided almost equally among males and females, with only a slight excess of males at 58.2%. Meanwhile, 50.6% of the respondents have college graduate as their highest education level.

Finally, incomes in the sample range mostly from USD 500 to USD 1,000, with 31.0% earning a monthly average of USD 500 to USD 800, and another 26.5% earning USD 700 to USD 900. A considerable number, 11 respondents, representing 5.5% of the sample, earn only USD 200 to USD 400, while 18.5% are on the upper tail of USD 900 and higher.

Under the standard confirmatory factor analysis, a valid factor is typically characterized by the presence of moderate to high correlations among the items identified under each construct. Figure 1 presents this with a visualization of the pairwise correlation plots of the items under each of the three constructs estimated with SEM.

Management Review: An International Journal, 16(1), 62-92 (June 30, 2021).
ISSN: 1975-8480 eISSN: 2714-1047

Table 1. Responses to demographic indicators (N = 201)

Variable	*Level*	*Count*	*%*
Age	18 to 30 years	87	43.5
	31 to 40 years	40	20.0
	41 to 50 years	65	32.5
	51 to 65 years	5	2.5
	Older than 65 years	3	1.5
Civil Status	Single	39	19.4
	Separated	111	55.2
	Married	46	22.9
	Widower/Widowed	5	2.5
Educational Attainment	High School	21	10.4
	College	102	50.6
	Post-graduate	72	35.8
	Others	6	3.0
Gender	Male	117	58.2
	Female	82	40.8
	Others	2	1.0
Average Monthly Income	P5,000 to P15,999	11	5.5
	P16,000 to P25,999	37	18.5
	P26,000 to P35,999	62	31.0
	P36,000 to P45,999	53	26.5
	P46,000 and higher	37	18.5

One possible reason that we find for the low validity scores of the third construct, on expense and debt management, is the presence of negative (red squares) and negligible (white squares) correlations in Figure 3 for the items under this construct. This indicates that some pairs of items under Expense and Debt Management are in fact unrelated, or negatively related, to each other, which may be taken as evidence against their being

manifestations of the same latent variable. The correlations for the other two constructs, Money Management, and Savings Management, appear better on this regard as can be judged from Figure 1.

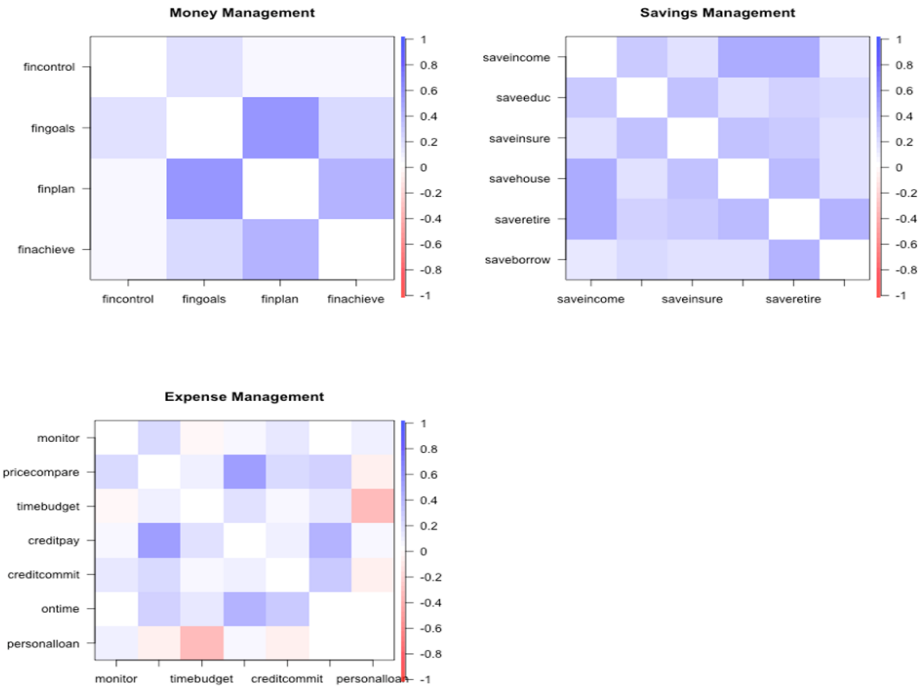

Figure 1. Correlation plots of questions within each construct. A valid construct is typically characterized by highly correlated items, which should appear as stronger blue regions in the plots above.

The latent variables estimated in SEM will later be used to summarize these sections on the questionnaire and represent their

Management Review: An International Journal, 16(1), 62-92 (June 30, 2021).
ISSN: 1975-8480 eISSN: 2714-1047

"overall scores". These scores will be then be used to test the relationship of financial management with the choice of a housing cooperative model. Prior to that, however, we shall first identify these cooperative models (at least, the most common that can be observed from the responses by the sample) through a cluster analysis presented in the following section.

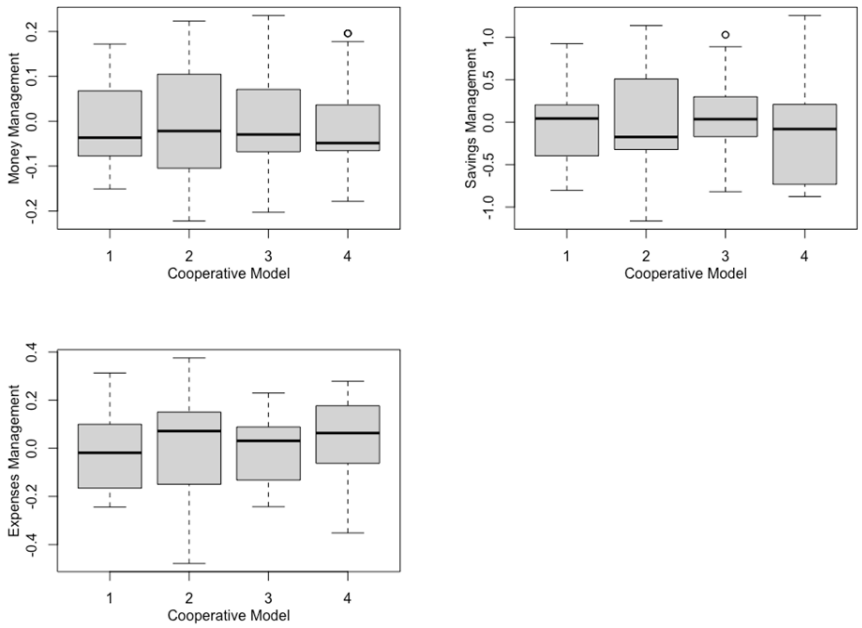

Figure 2. Distribution of overall responses to money management, savings management, and expenses management against the four cooperative models.

Figure 2 presents distribution charts of values of money management, savings management, and expenses & debt management across participation in these four models. The most apparent difference between the financial management scores of the respondents across the four clusters is that respondents in model 2 and 4 appear to have lower levels of savings management.

In fact, the lowest observed score for savings management was observed among participants of the second model. This is not quite an unexpected result, knowing that model 1 requires a regular savings account, and model 3 requires sufficient amount in owned assets, therefore implying that participants in this model would naturally have good savings management practices. Respondents in the second and fourth cooperative clusters also appear to have the lowest scores on expenses and debt management.

Structural equations model on financial management responses

Table 2 presents the results of estimating the latent variables for money management, savings management, and expenses and debt management for later use in modeling their overall contribution the respondents' choice of a housing cooperative model. It is noted that originally, expenses management and debt management were planned to represent separate latent variables, but were combined for the purposes of maximizing both fit (based on the GFI and CFI) and validity (based on post-hoc Cronbach's alpha measures) of the resulting latent variables. Table 1 then presents the loadings for a confirmatory factor analysis with expense and debt management combined as one construct.

This model at least resulted in a favorable fit, with GFI and CFI measures of 0.806 and 0.572, respectively. RMSEA measure was found to be at 0.117. However, it is in the Cronbach's alpha and average variance explained wherein some problems were found with the constructs.

Management Review: An International Journal, 16(1), 62-92 (June 30, 2021).
ISSN: 1975-8480 eISSN: 2714-1047

Table 2. Loadings and fit statistics for the latent variables estimated under confirmatory factor analysis.

Variable	*Model*				
	Estimate	SE	Z	P	
Money Management					
Fincontrol	1.000				
Fingoals	6.555	4.041	1.622	0.105	
Finplan	6.977	4.284	1.629	0.103	
Finachieve	3.050	1.932	1.579	0.114	
Savings Management					
Saveincome	1.000				
Saveeduc	1.205	0.241	5.005	0.000	*
Saveinsure	0.785	0.205	3.821	0.000	*
Savehouse	0.973	0.182	5.336	0.000	*
Saveretire	1.548	0.231	6.697	0.000	*
Saveborrow	0.983	0.197	4.984	0.000	*
Expenses & Debt Management					
Monitor	1.000				
pricecompare	3.788	1.541	2.459	0.014	*
Timebudget	0.796	0.509	1.566	0.117	
Creditpay	3.406	1.391	2.449	0.014	*
Creditcommit	2.133	1.050	2.032	0.042	*
Ontime	2.335	1.000	2.336	0.020	*
Personalloan	-0.424	0.467	-0.909	0.363	

* Significant under alpha = 0.05. This model resulted in a chi-square statistic of 432.069 (df = 116, p = 0.000), with fit GFI of 0.806 and CFI 0.572. RMSEA is 0.117.

In particular, for money management, the resulting alpha was only 0.548; for savings management, this value was at 0.675; and finally, for expenses management, 0.417. Average variance explained from (Fornell & Larcker, 1981) is also a useful measure of construct reliability, as it presents the percentage variance explained by the variance in the construct versus the error terms. For money management, this value is at 0.356 only; for savings management, at 0.260; and for expense management, at 0.173. In terms of reliability, Money Management latent variable has a Cronbach's alpha of 0.548, and average variance 0.357. Savings and expenses management has alpha 0.675 and average variance 0.260. Finally, expenses and savings management has an alpha 0.417 and average variance 0.173.

Types of housing cooperative model (clustering)

The cluster analysis was used to classify the most common types of housing cooperative models participated in by the respondents. The results of the cluster analysis are summarized below, wherein we identify four distinct models characterized by specific distinguishing characteristics.

Table 3. Different types of models extracted from a cluster analysis of the responses.

Distinguishing Features	*Model 1*	*Model 2*	*Model 3*	*Model 4*
Method of Payment	Income from Business	Salary and wages	Loan from friends and/or financial institution	Income from business
Years of repayment	15 Years	10 Years	15 Years	15 Years
Mode of Payment	Semi-monthly	Semi-monthly	Quarterly	Semi-monthly
Amortization Amount	USD 300	USD 300	USD 400	USD 300
Financing Support Availed	Cooperative financing	Home Development	Cooperative financing	Cooperative financing

		Mutual Fund financing		
Type of Loan	Short-term	Medium-term	Medium-term	Medium-term
Sources of Cooperative Funds	Member contributions	Member contributions	Member contributions	Government financial support
Criteria for Credit Availment	Must have regular savings	Regular income through salary	Sufficient valuable assets	Regular income through salary

While housing cooperative models bearing different characteristics from the four identified by cluster analysis, these represent the most common or the "average" models of housing cooperatives that the survey respondents have been found to participate in. The first mode mainly provides short-term loans for members who have a regular savings, and the amortization is paid for by the members more commonly in semi-monthly payments of about USD 300 for a period of 15 years using their funds from their business income. This model requires that members have a regular savings account as criteria for availing credit, meaning that this model is better suited for respondents who can readily demonstrate themselves to be of reliable credit standing. Model 2 better preferred among older respondents. Respondents below 30 years of age generally split among the four models.

Model 1 is similar in Model 3, albeit replacing the semi-monthly payments with a less frequent, though slightly larger, amortization amount. This is for medium-term loans availed by members who, as a criteria, must meet a certain amount in valuable assets. Both Model 1 and Model 3 appear to represent models that already cater to members who have established some form of credit, and have sufficient assets and savings.

Meanwhile, Model 2 and 4 present a slightly lower barrier to entry, with more lenient criteria for credit requiring that members have at least a regular income through their salary. Model 2 also allows for financing through The Home Development Mutual Fund, and Model 4 obtains financial support from the government for its cooperative funding. It will appear that Models 3 and 4 are catering to members who have less established credit, or do not yet have the required amount in assets or savings to further improve their standing.

Table 4. Cross-tabulation of age with cooperative model.

Age	*Cooperative Model (Cluster)*				*Total*
	1	2	3	4	
18 to 30	23	24	29	10	86
	26.7%	27.9%	33.7%	11.6%	100%
31 to 40	2	27	4	7	40
	5%	67.5%	10%	17.5%	100%
41 to 50	13	36	9	7	65
	20%	55.4%	13.8%	10.8%	100%
51 to 65	1	4	0	0	5
	20%	80%	0%	0%	100%
65 over	0	0	0	3	3
	0%	0%	0%	100%	100%
Total	39	91	42	27	199
	19.6%	45.7%	21.1%	13.6%	100%

χ^2=51.685 · df=12 · Cramer's V=0.294 · Fisher's p=0.000

In general, Model 2 appears to have the greatest participation, counting 45.7% of the sample, followed by Model 3, with 21.1%. Model 1 comes third at 19.6% and finally Model 4 with 13.6%. These insights regarding the four models identified in cluster analysis are further supported by observations coming from the

following set of results. Cross-tabulating choice of cooperative models (from the four identified clusters) against income shows that Models 1 and 3 are better preferred by respondents in the higher income groups.

Table 5. Cross-tabulation of civil status with cooperative model.

Civil Status	*Cooperative Model (Cluster)*				*Total*
	1	2	3	4	
Single	7	9	13	10	39
	17.9%	23.1%	33.3%	25.6%	100%
Separated	13	69	14	14	110
	11.8%	62.7%	12.7%	12.7%	100%
Married	19	10	13	3	45
	42.2%	22.2%	28.9%	6.7%	100%
Widow(er)	0	3	2	0	5
	0%	60%	40%	0%	100%
Total	39	91	42	27	199
	19.6%	45.7%	21.1%	13.6%	100%

χ^2=48.235 · df=9 · Cramer's V=0.284 · Fisher's p=0.000

Model 1 preferred among married respondents. Model 2 and 3 better preferred by separated and widow/er respondents. Single respondents are generally more split among the models, but tend to prefer Models 3 and 4 better. In particular, among respondents with incomes ranging only from USD 300 per month, 54.4% of the respondents participate in the second model, while the remaining 45.5% participate in the fourth model. For respondents with slightly higher income, from USD 300 to USD 500 per month, those participating in the first and third models increase slightly, but participation in second and fourth models still dominate the group.

45.9% of the respondents in this income group are participating in the second model.

It is in the group earning USD 700 to USD 1,000 wherein the first and third models appear to gain some increased participation. 35.8% of the respondents in this age group participated in the first model, and 22.6% in the third model, compared to 34% in the second model and only 7.5% in the fourth model. A similar pattern can be observed in the group earning at least USD 1,000. We note that this cross-tabulation has been confirmed to be significant with a Chi-Square statistic of 30.944 (p=0.003), indicating a dependence on the cooperative model choice among varying income groups.

Table 6. Cross-tabulation of education with cooperative model.

Educational Attainment	*Cooperative Model (Cluster)*				*Total*
	1	2	3	4	
High School	7	4	9	1	21
	33.3%	19%	42.9%	4.8%	100%
College	16	42	27	16	101
	15.8%	41.6%	26.7%	15.8%	100%
Post-graduate	11	44	6	10	71
	15.5%	62%	8.5%	14.1%	100%
Others	5	1	0	0	6
	83.3%	16.7%	0%	0%	100%
Total	39	91	42	27	199
	19.6%	45.7%	21.1%	13.6%	100%

χ^2=39.939 · df=9 · Cramer's V=0.259 · Fisher's p=0.000

Cross-tabulating with education, we find that Model 1 and 3 are better preferred among high school graduates, with participation by 33.3% and 42.9% of the sample, respectively. Model 2, meanwhile, are better preferred by college graduate and post-graduate respondents, with participation by 19% and 4.8% of the

sample, respectively. This cross-tabulation was also confirmed using a chi-square test, with a statistic of 39.939 (p=0.000).

Model 1 and 3 better preferred among high school graduates. Model 2, meanwhile, are better preferred by college graduate and post-graduate respondents.

Comparing against gender, we find that both males and females generally have the highest preference for Model 2, which mirrors the overall participation for the entire sample. The difference is in their preference for Model 1 and 3, with female respondents appearing to participate more in Model 3, whereas male respondents appear to participate more in Model 1.

Table 7. Cross-tabulation of gender with cooperative model.

Gender	*Cooperative Model (Cluster)*				*Total*
	1	2	3	4	
Male	31	51	21	13	116
	26.7%	44%	18.1%	11.2%	100%
Female	8	40	20	14	82
	9.8 %	48.8%	24.4%	17.1%	100%
Others	0	0	1	0	1
	0%	0 %	100%	0%	100%
Total	39	91	42	27	199
	19.6%	45.7%	21.1%	13.6%	100%

$\chi 2=13.176$ · df=6 · Cramer's V=0.182 · Fisher's p=0.020

While both males and females generally have the highest preference for Model 2, males appear to have a higher inclination for Model 1, whilst females tend to prefer Model 3 more. Model 2 and 4 highly favored among respondents with incomes of USD 300.00 Model 1 and 3 more favorable among respondents with higher income.

Table 8. Cross-tabulation of income with cooperative model.

Monthly Income	*Cooperative Model (Cluster)*				*Total*
	1	2	3	4	
$200 to $300	0	6	0	5	11
	0%	54.5%	0%	45.5%	100%
$301 to $500	9	17	6	5	37
	24.3%	45.9%	16.2%	13.5%	100%
$501 to $700	7	28	16	10	61
	11.5%	45.9%	26.2%	16.4%	100%
$701 to $900	19	18	12	4	53
	35.8%	34%	22.6%	7.5%	100%
$901 and above	4	22	18	3	37
	10.8%	59.5%	21.6%	8.1%	100%
Total	39	91	42	27	199
	19.6%	45.7%	21.1%	13.6%	100%

χ^2=30.944 · df=12 · Cramer's V=0.228 · Fisher's p=0.003

Regression analysis on the type of cooperative model

We now assess with the significance of the contributions of financial management and the demographic indicators towards choice of a participation among the four cooperative models using a polynomial regression model. These results are summarized below in Table 8. We see that among the financial management indicators, money management, savings management, and expenses & debt management all have a significant effect on the choice of a housing cooperative model, while, among the demographic indicators, civil status, gender, and income are the ones that demonstrated a significant contribution to the respondents' choice of a housing cooperative model.

Table 9. Regression estimates for the ordered logistic regression of preferred cooperative model versus financial management and demographic indicators.

Variable	*Model*			
	Estimate	SE	T	P
Money Management	-8.377	3.656	-2.29	0.022*
Savings Management	1.279	0.616	2.08	0.038*
Expenses & Debt	2.420	1.139	2.13	0.034*
Management Age	-0.077	0.145	-0.53	0.595
Civil Status	-0.384	0.199	-1.93	0.053*
Educational Attainment	-0.300	0.195	-1.54	0.124
Gender	0.834	0.278	3.00	0.003*
Income	-0.237	0.126	-1.88	0.060*
Intercepts				
1 vs 2	-2.780	0.913	-3.04	0.002
2 vs 3	-0.515	0.893	-0.58	0.564
3 vs 4	0.807	0.890	0.91	0.364

* Significant under alpha = 0.05. The regression estimated resulted in an Akaike Information Criterion (AIC) of 502.6573, with residual deviance 480.66.

CONCLUSION AND RECOMMENDATIONS:

From the analysis on the demographic profile of the 201 respondents, 87 or about 43.5% are aged 18 to 30 years of age. They represent the majority of the respondents who belong to the Generation Z or the millenials. Another 20% are of age 31 to 40 years, while 32.5% are 41 to 50 years. Only a total of 4% are aged older than 50 years. Majority also of the respondents in terms of civil status are separated and married and the least of them are single. The males and females are almost divided equally with college graduates as their highest education level. Incomes in the sample range mostly from USD 500 to USD 1,000 with 31.0%

Management Review: An International Journal, 16(1), 62-92 (June 30, 2021).
ISSN: 1975-8480 eISSN: 2714-1047

earning a monthly average of USD 500 to USD 800, and another 26.5% earning USD 801 to USD 1,000.

Based on the cluster analysis, the study was able to develop and formulate four housing cooperative models. In determining which from among the four different housing cooperative models would best suit the formulation of a cooperative housing model to university employees, it is with Model 2 that has the commanding lead of preference model followed by Model 3. Model 2 were better preferred by ages 18 – 30 years old, separated individuals, college and postgraduates, male, and incomes ranging from USD 300 to under USD 700. Model 2 rely on the salaries and wages of the respondents in paying their monthly amortization within 10 years for USD 300, semi-monthly in medium term which is being financed by or Home Development Mutual Fund Housing Loan. However, Models 2 and 4 were highly preferred among those respondents with incomes ranging from USD 300 to under USD 700 because the terms of repayment are from 10 to 15 years with USD 300 semi-monthly payments. In its polynomial regression model, the results showed that both the demographic profiles except the education profile and personal finance practices of the respondents have all the significant factor in their choice of a housing cooperative model. Therefore, the demographic profiles and personal finance practices have important impact in choosing the housing cooperative models.

Among the four housing cooperative models introduced, it is recommended that Model 2 and 4 should be made as the yardstick to be adopted as housing cooperative model for university employees. Considering that Models 2 and 4 were better preferred among those respondents with regards to 18 – 30 years old, who are separated and married, and those incomes ranging from USD 300 to under USD 700 with 10 -15 years of amortization in semi-monthly payment. These will be financed though cooperative

financing and the home development mutual fund from the government as stated from the theory of synergism that there must be a consortium or participation between private organization such as the cooperative and the Government in terms of its housing program.

The government cannot provide more than a fraction of the required housing for its people. The housing cooperative model can help facilitate and assist the government's program to eradicate homeless individuals to provide shelter among them. This study will help educational institutions from different universities adopt the cooperative housing model to provide housing to their employees. They will have an idea and opportunity of forming a housing cooperative with their schools if they do not have yet. If they have an existing one, they can compare and upgrade to par with my model. This also offers them fixed or floating rate loans, loan tenors, interest rates. It can help mobilize more additional resources into the delivery system of housing. Additionally, this research can be one of the foundations that will show how important personal financial management, especially in personal budgeting practices for employees.

REFERENCES

Acock, A.C. (2013). Discovering structural equation modeling using Stata. Texas: Stata Press. An Act Amending the Cooperative Code of the Philippines to be known as The Philippine Cooperative Code of 2008. RA 9520.

Avilla-Royo, R., Jacoby, S., & Bilbao, I. (2021). The Building as a Home: Housing Cooperatives in Barcelona. Buildings, 11(4), 1-20.

Bhatt, B. (2011). Financial Management Importance, http://www.blognbuzz.com/financial-management-importance.html

Cabre, E., & Andres, A. (2018). La Borda: A case study on the implementation of cooperative housing in Catalonia. International Journal of Housing Policy, 18(3), 412–432.

Čavojová, V., & Hanák, R. (2014). How much information do you need? Interaction of intuitive processing with expertise. Studia Psychologica, 56(2), 83-97.

Fadairo, G., & Olotuah, A. O. (2013). Low-cost housing for the urban poor in Akure, Nigeria: Materials and techniques of construction. Journal of Environment and Earth Science, 3(9), 135-443.

Flores, M. F. (2016). Personal financial management. Manila: Mindshapers Co., Inc., Phipplipne.

Fornell, C., & Larcker, D.F. (1981). Evaluating structural equation models with unobservable variables and measurement errors. Journal of Marketing Research, 18(1), 39–50.

Kline, R.B. (2015). Principles and practice of structural equation modeling (4th ed.). New York: Guilford Press, USA.

Herbst, A. (2010). An assessment of African housing cooperatives-The case of Ilinge Labahlali housing cooperative, Nyanga, Cape Town. Stellenbosch University, Stellenbosch, South Africa.

International Co-operative Alliance on Co-operative Identity, https://www.ica.coop/en/cooperatives/cooperative-identity

Larsen, H.G. (2019). Three phases of Danish co-housing: tenure and the development of an alternative housing form. Housing Studies, 34(8), 1349-1371.

Leclerc, A., Guihur, I., & Marcoux, G. (2020). Co-operative difference and organizational commitment: The role of high-performance work practices. Management Review: An International Journal, 15(2), 1-153.

Lipej, B., & Turel, G. (2018). Housing cooperatives as an opportunity for solving the housing issue. International Journal of Real Estate and Land Planning, 1, 225-233.

Ferreri, M., & Vidal, L. (2021). Public-cooperative policy mechanisms forhousing commons, International Journal of Housing Policy, In Press.

Marunga, N., & Mberengwa, I. (2014). The effectiveness of the housing cooperative approach in the provision of urban housing in Bindura. Journal of Geography, 1(6), 1-23.

Paradza, P., & Chiriza, I. (2017), Housing cooperative associations in Zimbabwe: A case study of a housing consortium in Budiriro, Harare. JOPPA, 4(2), 159-175.

Pointelin, R. (2016). Alternative housing in Catalonia: An emerging model? Universitat de Girona. DOI: http://hdl.handle. net/10256/14879

Pradhan, B. L. (2017). Confirmatory factor analysis of TQM implementation constructs: Evidence from Nepalese manufacturing industries. Management Review: An International Journal, 12(1), 26-56.

Scheller, D. & Larsen, H.G. (2020). Urban activism and co-housing. In P. Hagbert et al. (eds.) Contemporary co-housing in Europe: Towards sustainable cities? pp. 120-139. London: Routledge, UK.

Stoll, J., Poon, J. P. H., & Hamilton, T. (2014). Sustainable practice? An examination of Canada's agricultural and energy cooperatives. The Professional Geographer, 67(2), 187-194.

Tarka, P. (2017). An overview of structural equation modeling: its beginnings, historical development, usefulness and controversies in the social sciences. Quality & Quantity, 52 (1), 1-42.

Ullman, J. (2006). Structural equation modeling: Reviewing the basics and moving forward. Journal of Personality Assessment, 87(1), 35–5.