INTERTEMPORAL LIFE-CYCLE THEORY OF CONSUMPTION

by

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ABSTRACT

This paper looks into the effect of savings, income and age to the consumption of an individual by using a structured questionnaire in gathering the data. The researchers asked 150 respondents about their income, savings, expenditures, and their profile or characteristics such as age, civil status and their educational attainment. This paper found out that the explanatory variables such as income, savings, and age did really affect the consumption of the individual. Income and Age has a positive relationship with consumption. This means that as income and the age of the individual increases, its consumption also increases. This paper also showed that savings has a negative relationship with consumption, which means that as savings increases, consumption for the current period decreases but the consumption for the future increases.

Keywords: *intertemporal choice, life-cycle hypothesis, income, savings, age, consumption*

1. Introduction

Individuals plan their consumption and savings behavior over a long period of time with the intention of allocating their consumption in the best possible way over their lifetime. Similarly, individuals are willing to delay their consumption and gratification in order to increase their savings because these savings will be used for their future consumption specifically, for their retirement. It is for the reason that when they are old and either cannot or do not wish to work, money is still available for spending. This decision however assumes that the individual carries a degree of impatience and changes in savings choice, an inter-temporal attitude that is linked to Modigliani and Brumberg's Life-Cycle Hypothesis.

The life cycle hypothesis tries to explain the consumption pattern of an individual over a lifetime. It states that an individual plan his/her consumption and savings pattern base on their anticipated life income. People who are younger tend to consume more than the income they receive. It is mainly because younger people use their income for education and personal wants. People also this age start working and investing part of their earnings to long term assets such as car, therefore they save too little. Middle-aged people had already generated higher income and had paid their previous debts enabling them to accumulate savings. Lastly, old-aged people have little to no income to use as they reach retirement so they consume out of their savings.

This paper aims to expose an inter-temporal attitude of individuals' choices on consumption and savings patterns. It uses questionnaire to gather the data needed for the study. The respondents were to asked to answer a set of questionnaire in order to determine the individual's

age, consumption expenditure, savings, income (if ever the individual is an income-earner), and assets. The researchers used the five types of assets similarly used in the study conducted by Levin (1998). These are the current income, liquid assets, value of house, future assets and non-liquid assets.

1.1 Background of the Study

Inter-temporal choice is a choice through time. Many of our important decisions in life involve choices whose after effect will occur in the future time. The most obvious is the decision on how to allocate ones income across time: whether to save for retirement; whether to invest; whether to marry and have children; whether to buy a car, and if so which model to buy. We are given two time periods, today and tomorrow. Given that people tend to save so that when they are old and cannot work, they have money to use for future consumption. Basically, we want to understand what factors determine how much an individual chooses to consume in his current consumption versus his future consumption. We study how the inter-temporal choice affects the savings pattern of an individual.

The life-cycle hypothesis views individuals as planning their consumption and savings behavior over long periods with the intention of allocating their consumption in the best possible way over their entire lifetimes. (Dornbusch, et al.) The life-cycle hypothesis suggests that individuals' marginal propensity to consume from their permanent income, transitory income and wealth is distinct from each other. The theory assumes that the individuals consume almost the same amount every year, that they save much today so that they can spend a lot in the future.

As stated above, the MPC for different types of income differs. The theory implies that out of permanent income the marginal propensity to consume is large and that for transitory income it is relatively small, it is close to zero. On the other hand, the marginal propensity to consume from wealth should be equal to the individual's MPC out of transitory income. The assumption behind is that if individuals spend out of wealth they tend to spread it out over the years of life that remains to them.

Also, the life-cycle hypothesis helps in linking the consumption and saving pattern of an individual to demographic considerations such as their age. The MPC out of permanent income tends to change along with the age of the individual.
In an economy where there are different types of people with varying age and life expectancies, the economy is a mix of corresponding MPCs, thus, the overall marginal propensity to consume and save of the economies are different.

In studying the inter-temporal choice and life-cycle theory we need to consider the degree of impatience, changes in savings behavior, and the consumption patterns over time.

The degree of impatience pertains on the idea whether they choose to delay their consumption or gratification now, just to increase their available resources for the future.

1.2 Theoretical Framework

Intertemporal Choice

The consumer's preferences and their opportunities to reach preferred positions are described to explain why consumers decide to borrow or lend at different points in time. The individual's preferences can be described based on their attitudes toward bundles of goods available at different points in time. Market value, or also referred to as a consumption standard,

summarizes the satisfaction provided by consuming various goods. The consumption standard shows the satisfaction essential in choosing optimal bundles of goods or commodities at prices fixed in the commodities market. (Fabozzi, et al.) These consumer's preferences for money expenditures at different points in time can be represented conveniently, using a utility function.

Using indifference curves, a form of utility function can be represented in Figure 1. Any point in the indifference curve describes a combination of time 1 and time 2 consumption expenditures that is as satisfactory as any other point on the same curve, as shown by the fact that each indifference curve is a set of points for all of which the utility function achieves the same value.

*Figure 1. Indifference Curves for Period 1 and Period 2 Consumption Standards*
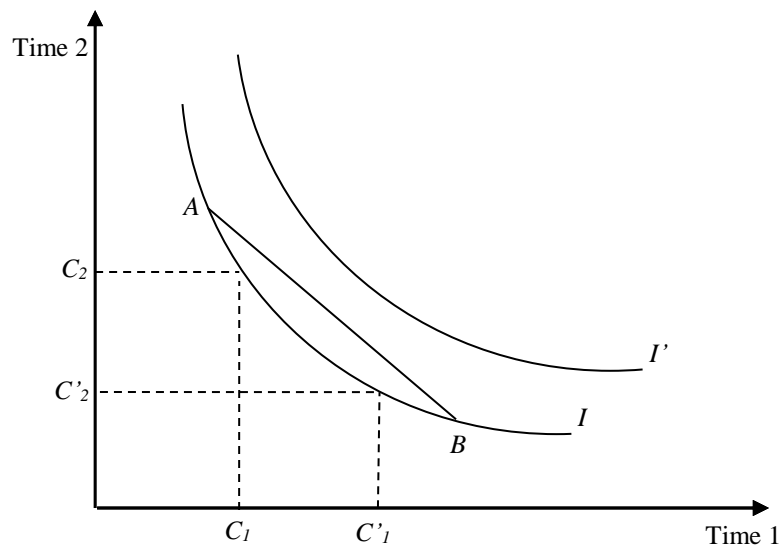
The slope of the indifference curve is called the marginal rate of substitution between present and future substitution. This rate shows the consumer's preference for trading off consumption at the present time against the consumption in the future. The marginal rate of substitution for consumption in a given period diminishes as that period's consumption increases. For example, as the consumption in time 1 or at present increases, the indifference curves become more nearly horizontal. It means that the higher the level of consumption in time 1, the more consumption must increase in time 1 to compensate for a given decrease in time 2 or future consumption.

The consumption choice of an individual is subjected to the limitations of what he can afford. The assets already available and incomes that will be received are the resources where he can get for its consumption expenditure. Wealth is the value of available assets at a given time and consists of the market value of stocks of real durable goods and financial assets carried over from previous periods. Income is composed of wages, salaries, or other payments received. Considering a certainty world, the future income is known exactly at any time. But even if it is known, it cannot be used to finance present consumption unless the individual can borrow against it.

Supposing an individual has an income stream, fixed and inalterable, of y_1 and y_2 to be received in time 1 and time 2, as shown in Figure 2. In the figure, the relation between income and wealth is also presented, with the value of w_1 given as the intercept on the time 1 of the straight

line passing through the point (y_1, y_2). If wealth, w_1 was all invested in time 1, then it would result or amount to w_2 at time 2.

Figure 2. Individual's Wealth Constraint
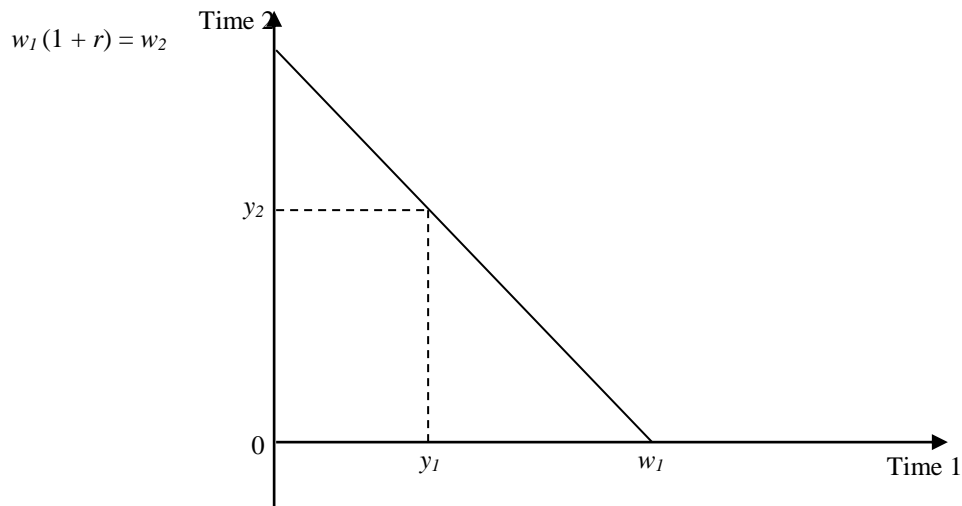
The line w_1w_2 refers to the individual's wealth constraint because it determines the maximum present value of different consumption expenditures that can be purchased by spending all the available resources. The triangle $0w_1w_2$ refers to as the consumer's opportunity set, because any combination of consumption expenditures consumer chooses, lies within or on the triangle is attainable given the its initial wealth.

Consider a simple model of inter-temporal choice, where the individual has a life of two periods (present and future) and has a zero initial wealth. Also assume that the present and future income levels (y_1 and y_2) are known with certainty; individual's preferences and the market interest rate (r) are given. The individual does not wish to transmit or bequeath any wealth to the next generation. Its main objective is to maximize its utility (U_{max}). The problem is to determine the utility-maximizing combination of present and future consumption levels (c_1^* and c_2^*), subject to its wealth constraint.

$$U_{max} = u(c_1, c_2)$$

Subject to:

$$c_1 + \left(\frac{c_2}{1+r}\right) = y_1 + \left(\frac{y_2}{1+r}\right) = w_1$$

The left hand side of the wealth constraint gives the present value of consumption while the right hand side gives the present value of income. At present, the individual can choose to consume less than the present income, y_1, and become a saver; or, to consume more than the present income, y_1, and become a borrower; or just to consume an amount equal to y_1. It is presented in Figure 3.

Figure 3. Individual's Constrained Utility-Maximizing Choice of Consumption Standards
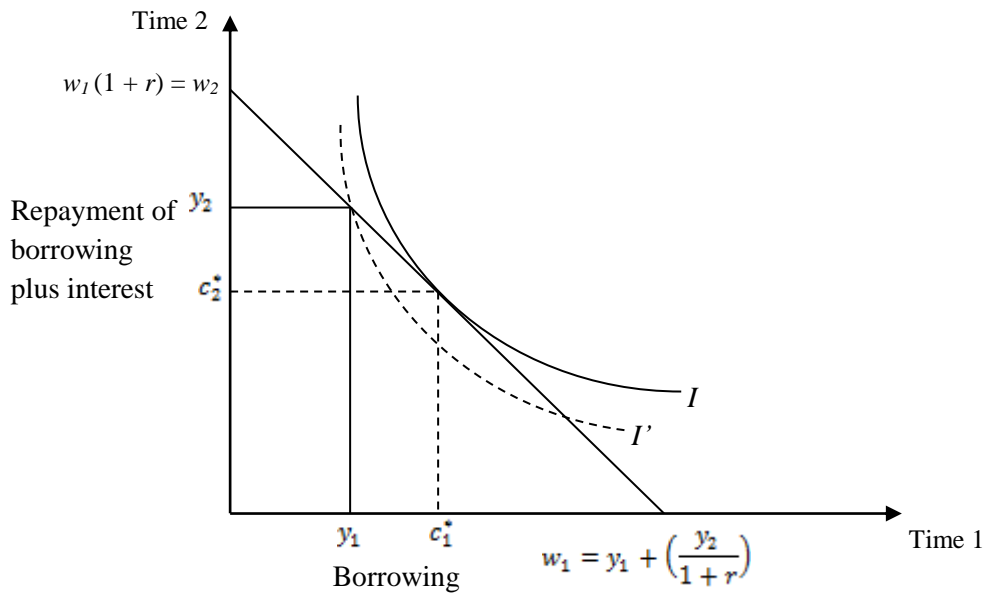
Life-Cycle Theory of Consumption and Savings

Franco Modigliani, together with his co-authors, developed the life-cycle hypothesis to describe the consumption and savings behavior over an individual's lifetime. Suppose that individuals live for T periods and each period t face a budget constraint.

$$y_t + b_{t-1}(1+r) = c_t + b_t$$

Similar to the two-period case, the inter-temporal budget constraint can be derived by assuming that the present value of lifetime income and initial wealth equals the present value of lifetime spending.

$$y_1 + \frac{y_2}{1+r} + \cdots + \frac{y_T}{(1+r)^{T-1}} + b_0(1+r) = c_1 + \frac{c_2}{1+r} + \cdots + \frac{c_T}{(1+r)^{T-1}} + \frac{b_T}{(1+r)^{T-1}}$$

Since individuals have limited time horizons, they leave no assets behind as bequests for future generation and set b_T to zero. For simplicity, assume that individuals earn a constant labour income $\bar{y}$ until retiring at R years, but no more labor income until the expected end of life at time T. Individuals prefer a smooth consumption profile over time.

Figure 4 shows the allocation of consumption and assets over the lifetime. Individuals accumulate wealth until retirement and draw down the stock of wealth until life ends to ensure a smooth path of consumption. The life cycle hypothesis predicts the following path of consumption and assets:

before entering into the labor market, individuals should borrow; they should accumulate savings while working and dissave after they retire.

Figure 5. Lifetime Income, Consumption, Saving, and Wealth in the Life-Cycle Model
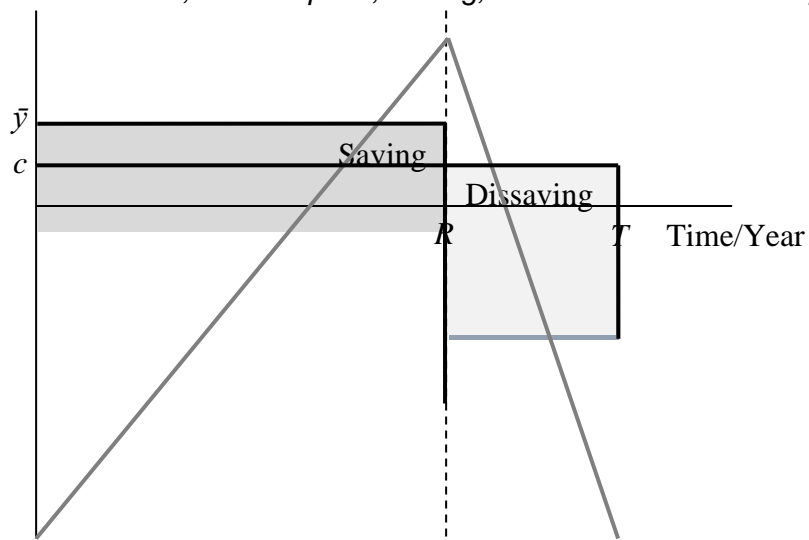
Consumption responds little to temporary changes in income and proportionally to permanent changes; also, the marginal propensity to consume out of current income depends on age.

Some empirical observations show the following: first, young people consume too little compared to the expected life-time income. A high marginal propensity to consume could point to liquidity constraints; second, consumption seems to first increase and later fall in line with labor income which appears at odds with consumption smoothing; and thirdly, the elderly dissave too little after retirement and consumption falls discretely at retirement.

1.3 Review of Related Literature

A study conducted by Niklas Karlsson, Tommy Garling and Marcus Selart (1995) shows the explanations of effects of prior outcomes in the form of temporary income change influence the individuals' choices on immediate and delayed consumption. Here, the propensity to consume was greater when the respondents received an income increase rather than when there is an income decrease with an available savings. This means that in the behavioral life-cycle theory, individuals do not use their savings for their current or immediate consumption. The expected increase in income is the reason why the respondents choose to consume today.

George Loewenstein (1988) also comes up with the result similar with the study made by Karlsson, et. al. In his study, it shows that the respondents chose not to consume now because they considered the delay premium as a gain. The delay premium pertains to the value that is being received by an individual when he/she chooses to give up the object now, and getting or it later or in the future. We could consider the delay premium as a gain or additions in the savings of the individual.

Levin (1998) shows that the behavioral life-cycle savings model can explain how the changes in different types of financial assets, could affect the consumption of the individuals at or near ret6irement. In this study, it is found out that the consumption expenditure is sensitive to the changes in income and liquid assets, but is not sensitive to the changes in the value of the other types of assets such as houses and social security.

Britta Stover (2012) made a study about the influence of age on consumption. The findings in the study shows that the consumption of the young people in Germany pertains more on food and non-alcoholic beverages unlike those on the old group, which spends more on their health. This already pertains to the idea of Modigliani that people save in order for them to have money to spend for their health when they retire.

Shefrin and Thaler (1988) takes a look into how self-control, mental accounting and framing could be incorporated in a behavioral enrichment of the life-cycle theory of saving called the Behavioral Life Cycle Hypothesis. In their research, it is found out that individuals make consumption decisions based on their three mental accounts. These are their current income, assets and their future income. These factors were considered on their consumption and savings behavior.

Another study conducted by Carvalho, et.al entitled "The Effect of Saving on Risk attitudes and Intertemporal Choices" investigates on whether the access to savings account affects risk attitudes and intertemporal choice. In the study, it suggests that access to formal savings devices has a positive feedback loop for poor families by increasing their willingness to take risks and to delay gratification.

1.4 Objectives of the Study

This paper aspires to look into the effect of savings, income, and demography to consumption behavior, whether the individual consumer will delay their consumption in order to have a higher savings for the future consumption. Furthermore, this study will show how saving affects the willingness of individual to bear financial risks and trade off immediate consumption for future consumption.

1.5 Significance of the Study

The importance of this paper is to know if individuals are willing to delay receiving money in order to have more savings for the future consumption. In addition, this paper gives us knowledge on how does savings, income, and demography will affect the consumption behavior. It also gives us information if such as savings, income, and demography can be the reason of change in consumption behavior. Aside from those, this paper could give ideas or knowledge to the individuals with regards the importance of savings when they already want to retire from work.

2. Methodology

2.1 Data

This study aims to determine the effect of savings, assets, income and demography to the consumption of an individual, considering also the impact of inter-temporal choice on their consumption decisions. Because of this, the researchers gathered the data through a structured questionnaire. It consists of the individual's profile, specifically, its age, gender, civil status, and educational attainment; and questions about their consumption, savings and income.

There are 150 respondents in the study. They are students and teachers of Saint Louis University. The researchers chose 150 because they want to see the variations on the income or allowances of the respondents depending on their age.

2.2 Econometric Model

The general econometric model to this study is as follows,

$$ln\hat{Y} = \beta_0 + \beta_1 lnX_0 - \beta_2 X_1 + \beta_3 X_2 + \mu_i$$

Where:

$\hat{Y}$ is the consumption

β_0 is the intercept coefficient

β_1, β_2 and β_3 are the coefficient of the other explanatory variables

X_0 is the income

X_1 is the savings

X_2 is the age of the individual

The variables mentioned above are expressed in linear form, except the consumption and income. Because we want to see the changes on the personal consumption and income of the individual as time goes by, the consumption and income are regressed after its logarithmic output. The econometric model is expressed in a log-lin model.

2.3 Statement of the Hypothesis

The testable hypotheses are stated as follows:

H_o: β_1=0; β_1 (Income) is statistically insignificantly different from zero.

There is a negative relationship between Income and Consumption.

H_o: β_2=0; β_2 (Savings) is statistically insignificantly different from zero.

There is a positive relationship between Consumption and Savings.

H_o: β_3=0; β_3 (Age) is statistically insignificantly different from zero.

There is a negative relationship between the Age of an individual and it's Consumption.

There is a negative a priori assumption on the coefficients of Income and Age, and a positive a priori assumption on the coefficient of savings in order for the study to be proven right. If the results appear to be different from the a priori expectations, then the null hypothesis may be accepted otherwise there are valid reasons to reject it.

3. Results and Discussion

3.1 Descriptive Statistics

Table 3.1

Variables	Mean	Standard Deviation	Minimum	Maximum
Consumption	6323.61	6946.808068	749	48000
Income/Allowances	8577.87	11250.23636	1500	74000
Savings	2254.26	6482.950762	-8000	47200
Age	19.78	6.353004891	16	52

The mean value of the consumption or expenditure of the 150 respondents is 6,323.61 which mean that the average consumption of an individual is Php 6,323.61 per month. Some individual spends more, like Php 48,000 per month, while others, will consume less for about Php 749 only per month.

The mean value of the income or allowances is 8577.87 wherein it pertains on the average consumption of the individual on a monthly basis. The minimum value of 1500 represents the lowest allowance that the individual has for its consumption. The maximum value of 74000 pertains to the income of an individual which has a Master's Degree.

The average savings of the 150 respondents is 2254.26. The negative value of lowest savings that an individual has, which is -8000, means that the individual dissave. They use their savings for their current expenses. The maximum value of 47200 shows that the individual; can still save a high amount for future consumption.

The average age of the 150 respondents that the researchers have been asked; is about 20 years old. The youngest is 16 years old and the oldest is 52 years old.

3.2 Regression Result and the Corroboration of Related Literature
Table 3.2

Variables	Coefficient	Standard Error	t Stat	P-value
Intercept	-1.87945426	0.364421	-5.1574	8E-07
lnIncome	1.108806916	0.043221	25.6543	5.9E-56
Savings	-8.4806E-05	6.58E-06	-12.893	7.2E-26
Age	0.043779941	0.006351	6.89338	1.5E-10
Adjusted R^2	0.856051229			

*Significant at 5%

Interpretation of the results is as follows:

$$lnConsumption = -1.8795 + 1.1088 lnIncome - 0.000084 Savings + 0.04378 Age$$

When all the variables income, savings and age are held constant or equal to zero then the consumption would be 0.1527 (antilog of -1.8795). An individual still consumes even though its income and savings are zero because they borrow money from others for them to have money to spend. A 1% change on the level of income would increase consumption by about 1.1088 holding other variables constant. Also a 1% change on savings there would be a decrease of 0.000084 on the consumption. In this result, we could say that Savings is inversely related with consumption. Also considering an increase on the age of an individual would result to a 0.04378 increase to consumption.

The a priori sign of the entire coefficient does correspond with those of the a priori assumption in which we could say that Income, Savings and Age have an influence on Consumption. The results say that Income and Age would increase, the Consumption would also increase. And as Savings increases, the consumption would decrease.

The R^2 is a measurement for the goodness of fit. We could say that about 85.61% is explained by the variation of the explanatory variables, which are Income, Savings and Age to the dependent variable which is the Consumption.

In order to identify the explanatory variables has a significant relationship with the dependent variable, Consumption; the researchers used the Rule of Thumb as the basis of the level of significance whereby the t-values should be greater than the value of 2. This will determine

the acceptance or rejection of the null hypothesis given. That if the t-value is greater than 2, we should reject the null hypothesis, otherwise we accept the null hypothesis.

The t-value of the Income is 25.6543. Therefore we reject the null hypothesis that β_1 is equal to zero. β_1 is statistically significantly different from zero.

The standard error gives a result on how the sample or the data from population is reliable in the analysis. Like the standard errors of the Income, Savings and Age are 0.043221, 6.58E-06 and 0.006351, respectively, the standard errors are shown in the results are relatively low, which is good because the closer the value to 0, the less error that could be omitted.

The p-value is associated with a test statistic. It is the probability, if the test statistic really were distributed as it is under the null hypothesis, of observing a test statistic (as extreme as, or more extreme than) the one actually observed. The smaller the p-value, the more strongly the test rejects the null hypothesis, that the hypothesis being tested. The p-values of the intercept term, β_1, β_2, and β_3 are approximately zero. This means that the probability of committing a Type 1 error is very low.

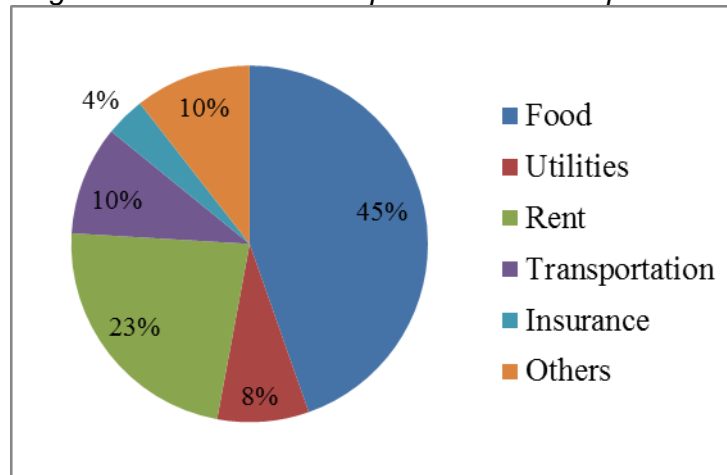*Figure 6. Distribution of Expenses of the Respondents*

Figure 6 shows how an individual spends his/her income or allowance. It shows that 45% of the consumption of an individual goes to food, 8% goes to utilities, 23% on rent, 10% on transportation, 4% on insurance, and 10% on others that do not belong to the given choices.

This means that most of the respondents spend their income or allowance on food which is also true because it is a necessity good likewise with the rent which has a 23%. It is observed that insurance is the lowest because the old people are the only one who gets it.

Insurance is an agreement in which a person makes regular payments to a company and the company promises to pay if the person is injured or dies, or to pay money equal to the value of something (such as a house or car) if it is damaged, lost or stolen. The old people get insurance because it provides safety and security against the loss on a particular event. There are many kinds of insurance. Life insurance provides security against death and old age sufferings. Fire insurance protects against loss due to fire while Marine insurance provides protection and safety against loss of ship and cargo. For personal accident and sickness insurance, which is the most common, is given when the individual is unable to earn. Those are just some reasons why the old people get insured.

In the study conducted by Britta Stover, it shows how age could influence the consumption of an individual. It showed that old people consumes on durable goods like healthcare, pension, and insurance, unlike the young respondents who spends more on nondurable goods like food, and beverages.

This study proves it right because in the tally provided it showed that only the older people gets insurance; and the young people don't spend their allowance on those but rather spends it on necessity goods like rent, food and transportation.

Another study that was also proven to this study is the study conducted by Karlsson, et. al wherein they explained the effects of prior outcomes in decision making. In the study, it was observed that individuals consume less when they know that they will be having an income decrease but still has an available savings. It simply illustrates that the utility or consumption of the individual is constrained to its income or allowance. As observed in the gathered data, income is still higher than the consumption. It is because individuals either saves or dissaves. In saving, they do not use their savings for current consumption but rather use it for the future, unlike the case on dissaving. It happens when the individuals use their savings for present consumption. In the illustration given at Chapter I, specifically on the theoretical framework section, an individual dissaves only when it reaches the maximum working life. The reason behind this is that, during the working life, the individual saves accumulating assets. At the end of the working life, the individual begins to live off these assets, dissaving for the remaining years of life such that assets equal exactly zero at the end of life.

Figure 7. Purpose for Saving
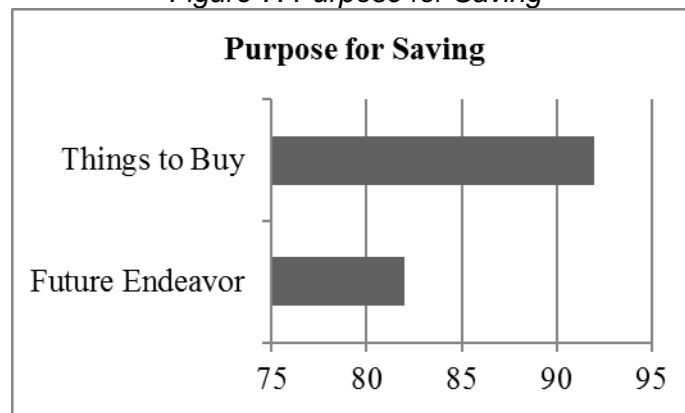
In the questionnaire, the respondents were asked what their purpose for saving their income or allowance is. The choices are either for future endeavor or for things to buy. Fifty-three percent (53%) of the respondents choose things to buy. It is also because of the idea that the respondents are still students and not yet planning for their future. The graph is presented above. But some respondents also have other reasons or purpose for saving. Others save for emergency purposes. It is because they consider their saving as their back-up money whenever they don't have money to spend.

Shefrin and Thaler's argument regarding the consumption of the individual is also captured in the study. They found out that an individual makes decisions based on their three mental accounts which are current income, assets and future income. When the respondents were distributing their income or allowance to their expenses, it already showed that their way of distributing is influenced by the three mental accounts. It also shows how they deal with intertemporal choice. It whether they will spend now or later. If they want to have that product they have been longing to have, they will save now, especially if for example it is on sale for a limited time. But when they answered for future endeavor, there is still an intertemporal choice that takes place because they still delayed their gratification just to save money for the future.

Figure 8. Save? or Spend?

8%

■ Save for future consumption
■ Spend it now

92%
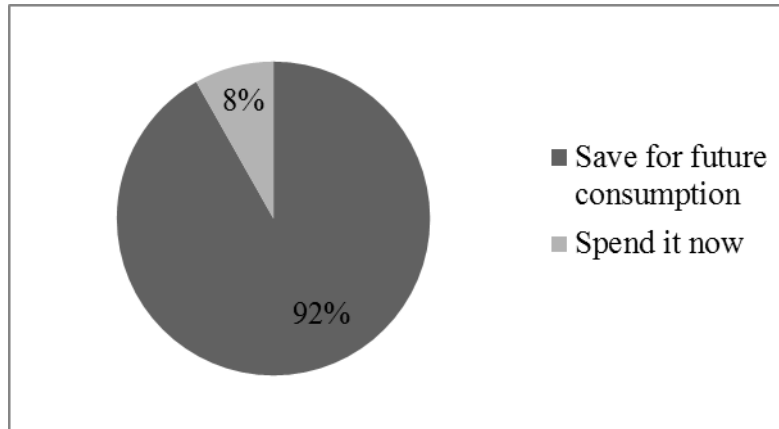
When the respondents were asked whether they prefer to save for their future consumption or consume all their income or allowance for current consumption and have no savings, 92% answered that they will save it and 8% answered that they will spend it now. The situational question only wants to determine how the respondents react when they are given a situation and needs an immediate answer. This part of the questionnaire also assesses the truth regarding on the intertemporal life-cycle theory of consumption.

4. Conclusion and Recommendations

Modern consumption theory emphasizes lifetime decision making. The life-cycle hypothesis emphasized choices about how to maintain a stable standard of living in the face of changes in income over the course of life. Aside from that, the degree of impatience of the individuals, consumption and saving behavior or patterns is also considered.

The life-cycle hypothesis views the individuals, instead, as planning their consumption and savings behavior over long periods with the intention of allocating their consumption in the best possible way over their entire lifetime. The assumption here is that, most people choose stable lifestyles, saving furiously in one period to have a huge spending spree in the next but consuming at about the same level in every period.

Intertemporal choice happens to every individual; whenever a student asks himself whether he will review today or tomorrow; or whenever you go to the mall and wants spend your money on a particular good, you will ask yourself whether you will spend it now or just save it and wait until that good will be on sale. Life is full of intertemporal choices. But the idea is, we make decisions that will maximize our utility. We spend or consume whenever we want to. During these situations, it only proves that intertemporal choices happen to us every day.

In this study entitled, "Intertemporal Life-Cycle Theory of Consumption", the researchers were able to determine the impact of age on the consumption of the individual. By constructing a structured questionnaire, they were able to gather the data needed in order to prove the assumptions of the Life –Cycle Theory. The objective of this paper is to determine the effect of savings, income and age on the consumption of an individual. In the regression results, it shows that only savings has a negative relationship with consumption. Therefore, as income and years of living increases, consumption also increases; but when savings increases, the consumption of the individual decreases. This also hold true on the assumptions given by Modigliani and Brumberg on the Life-Cycle Theory of Consumption. Young people will save so that when they are old and either, cannot or do not wish to work they will still have money to spend; because as they live through their golden years, the retirees sell off their assets to provide for food, housing and recreation. It is observed that wealth, income or allowances increases as their age increases.

The coefficient of the variables is quite high except the coefficient of the savings which is approaching to zero. The researchers recommend that a better data must be used for the savings and a large number of samples must be needed for the future studies. It is also because to test the

reliability of the data. More related literature must also be considered for the discrepancies that had happened in coming up with this study. There are many factors that influence consumption. For future studies, the researchers recommend to consider also the status, gender, educational attainment and other demographic factors in looking into its effect on consumption.

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Appendix

APPENDIX A

I. Data

Consumption	Income/Allowances	lnConsumption	lnIncome	Savings	Age
1500	2000	7.313220387	7.6009025	500	16
4000	4100	8.29404964	8.3187423	100	16
1710	6000	7.444248649	8.6995147	4290	16
1710	6000	7.444248649	8.6995147	4290	16
1500	2000	7.313220387	7.6009025	500	16
4000	4100	8.29404964	8.3187423	100	16
1710	6000	7.444248649	8.6995147	4290	16
2200	4000	7.696212639	8.2940496	1800	16
7000	10000	8.853665428	9.2103404	3000	16
6500	7000	8.779557456	8.8536654	500	16

Consumption	Income/Allowances	InConsumption	InIncome	Savings	Age
6000	8000	8.699514748	8.9871968	2000	16
749	2500	6.618738984	7.824046	1751	16
1700	2000	7.43838353	7.6009025	300	16
8400	7500	9.035986985	8.9226583	-900	16
6500	7000	8.779557456	8.8536654	500	16
6000	8000	8.699514748	8.9871968	2000	16
749	2500	6.618738984	7.824046	1751	16
1700	2000	7.43838353	7.6009025	300	16
8400	7500	9.035986985	8.9226583	-900	16
6500	7000	8.779557456	8.8536654	500	16
6000	8000	8.699514748	8.9871968	2000	16
749	2500	6.618738984	7.824046	1751	16
1700	2000	7.43838353	7.6009025	300	16
8400	7500	9.035986985	8.9226583	-900	16
8400	7500	9.035986985	8.9226583	-900	16
13000	8000	9.472704636	8.9871968	-5000	17
2500	4800	7.824046011	8.4763712	2300	17
5200	7100	8.556413905	8.8678501	1900	17
5200	7100	8.556413905	8.8678501	1900	17
13000	13000	9.472704636	9.4727046	0	17
2500	4800	7.824046011	8.4763712	2300	17
5200	7100	8.556413905	8.8678501	1900	17
2000	3000	7.60090246	8.0063676	1000	17
10000	10000	9.210340372	9.2103404	0	17
1500	2500	7.313220387	7.824046	1000	17
2100	2400	7.649692624	7.783224	300	17
2300	3000	7.740664402	8.0063676	700	17
5700	8000	8.648221454	8.9871968	2300	17
4200	5000	8.342839804	8.5171932	800	17
2850	3500	7.955074273	8.1605182	650	17
11000	13000	9.305650552	9.4727046	2000	17
964	2880	6.871091295	7.9655456	1916	17
2500	5000	7.824046011	8.5171932	2500	17
2020	5000	7.61085279	8.5171932	2980	17
3970	6000	8.286521374	8.6995147	2030	17
5000	5000	8.517193191	8.5171932	0	17
2500	5000	7.824046011	8.5171932	2500	17
2020	5000	7.61085279	8.5171932	2980	17
3970	6000	8.286521374	8.6995147	2030	17

Consumption	Income/Allowances	lnConsumption	lnIncome	Savings	Age
5000	5000	8.517193191	8.5171932	0	17
2500	5000	7.824046011	8.5171932	2500	17
2020	5000	7.61085279	8.5171932	2980	17
3970	6000	8.286521374	8.6995147	2030	17
5000	5000	8.517193191	8.5171932	0	17
5000	5000	8.517193191	8.5171932	0	17
3970	6000	8.286521374	8.6995147	2030	17
5000	5000	8.517193191	8.5171932	0	17
9200	10000	9.126958763	9.2103404	800	18
5900	2400	8.68270763	7.783224	-3500	18
14000	30000	9.546812609	10.308953	16000	18
4300	20000	8.366370302	9.9034876	15700	18
5900	2400	8.68270763	7.783224	-3500	18
5500	6000	8.612503371	8.6995147	500	18
5200	7700	8.556413905	8.9489756	2500	18
7800	8500	8.961879013	9.0478214	700	18
3000	3000	8.006367568	8.0063676	0	18
3950	7500	8.281470858	8.9226583	3550	18
5000	5000	8.517193191	8.5171932	0	18
4000	4000	8.29404964	8.2940496	0	18
4000	4000	8.29404964	8.2940496	0	18
10700	15000	9.27799902	9.6158055	4300	18
4000	5000	8.29404964	8.5171932	1000	19
10000	6000	9.210340372	8.6995147	-4000	19
4500	4000	8.411832676	8.2940496	-500	19
8000	13000	8.987196821	9.4727046	5000	19
4500	4000	8.411832676	8.2940496	-500	19
6500	6000	8.779557456	8.6995147	-500	19
2550	6000	7.843848638	8.6995147	3450	19
5000	7000	8.517193191	8.8536654	2000	19
5050	6200	8.527143522	8.7323046	1150	19
2100	2000	7.649692624	7.6009025	-100	19
2500	3500	7.824046011	8.1605182	1000	19
7400	8000	8.909235279	8.9871968	600	19
5050	6200	8.527143522	8.7323046	1150	19
2550	6000	7.843848638	8.6995147	3450	19
2550	6000	7.843848638	8.6995147	3450	19
5000	7000	8.517193191	8.8536654	2000	19
5050	6200	8.527143522	8.7323046	1150	19

Consumption	Income/Allowances	InConsumption	InIncome	Savings	Age
2100	2000	7.649692624	7.6009025	-100	19
2500	3500	7.824046011	8.1605182	1000	19
7400	8000	8.909235279	8.9871968	600	19
2100	2000	7.649692624	7.6009025	-100	19
2500	3500	7.824046011	8.1605182	1000	19
7400	8000	8.909235279	8.9871968	600	19
3000	4000	8.006367568	8.2940496	1000	19
1300	1500	7.170119543	7.3132204	200	19
7000	8000	8.853665428	8.9871968	1000	19
2300	4000	7.740664402	8.2940496	1700	19
2100	2000	7.649692624	7.6009025	-100	19
2500	3500	7.824046011	8.1605182	1000	19
7400	8000	8.909235279	8.9871968	600	19
3000	4000	8.006367568	8.2940496	1000	19
1300	1500	7.170119543	7.3132204	200	19
3000	5000	8.006367568	8.5171932	2000	19
7000	7000	8.853665428	8.8536654	0	20
6800	8000	8.824677891	8.9871968	1200	20
7000	7000	8.853665428	8.8536654	0	20
4160	5200	8.333270353	8.5564139	1040	20
1700	2000	7.43838353	7.6009025	300	20
3000	3000	8.006367568	8.0063676	0	20
10920	13500	9.298351249	9.510445	2580	20
1500	2000	7.313220387	7.6009025	500	20
10100	12500	9.220290703	9.4334839	2400	20
2900	3600	7.972466016	8.1886891	700	20
7800	7500	8.961879013	8.9226583	-300	20
1500	2000	7.313220387	7.6009025	500	20
10100	12500	9.220290703	9.4334839	2400	20
4160	5200	8.333270353	8.5564139	1040	20
1700	2000	7.43838353	7.6009025	300	20
3000	3000	8.006367568	8.0063676	0	20
10920	13500	9.298351249	9.510445	2580	20
1500	2000	7.313220387	7.6009025	500	20
10100	12500	9.220290703	9.4334839	2400	20
2900	3600	7.972466016	8.1886891	700	20
7800	7500	8.961879013	8.9226583	-300	20
2900	3600	7.972466016	8.1886891	700	20
7800	7500	8.961879013	8.9226583	-300	20

Consumption	Income/Allowances	lnConsumption	lnIncome	Savings	Age
9000	10500	9.104979856	9.2591305	1500	20
2900	3600	7.972466016	8.1886891	700	20
7800	7500	8.961879013	8.9226583	-300	20
11000	3000	9.305650552	8.0063676	-8000	22
2300	4000	7.740664402	8.2940496	1700	22
11000	11300	9.305650552	9.332558	300	22
11000	3000	9.305650552	8.0063676	-8000	22
11000	7500	9.305650552	8.9226583	-3500	22
8000	8000	8.987196821	8.9871968	0	23
2500	2500	7.824046011	7.824046	0	23
8000	8000	8.987196821	8.9871968	0	23
8000	8000	8.987196821	8.9871968	0	23
8000	8000	8.987196821	8.9871968	0	23
8000	8000	8.987196821	8.9871968	0	23
48000	50000	10.77895629	10.819778	2000	25
36000	51000	10.49127422	10.839581	15000	26
36700	48000	10.51053203	10.778956	11300	35
9000	47200	9.104979856	10.762149	38200	45
9000	23600	9.104979856	10.069002	14600	45
33000	52000	10.40426284	10.858999	19000	45
42000	74000	10.6454249	11.21182	32000	51
12000	59200	9.392661929	10.988677	47200	52
12000	29600	9.392661929	10.29553	17600	52

II. Regression Result

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.926795299
R Square	0.858949526
Adjusted R Square	0.856051229
Standard Error	0.298613609
Observations	150

ANOVA

	df	SS	MS	F	Significance F
Regression	3	79.2802743	26.42676	296.3635	7.21347E-62
Residual	146	13.0188328	0.08917		
Total	149	92.299107			

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%	Lower 95.0%	Upper 95.0%
Intercept	-1.879454258	0.36442091	-5.15737	8.02E-07	-2.599675926	-1.15923	-2.599676	-1.15923
lnIncome	1.108806916	0.04322106	25.65432	5.89E-56	1.023387163	1.194227	1.023387	1.194227
Savings	-8.48055E-05	6.5776E-06	-12.8931	7.15E-26	-9.78051E-05	-7.2E-05	-9.78E-05	-7.2E-05
Age	0.043779941	0.00635101	6.893377	1.52E-10	0.031228141	0.056332	0.031228	0.056332

APPENDIX B

Name (optional):_____ Age:

_____

Province: _____ City/Municipality:

_____

Gender: ☐ Male ☐ Female

Status: ☐ Single ☐ Separated Unofficially ☐ Marriage Annulled ☐ Religious/Clergy
☐ Married ☐ Legally Separated ☐ Widow/Widower

Education Attainment: ☐ Elementary ☐ Undergraduate ☐ Master's Degree
☐ High School B Bachelor's Degree ☐ Doctorate Degree

I. Directions: Read the ☐ questions carefully a☐ do not leave anything ☐ ank. Put a (/) check mark in questions that needed to be check and indicate numbers when needed.

1. Are you an income earner? _____Yes _____ No
2. If No, How much is your allowance as a student (monthly)?_____
3. At what age do you plan to work? _____
4. If Yes, How much is your income (monthly)? _____
5. At what age did you start working? _____
6. Do you have other sources of income? _____Yes _____No
7. In the preceding question, can you specify what your other sources of income are?
_____
8. What are your monthly expenses?
___Food ___Transportation
___Utilities ___Insurances
___Rent ___Others: (please specify) _____
9. How much do you spend for each per month?
_____Food _____Transportation
_____Utilities _____Insurance
_____Rent _____Others: (please specify) _____
10. Where do you get the money you use for spending?
___Cash on Hand (Assets)___Income/Wages/ Salaries
___Savings___Others: (please specify)_____

11. Do you save?_____Yes_____No
12. If yes, how much do you save per month when you receive your income or allowance?
    _____
13. How much is your estimated monthly "savings"?
    _____
14. How much do you spend in your income?
    _____
15. Do you put your savings in financial institutions or banks? _____Yes_____No
16. How much do you spend for durable goodsper month?
    _____
17. How much do you spend for nondurable goods per month?
    _____
18. What is your purpose for saving part of your income/allowance?
    ___Future Endeavor___Things to buy
19. What percentage of your income goes to consumption?
    __ 50%
    __80%
    __ 60%
    __ 70%
20. When did you start saving?
    _____ Elementary
    _____ During Employment
    _____ High School
    _____ College
21. Are you willing to delay your income for future consumption? _____ Yes_____ No
22. Would you prefer to save for your future consumption or consume all yourincome for the current events and have no savings?
    _____Save
    _____Spend
23. At what age do you plan to retire? _____

Questions 24-26:

Scenario1: You want to buy an iPhone 6 because you want to be more updated in the generation and you really want to have it.

Scenario 2: You have broken television and thinking that if whether you will buy another or not.

24. What will you choose to buy, an iphone6 for the short term period or television for the long term period?
Why?_____
_____

25. Will you be more satisfied with the iPhone 6 or with the new appliance?
_____
_____

26. Are you going to save money just to buy either iPhone 6 /TV or you will buy those using your allowance/wage for the next month? Yes? No?
_____
_____

27. If you wish to buy either of the two, where will you get the money you will use to buy assuming you have NO SAVINGS?
_____

28. Same question with number 27 but assuming you have SAVINGS?
_____
_____

-END-
Thank you and God bless you! ☺