

## **4P Marketing & Housewives' Expenditure: Multiple Regression Model**

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### **Abstract**

This research aims to examine the relationship between the influence of 4P marketing (price, product, place and promotion) and spending patterns of households, specifically housewives. The research applies statistical approach by utilizing primary data in this study. Thus, this study emphasizes 4P marketing to assess its influence toward expenditure allocation patterns among housewives. Generally, the analysis suggests that the patterns of housewives' expenses are influenced by 4P factors. The result further indicates that such factors as, promotion and place, play vital roles and give positive impacts on housewives' expenditure. Thereby, these two factors, in particular, are crucial in determining the direction of households expenditures incurred by housewives, who are responsible for their families' spending. Yet, the findings does not deny price as another contributor to spending pattern among housewives. However, the impact is not nearly as important as the effect of promotion and place on housewives' spending. There exists a positive relationship between price and housewives' spending whereby, as price increases, housewives' expenses are likely to rise, as well. In addition, a positive relationship, between price and spending patterns among housewives, affects inflation rate at micro level. Nonetheless, in this case, product is not an important factor in influencing the pattern of housewives' expenditure.

**KEYWORDS:** Multiple Regression Model, Influence of 4P Marketing, Housewives' Spending Pattern

### **Introduction**

Consumption is closely related to the issue of household spending pattern in meeting a family needs. Therefore, smart financial management is crucial to a family's well-being. Effective finance management ensures every source of financial received, can be enjoyed fairly by each family member. This includes fulfilling a family's basic needs such as food, health, education, shelter, transportation and leisure activities.

Spending patterns of households are largely influenced by the type of goods bought and their spending power. Consumers will decide whether to spend their incomes for luxury goods, common goods or inferior goods. Given recent phenomenon that is not only happening in

Malaysia but throughout the world lately, a hike in goods and services also lead to rise in spending.

According to data obtained from Household Expenditure Survey in 2014, the average monthly household spending increased from RM2,190 as recorded in 2009 to RM3,578 in 2014, with an annual growth rate of 9.8% per annum (Department of Statistics, 2015). The report findings also reveal that six states exceeded the above national growth rate within the period 2009-2014. Those states namely, W.P. Putrajaya (12.7%), Johor (12.7%), W.P. Kuala Lumpur (12.1%), Selangor (11.1%), Terengganu (10%) and Negeri Sembilan (10%), showed a hike in consumption expenses between 10% and 13%. Furthermore, the report also demonstrated that housing, water, electricity, gas and other types of energy, were the highest contributor to overall households' spending. The expenses surged by 23.9 percent in 2014, in contrast to 22.6 percent in 2009, followed by the expenditure on food and non-alcoholic beverages, which dropped slightly to 18.9 percent, from 20.3 per cent, restaurants and hotels soared by 1.8 per cent to 12.7 percent from 10.9 percent, respectively while transportation expenses, more or less remained the same around 15 percent (Department of Statistics, 2015).

It can be inferred from the above statistics that households' consumption spending is increasing. Therefore, the question arises, what are the main causes of the hike in households' expenditure? Households' budget and spending pattern revolve around whether they are heavily influenced by the type of goods and purchasing power or households' income, when deciding to make households' purchases. In fact, most of their purchases are influenced by a marketing strategy, also known as marketing mix.

According to the American Marketing Association, marketing is a process of planning and implementation of pricing, promotion and distribution of goods or services, so that the exchange process can be carried out which will satisfy individual and organizational objectives. In addition, Scheff and Kotler (1996) define marketing as a social or management process whereby individuals or groups get what they want and need, either by creating goods by themselves or through changing products or values with others. Marketing is closely related to four marketing factors (4Ps), namely product, price, promotion and place. 4P marketing factors refers to the products in the market, the prices of goods, the promotion involved and the location (place) of buying. Consumers engage in marketing when they find products they need at prices they can afford. Meanwhile, company purchasing agents engage in marketing as they keep track of vendors and make bargains for best buying.

Therefore, this research aims to examine the relationship between consumption and spending patterns of households, specifically housewives, towards the influence of 4P marketing (price, product, place and promotion). For that purpose, this study utilizes statistical approach by using sets of questionnaires given randomly to 200 housewives in Johor. Thereby, this study emphasizes 4P marketing to assess its influence toward consumption expenditure patterns among housewives.

## Literature Review

This section discusses studies that have been done, regarding households' spending patterns and 4P marketing strategies, by researchers such as Kievetz (2005), Kusumaningrum (2008), Asamoah and Chovancova (2011), Rambeli, et. al (2013a, 2013b, 2015) and others as mentioned below. These past findings of other researchers are to find out what are already known and what can be done about the topic. Besides, the role of past studies have also identified theories that are related to the study (if any) and reinforce the views and arguments and upheld the findings of the study in progress.

According to Masud (1982), Chinese housewives have had larger incomes, spent more, and saved more than their Malay counterparts. However, the credit buying patterns of the two groups were similar, although about a third of both groups never used credit. It is suggested that education in the effective management of family resources could lead to an improvement in the quality of life of the families. Yusoff and Abdul Aziz (2012) find that women in Kuala Teriang, Langkawi, are empowering themselves through undergone trainings and work experiences apart from generating additional families' incomes. My point being, spending patterns of individuals, families or households are necessary in the preparation of development plans, especially in community development. Knowledge of consumption patterns and behavior as well as the management of family resources is important for families to understand the society in order to achieve the goal of raising the quality of their lives. Family resources are limited and must be managed as efficiently as possible to meet the needs and unlimited wants.

Mass media gives positive impact toward advertising in promoting products and services. Kivetz (2005) asserts the use of mass media as a medium to advertise commercial products have been widely studied. Furthermore, he believes that one way that is often used to introduce the product to the audience is through advertisements in various mass media such as television, internet and magazines. In contrast, Kusumaningrum (2008) finds that all 4P marketing contribute to the consumption expenditure of preserved fruits sold at supermarkets in Surakarta, Indonesia. Product factor is the most outstanding factor when it comes to buying preserved fruits, while promotion is ranked as the least important factor.

Asamoah and Chovancova (2011) study the interrelationship between marketing and microeconomics with regards to the fast food industry. Consumers' decision to spend is heavily dependent upon marketing communication mix and culture across countries. Thus, consumers may act irrationally under the influence of marketing communication mix at micro level. In addition, Rambeli et. al. (2013a, 2013b) further support marketing mix strategy where it is seen as vital tools in ensuring customers' satisfaction, companies' profitability and product sustainability. Moreover, Rambeli et. al. (2015) later investigate the spending patterns and attitudes of housewives as well as the factors that influence spending patterns among housewives. The result delineates that price is the leading factor in influencing housewives' expenditure patterns, whereas location is the least contributor to the spending patterns. More importantly, housewives are more likely to spend according to their needs only.

Furthermore, study done by Panatik, Mad Shah & Rajab (2004) at three supermarkets in Johor Baharu, state that consumers are conscious about the quality of the products before making purchases. Decision making process of buying behavior is significantly different based on

ethnicity, marital status, age, education level and employment status of the respondents, while not the case with gender. Zakaria, Rusli and Abu Dardak (2009) further stress that product and place play important role in determining to buy frozen foods among 1042 respondents, in six zones all over Malaysia. Consumers prefer to buy local products compare to imported products. Besides, they enjoy to do their shopping in supermarkets, instead of groceries and convenient stores. The same is also true to Thai frozen foods. Chatthipmongkol and Jangphanish (2016) affirm that product is the main marketing factor that influencing frozen foods.

In addition, Teunter (2002) specifies that household sizes and promotion are positively related while non school age children and promotion are negatively related. She also finds that consumers adopt either one of these two mechanisms, purchase timing and purchase quantity are two interdependent mechanisms in reaction to sales promotion. Fornell, Robinson and Wernerfelt (1985) form an economic theory of habit formation through consumption learning. They conclude that, well-established brands benefit from promotion with high advertisement-sales ratios whereas less-established brands suffer low advertisement-sales ratios. In another study, Valette-Florence, Guizani and Merunka (2011) find a positive impact of brand personality on brand equity, but a negative impact of sales promotion on brand equity at aggregat level.

On the other hand, Munusamy and Wong (2008) conduct a study on TESCO brand products in three Klang Valley areas. They reveal that pricing is the only positive factor that influence customers' motive when it comes to buying TESCO brand products. They also disclose that promotion is negatively relatively to customers' motive while product and place have no impact at all.

## **Methodology**

This study is conducted by using primary data through given questionnaires to 200 housewives in Johor. The respondents of the questionnaires, who are selected randomly, will answer either face to face or via post. The survey method is very popular in social science research. It is generally used to determine the attitudes, beliefs, values, demographics, behaviors, thoughts, habits, desires, ideas and other information relating to a group of people, where these subjects cannot be observed directly (Idris, 2010). This sample survey is needed to describe the various aspects of the characteristics of the population from which the sample is selected.

All data are collected, coded and analyzed using the software Statistical Package for Social Science (SPSS) version 20. Before any analysis is carried out, all data are filtered in advance. Data filtering is carried out to see the actual characteristics that existed before the analysis can be carried out. Filtering data is vital in ensuring that data is accurate and analyzed the distribution of normality accepted as a condition of inferential statistics (Coakes & Steed, 1997). In addition, filtering is also carried out to identify the existence of missing value arising from the failure of the respondent to answer the questionnaire provided and thus, may affect data analysis.

In this survey, we would like to gather information, whether 4P marketing mix does influence the expenditure pattern among housewives or not. Once the required data is collected, results will be analyzed using basic econometric analyses in order to identify the relationship between each of these variables. Basic econometric analyses used in this study are

R-squared, F-test, Multiple Regression and Pearson Correlation analyses. Below are brief explanations of analyses used in this study.

R-square is a statistical measure of how close the data are to the fitted regression line. It is also known as the coefficient of determination, or the coefficient of multiple determination for multiple regression. The definition of R-squared is fairly straight-forward; it is the percentage of the response variable variation that is explained by a linear model. It can also be written as:

$$R\text{-squared} = \text{Explained variation} / \text{Total variation}$$

R-squared is always between 0 and 1: 0 indicates that the model explains none of the variability of the response data around its mean. 1 indicates that the model explains all the variability of the response data around its mean. In general, the higher the R-squared, the better the model fits your data. Nevertheless, in this case, it is entirely expected R-squared values will be low. Ismail, Yunus and Kamis (2011) state that, the relatively low coefficient of determination is usually obtained when the regression model employs primary data. My point being, any field that attempts to predict human behaviour typically has R-squared values lower than 50%. Humans are simply harder to predict than physical processes.

In general, an F-test in regression compares the fits of different linear models. F test is also known as ANOVA Simultaneous Hypothesis Test. The F-test can assess multiple coefficients simultaneously, unlike t-test. While R-squared provides an estimate of the strength of the relationship between your model and the response variable, it does not provide a formal hypothesis test for this relationship. The overall F-test determines whether this relationship is statistically significant. If the P value for the overall F-test is less than your significance level, you can conclude that the R-squared value is significantly different from zero.

In addition, multiple regression test is an extension of simple regression test. This test is a method used to examine the relationship between a dependent variable and other variables studied. The relationship can be shown in two ways, namely, positive and negative relationships. Meanwhile, variables are classified into two, that are, dependent variable and independent variables. The dependent variable is determined by the value of another variable, while independent variables are known value that do not depend on other variables.

Based on Gujarati and Porter (2009), a general model for a common form of multiple linear regression model is as follows:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \dots + \beta_k X_k + \varepsilon \quad (1)$$

where

- Y = Dependent variable
- $\beta_0$  = Constant
- $\beta_1$  = Coefficient of Partial Regression of  $X_1$
- $\beta_2$  = Coefficient of Partial Regression of  $X_2$
- $\beta_k$  = Coefficient of Partial Regression of  $X_k$
- $\varepsilon$  = error term

Specifically, this study anticipates that 4P marketing bring positive impact on housewives' spending pattern. Hence, the estimation model is as follows;

$$Y = b_0 + b_1Pduk + b_2Hga + b_3Psi + b_4Tpat + \varepsilon \tag{2}$$

where

Y = Housewives' Expenditure in a Month

$b_0$  = Constant

$Pduk$  = The Influence of Product

$Hga$  = The Influence of Price

$Psi$  = The Influence of Promotion

$Tpat$  = The Influence of Place

Lastly, correlation is a technique for investigating the relationship between two quantitative, continuous variables. Pearson's correlation coefficient (r) is a measure of the strength of the association between the two variables. Pearson's correlation coefficient (r) for continuous (interval level) data ranges from -1 to +1: Positive correlation indicates that both variables increase or decrease together, whereas negative correlation indicates that as one variable increases, so the other decreases, and vice versa.

### Result Findings

This segment discusses the findings of multiple regression estimation model. This section also touches on specific analyses that are useful in understanding this study.

Table 1: Regression Estimated Model

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.412 <sup>a</sup>	.170	.153	1350.05824

a. Predictors: (Constant), Place, Price, Promotion, Product

Table 1 depicts the coefficient of determination ( $R^2$ ) value of 0.170. It indicates that 17% of changes in dependent variable, Y is explained by the independent variables,  $X_1$ ,  $X_2$ ,  $X_3$  and  $X_4$ . Meanwhile, 83% of the change in Y is explained by other factors outside the model, known as estimation error. Thus, it points out that product, price, promotion and place can affect housewives' expenditure. Apparently, the purpose of this research coincides with the result that shows the effect of 4Ps toward housewives' spending is applicable only at micro level. Despite the fact that higher  $R^2$  value is preferable, it is important to note that it is common to get lower  $R^2$  when dealing with primary data. To elaborate, Ismail, Yunus and Kamis (2011) mention that the relatively low coefficient of determination is usually obtained when the

regression model employs primary data. Hence, it does not give an impact to the estimation model.

The F value (wald) is 9.953, due to  $p = 0.00$ , then, F value is significant at  $\alpha = 0.01$ . Significance in this case means that the variation explained by the model is not by chance alone. Thus, null hypothesis is rejected. Hence, we can conclude that at least one of the independent variables is associated with housewives' spending allocation.

Table 2: Result of Multiple Regression Analysis for Housewives' Expenditure

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	826.977	1187.077		.697	.487
	Product	13.045	25.723	-.039	.507	.613
	Price	60.146	39.793	.101	1.511	.132
	Promotion	141.985	29.547	.354	4.805	.000
	Place	96.033	30.661	-.211	3.132	.002

a. Dependent Variable: Housewives' spending allocation.

Based on Table 2, the analysis result is shown as follows,

$$\hat{Y} = 826.977 + 13.045 \hat{P}_{duk} + 60.146 \hat{H}_{ga} + 141.985 \hat{P}_{si} + 96.033 \hat{T}_{pat}$$

$$se = (1187.077)(13.045) \quad (39.793) \quad (29.547) \quad (30.661)$$

$$t = (0.697) \quad (0.507) \quad (1.511) \quad (4.805) \quad (3.132) \tag{3}$$

Based on model (2), the findings suggests that all regression coefficients, 4P variables, give positive influence to housewives' expenditure. In other words, the ratio of these variables increase in line with the sum of money allocated to housewives.

Doubtlessly, promotion is the most salient factor in the marketing mix that influence the way housewives spend their money. Promotion has the highest positive impact against housewives' spending. To illustrate, whenever promotional expenses rise by RM100, housewives' spending will leap up by RM141.985, as well. Besides, this outcome is supported by Beta coefficient of 0.354, which rank promotion as the biggest influence in determining housewives' expenditure. Meanwhile, place makes second highest influence toward housewives' spending, follows by price and product.

Table 3: Correlation (Housewives' Spending)

Pearson Correlation		Housewives' Spending Allocation	Product	Price	Promotion	Place	Influence of 4P
Housewives' Spending Allocation	Pearson Correlation	1	.097	.132	.334**	.198**	.150*
	Sig. (2-tailed)		.171	.063	.000	.005	.034
	N	200	200	200	200	200	200
Product	Pearson Correlation	.097	1	.224**	.461**	.235**	.832**
	Sig. (2-tailed)	.171		.001	.000	.001	.000
	N	200	200	200	200	200	200
Price	Pearson Correlation	.132	.224**	1	.113	.004	.436**
	Sig. (2-tailed)	.063	.001		.111	.960	.000
	N	200	200	200	200	200	200
Promotion	Pearson Correlation	.334**	.461**	.113	1	.062	.693**
	Sig. (2-tailed)	.000	.000	.111		.381	.000
	N	200	200	200	200	200	200
Place	Pearson Correlation	.198**	.235**	.004	.062	1	.505**
	Sig. (2-tailed)	.005	.001	.960	.381		.000
	N	200	200	200	200	200	200
Influence of 4P	Pearson Correlation	.150*	.832**	.436**	.693**	.505**	1
	Sig. (2-tailed)	.034	.000	.000	.000	.000	
	N	200	200	200	200	200	200

\*\*Correlation is significant at the 0.01 level (2-tailed).

\*Correlation is significant at the 0.05 level (2-tailed).



Table 3 demonstrates the result of Pearson Correlation analysis. Pearson Correlation measures the strength of an association between paired data. The value of the correlation coefficient is between -1 and 1. The closer the correlation coefficient to -1 and 1, the stronger the correlation. The relationship between two variables can be positively correlated, negatively correlated or no correlation at all.

From the table, the analysis delineates that housewives' expenditures are strongly and positively correlated with promotion and place, at 99% confidence level. It means that housewives are more likely to spend under the influence of promotion and place. Increase in promotion and place will escalate housewives' expenditure allocation, as well. In other words, promotion and place are vital factors that contribute to housewives' spending decision.

## **Conclusion**

The goal of this study is to examine issues related to housewives' expenditure and to what extent it influences 4P marketing, which is done using questionnaires. Previously, there had been many studies conducted to look at this relationship. However, researchers had rarely given close attention to study spending pattern, specifically done by housewives.

Accordingly, this research results are expected to give an initial overview for researchers in such studies that are associated with the effect of 4P in housewives' expenses. The findings denote the influence of promotion and place as preeminent factors for housewives before making decision to spend their money. Subsequently, price is rank third in determining the direction of households' expenditure. On the other hand, product is not deemed as important factor in housewives' spending pattern.

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