ERASMUS UNIVERSITEIT ROTTERDAM

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Understanding Consumer Preference towards Wristwatch Buying Decision through its

Product Attributes: A Study of Indonesian Consumers

Bachelor Thesis

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Abstract

The purpose of this study is to analyze consumers' preference towards a wristwatch by assessing consumers' valuation on each attribute of the product. Consumers choose an option that gives them the highest utility, and thus it is believed that consumers' preference can be observed through their choices. This study uses a discrete choice experiment to reveal true preferences. It is found that attribute price, strap materials, and movements have significant influence in the process of determining preferences. On the other hand, brands and additional features have no significant influence. Price is found to be the most important among all attributes. This study indicates demographic variable of gender plays a significant role in determining preferences. The most significant interaction is found between gender and strap materials. Another demographic variable, age, is divided into two sub-generations, Y and Z. However, this variable doesn't yield big influence in determining consumers' preference. This study aims to help wristwatch manufacturers to understand the true preferences of Indonesian consumers, thus a discussion on several managerial implications are also included. This study also suggests several directions for future research related to consumer preference.

Chapter 1

Introduction

1.1 Background

In recent years, the Indonesian government has intensely encouraged the growth of creative industry in the country. This is evidenced by Indonesia Creative programme from Indonesian Ministry for Tourism and Creative Economy, which was designed to implement the economic development blueprint launched by President (Susilo Bambang Yudhoyono) in 2008 (Setiadi et al., 2012). The attempt is still maintained until the era of Joko Widodo presidential, with the establishment of an independent agency called Badan Ekonomi Kreatif (Bekraf) in 2015, which responsible for promoting and developing the creative economy in Indonesia. Acceleration of economic growth, reduction of the unemployment rate, and the creation of 10 million new work fields within five years are the underlying motivation of this effort (Srimulyati et al., 2017). Moreover, it has driven many Indonesian youths to build their own company and create local brands. The awareness towards this trend gradually increasing over the past few years. According to Bekraf, Indonesian government classifies creative industry into 16 sub-sectors as the main focus to be developed, including Design and Fashion sector. The former consists of graphic design, interior design, product design, industrial design, and so forth, while the latter consists of activities associated the creation, production and distribution of clothing, footwear, and other fashion accessories (Nazamuddin, 2016). Hence, it is believed that local wristwatch manufacturers fell into these two categories.

Currently, there are many local wristwatch manufacturers within the industry, which mainly offer a product with a price range below those international brands that have been playing in Indonesian market before them. In the study of differences between local and international brands (Schuiling and Kapferer, 2004), it defined the local brand as a brand that exists in one country and may belong to the local, international, or global firm, and defined the global brand as international brand that uses globalized elements on their marketing strategy. However, in this study, the author refers local brand as a brand that originally comes from Indonesia, typically small start-up company, and have not competed on the international market. Indonesian creative

industry product offerings are still lacking in variety of design (Nazamuddin, 2016), which can be associated to the reason of the slow sales growth and the inability of competing with international brands. Moreover, consumer notice that these local brands have similar offerings with each other, or even with the global brands. Differentiation of the product offering is believed to be the key to successfully target consumers. Indonesian start-up wristwatch manufacturers should make a unique offering to be able to compete in the market. In order to successfully differentiate its product offering, companies should understand the consumer preference.

Consumer preference is a positive motivation which expressed through affective compatibility of a product or service (Voicu, 2013). Understanding consumer preferences is a pivotal aspect for companies to determine and differentiate its product offering. Unfortunately, preferences cannot be directly observed as people's feeling of pleasure and pain are unobservable (Angner, 2016). Moreover, most people are not aware of the underlying intention of their decisions, they simply make choices. What is possibly done is observing people's choices. In recent studies, many researchers have proved that it is possible to measure consumer preferences effectively through their choices. People will choose a product or service which give them the highest utility. When defining utility, people will evaluate certain features or attributes of the product (Lancaster, 1971). Hence, it is believed observing consumers' valuation of product attributes might be an effective way to find their true preferences. The level of consumer preference is one of the crucial aspects that need to be taken into consideration when specifying strengths and weaknesses of competitors within the market (Voicu, 2013). Studying true consumers' preference is believed can accommodate local watch manufacturers in Indonesia to be able to compete in the Indonesian market, and in the future, in International market.

1.2   Scientific and Social Relevance

The aims of this study are to contribute several objectives and purposes to the society. In the industry scope, there are five main constraints often faced by Indonesian creative industry: 1) lack of skilled and trained labor; 2) lack of R&D and innovation; 3) lack of technology; 4) limited market; and 5) lack of supporting policies (Nazamuddin, 2016). The purpose of this study is to provide information as well as contribute to the growth of Indonesian creative industry, primarily regarding the problems of lack R&D and innovation. For corporate purposes, this study aims to deliver deeper insight for corporations, especially Indonesian local start-up watch manufacturers to be able to compete in the global market by knowing the true consumer preferences, and thus able to differentiate its products offering.

For academic purposes, this study also intended to offer more information to further research in the same field of study, specifically for consumer behavior in depth scope of decision-making process and understanding of consumer preferences. Lastly, for consumers, this study is hoped to give more knowledge especially in the scope of the creative industry, how people make purchasing decisions, and increasing the awareness towards local brands.

1.3   Problem Statement and Research Question

In forming preferences, consumers give different value in each product attribute. The assumption that consumers base evaluation on several attributes that are in line with their goal of using the product, increase the importance of understanding consumers' true preferences by finding attributes that significantly affect their buying decision. Problems arise when companies, especially in this study, local watch manufacturers in Indonesia have no information regarding the important key attributes that are in line with their target consumers' goal. Regarding the problem explained, the main research question for this study is as follows:

What are the key attributes that influence Indonesian consumer preference towards the decision of buying a wristwatch?

In order to answer the main research questions above, it is further divided into sub-questions that will guide this thesis:

1) What is the most important attribute for Indonesian consumer in the selection of wristwatch?
2) Does gender play a role in determining preferences for a wristwatch?
3) Does age play a role in determining preferences for a wristwatch?

1.4   Research Objective

Considering the problem statement and research questions above, the objectives of this study is to analyze the key attributes of wristwatch which influence Indonesian consumer preference on their buying decision and find the most significant attribute to them as well. Additionally, this study aims to find any demographic variables, such as gender and age, that possibly affect consumer preferences towards a wristwatch buying decision. As the underlying motive of this study is to deliver deeper understandings of consumer preferences in Indonesia, this study will focus on Indonesian consumer. The result of this study is expected to help Indonesian local watch manufacturers to understand their target consumers' preferences, and hence able to differentiate their product as well as capturing the bigger market.

1.5   Research Structure

Chapter 1 serves as an introduction to this thesis, as it explains the underlying aims of conducting the study. It consists of background information on why this study is interesting and relevant to the current problem in society, a brief description of the method that is used and how data are collected. Moreover, it consists of problem statements and research questions that guide this study, as well as the research objectives. Chapter 2 contains several relevant theory to conduct this study. Consumer Decision Making Process on consumer behavior is the basic theory, which leads the explanation to the intended variables studied, product attribute and consumer preferences. Hypotheses are also formulated in this part. Chapter 3 gives detail explanation of the methodology used in this study as well as the data collection procedure. This study uses a discrete choice experiment to reveal consumer preferences towards purchasing

decision on wristwatch product. Chapter 4 describes the analysis and the result of data collected. JMP software is used to generate choice sets as well as analyzing the data to specify the true preferences of consumers. Lastly, chapter 5 provides a discussion about how the result analyzed could be implemented in real society, implications for managers, and some limitations for future research.

1.6   Research Process and Methodology

Methodology Used

This thesis uses Discrete Choice Experiment to determine consumer preference towards wristwatch through its product attributes. Desk research and exploratory research with an in-depth interview are conducted to determine numbers of attributes and levels regarding wristwatch purchase decision to properly examine consumer preferences. The combination of both product attributes and levels are used to create choice designs. JMP, a statistical software is used to generate the choice design as well as generating and analyzing the data collected. Likelihood Ratio Test, Effect Marginals, Utility Profiler, are tools within JMP that are used in the study to get deeper understandings of consumer preference through their assessment of each product attributes. Besides the choice sets generated by JMP software, simple demographic questions are also included in the survey to identify other relevant variables, such as age and gender.

Data Collection

On the exploratory research, 10 people are interviewed to determine relevant product attributes. Afterward, specified attributes are used to create choice designs using JMP for questionnaire purposes. Data collection is conducted in the form of an online survey. As explained before, numbers of choice sets and demographic questions are included in the survey. The sample of the survey consists of Indonesian society, as this study focuses on Indonesian consumer preference. People aged 18 - 35 are the main target sample, as it is believed to be the main target segment of most start-up local watch manufacturers in Indonesia. Both men and women are targeted to prevent gender bias.

Chapter 2
Theoretical Framework

2.1 Consumer Decision Making Model

People encounter decision making in everyday life. Nearly all activities involve decision making, some are made consciously, some are not. In a study of consumer decision making models (Erasmus, A. C. et al., 2001), it is mentioned that decision making is a multi-staged and complex process involving several factors that elicit problem recognition, initiating actions to reach satisfaction or dissatisfaction (Harrel, 1990:740; Cox, Granbois & Summers, 1983:394).

There are several models that can be used to break down consumers' mindset while selecting a product. This study takes The Five-Step Model conceived by Cox et al (1983), as the underlying theory of decision making. It explains the process in five steps classification from problem recognition to post-purchase evaluation. Problem recognition where consumers' decision process begins, refers to the perceived difference between an ideal state, the way consumers want a situation to be, and an actual state, the real situation (Hoyer et al., 2013:185). In this stage, consumers will recognize needs that are necessary to be fulfilled, which leads them to look for information. Information search might be internal using own memory, or external, from family, peers, and market. Alternatives comparison is the stage where consumers compare alternatives based on their attributes and seek the best deal which will satisfy their wants and needs. The process followed by Purchase and Post-purchase evaluation stage.
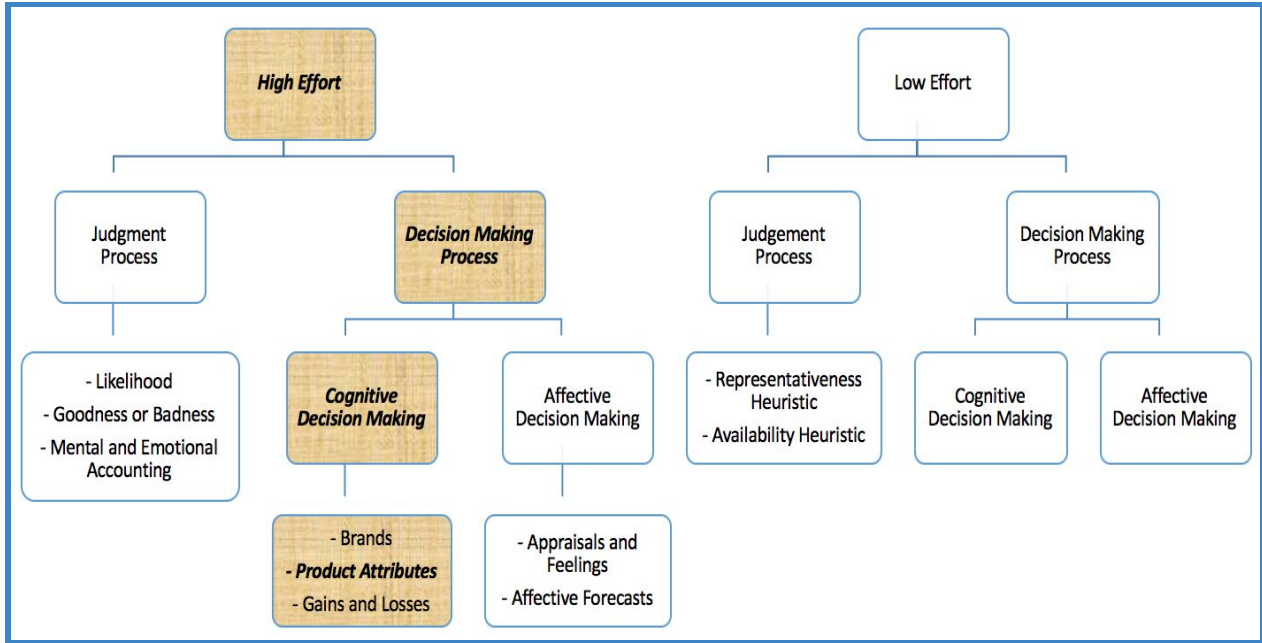
Figure 1: Consumer Decision Making Process Model

To limit the scope of this study, the explanation will be focused on the stage of Evaluation of Alternatives. According to Hoyer et al (2013:12), decision making is affected by the level of effort consumers give in doing their evaluation. It is divided into High-effort decision making and Low-effort decision making. Evaluation of offerings based on its attributes fell under the former, hence the explanation will be focused on the High-effort decision-making. High-effort decision making process itself is divided into Cognitive and Affective models, this study focuses on cognitive decision-making models.

2.1.1 High Effort Cognitive Decision Making

According to Hoyer et al (2013:218), When consumers' motivation, ability, and opportunity are high to process relevant information, they are willing to put a lot of effort in making a decision.

When deciding what offerings to choose, consumers are confronted with both thought-based and feeling-based decisions. A thought-based decision, also known as cognitive decisions, explains how consumers' use attributes information when forming their decision.

The cognitive model itself is divided further into compensatory and non-compensatory strategies. The Compensatory strategy allows a higher value of one attribute compensate another attribute that has lesser value (Richarme, 2005). This strategy explains how consumers weight attributes of an offering in terms of how relevant and important the attributes are to their decision. Non-compensatory is a strategy in which negative evaluation leads to rejection of the option, where consumers immediately eliminate an alternative when it has a negative rating on the key attribute (Hoyer et al., 2013:222).

2.1.2   Product Attribute

Product attributes are certain features that are attached to a particular product. Regarding the product perception, it is assumed when the consumer perceives the product, it is a perception through its attributes (Veres et al., 2014). A product is a bundle of attributes (Gwin et al., 2003). In a study of product attribute preferences (Veres et al., 2014), there are eight factors identified to describe the perceptions towards product attributes: attribute strengths, preference interval, stability, product complexity, consumer task, life-likeness, environment, and experience. This study also mentions several possible attribute dimension such as shape, brand, color, style, usage, and so forth.

Attribute processing occurs when consumers compare alternatives by evaluating one attribute at a time, and then combine them into overall preference (Hoyer et al., 2013:224). While forming evaluation, consumers consider neutral attributes less than strongly important or strongly unimportant attributes (Veres et al., 2014). It is believed that consumers start with the most important and relevant attributes to their goal. Consumers gain utility based on the level of existing attributes within the chosen brand along with their budget constraint (Gwin et al., 2003).

2.1.3 Consumer Preference

In marketing, consumer preference is defined as the subjective tastes, as measured by utility, of various bundles of goods (Veres et al., 2014). Brand's label or name, and features related to the product such as shape, size, print, taste, color, consistency, and package might trigger a preference of consumers (Voicu, 2013). Taking a model of consumer demand in Lancaster (1966) into consideration, a study of product attributes by Gwin et al (2003), refers the model as *product attribute model* and it assumes that consumer preference is based on characteristics of a brand.

Consumer preference is a positive motivation towards a product and it is assumed that consumers make choices based on their preferences. As stated earlier, preference is unobservable, while understanding consumers' choices will inform us of the true preferences. According to utility theory, when deciding their choices, a rational consumer will choose a product or service that are attractive to them, and certainly gives them the highest utility. Nonetheless, product per se will not give consumers utility, they have characteristics, in this study we call it attributes that gives consumers utility (Lancaster, 1966). Customers are guided by a subjective evaluation, in the sense that they rely on own senses, experience, knowledge, and fashion (Mokrysz, 2016). It is believed that consumers base evaluations on several of the most important attributes that highly correlated with their goal, rather than all of them (Hoyer et al., 2013). Understanding consumer choices through their valuation of each attribute help to understand why consumer have a preference on an offering, moreover on specific brands, which allows brand competition (Gwin et al., 2003).

2.2 Indonesian Creative Industry

As the motive underlying this study is to provide a deeper understanding of consumer preference to local watch manufacturers in Indonesia, and thus able to compete in the Indonesian market and international market in the future as well, below is a brief discussion regarding Indonesian creative industry.

Indonesian Ministry of Trade defines creative economy as "Creative industry that comes from creativity, competency, and individual skill utilization for achieving wealthy and jobs availability through creating and utilizing the creation and creativity of individual" (Affif, 2012). Above definition takes UK Department of Culture, Media, and Sport (DCMS) as a reference (Srimulyati et al., 2017). DCMS defined creative economy as "Creative Industries as those industries which have their origin in individual creativity, skill & talent, and which have a potential for wealth and job creation through the generation and exploitation of intellectual property and content." Previously, Indonesia Creative has three main programmes, Creativepreneur, Creative City, and Creative Network (3C). Creativepreneur itself is a programme of the creation and entrepreneurial capacity building of creative industries (Setiadi et al., 2012). It combines creativity and entrepreneurship as the main elements. As stated earlier, Badan Ekonomi Kreatif (Bekraf) Indonesia is a government agency that is responsible to develop Indonesia's creative industry, and it was part of the Ministry of Tourism and Creative Economy.

In recent years, creative industry is the fastest growing sector in Indonesia, and a key area for expansion of developing economies (Setiadi et al., 2012). The industry has been playing a significant role in the Indonesian economy. According to a survey held by Bekraf and Badan Pusat Statistik (BPS), Indonesian central agency on statistics, in 2015, creative industry contributed Rp852 trillion to the national GDP (7.38%), employed 15.9 million workers (13.90%), and had an export value of US $ 19.4 billion (12.88%). Additionally, data shows during 2010 to 2015, there was a significant growth on its contribution towards national economy at 10.14% per year. Currently, Indonesian government classifies creative industry into 16 sub-sectors, with culinary, fashion, and crafts dominating the industry. Watch manufacturers are believed to fall under fashion and product design sub-sector, hence indeed has a lot of potentials to grow. These sub-sectors will be further divided into 18 sub-sectors as stated in their 2015 to 2019 growth plan (Suparmin et al., 2017). In 2015 alone, visual communication design, music, video animation, and architecture, are four sub-sectors that were having the most significant growth. Detailed information on each sub-sectors can be seen in *Appendix 2.1, Appendix 2.2, and Appendix 2.3*.

2.3   Hypothesis Formulation

2.3.1   Formulation of Hypothesis 1

Understanding consumer preference is a critical key for watch manufacturers to be able to offer a right product that consumer wants. As explained before, consumer preference can be observed through their choices. It is believed that consumers choose a product that gives them the highest utility. Nonetheless, consumers don't value a product per se, yet they give a different value for the attributes within. In order to find the most important attribute for Indonesian consumers when buying a wristwatch, the first hypothesis is proposed as follows:

Hypothesis 1: All below attributes play an important role in determining preferences for a wristwatch

Hypothesis 1A: *Price* plays an important role in determining preferences

Hypothesis 1B: *Brands* plays an important role in determining preferences

Hypothesis 1C: *Additional features* play an important role in determining preferences

Hypothesis 1D: *Strap material* plays an important role in determining preferences

Hypothesis 1E: *Movements* plays an important role in determining preferences

2.3.2   Formulation of Hypothesis 2

In the study of gender differences in preferences (Croson et al., 2009), it is found that there are robust differences in risk preferences, social preferences, and competitive preferences across genders. Moreover, the study also states that women and men are equally socially oriented, but women have preferences that are more easily influenced. As preferences may differ across genders, the second hypothesis is proposed as follows:

Hypothesis 2: Male and female value attributes differently, and thus have different most preferred attribute levels.

2.3.3 Formulation of Hypothesis 3

Previously, demographers believed all those born between 1978 and 2000 belong to the same one enormous "Millennial Generation" (Tulgan, 2013). Nevertheless, the time frame is considered too broad and technological advancement lead to distinct differences within the generation (Postolov et al., 2017). With that in mind, this one gigantic generation is divided further into two generations, Y and Z. Generation Y, or currently known as Millennials, are those born between 1980 and 1996. As a generation who lives with technology in everyday life, they are assumed to be attributed to various characteristics pertaining to specific values, behavioral patterns, and personal features (Mendryk, 2016). Moreover, this generation is independent, techno-savvy but still thrives on flexibility (Tulgan, Martin, 2001). While generation Z, are those born after 1996. Unlike the previous one, this generation has been raised in the digital world, more connected to electronics, more technologically dependent, and up to date (Postolov et al., 2017). Additionally, this generation seeks choices and demand customization in all they do (Howe, Strauss, 2000). As it is believed that these generations reveal different behavior, and assume age plays an important role in determining preferences, the third hypothesis is proposed as follows:

Hypothesis 3: Generation Y and Generation Z value attributes differently, and thus have different most preferred attribute levels.

Chapter 3
Research Methodology

3.1 Research Design

This study is an artefactual field experiment as it uses artificial task and context, yet the respondents are the real target market of Indonesian watch manufacturers. Artefactual experiment imitates lab experiment, yet the participants are from the market of interest (List, 2011). There are two ways of finding consumer preferences, which are revealed preferences and stated preferences. Revealed preferences use observed choices of product purchase or service use. As stated in behaviorist axioms by Samuelson (1938), revealed preferences can be observed from consumer choices which reveal their market behavior (Veres et al., 2014).

Stated preferences, also called self-stated preferences for companies' offering, has been used in many studies in the field of marketing, separately or in combination with revealed preferences (Yang et al., 2009). Stated preferences is a technique commonly used in a survey by asking respondents to directly express their preference. Unfortunately, in many cases, consumers don't really know their true preferences. Researchers should apply a better technique to reveal consumers' stated preferences. Revealing consumers' stated preferences can be accomplished by using one of the research methods called Discrete Choice Experiment.

3.1.1 Discrete Choice Experiment

In recent years, the interest of Discrete Choice Experiment (DCE) application in some research has been growing rapidly. DCE is a technique to elicit preferences based on Random Utility Theory (RUT) (Louviere et al., 2010). DCE allows valuation of multiple options rather than a single treatment (Lancsar et al., 2008). DCE is commonly used in a survey consists of several choice sets, with each set involves hypothetical options formed by a set of attributes and levels. DCE contributes in eliciting preferences and quantifying trade-off, in a way that it requires respondents to make a trade-off between attributes, and it can be used to measure the contribution of each attributes to overall utility (Lancsar et al., 2008).

3.1.2 Random Utility Theory

Random Utility Theory (RUT) which was proposed by Thurstone (1927), explains the choice behavior of humans in the sense that people base their evaluation of alternatives on a comparison on the utility of a product and eventually choose an option that gives them the highest utility. It suggests that there is a latent factor in a person's mind which cannot be observed, called utility (Louviere et al., 2010). RUT is strongly associated with error components as individual choices can only be observed with error. Consequently, the utility is modeled using a stochastic model where error term needs to be included in the utility function (McFadden, 1986). By including respondent-specific stochastic component, it allows preference heterogeneity by allowing parameters to vary across individuals (Lancsar et al., 2008).

According to Probabilistic choice rule, the possibility of an alternative will be chosen depends on the probability that its utility is higher than the utility of other alternatives. There are two alternatives per choice set in this study, hence JMP generates binary logit model assuming the error terms are independently and identically (IID) Gumbel distributed. McFadden (1986), explain random utility model equation as follows:

$$U_j = x_j{}' \beta + \varepsilon_j$$

$$
\begin{array}{ll}
U_j & : \text{Utility of product } j \\
x_j & : \text{Product attribute utility} \\
\beta & : \text{Attribute coefficient} \\
x_j{}' \beta & : \text{Systematic Utility} \\
\varepsilon_j & : \text{Error term}
\end{array}
$$

The random utility model formula for this study below is based on above equation and adjusted version from Putrityas (2016):

$$U^{watch}{}_j = x_p \beta_p + x_b \beta_b + x_{af} \beta_{af} + x_{sm} \beta_{sm} + x_m \beta_m + \varepsilon_j$$

$$
\begin{array}{ll}
U^{watch_j} & : \text{Utility of watch j} \\
x_p, x_b, \ldots, x_m & : \text{Product attribute utility} \\
\beta_p, \beta_b, \ldots, \beta_m & : \text{Attribute coefficient} \\
x_p\beta_p, x_b\beta_b, \ldots, x_m\beta_m & : \text{systematic utility} \\
\varepsilon_j & : \text{Error term}
\end{array}
$$

3.2   Undertaking Discrete Choice Experiment

3.2.1   Conceptualizing the Choice Design

Asking respondent to choose a discrete choice is how DCE works. To encourage respondents revealing their true preferences, the choice options should be incentive compatible (Lancsar et al., 2008). This study uses fractional factorial experimental design to construct attribute combination and choice sets, where a sample from a full factorial design, all possible combinations from attribute levels, are taken to construct choice alternatives. Full factorial design allows an examination of all main effects and interaction effects between attributes independently of one another, however it often too large in practice (Lancsar et al., 2008). Fractional factorial design selects an orthogonal subset so that all effect of interest can still be estimated.

In order to create efficient experimental choice design, Huber and Zwerina (1996) suggest four properties that characterize efficient choice design: (i) Level Balance, i.e. where the levels of each attribute appears in equal frequencies; (ii) Orthogonality, i.e. attribute levels appear in choice sets in equal frequencies with each level of other attribute; (iii) Minimum overlap, i.e. the probability of an attribute level repeats itself in a choice set is as small as possible; (iv) Utility Balance, i.e. alternatives in choice set have more similar probabilities to be chosen. If all above factors are satisfied, the design is considered as utility-balanced design. In addition, these factors should be based on realistic simulation of the market of interest (Lancsar et al., 2008).

The choice design in this study is based on utility-balanced design, hence prior specification will be used to generate better information for JMP to create the choice design. A value of negative one (-1), is assigned in the prior mean to give information that the most preferred attribute level appear last, and a value of zero (0), if there is no previous information or all levels of attribute tend to have the same level of attractiveness. A value of one (1) is assigned in the prior variance matrix to allow for uncertainty. There are ten choice sets in the survey. In an attempt to avoid the possibility of respondents fatigue and drop-outs, each set consists of only two choice alternatives. Hence, the JMP software uses binary logit random utility model. Detail procedures can be seen in *Appendix 3.1 and Appendix 3.2*.

3.2.2   Measures

Defining Product Attributes and Levels

Based on the study of DCE (Lancsar et al., 2008), quantitative or qualitative attributes can be identified from literature and qualitative research, such as interviews with samples of relevant respondents. The study also proposes that attributes and levels should be salient and plausible to targeted respondents. The level ranges should also have sufficient wide range to avoid respondent ignoring the attributes.

Attribute	Price	Brands	Additional Features	Strap Materials	Movements
Levels	<Rp1.000.000	Indonesian local brands	Day and date display	Leather	Quartz
	Rp1.000.000 - Rp2.000.000	International brands	Stopwatch	Steel	Mechanical
	Rp2.000.000 - Rp3.000.000		Alarm	Plastic	Digital
				Wood	

Table 3.1 Attributes and Levels of wristwatch

All above attributes are used to create all possible combination of choice design. To answer the first hypothesis, Likelihood Ratio Test on JMP is used to run the assessment.

Demographic Questions

To answer the second and third hypothesis, respondents are asked to state their gender, age, as well as the year of born in the questionnaire. These variable are used to assess whether they have a significant role in determining preferences. Likelihood Ratio Test and Utility Profiler on JMP are used to run the assessment.

3.3   Data Collection

Exploratory research with an in-depth interview is conducted to properly determine product attributes and levels. In this sections, respondents are interviewed and asked several questions regarding preferences towards a wristwatch. They are asked whether they have a loyalty to particular brands, the last time they bought a wristwatch, factors or attributes that they consider when buying a wristwatch, and asked to mention several local brands to observe whether there is some awareness towards Indonesian local brands. In addition, desk research is conducted as well by observing several official websites and previous studies. Afterward, descriptive research is conducted in the form of an online survey. The questionnaire consists of choice sets, which respondents are asked to choose between alternatives. Each choice set consists of two alternatives formed by attribute levels chosen from the result of the exploratory research, and the combination is generated by JMP software. Moreover, demographic questions are also added to identify other relevant variables.

The sample for both exploratory and descriptive research are Indonesian consumers, as this study aims to understand the preference of Indonesian consumer towards the decision of buying a wristwatch. People aged between 18 and 35 are targeted, as it is believed to be the main target segment of most start-up local watch manufacturers in Indonesia, and thus have the best interest towards Indonesian local brands.

Chapter 4
Result Analysis

4.1   Survey Results

This part consists of the summary of respondents' answers on the second part of the questionnaire, demographic questions. The survey is distributed online using software called Qualtrics. All respondent are Indonesian consumer within the age range of 18 and 35. The total response is 158. However, due to some respondents' drop out and limited access in JMP, only 100 responses can be included in the data analysis.

There are more female than male in this survey, with 35% male and 65% female. To answer one of the hypothesis, respondents are asked to indicate the year of birth. 53% of respondents were born between 1980 and 1996 (generation Y) and 47% of respondents were born in 1997 or later (generation Z). Lastly, there are 78% of respondents that previously have bought a wristwatch, 15 % of them buy a wristwatch within this year, 27% of them bought a wristwatch one year ago, and the rest are two years ago and above.

Question	Choice	N	%
Gender	Male	35	35%
	Female	65	65%
Age	18 - 35	100	100%
Year of Birth	Before 1964	0	0%
	1965 - 1979	0	0%
	1980 - 1996	53	53%
	1997 - present	47	47%
Previously buy a wristwatch	Yes	78	78%
	No	22	22%
Last time buy a wristwatch	Within this year (2018)	15	15%
	1 year ago	27	27%
	2 years ago	13	13%
	Above 2 years ago	23	23%
	No, I havent bought any wrist watch	22	22%

Table 4.1 Result of Demographic Questions

4.2   Utility Analysis

JMP software is used to help revealing true consumer preference by measuring the utility that each attribute gives to consumers. Likelihood Ratio Test, Effect Marginals, and Utility profiler are used to analyze the main effect of each attribute to better understand consumer preference.

4.2.1   Likelihood Ratio Test

Likelihood ratio test determines whether each attribute is significant to consumers. On the base model, all chosen attributes are included in the base construct profile effect to test the main effects. Apparently, not all attributes are statistically significant. JMP identifies price, strap materials, and movements have significant effects with a p-value < .0001. Brands (p-value 0.2352) and additional features (p-value 0.2677) are not significant (Appendix 4.1).

When adding gender to the model through construct subject effect on JMP, likelihood ratio test reveals there is a significant interaction between gender and strap materials with a p-value of 0.01. With male gets the highest utility by choosing steel and female gets the highest utility by choosing leather for strap materials. Male gets the lowest utility from a wood strap, while female gets the lowest utility from a plastic strap (Appendix 4.2).

Next, age is included in the model. It is found that age doesn't yield any significance to the model. There is no significant interaction between age and product attributes. It would appear that the age of consumer has no effect towards the perceptions on the relevant product attribute (Appendix 4.3). Similarly, after dividing respondents' age into two generations, Y and Z, likelihood ratio test still exhibits the same result which there is no significant interaction between generation and the attributes (Appendix 4.4).

4.2.2   Marginal Analysis

Marginal analysis is done to measure which attribute is the most important as well as their relative importance towards another. The largest marginal effect belongs to price with a total range of marginal utility roughly ~1.59, meaning price is the most significant attribute for

consumers. In line with the prior expectation, the lower price is indeed preferred by respondents. A wristwatch with price < Rp1,000,000 gives respondents the highest marginal utility of 0.95, followed by a wristwatch with price Rp1,000,000 - Rp2,000,000 with marginal utility -0.3, and a wristwatch with price Rp2,000,000 - Rp3,000,000 gives the lowest marginal utility of -0.64. It is followed by the type of movements as the second most significant attribute, by having the second largest marginal utility with a total range of ~1.19. On the base model, a mechanical watch is the most preferred type of movements with marginal utility of 0.47, while digital watch gives the lowest marginal utility of -0.73, and quartz movements having less, but still positive marginal utility (0.26). The third most significant attribute is strap materials with the total range of ~1.06. Leather (0.47) provides the highest marginal utility and wood (-0.59) by far the lowest, while steel (0.37) and plastic (-0.25) fall in the middle.

According to the likelihood ratio test, additional features and brands are not significant in the model. However, their relative importance might still be measured using effect marginals. The additional feature has a total range of ~0.24, with alarm (0.13) gives the highest marginal utility compared to day/date display(-0.009) and stopwatch (-0.12). Brand appears to be the most insignificant attribute in the model with only a total range of ~0.17. Surprisingly, Indonesian local brand (0.085) is preferred to international brands (-0.085) (Appendix 4.5).

Attribute	Marginal Utility	Total Range
Price	0.94641 - (-0.64324)	~1.59
Movements	0.46919 - (-0.73640)	~1.19
Strap Materials	0.47438 - (-0.59747)	~1.06
Additional Features	0.12829 - (- 0.11925)	~0.24
Brands	0.08588 - (-0.08588)	~0.17

Table 4.2 Effect Marginals

4.2.3 Utility Profiler

Utility profiler function in JMP determines the most attractive profile of a wristwatch. This function informs the best combination from each attribute which gives consumers the highest utility. On the base model, the most preferred profile is a wristwatch with a price < Rp1,000,000,

from Indonesian local brand, has an alarm as its additional feature, with a leather strap and mechanical movements. This combination gives consumers the highest utility up to 2.10 (Appendix 4.6). On the other hand, the lowest utility of -2.18 is given by the combination of a profile with a price Rp2,000,000 - Rp3,000,000, from an international brand, has a stopwatch, with wood strap and digital movements (Appendix 4.7).

4.3 Hypothesis Testing

4.3.1 Hypothesis 1

Hypothesis 1:

All below attributes play an important role in determining preferences for a wristwatch.

Hypothesis 1A: *Price* plays an important role in determining preferences

Hypothesis 1B: *Brands* plays an important role in determining preferences

Hypothesis 1C: *Additional features* plays an important role in determining preferences

Hypothesis 1D: *Strap material* plays an important role in determining preferences

Hypothesis 1E: *Movements* plays an important role in determining preferences

Attribute	ChiSquare	Prob>ChiSq
Price	45.142	<.0001*
Brands	1.409	0.2352
Additional Features	2.636	0.2677
Strap Materials	74.573	<.0001*
Movements	74.072	<.0001*

Table 4.3 Significance Effect of Attribute

The first proposed hypothesis is answered using likelihood ratio test function in JMP. As explained before, the function generates the measurement showing which attributes play an important role in determining preferences for wristwatch purchases. Price, strap materials, and movements are statistically significant to the model with a p-value <.0001, meaning these attributes indeed play an important role in consumer preferences. However, it appears that brands

and additional features are not statistically significant with a p-value of 0.2352 and 0.2677. Indicating that Indonesian consumers turn out are careless to these two attribute (refer back to Appendix 4.1).

These findings inform that Indonesian consumers put a higher value on price, strap materials, and type of movements when selecting a wristwatch. In line with the likelihood ratio test, effect marginals function also shows that price is the most important of all attribute, followed by the type of movements and strap materials as the next most important attribute being considered when making a purchase decision on a wristwatch. It appears that additional feature is not very important for them in determining preferences, and brand appears to be the least important of them all. Based on the analysis, hypothesis one has to be partly rejected. H1A, H1D, and H1E are all accepted, as these three attributes appear to have significant value, while H1B and H1C are rejected.

4.3.2   Hypothesis 2

Hypothesis 2:

Male and female value attributes differently, and thus have different most preferred attribute levels.

To answer the second hypothesis, utility profiler is again used. Dissimilar with the base model, demographic variable, gender, is added in the model through construct subject effect to examine whether gender roles have a significant effect in consumer preference. Below is the summary of utility profiler measurement on the highest possible utility a consumer able to get from the relevant product profile and the rank of level chosen by each gender from each attribute.

Attribute	Male	Female
	Male	**Female**
	Levels (in rank order)	
Price	< Rp1,000,000	< Rp1,000,000
	Rp1,000,000 - Rp2,000,000	Rp1,000,000 - Rp2,000,000
	Rp2,000,000 - Rp3,000,000	Rp2,000,000 - Rp3,000,000
Brands	Indonesian local brands	Indonesian local brands
	International brands	International brands
Additional Features	Stopwatch	Alarm
	Alarm	Day/dayte display
	Day/date display	Stopwatch
Strap materials	Leather	Steel
	Steel	Leather
	Plastic	Plastic
	Wood	Wood
Movements	Mechanical	Mechanical
	Quartz	Quartz
	Digital	Digital
Highest Utility	2.130918	2.279205

Table 4.4 Utility Profiler measurement with gender included.

For male consumers, a price of < Rp1,000,000 is the most preferred level, followed by 1,000,000 - 2,000,000 and 2,000,000 - 3,000,000. They prefer Indonesian local brand to international brand. Stopwatch is the most preferred additional features, followed by alarm and then day/date display. For the strap materials, male consumers choose leather above all provided level. With steel as their second option, followed by plastic and wood. For the movements, a mechanical watch is most preferred compared to quartz and digital (Appendix 4.8).

In line with the other gender, female consumers have identical preferences towards price, brands, and type of movements (marked with a yellow highlight). However, it is found that there is a different preference towards additional features and strap materials between male and female consumers (marked with a blue highlight). For females, alarm becomes the most preferred level, followed by day/date display and stopwatch. This is an interesting finding as of the least preferred level by females was the most preferred level by males. Moreover, steel is the most preferred level of strap materials for females, followed by leather and plastic. Wood strap became the least preferred level for both genders (Appendix 4.9).

The highest utility is obtained by choosing all the most preferred level in each attribute. For males, an Indonesian local brand wristwatch with a price under Rp1,000,000, has a stopwatch as its additional feature, with leather strap and mechanical movement is the most preferred profile. This combination gives them the highest utility of 2.130918. For females, an Indonesian local brand wristwatch with a price under Rp1,000,000 with steel strap and mechanical movement, and has an additional feature of alarm gives them utility of 2.279205, and thus become the most preferred profile. All the most preferred levels are highlighted in the table.

These findings give more insights about Indonesian consumers by looking at the possible different preferences between genders. To differentiate offerings, watch manufacturers might observe which levels of an attribute are the most attractive and combine the attributes into a real profile. On the condition where the target consumers are male, results from male respondents can be observed, and vice versa for female. In addition, from likelihood ratio test with the variable of gender included in the model (refer back to Appendix 4.2), significant interaction is found only between gender and strap materials. Meaning that strap materials might be the most important differentiation for male and female consumers. Thus, deciding the strap materials for an offering might be one of the crucial aspects when watch manufacturers want to differentiate their product offerings between gender. Based on the above analysis, the second hypothesis is partly rejected. As it is found that male and female have different preferences in two attributes, additional features and strap materials. However, both genders appear to have identical preferences towards three other features, price, brands, and type of movements.

4.3.3   Hypothesis 3

Hypothesis 3:

Generation Y and Generation Z value attributes differently, and thus have different most preferred attribute levels.

Another demographic variable is included in the model using construct subject effect to answer the third hypothesis. Respondents' age is divided into two categories of generation. As it is explained, the millennial generation is further divided into two smaller sub-generation called generation Y(1980-1996) and generation Z (1997-present). The last hypothesis is interested in analyzing whether there is a different preference between those generations. Below is the table containing the summary of utility profiler measurement comparing both generations.

Attribute	Generation Y	Generation Z
	Levels (in rank order)	
Price	< Rp1,000,000	< Rp1,000,000
	Rp1,000,000 - Rp2,000,000	Rp1,000,000 - Rp2,000,000
	Rp2,000,000 - Rp3,000,000	Rp2,000,000 - Rp3,000,000
Brands	Indonesian local brands	Indonesian local brands
	International brands	International brands
Additional Features	Alarm	Alarm
	Day/date	Day/date
	Stopwatch	Stopwatch
Strap materials	Leather	Steel
	Steel	Leather
	Plastic	Plastic
	Wood	Wood
Movements	Mechanical	Mechanical
	Quartz	Quartz
	Digital	Digital
Highest Utility	2.138436	2.059736

Table 4.5 Utility Profiler measurement with generation included.

The table shows there is no large significant difference in the preference towards a wristwatch between generation Y and generation Z. For price, both generations choose the lowest price as the most preferred level and the highest price as the least preferred. Both generation also preferred Indonesian local brands to International brands. They have identical preferences towards additional features and movements as well. Alarm become the most preferred features, followed by day/date display and stopwatch. For the type of movements, mechanical watches still become the most preferred for both generation and digital become the least preferred. However, these generations have a different preference towards one attribute, strap materials.

Generation Y prefers leather to other levels, while generation Z prefer steel above all other levels (marked with a blue highlight).

The highest utility for generation Y is 2.138436, obtained by choosing an under Rp1,000,000 Indonesian local brand wristwatch with a feature of alarm, have a leather strap and mechanical movements. For generation Z, the highest utility of 2.059736 is obtained also by choosing a wristwatch with a price under Rp1,000,000, has an alarm as its additional feature and mechanical movements. However, the watch should have steel as its strap materials, and it should be Indonesian local brand as well (Appendix 4.10 & Appendix 4.11).

These findings notice that there are no large differences between generation Y and generation Z in determining preferences for a wristwatch. The only attribute that appears to have a different result is only the strap materials. Nevertheless, from the likelihood ratio test with generation included (refer back to Appendix 4.4), there is no significant interaction between generation and attributes. Meaning that both generations give each attribute the same value, similar to the base model. It appears that watch manufacturers don't need a lot of differentiation on their offerings to reach both generation Y and generation Z as the target consumers. Although both generations seemingly have identical preferences towards almost all attribute, there is still a difference in strap materials. Hence, the third hypothesis is partly rejected.

4.4 Results Summary

Hypothesis	Result
Hypothesis 1 : All attributes	R (partly)
H1A : Price	A
H1B : Brands	R
H1C : Additional Features	R
H1D : Strap Materials	A
H1E : Movements	A
Hypothesis 2 : Gender	R (partly)
Hypothesis 3 : Age/Generation	R (partly)

Table 4.6 Results
R = Rejected; A = Accepted

Chapter 5
Conclusion

5.1 Conclusion

Not only to perform its basic function, a wristwatch has become an essential fashion accessory for some people. This study analyzes consumers' preference towards a wristwatch product by assessing consumers' valuation on each attribute. With the research method of discrete choice experiment which has been explained in chapter 3, it became feasible to know the key attributes that influence Indonesian consumers' preference towards the decision of buying a wristwatch. It is found that attribute price, strap materials, and movements play an important role in consumers' decision. Apparently, brands and additional features don't play a big role when consumers make a decision. Price is considered to be the most important attribute for consumers, while brands become the least important.

The demographic variable of gender indeed plays a role in determining preferences. The most significant interaction is found between gender and strap materials and followed by the attribute additional features. However, both male and female have identical preferences on price, brands, and type of movements. An interesting finding is found, where the most preferred level by males in additional feature becomes the least preferred by females. Another demographic variable, age, is divided into two sub-generations, Y and Z. This variable doesn't yield any significant interaction with the attribute. The small difference in preferences between generation is found only in strap materials. However, from the likelihood ratio test, it is known that there is no significant effect from age to any attribute. Thus, it is believed that age doesn't really play a role in determining preferences.

Another interesting finding is found. Most respondents prefer Indonesian local brand to international brand. Alongside with government's attempt to raise awareness on Indonesian creative industry, this is an opportunity for Indonesian startup company to target Indonesian

market. A possible explanation to this circumstances is the awareness towards Indonesian local brands is indeed growing rapidly within the society.

5.2 Implication for Managers

Creative industry in Indonesia has been growing rapidly in the last decades. Regardless of numerous program to accelerate the growth as well as to raise the awareness in the society, several constraints still occur such as lack of R&D and innovation. Society will not be able to utilize the market maximally if corporations don't undertake a proper market research. These findings contribute to reduce the particular problem.

This study provides better insight on how consumers making preferences. A deeper understanding for many corporations regarding the consumer preference towards a wristwatch might help watch manufacturers to differentiate its product offering. During the process, consumers give a different value on each attribute. By knowing which attribute is the most important to the targeted consumers, watch manufacturers might use it as a differentiation from their competitors. Furthermore, corporations might increase the effectiveness and efficiency on marketing activity by highlighting particular attribute to give the most efficient message to consumers. Doing market research also reduces the possibility of product failure, and thus able to allocate the resources more efficiently.

5.3 Limitations and Future Research Directions

Several limitations should be considered in the creation of this thesis. Time is the most visible limitation, creating this thesis in the longer period of time might improve the analysis and provide better results. There are also some limitations regarding the respondent. In the exploratory research, only 10 people are able to be interviewed to determine the key attributes. Most of the interviewee are considered as generation Z, thus generation bias might have an effect on the result of the interview. In the process of data collection, only 100 people can be analyzed due to respondents' drop out and limited access to the software. Moreover, in the survey result it

is mentioned that 65% of the respondents are female, hence there is also the possibility of gender bias affecting the result.

These limitations suggest potential improvements to future research. Assuming that the researcher has a longer period of time to do this study, a pilot test can be carried out to determine the attribute in a better way, it can also be used to test the reliability of the choice sets in the survey. More respondent should be gathered in both interview and survey. Future research should try to balance the percentage of gender and generation to prevent bias in the result.

Indonesia is an island country with 34 provinces located in more than 16.000 islands. Each province has its own culture and economic background, thus future research should cover all the geographical area of Indonesia to properly capture all the preference of Indonesian consumers. Future research might also include other demographic variables such as the level of awareness towards Indonesian local brands, consumers' lifestyle, cultural background, and economic background. Another generation might also be included to provide information to watch manufacturers that target older generation. Another attribute could also be included to examine another effect towards consumer preference such as warranty program, packaging, the availability in the store, the type of services such as delivery or online shop, and so forth. Despite all the limitations, the result of this study is useful to get deeper insights on consumers and might help watch manufacturers to differentiate their offerings.

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Appendix 1:

Questionnaire

Dear Respondent,

The purpose of this survey is for my bachelor thesis in International Bachelor Economics and Business Economics at Erasmus University Rotterdam. This research aims to understand consumer preference towards wristwatch product through its product attribute.

The survey consists of two parts, choice sets and basic demographic questions. It will take approximately 5 minutes of your time. All answers will be kept confidential and used only for academic research purposes.
If you have any questions regarding this research, don't hesitate to contact me at :
nelsayuspita@gmail.com

Thank you for your time and participation.

Regards,
Nelsa Yuspita.

This part consists of 10 choice sets. You will be given two profiles of a wristwatch with different attributes in each set. Please imagine carefully what **characteristics** that you consider when buying a wristwatch and what component you find **the most important**. *Choose one alternative (profiles) you find the most attractive in each set.*

Below are the attributes you will find in the choice sets, please read carefully the description:

1. Price   : < Rp1.000.000 ; Rp1.000.000 - Rp2.000.000 ; Rp2.000.000 - Rp3.000.000
2. Brands   : Indonesian local brands, International brands
3. Additional Features   : Day and date display, Stopwatch, Alarm.
4. Strap Materials   : Leather, Steel, Plastic, Wood
5. Movements (hands/jarum):
    - Quartz : The hand (jarum) move in an **individual ticks** (make tick-tock sound), powered by **battery**.
    - Mechanical: The hand (jarum) move in a **smooth sweeping motion** (no sound), **no battery** needed.
    - Digital : Digital display, **no hands** (jarum)

Please go back to above description if you find any confusion.

Choice set 1					
	Price	**Brands**	**Additional Features**	**Strap Materials**	**Movements**
Wristwatch 1	Rp1.000.000 - Rp2.000.000	International brands	Alarm	Leather	Quartz
Wristwatch 2	Rp1.000.000 - Rp2.000.000	Indonesian local brands	Alarm	Plastic	Digital

Choice set 2					
	Price	**Brands**	**Additional Features**	**Strap Materials**	**Movements**
Wristwatch 1	Rp1.000.000 - Rp2.000.000	International brands	Alarm	Plastic	Mechanical
Wristwatch 2	Rp1.000.000 - Rp2.000.000	Indonesian local brands	Alarm	Leather	Quartz

Choice set 3					
	Price	**Brands**	**Additional Features**	**Strap Materials**	**Movements**
Wristwatch 1	<Rp1.000.000	Indonesian local brands	Stopwatch	Plastic	Quartz
Wristwatch 2	<Rp1.000.000	Indonesian local brands	Alarm	Steel	Mechanical

Choice set 4

	Price	Brands	Additional Features	Strap Materials	Movements
Wristwatch 1	Rp1.000.000 - Rp2.000.000	Indonesian local brands	Stopwatch	Leather	Mechanical
Wristwatch 2	Rp2.000.000 - Rp3.000.000	Indonesian local brands	Day and date display	Steel	Quartz

Choice set 5

	Price	Brands	Additional Features	Strap Materials	Movements
Wristwatch 1	Rp1.000.000 - Rp2.000.000	Indonesian local brands	Day and date display	Wood	Mechanical
Wristwatch 2	Rp2.000.000 - Rp3.000.000	Indonesian local brands	Stopwatch	Steel	Mechanical

Choice set 6

	Price	Brands	Additional Features	Strap Materials	Movements
Wristwatch 1	Rp2.000.000 - Rp3.000.000	Indonesian local brands	Stopwatch	Plastic	Mechanical
Wristwatch 2	Rp1.000.000 - Rp2.000.000	International brands	Stopwatch	Steel	Digital

Choice set 7

	Price	Brands	Additional Features	Strap Materials	Movements
Wristwatch 1	Rp2.000.000 - Rp3.000.000	International brands	Day and date display	Steel	Mechanical
Wristwatch 2	Rp2.000.000 - Rp3.000.000	International brands	Alarm	Plastic	Quartz

Choice set 8

	Price	Brands	Additional Features	Strap Materials	Movements
Wristwatch 1	Rp1.000.000 - Rp2.000.000	International brands	Alarm	Steel	Quartz
Wristwatch 2	<Rp1.000.000	International brands	Alarm	Steel	Quartz

Choice set 9

	Price	Brands	Additional Features	Strap Materials	Movements
Wristwatch 1	Rp1.000.000 - Rp2.000.000	International brands	Day and date display	Plastic	Digital
Wristwatch 2	Rp2.000.000 - Rp3.000.000	International brands	Stopwatch	Wood	Digital

Choice set 10					
	Price	**Brands**	**Additional Features**	**Strap Materials**	**Movements**
Wristwatch 1	Rp2.000.000 - Rp3.000.000	International brands	Day and date display	Leather	Digital
Wristwatch 2	Rp1.000.000 - Rp2.000.000	International brands	Stopwatch	Steel	Quartz

* all choice sets are generated by JMP and presented using picture in the online survey.

Demographic Questions

This part consists of several demographic questions. Your answers will be kept confidential and used only for this research purposes. Please answer truthfully.

Please indicate your gender
- Male
- Female

Please indicate your age …..

Please indicate your year of birth
- Before 1964
- 1965 - 1979
- 1980 - 1996
- 1997 - present

Have you previously buy a wristwatch?
- Yes
- No

If yes when did the last time you buy a wristwatch?
- Within this year (2018)
- 1 year ago
- 2 years ago
- Above 2 years ago
- No, I haven't bought any wristwatch

Sub-sector	Percentage
Architecture	0.07%
Interior Design	0.01%
Visual Communication Design	0.01%
Product Design	0.04%
Film, Animation, and Video	0.03%
Photography	0.49%
Craft	14.56%
Culiner	67.66%
Music	0.42%
Fashion	15.00%
Application and Game Developer	0.15%
Publishing	1.02%
Advertising	0.04%
Television and Radio	0.05%
Performing Arts	0.24%
Fine arts	0.21%
TOTAL	100.00%

Appendix 2.1: Percentage of each sub-sector in Indonesian Creative Industry (2016). Source: Badan Ekonomi Kreatif (Bekraf) and Badan Pusat Statistik (BPS) Indonesia.

Sub-sector	GDP Contribution
Architecture	2.30%
Interior Design	0.16%
Visual Communication Design	0.06%
Product Design	0.24%
Film, Animation, and Video	3.71%
Photography	0.45%
Craft	15.70%
Culiner	41.69%
Music	0.47%
Fashion	18.15%
Application and Game Developer	1.77%
Publishing	6.29%
Advertising	0.80%
Television and Radio	7.78%
Performing Arts	0.22%
Fine arts	0.21%

Appendix 2.2: Percentage of each sub-sector contribution to Indonesian GDP (2016). Source: Badan Ekonomi Kreatif (Bekraf) and Badan Pusat Statistik (BPS) Indonesia.

Sub-sector	Growth
Visual Communication Design	10.28%
Music	7.26%
Animation and Video	6.68%
Architecture	6.62%

Appendix 2.3: The most growing sub-sector in 2015. Source: Badan Ekonomi Kreatif (Bekraf) and Badan Pusat Statistik (BPS) Indonesia.

Appendix 3:

Research Methodology - JMP Formulation

Appendix 3.1: Choice Design Formulation

*above are the choice sets computed in the survey.
Appendix 3.2: Choice Design generated by JMP.

Appendix 4:

Result Analysis

Likelihood Ratio Tests

Source	L-R ChiSquare	DF	Prob>ChiSq
Price	45.142	2	<.0001*
Brands	1.409	1	0.2352
Additional Features	2.636	2	0.2677
Strap Materials	74.573	3	<.0001*
Movements	74.072	2	<.0001*

Appendix 4.1: Likelihood Ratio Test for the base model

Likelihood Ratio Tests

Source	L-R ChiSquare	DF	Prob>ChiSq
Price	5.559	2	0.0621
Brands	0.156	1	0.6931
Additional Features	0.642	2	0.7253
Strap Materials	12.804	3	0.0051*
Movements	15.187	2	0.0005*
Age*Price	8.473	26	0.9995
Age*Brands	9.535	13	0.7315
Age*Additional Features	11.697	26	0.9928
Age*Strap Materials	51.230	39	0.0908
Age*Movements	20.403	26	0.7721

Appendix 4.3: Likelihood Ratio Test with age included

Likelihood Ratio Tests

Source	L-R ChiSquare	DF	Prob>ChiSq
Price	43.973	2	<.0001*
Brands	2.191	1	0.1388
Additional Features	1.089	2	0.5802
Strap Materials	66.780	3	<.0001*
Movements	64.088	2	<.0001*
Gender*Price	0.773	2	0.6795
Gender*Brands	1.037	1	0.3085
Gender*Additional Features	4.594	2	0.1006
Gender*Strap Materials	11.124	3	0.0111*
Gender*Movements	2.753	2	0.2525

Appendix 4.2: Likelihood Ratio Test with gender included

Likelihood Ratio Tests

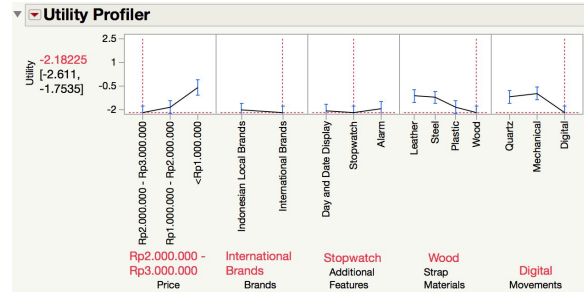| Source	L-R ChiSquare	DF	Prob>ChiSq
Price	19.968	2	<.0001*
Brands	1.981	1	0.1593
Additional Features	1.225	2	0.5420
Strap Materials	40.474	3	<.0001*
Movements	43.831	2	<.0001*
Generation*Price	0.894	2	0.6394
Generation*Brands	0.574	1	0.4488
Generation*Additional Features	0.675	2	0.7134
Generation*Strap Materials	2.060	3	0.5600
Generation*Movements	1.388	2	0.4997

Appendix 4.4: Likelihood Ratio Test with generation included

Effect Marginals

Marginal Probability	Marginal Utility	Price
0.1369	-0.64324	Rp2.000.000 - Rp3.000.000
0.1923	-0.30317	Rp1.000.000 - Rp2.000.000
0.6709	0.94641	<Rp1.000.000

Marginal Probability	Marginal Utility	Brands
0.5428	0.08588	Indonesian Local Brands
0.4572	-0.08588	International Brands

Marginal Probability	Marginal Utility	Additional Features
0.3286	-0.00904	Day and Date Display
0.2943	-0.11925	Stopwatch
0.3770	0.12829	Alarm

Marginal Probability	Marginal Utility	Strap Materials
0.3658	0.47438	Leather
0.3327	0.37952	Steel
0.1762	-0.25642	Plastic
0.1253	-0.59747	Wood

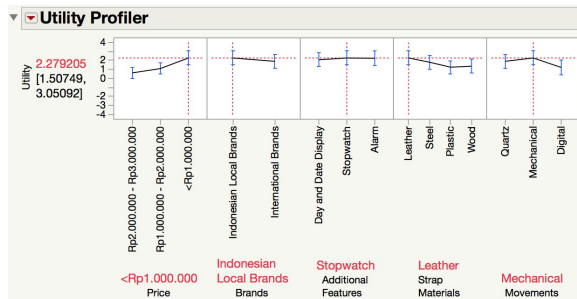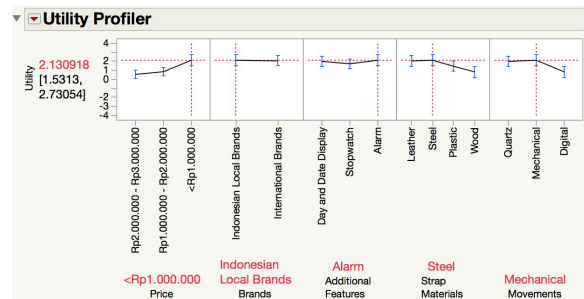| Marginal Probability	Marginal Utility	Movements
0.3860	0.26721	Quartz
0.4724	0.46919	Mechanical
0.1415	-0.73640	Digital

Appendix 4.5: Effect Marginals
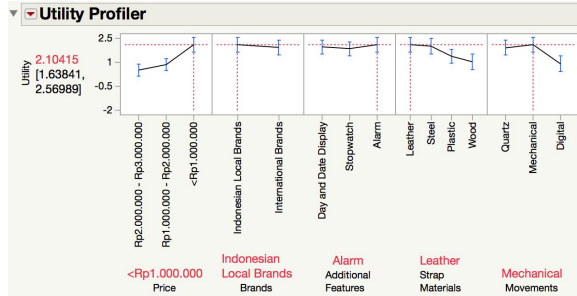
Appendix 4.6: Utility Profiler for the base model - Highest Utility
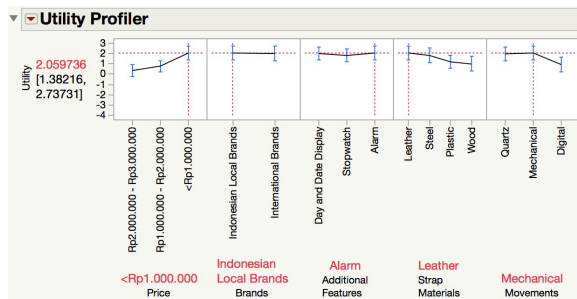

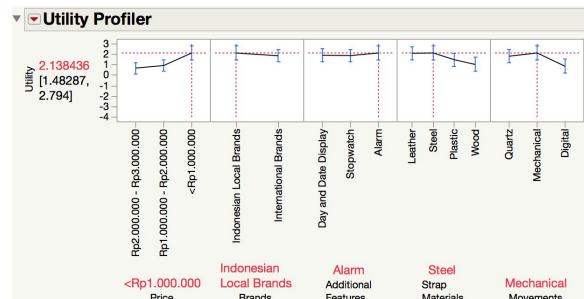Appendix 4.7: Utility Profiler for the base model - Lowest Utility

Appendix 4.8: Utility Profiler with gender included - Male

Appendix 4.9: Utility Profiler with gender included - Female

Appendix 4.10 : Utility Profiler with generation included - Generation Y

Appendix 4.11: Utility Profiler with generation included - Generation Z