The Influence of Income, Race and Higher Education on the Purchase of Beauty and Cosmetic Products in America

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ABSTRACT

Women from all over the world react differently to the use of cosmetic and beauty products. The beauty and cosmetics industry in America is the largest in the world. This study tries to understand the American society and some of the factors that influence the use of beauty and cosmetics products in the US. Factors such as race, income and higher education are utilized to help understand the women in America and their attitude towards the industry. This would help to explain some of the challenges faced by different women when purchasing beauty products in the US. It is hoped that this same approach be used to understand the women from different race groups of other countries.

Keywords: race and beauty, beauty industry, cosmetics.

ÖZ

Dünya genelinde kadınların kozmetik ve güzellik ürünleri kullanımları farklıklık göstermektedir. Dünyanın en büyük güzellik ve kozmetik endüstrisi ise Amerika'dadır. Bu çalışmada Amerikan toplumu ve ABD'deki güzellik ve kozmetik ürünlerinin kullanımını etkileyen bazı faktörler araştırılmaktadır. Bu araştırmada Irk, gelir ve yüksek eğitim düzeyi gibi faktörler,Amerika'daki kadınları ve onların güzellik ve kozmetik ürünleri kullanım alışkanlıklarını anlamaya yardımcı olmak için kullanılmaktadır. Bu faktörler, ABD'de farklı kadınların güzellik ve kozmetik ürünleri satın alırken karşılaştıkları zorluklardan bazılarını açıklamaya yardımcı olur. Bu çalışmanın,diğer ülkelerde farklı uyruklardaki kadınların alışkanlıklarını anlamak için kullanabileceği umulmaktadır.

Anahtar Kelimeler: Irk ve güzellik, güzellik endüsterisi, kozmetik.

DEDICATION

To my family

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Chapter 1

INTRODUCTION

Cosmetics and beauty products are used by individuals in different of gender, different race, income groups and people of different educational levels. The major segments that are covered by today's beauty industry include makeup, perfumes and fragrances, hair products and skincare. The United States (US) has the largest cosmetics market in the world according to MarketResearch.com (2016).

Over the recent years more people especially in the US are entering the job market and are earning enough to care for their needs and wants, one of them is caring for the skin and buying beauty enhancing products. The understanding of different races and cultures and their beauty and cosmetic needs in the US has helped to place the industry among the most profitable.

The Food and Drug Administration (FDA) regulates the beauty and cosmetics industry in the US according to the Federal Food, Drug, and Cosmetic Act (FD&C Act) and the Fair Packaging and Labelling Act (FPLA). All cosmetics marketed in the US are regulated under these laws. The FD&C Act describes cosmetics by their planned use, as "articles intended to be rubbed, poured, sprinkled, or sprayed on, introduced into, or otherwise applied to the human body...for cleansing, beautifying, promoting attractiveness, or altering the appearance" (Food and Drug Administration, 2017). These rules and regulations are made by the congress of the US and are put in place to ensure the safety of users.

1.1 Background of Study

History has shown us the spread in the use of cosmetics over several centuries for various reasons with each century introducing trends that have inspired some of the beauty trends seen today.

Much study has been done on the ancient factors have shaped the idea of modern beauty, most popular of them is the ancient Egyptians. Some examples of this can be seen in the use of kohl eyeliner which is still present and has been the motivation behind the Smokey eye makeup (BBC, 2016).

Since 1848 when the United States Congress passed the Drug Importation Act- a law which gave authority to the U.S. Customs Service to inspect all the imported drugs entering into the country (Cosmeticsinfo, 2016) the cosmetics and beauty industry in the United States has led the way in regulation and innovation in the industry. Over the years, the industry saw major growth with the introduction of brands like L’oreal, Max Factor, Revlon and Chanel and the others.

The 1930s saw another growth with movie stars popularizing some trends such as the Hollywood ‘tan’ look which was made popular first by Coco Chanel (Cosmeticsinfo, 2016). The influence of these celebrities further facilitated the growth of the industry in the country.

President John F. Kennedy, in 1962 declared the Consumer Bill of Rights which contained the right to be informed, right to safety, the right to choose and the right to be heard (Cosmeticsinfo, 2016). This paved the way for the U.S FDA (Food and Drug Administration) to develop a panel that collected data on cosmetics to assess the safety of the beauty and cosmetics being sold in the United States.

While the government with several policies have played major role in the advancement of the cosmetic industry, some other factors such as the culture of the people and education has also played some role in the use of beauty and cosmetic products in the United States.

With more women getting more education, working and earning more wages and so buying more makeup, it is important to focus on some factors that would influence their purchase of cosmetics.

This dissertation tries to highlight some factors which are college education and race. This study helps to look at the relationship between the incomes of women from the major race groups in the United States and the number of college educated women in the United States on the revenue and the Gross product of the cosmetic industry between 2002 and 2016.

Very little research has been done in the US to explain the attitudes of women of the four major race groups in America about beauty products. There is also not enough knowledge on the influence of income on the use of beauty products by women in the American society. The correlation between the use of beauty products and education especially four year college education in the US is not explored by researchers, in detail either.

1.2 Aim of the Study

This research focuses on finding out how the different major race groups in the United States of America approach the use of cosmetic and beauty products. The study is trying to identify some cultural attributes of the women in the American society towards beauty. Income and its influence on the use of cosmetic and beauty products are investigated. The correlation between the use of cosmetic and beauty products with the number of college educated women are analysed. These relationships are investigated statistically using multiple regression analysis. This study focuses on the influence of race, college education and median income of US women on the use of beauty products. The dependent variables are selected as the revenue and the gross product of the industry in America.

The aim of this study is to identify and explain some common influences on the use of beauty and cosmetic products in the United States of America mainly race, income and four year college education. To help achieve this aim, some research objectives have been identified as follows:

1. Source median income data of females of the four major race groups in the US (Hispanic, Asian, black, white)
2. Source data on the revenue and the industry gross product of the beauty and cosmetic industry in the US
3. Source data on the number of female workers in the US with a bachelor degree or higher
4. Source data on the estimated median earnings of all the female workers in the US who work part time and full time

5. Run a multiple correlation analysis between the use of cosmetics and beauty products and number of with four year bachelor degree
6. Run a multiple correlation analysis between the use of cosmetics and beauty products and the different major race groups in America
7. Run a multiple correlation analysis between the use of cosmetic and beauty products on the estimated median earnings of female workers both part time and full time in America.

1.3 Significance of the Study

The United States has the biggest beauty and cosmetic industry in the world. Even though women and men use cosmetic and beauty products, there are still more women who use these products worldwide. This study helps to identify the race, education and income factors which is part of the many other factors that have contributed to the growth of the cosmetic and beauty industry in the United States.

This research focuses on the consumer behaviour of women of the major racial groups in the United States of America. It would be interesting to conduct a research on the consumer behaviour of women of mixed race.

This study also focuses on the consumer behaviour of college educated women in the United States. It does not focus on women with high school education or women with no form of formal education. Further studies should be done to focus on these groups of women in the United States.

1.4 Research Hypothesis

H0: the purchasing behaviour of women in the United States on beauty and cosmetic products is influenced by income, race or college education.

H1: the purchasing behaviour of women in the United States on beauty and cosmetic products is not influenced by income, race or college education.

1.5 Advice for Future Research

Future studies may use this same framework to study the influence of women with different educational backgrounds on the use of makeup. It is also hoped that future work would focus not only on the four major race groups in America but also on women who are of mixed race groups.

Also, future studies should focus more on women who work either part time or full time in America. With more women getting more education, working and earning more wages, they will be buying more makeup and beauty products if this trend continues.

The United States of America is a multicultural society, thus, future research could be done to help understanding the attitudes of other race groups like red Indians, Jews, Arabs etc. about using beauty products.

Chapter 2

LITERATURE REVIEW

Literature review consists of current knowledge which also includes theoretical and methodological contributions on the impact of income, college education and the race on the purchase cosmetics and beauty products in America.

Articles, printed books at the Eastern Mediterranean University library and e-books on websites, are the main resources for the literature review and the theoretical framework on this paper.

Literature databases were also very helpful because of the ability to search for key words thereby eliminating unwanted information. Some useful databases include the Google Scholar and Web of Knowledge.

Scarcity of previous literature on this specific study; influence of race, income and college education on the use of beauty products mainly secondary data was limited for information about the topic. There are a lot of studies concerning beauty and the use of beauty products and beauty procedures but none which is specific to the aim of this study.

2.1 Research Variables

The two main dependent variables to be considered in this research about the cosmetic industry in the US include the revenue and the industry gross product (industry value added). Revenue is the income generated from the sale of goods or services, or any other use of capital or the assets associated with the main operations of an industry or organization before any costs are deducted.

The industry gross product is the contribution of an industry or a government sector to the overall GDP. These contributions include the compensation of employees, taxes on production and imports less subsidies, and gross operating surplus. It also consists of the value added which equals the difference between an industry's gross output (consisting of sales or receipts and other operating income, commodity taxes, and inventory change) and the cost of its intermediate inputs (including energy, raw materials, semi-finished goods, and services that are purchased from all sources).

2.1.1 Beauty and Cosmetics Globally

Today, the beauty and cosmetics industry is divided into five business segments; skincare, colour cosmetics makeup, haircare, toiletries and fragrances. Several factors have contributed to the world wide use of cosmetics which has led to the development of the industry over the years. 12 thousand years ago, religion played a major role in the use of cosmetic products. In the Victorian era (19th Century) the use of cosmetics became popular among ladies as they were to present themselves in a beautiful way with elegant clothing and distinct facial features.

Modern day beauty and cosmetic industry has recorded steady growth over the years. Figure 1 shows the growth rate of the global cosmetics market from 2004 to 2016.

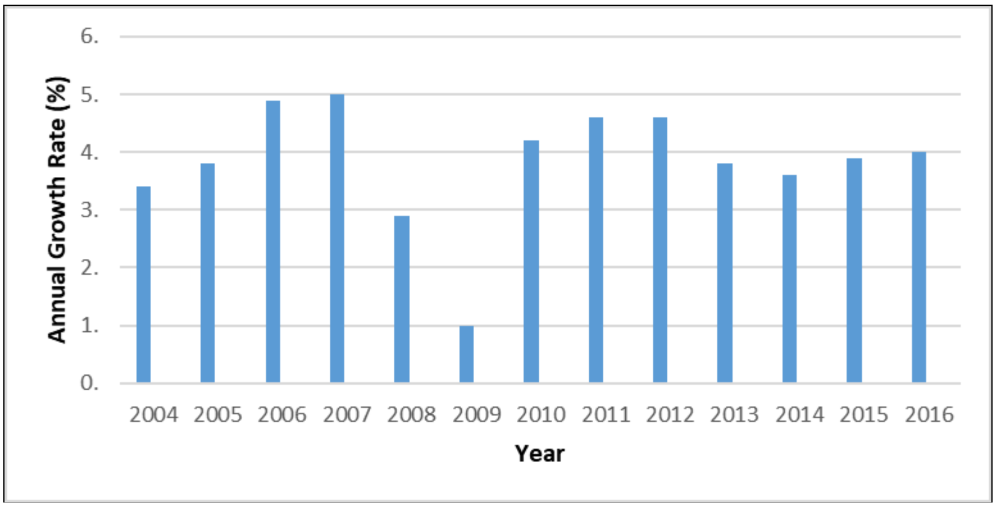

Figure 1: Growth rate (%) of global cosmetics market from 2004 to 2016 annually

2.1.2 Women and Beauty in the American Society

The days when people thought makeup was only something that less reputable women wore is over, now the market has since expanded to both upper and lower classes of women, white women and women of colour, and now American women from all walks of life are familiar with make-up. Cosmetics changed from something only doomed women wore to something proper women wear. As these approaches towards make-up changed, so did American approach towards beauty (Boyd, 2014).

2.1.3 Women, Beauty and Race in America

The United States of America is a racially diverse society, comprising of non-Hispanic whites, Hispanics, blacks of African-American, Asian, American Indian and Alaska natives and native Hawaiians with other pacific islanders. This study focuses on the four major race groups in the American society, the non-Hispanic whites, the blacks, the Hispanics and the Asians because they constitute the major races in the US. The beauty standards in the American society has experienced tremendous changes over the years paralleled with the changes in the cosmetic industry.

For a long time, cosmetics producers in America were accused of focusing mostly on making beauty products for white women who made up the majority of the market until recently. Nowadays, American beauty companies are recognising the diversity in the society and introducing products that cater to the needs of the diverse racial groups. This is a far cry from 1991 when Allure respondents chose blonde haired, blue-eyed Christie Brinkley as the ideal beauty. The new all-American look is much more of a hybrid according to Dawson, (2011).

A recent survey in the US according to DailyMail (2017), found that the average woman might spend up to 300,000 US dollars on beauty products in her lifetime. This survey was carried out on 3,000 women between ages 16 and 75 on their cosmetic, and beauty spending habits and on their daily routines.

2.1.4 Hispanic Women and Cosmetics in America

According to Agencia EFE, (2016), the Hispanic woman has been using makeup since she was a little girl, ‘Stealing’ mommy’s lipstick and playing with it. The report also states that about 13 percent of the 62 billion US dollars spent on cosmetics comes from the Latinas. The significance of the Latinas in the beauty and cosmetics industry in the US has been noticed by some beauty companies such as Estee Lauder, Neutrogena, Cover Girl and L’Oréal. These companies have partnered or will partner with Latina celebrities in some of their products. L’Oréal has worked with Latina celebrities such as Jennifer Lopez, Eva Longoria and Zoe Saldana.

2.1.5 Asian Women and Cosmetics in America

According to Nielsen for most Asian Americans (2015), beauty starts from the inside out. This report also states that most millennial Asian American women are heads of their families and so usually want the best quality. They are more loyal to name-brand products because they believe in the quality and so would pay the extra price for it. Asian-Americans spend 70% more than the average share of the population in the US on skincare products, 25% more on fragrances, 15% more on hair care and 7% more on cosmetics.

2.1.6 White Women and Cosmetics in America

For a very long time, the beauty and cosmetics industry has been accused of focusing mostly on white women. There are several examples to prove that this claim is true and that some brands only focus on providing shades of foundation for white women, neglecting the women of colour. Some other controversies facing the industry can be seen with some companies like Dove; a well-known brand Dove, whose “Real Beauty” advertisements earned a lot of kudos for portraying women of all ages, sizes, and colours, but came under fire for an advert that showed an African American model turning white after benefitting from the Dove Visible Care Body Wash (Wischhover, 2011).

There are some claims that some companies fear that the women from other races do not purchase these cosmetic products. Some brands release a few shades or products for women of colour when during the first launch and would increase the range of colour to suit the other racial groups if they feel like the product will be bought by women of colour.

2.1.7 Black Women and Cosmetics in America

According to Stewart (2009), African American women spend 7.5 billion U.S dollars on beauty products annually. The report also states that African American women spend about 80 percent more on cosmetics and twice as much on skincare products. The beauty and cosmetics industry does not really pay much attention to the African

American and black women in general, this means that according to a celebrity makeup artist Sam Fine "she spends a lot but there's little satisfaction. What keeps us buying it is the hope that this product will do what it's supposed to do". Unlike the Asian American woman who has the luxury of choosing what brands to buy and stay loyal to, the African American woman does not really have that luxury.

In recent years, this need has been satisfied by some brands that cater to these women with less toxic ingredients. With the growing number of African American and above all their willingness to spend a lot more on cosmetics, there is still a market for more brands in this segment.

2.1.8 College Educated Women and Cosmetics

According to Lazzaro (2017) from Harvard Medical School conducted a study and found that female students who wear makeup cognitively benefit from the psychological phenomenon in which wearing cosmetics can make a person feel a sense of overall enhancement in self-esteem, attitude and personality.

Lazzaro also stated that the study concluded that the use of makeup proved to be a predictor for higher grades, even more than that of certain mood boosters like listening to positive music.

2.1.9 Workplace and the Use of Cosmetics

According to Olga Khazan (2015), has shown that attractive people earn more. Good looking men and women get ahead in the workplace, but then again men are not expected to wear makeup to look good. Another study showed that people were more likely to give awards to women who are made up than to women who do not wear makeup. Even at restaurants, waitresses with some form of make-up usually get tipped more by male patrons Khazan (2015).

The workplace makeup is not usually expected to be “Instagram-like” or “Lady Gaga like” but of a moderate amount. This makeup made women seem knowledgeable and likable. This attitude the society has towards rewarding attractiveness has been condemned by many, with some celebrities calling for women to go makeup free. It is going to take a long time for the society to completely change its views and attitudes.

2.1.9 Psychological Factors Influencing the Use of Cosmetics

Cox (1986) found that increased makeup usage positively correlates with the perceptions of attractiveness, femininity, and sexiness but negatively or does not correlate with likeability, morality, emotionality, and decisiveness. Cox’s study also found that increased cosmetic usage negatively correlates with women’s ability in women-dominated jobs and either negatively or does not correlate with women’s ability in non-gendered jobs.

Also the psychological factors that encourage increased cosmetic usage include anxiety, self-consciousness, introversion, conformity, and self-presentation. However, cosmetics and beauty products serve as a way for women to become instantly more attractive, feminine, and sexy to third party observers.

2.2 More Related Studies

2.2.1 Status Consumption in Women Cosmetics

A study by Angela, et al. (1998) developed a method of differentiating the situations where consumers make purchases to achieve status from situations when they make purchases based on the quality of the product. Angela’s study was conducted using data from purchases of women’s cosmetics across differently priced brands. Angela’s study found out that there was evidence of status-buying in the purchase of women’s cosmetics.

Income and higher education was found to be associated with the tendency to engage in status-buying. Angela’s study found that status buying differs by race but only with the purchase of lipsticks. It acknowledges the fact that non-Hispanic whites are more likely to do status buying than other races majorly because of their dominant position economically and socially in the American society. This is very similar to the result in this study where there was a significant correlation between the income of white women and the use of makeup.

Angela’s study gave us an insight into the purchasing behaviour of women using some variables considered in this study; race, income, higher education, arguing that women pay more for products because of their status concentrating on only a few cosmetics products. This study looks at the whole cosmetics and beauty industry in America.

2.2.2 Cosmetic Surgery

Cosmetic surgery has become very popular throughout the years all over the world. In the US especially, the popularity has grown and doctors are tailoring these procedures to different ideals of beauty and cultural preferences. According to a study by Silvestre, et al (2016) conducted on 11,001 patients that identified in 138 randomized controlled trials, 20 reported race/ethnicity data (14.5 percent). From these studies 2224 were white (77.7 percent), 401 were African American (14.0 percent), 203 were Hispanic (7.1 percent), and 33 were Asian (1.2 percent). These proportions were 2.3-fold less for Hispanics and 4.0-fold less for the Asians in the US.

The above mentioned study provided information on cosmetic surgery among different race groups in America, showing us that more white women in America do cosmetic surgeries. However, it does not mention the use of beauty and cosmetic products which this study is based on. This finding indirectly supports the results of this thesis where there is a significant correlation between the use of cosmetics and number of white women in the US. It is important to note that the results from this study are very similar to that of the above mentioned study as will be observed later.

A study by Schlessinger (2010), found that 66.9 percent of women that received cosmetic surgery had college degree or greater. The Schlessinger study (2010) used primary data which was collected from female subjects (n=302) for its analysis. The patients were obtaining non-invasive cosmetic surgery procedures. This study found a form of influence between college education and the use of cosmetic and beauty products which is somehow shown in the Schlessinger study.

Chapter 3

METHODOLOGY

Panel data from 2002 till 2016 (15 years) of median income of females of the four major race groups in America namely; Hispanic, Asian, White, Black (African American) using the 2016 dollar rate is selected in this analysis. All these data are collected and statistically analysed using a multiple regression analysis. Equations were generated to help with understand the relationships.

3.1 Data Collection Method

As independent variables, secondary data on the number of female workers in the US with a 4-year bachelor degree or higher from 2002 till 2016 and the estimated median earnings of all female workers in the United States of America (part-time and full time) from 2002 till 2016 are selected.

As dependent variables, panel data on the revenue and industry gross product figures of the beauty and cosmetic industry in the United States of America between 2002 and 2016 will be examined.

Secondary data obtained from the US government showed a significant pool of data which were accurate as they were recorded by highly trained personnel of the Census Bureau. The data on the Beauty industry was sourced from IBISWorld, which is a team of expert analysts who research economic, demographic, and company data. The panel data on the beauty industry was limited to 2002 till 2016.

The main reason for not using Primary data for this study is due to time constraints and resources. Data on the revenue and the gross product of the beauty industry over the years can only be sourced from historical data and as stated before, only data from 2002 to 2016 was available. Independent data on the earnings of the different race groups in America could only be sourced from the government of the country, in this case the Government of the US.

Data represents period of 15 years. For the regression analysis to be done the dependent and independent variables will have to be identified.

Table 1: Variables

Dependent variables	Industry gross product, revenue of the cosmetic beauty industry.
Independent variables	Number of female workers in the U.S with bachelor degree or higher, median earnings of all female workers in the U.S, median income of females with Hispanic origin, Asians only, Blacks only and whites only.

Secondary data is the main source of data for this study.

Table 2: Sources of Data

Data	Source
The median earnings of women	U.S. Census Bureau, Current Population Survey, 1961 through 2017 Annual Social and Economic Supplements
Number of college educated female workers	the U.S Bureau of Labour Statistics
Median income of females of different race groups	U.S. Census Bureau, Current Population Survey, Annual Social and Economic Supplements
Revenue of the cosmetic beauty industry	Survey conducted by IBISWorld
Industry gross product of the beauty industry in U.S	Survey conducted by IBISWorld

3.2 The Choice of Secondary Resources

In secondary data analysis, the data is collected by researchers who were not present during the collection of the data. It is therefore important to collect data from reliable sources.

With every secondary data, there is always a worry of the quality of data being used. This is because the researchers do not take part in the planning, execution of any parts of the data collection process.

Even with the established fact that secondary data is not perfect, the data will be used as the major source of data for this research because of time, fund and several resources that is useful in collecting the data first hand. However, the secondary data could be of high quality and credible if used carefully.

3.2 Data Analysis Method

After the data has been collected, the independent and dependent variables identified, a multiple regression analysis is used to analyse the data.

3.2.1 Regression Analysis

Multiple regression analysis is a way of mathematically sorting out variables that behave together. It answers the questions: Which factors matter most? Which can be ignored? How do those factors interact with each other? And, perhaps most importantly, how certain are we about all of these factors? In regression analysis, those factors are called variables. The dependent variable**,** is the main factor that the study is trying to understand or predict Gallo, (2015).

Chapter 4

DATA ANALYSIS AND RESULTS

4.1 Revenue of the Cosmetic Beauty Industry in the United States of America

The revenue of the cosmetic beauty industry has recorded steady increase over the years, even the global financial crisis which affected almost every industry in the United States did not affect the beauty and cosmetic industry. The only falls in the revenue of the industry are observed in 2003 and 2009. The fall occurred after the 2002 and the 2008 global financial crises. Probably the crises affected the expenditures reducing the income of families. Thus the revenue of the cosmetic industry was also affected. Other than 2003 and 2009, the revenue of the industry showed a steady increase. This increase in the revenue of the beauty industry is partly caused by the theory of the 'Lipstick Effect', where during an economic crisis, consumers are willing to buy less costly luxury goods.

4.1.2 Industry Gross Product of the Industry of Cosmetic Beauty in the US

The industry suffered from the 2002 global crisis and recovered after two years, in 2005. Similarly, the second global crises started in 2007 and the industry restrained its production for five years. In 2012, the industry turned to pre-crisis level. Thus, Table 3 and Table 4 gives clues that cosmetics is an income sensitive industry. Most consumers are on the lookout for perceived performance and the quality of the products, this has made companies in this industry focused on finding ways to efficiently source quality ingredients.

Table 3: Revenue of the cosmetic beauty industry in the United States of America from 2002 to 2016 in billion U.S dollars

2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
40.42	30.79	41.56	44.64	47.84	51.52	52.44	52.38	53	53.7	54.89	56.63	58.79	60.58	62.46

Table 4: Industry Gross product of the cosmetic beauty industry in the United States of America from 2002 to 2016 in billion U.S dollars

2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
9.25	9.03	9.15	10.5	11.07	10.53	10.43	10.72	10.67	10.73	11.31	11.97	12.7	13.55	13.91

4.1.3 Earnings of Female workers in the United States of America

The earnings of women is important to the economic security of their families. This is the major reason why most women are joining the work force in order to be able to provide for their families. As seen in Table 5, the median earnings of women in the United States of America has been moderately increasing. There is an ongoing debate on further increasing the wage of women as there is still a huge pay gap between men and women who do the same job.

In 2007, the median earnings of women in America, was 29,956 US dollars this number was lower in year 2004 and 2008 (28279 and 28594) mainly because of the financial crisis. By 2010, the number increased slightly again but dropped the following year. However, the number has been increasing since 2014 and with more women joining the workforce, and advocating for equal pay, it is expected that the median earnings of women will continue to rise.

It is interesting that the salaries of women could not recover to pre-crisis level of 2007 until 2015. This observation shows that once unemployed or employed for lower wages, the wage of female workers in the US behaves in a ‘sticky’ way and they don’t go up evenly.

4.1.4 Female median income by race in the United States of America

There is still a racial wage gap among women in America. Hispanic women earn the least of all the women of the race groups in America. This issue is still being discussed and is costing several companies a lot of money with court cases and settlements. Recently some women are taking bold steps to quit their jobs to protest the wage gap among women of different races and between men and women.

Table 6 shows that white women were not so much affected by the 2002 crisis. However, black (Table 7), Asian (Table 8), Hispanic (Table 9) were affected. This shows that firms in the US lay off the women workers of other races before the white women. Also white and Hispanic women recovered to pre-crisis income levels in 2015 while black, Asian women have not retained these levels yet.

4.1.5 Female Workers with Bachelor Degree or Higher in America

Women all over the world are more likely to have college degrees than men. In the US, as shown in Table 10 the number of women who are getting college degrees has been increasing considerably.

Table 5: Estimated median earnings of all female workers in the United States of America from 2002 to 2016 in U.S dollars

2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
28599	28714	28279	28358	29125	29956	28594	29119	29176	28325	28101	28579	28786	30628	30882

Tables 6, 7, 8 and 9 show the female median income by race in the United States of America in U.S dollars

Table 6: White alone

2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
22472	22735	22489	22944	23906	24389	23354	23624	23003	22809	22819	23003	22789	24585	25221

Table 7: Black alone

2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
22326	21638	22057	21668	22740	22865	22515	21780	21627	21076	20929	21708	21255	21886	22835

Table 8: Asian alone

2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
22326	21638	22057	21668	22740	22865	22515	21780	21627	21076	20929	21708	21255	21886	22835

Table 9: Hispanic origin

2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
17836	17802	18363	18479	18759	19387	18301	18133	17935	17954	17484	17467	17826	19144	19906

Table 10: Number of female workers in the United States with Bachelor degree or higher

2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
12736	13075	13329	13944	14461	15274	15812	15599	15903	16221	16899	17633	118324	19169	19747

4.2 Statistical Analysis

A multiple regression analysis was used for this statistical analysis in this study.

4.2.1 Race and Industry Gross Product

A multiple linear regression was calculated to predict the industry gross product of the beauty industry in the US based on the median income of white, black, Hispanic, and Asian females.

The dependent variable is the Industry Gross Product of the cosmetic beauty industry in the US. The independent variables, in Tables 6-9, are median incomes of white, black, Hispanic and Asian women.

The first equation representing the relationship between the Industry Gross Product and the median incomes of white, Hispanic, Asian and black females in America is the following:

$$P_n = C_{Pn} + YB_n + YH_n + YA_n + YW_n + e_n \qquad (1)$$

where, P_n is the industry gross product of the cosmetic beauty industry, W_n is the median income of white women, H_n is the median income of Hispanic women, A_n is the median income of Asian women, B_n is the median income of black women, and e_n is the error term.

A significant ANOVA was found ($F(4, 10) = 5.834$, $p < .011$), with an R^2 of .700. The industry Gross Product is equal to -.859+.002(Median income of white females) -.001(Median income of black females) +.000 (Median income of Asian females) +.000 (Median income of Hispanic females), where industry gross product is measured in billion US dollars and the median incomes of black, white, Hispanic and Asian women is measured in thousand US dollars.

Table 11: Results of the regression when industry gross product of the cosmetic industry is the dependent variable

	Constant	Standard Beta	t-statistic	significance	R^2	F
	-0.859			0.011	0.700	5.834
Black		-0.570	-2.209	0.052		
Hispanic		-0.236	-0.554	0.592		
Asian		0.129	0.562	0.586		
White		1.142	2.965	0.014		

Equation (1) is solved as follows:

$$P_n=-0.859-0.570YB_n-0.236YH_n+0.129YA_n+1.142YW_n+0.9535 \qquad (1a)$$

As explained in Table 11, the correlation is significant for incomes of white women at 99% of the time and significant for black women at 95% of the time. The correlation is not significant for Hispanic and Asian women.

The coefficient is higher, 1.142, for white women which means basically the income of white women in USA is influencing the cosmetic production in the country. One percent increase in gross product corresponds to 1.142 percent increase in the income of white women in the USA. This result explains why the cosmetic industry in the US is basically focusing on the white female consumers.

The increase in the gross product of the cosmetics industry is negatively correlating with the increase in the incomes of black women in the USA, These results imply that black women in USA buy less cosmetics as they become richer.

4.2.2 Race and Revenue of the Cosmetic Beauty Industry

A multiple regression analysis was calculated to predict the industry's revenue in the US based on the median income of females of black, Asian, Hispanic and white women in the US.

The dependent variable is the revenue of the cosmetic beauty industry in the US measured in US dollars. The independent variables, in Tables 6-9, are median incomes of white, black, Hispanic and Asian women measured in US dollars.

The second equation representing the relationship between the Revenue of the industry and the median incomes of black, Asian, Hispanic and white women in the US is the following:

$$Rm=C_m+YW_m+YH_m+YA_m+YB_m+e_m \qquad (2)$$

where, Rm is the revenue of the cosmetic beauty industry, YW_m is the median income of white women, YH_m is the median income of Hispanic women, YA_m is the median income of Asian women, YB_m is the median income of black women, and e_m is the error term.

A significant ANOVA was found ($F(4, 10) = 4.176$, $p < .030$), with an R2 of .625. Revenue is equal to 6.335+.011 (Median income of white females) -.007 (Median income of black females) +.002 (Median income of Asian females) -.005(Median income of Hispanic females), where revenue is measured in billion US dollars and the median incomes of black, white, Hispanic and Asian women is measured in thousand US dollars.

Table 12: Results of the regression when revenue of the cosmetic industry is the dependent variable

	Constant	Standard Beta	t-statistic	significance	R^2	F
	6.335			0.030	0.625	4.176
Black		-0.538	-1.863	0.092		
Hispanic		-0.432	-0.907	0.386		
Asian		0.354	1.382	0.197		
White		1.036	2.407	0.037		

This means that equation (2) is solved as follows:

$$R_m = 6.335 + 1.036YW_m - 0.432YH_m + 0.354YA_m - 0.538YB_m + 6.1354 \qquad (2a)$$

As explained in Table 12, the correlation is significant for the incomes of white women. The coefficient is higher, 1.036, for white women. This again shows that the income of white women influences the revenue of the cosmetic industry in USA. One percent increase in the revenue of the industry corresponds to 1.036 percent increase in the income of white women in USA**.** The increase in the revenue of the industry is negatively correlating with the increase in the incomes of black women and women of Hispanic origin.

4.2.3 Industry Gross Product with the Number of Female Workers with Bachelor Degree and the Estimated Median Earnings of Female Workers in the US

A multiple linear regression was calculated to predict the industry gross product of the cosmetics and beauty industry based on the median earnings of women and number of female workers with bachelor degree or higher.

The dependent variable is the industry gross product of the cosmetic beauty industry in the US measured in billion US dollars. The independent variables, in Tables 5 and 10, are the estimated median earnings of all female workers in the US measured in US dollars and the number of female workers in the US with bachelor degree or higher.

The third equation generated represents the relationship between the Industry Gross Product and the estimated median earnings of all female workers in the US and the number of female workers in the US with a bachelor degree or higher.

$$P_s=C_s+E_s+I_s+e_s \qquad (3)$$

where; P_s is the industry gross product of the cosmetic beauty industry, E_s is the number of female workers in the US with bachelor degree or higher, I_s is the estimated median income of female workers in the US, and e_s is the error term.

A significant ANOVA was found (F (2, 12) = 74.824, p< .000), with an R^2 of 0.926. Equation (3) is solved as follows:

$$Ps=-6.608+0.857Es+0.167Is+0.43299 \qquad (3a)$$

As explained in Table 13, the correlation is significant for female workers with bachelor degree or higher 100% of the time .The correlation is not significant for the median earnings of female workers in the United States.

The coefficient is higher, 0.857, for female workers with bachelor degree or higher which implies that the increase in the number of women with bachelor degree or higher influences cosmetic production in USA. A one percent increase in the gross product corresponds to 0.857 increase in the number of female workers with a bachelor degree or higher education.

Table 13: Results of the regression when industry gross product of the cosmetic industry is the dependent variable

	constant	Standard Beta	t-statistic	significance	R^2	F
	-6.608			0.000	0.926	74.824
female workers with bachelor degree or higher		0.857	8.978	0.000		
Median earnings of female workers		0.167	1.751	0.105		

4.2.4 Revenue of the cosmetic industry with the number of female workers in the United States with bachelor degree or higher and the estimated median earnings of female workers in the US

A multiple linear regression was calculated to predict revenue of the cosmetics and beauty industry based on the median earnings of women and number of female workers with bachelor degree or higher.

The dependent variable is the cosmetic beauty industry's revenue in the US measured in US dollars. The independent variables, in Tables 5 and 10, are the estimated median earnings of all female workers in the US measured in US dollars and the number of female workers in the US with bachelor degree or higher.

The fourth equation generated represents the relationship between the revenue of the industry and the estimated earnings of the female workers and the number of female workers with bachelor degree or higher is the following;

$$R_z=C_z+E_z+I_z+e_z \tag{4}$$

where; R_z is the revenue of the cosmetic beauty industry, E_z is the number of female workers in the US with bachelor degree or higher, I_z is the estimated median income of female workers in the US, and e_z is the error term. A significant ANOVA was found (F (2, 12) = 37.489, p < .000), with an R^2 of .862.

Equation (4) is solved as follows:

$$R_z=8.195+0.960E_z -0.057I_z+3.39949 \tag{4a}$$

As explained in Table 14, the correlation is significant for the number female workers with Bachelor degree or higher 100% of the time. It is not significant with the median earnings of female workers in the United States. The coefficient is higher, 0.960, for the number of female workers with a bachelor degree or higher. This means that the number of female workers with a bachelor degree or higher influences the revenue of the cosmetic Industry in the country.

The increase in the revenue of the cosmetic industry is negatively correlating with the increase in the median earnings of female workers in the country.

Table 14: Results of the regression when revenue of the cosmetic industry is the dependent variable

	constant	Standard Beta	t-statistic	significance	R^2	F
	8.195			0.000	0.862	37.489
female workers with bachelor degree or higher		0.960	7.372	0.000		
Median earnings of female workers		-0.057	-0.440	0.668		

Chapter 5

DISCUSSION

In this study, the influence of race, college education and income on the use of cosmetic and beauty products in USA based on secondary data examined. Multiple linear regression analysis was done to find out any form of relationship between the revenue generated by the beauty and cosmetic industry with these variables- race, median income and college education. Another regression analysis was done to find out the relationship between these variables- race, college education and income and the industry gross product of the cosmetic and beauty industry in America.

In order to fully understand and explain these relationships, data spanning a longer period of time has to be collected. However, the data on the industry gross product and the revenue of the beauty and cosmetic industry was from 2002 to 2016, thus under circumstances some relationships were observed between these variables and some concrete explanations were given for these relationships.

The study examined the relationships between race, income, and college education on the use of cosmetic and beauty products among women in the American society. The study aimed at understanding some cultural attributes of women in the American society on the use of cosmetic and beauty products.

Data was collected on the income of the women of major race groups in America namely – white, Hispanic, Asian, black (African American) ,a multiple linear regression analysis was run to find out any form of correlation between their income and the revenue of industry of cosmetic beauty with the industry gross product from 2002 to 2016.

The results of the statistical analysis declared that there is a significant relationship between the use of cosmetics and beauty products and the median income of white women in America and negative significant relationship between the income of black women and cosmetic industry production. As discussed earlier in the study, the cosmetic industry has long been accused of only providing cosmetic and beauty products for white women. This claim is reflected in the results of this study.

For the black (African Americans) women in America, this study shows a statistically significant negative relationship between the median income of these women and the use of cosmetics. It is important to note that this relationship is not as strong as that of the white women because as shown in the income data, white women earn more than black women and the cosmetic and beauty industry does not have as much products for black women as it does for white women.

The results for the Asian women in America showed no significant relationship between their use of cosmetics and their income. The reason as discussed in the study is the belief among Asian-American women that beauty is not skin-deep and thus they do not believe in the use of cosmetics. It would be important to note that Asian women earn the most out of the race groups in America.

Women of Hispanic origin in America earn the least of all the major race groups in the country, this may be the reason why this study did not find any statistically significant relationship between the income of women of Hispanic origin and the use of cosmetic products.

It is unable to be neglected that, income inequality among different race groups exists in America, with white and Asian women earning the most. This might be one of the reasons why companies provide more products for them.

The major beauty companies in America and around the world are acknowledging the fact that one race group has been favoured for too long and there exists a huge market of women from other race groups.

For now, the efforts of these companies to diversify their products to reach every woman has not yet been felt. Some companies fear that the women of these race groups may not be able to afford their products because they do not earn enough to care for the family talk less of purchase cosmetic products. Until the issue of equal pay for women of all race groups is resolved, this fear among the beauty companies to produce products for all women will continue to exist.

The study showed a statistically significant relationship between the numbers of female workers in the United States and the use of cosmetics and beauty products. There is a significant positive correlation between the use of cosmetics and the number of college degree holders. Women workers with college degree or higher earn more money than women with high school diplomas or women with no educational background. This may be the reason why they are able to afford to buy cosmetic and beauty products and take care of their other needs.

No statistically significant relationship was observed between the use of cosmetic and beauty products and the median earnings of women in America because most women in America do not earn enough money. They have several other needs and getting beauty products is not a major concern. They simply do not earn enough to pay for rent and also purchase beauty products.

The wage gap between women and men in America who perform similar jobs has been an ongoing issue. One major suggestion to tackle this issue which will benefit the American women as well as the beauty and cosmetics industry is for the government to set up laws to tackle the income inequality not just among the different race groups but also between men and women doing similar jobs.

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APPENDICES

Appendix A

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.837[a]	.700	.580	.95350

a. Predictors: (Constant), Median Income of females with hispanic origin using the 2016 dollar rate (2002-2016), Median Income of asian females with 2016 dollar rate (2002-2016), Median Income of black females with 2016 dollar rate (2002-2016), Median income of white females with 2016 dollar rate (2002-2016)

ANOVA[a]

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	21.215	4	5.304	5.834	.011[b]
	Residual	9.092	10	.909		
	Total	30.306	14			

a. Dependent Variable: Industry Gross Product in billion dollars (2002-2016)

b. Predictors: (Constant), Median Income of females with hispanic origin using the 2016 dollar rate (2002-2016), Median Income of asian females with 2016 dollar rate (2002-2016), Median Income of black females with 2016 dollar rate (2002-2016), Median income of white females with 2016 dollar rate (2002-2016)

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	-.859	9.746		-.088	.932
	Median Income of asian females with 2016 dollar rate (2002-2016)	.000	.000	.129	.562	.586
	Median Income of black females with 2016 dollar rate (2002-2016)	-.001	.001	-.570	-2.209	.052
	Median income of white females with 2016 dollar rate (2002-2016)	.002	.001	1.142	2.965	.014
	Median Income of females with hispanic origin using the 2016 dollar rate (2002-2016)	.000	.001	-.236	-.554	.592

a. Dependent Variable: Industry Gross Product in billion dollars (2002-2016)

Appendix B

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.791[a]	.625	.476	6.13543

a. Predictors: (Constant), Median Income of females with hispanic origin using the 2016 dollar rate (2002-2016), Median Income of asian females with 2016 dollar rate (2002-2016), Median Income of black females with 2016 dollar rate (2002-2016), Median income of white females with 2016 dollar rate (2002-2016)

ANOVA[a]

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	628.726	4	157.182	4.176	.030[b]
	Residual	376.435	10	37.643		
	Total	1005.161	14			

a. Dependent Variable: Revenue of the cosmetic beauty industry (2002-2016)

b. Predictors: (Constant), Median Income of females with hispanic origin using the 2016 dollar rate (2002-2016), Median Income of asian females with 2016 dollar rate (2002-2016), Median Income of black females with 2016 dollar rate (2002-2016), Median income of white females with 2016 dollar rate (2002-2016)

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	6.335	62.715		.101	.922
	Median income of white females with 2016 dollar rate (2002-2016)	.011	.004	1.036	2.407	.037
	Median Income of black females with 2016 dollar rate (2002-2016)	-.007	.004	-.538	-1.863	.092
	Median Income of asian females with 2016 dollar rate (2002-2016)	.002	.002	.354	1.382	.197
	Median Income of females with hispanic origin using the 2016 dollar rate (2002-2016)	-.005	.006	-.432	-.907	.386

a. Dependent Variable: Revenue of the cosmetic beauty industry (2002-2016)

Appendix C

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.962[a]	.926	.913	.43299

a. Predictors: (Constant), Estimated Median Earnings of all female workers-part time and full time in dollars (2002-2016), Number of female workers in the united states with bachelor degree or higher (2002-2016)

ANOVA[a]

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	28.057	2	14.028	74.824	.000[b]
	Residual	2.250	12	.187		
	Total	30.306	14			

a. Dependent Variable: Industry Gross Product in billion dollars (2002-2016)

b. Predictors: (Constant), Estimated Median Earnings of all female workers-part time and full time in dollars (2002-2016), Number of female workers in the united states with bachelor degree or higher (2002-2016)

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-6.608	4.330		-1.526	.153
	Number of female workers in the united states with bachelor degree or higher (2002-2016)	.001	.000	.857	8.978	.000
	Estimated Median Earnings of all female workers-part time and full time in dollars (2002-2016)	.000	.000	.167	1.751	.105

a. Dependent Variable: Industry Gross Product in billion dollars (2002-2016)

Appendix D

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.928[a]	.862	.839	3.39949

a. Predictors: (Constant), Estimated Median Earnings of all female workers-part time and full time in dollars (2002-2016), Number of female workers in the united states with bachelor degree or higher (2002-2016)

ANOVA[a]

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	866.482	2	433.241	37.489	.000[b]
	Residual	138.679	12	11.557		
	Total	1005.161	14			

a. Dependent Variable: Revenue of the cosmetic beauty industry (2002-2016)

b. Predictors: (Constant), Estimated Median Earnings of all female workers-part time and full time in dollars (2002-2016), Number of female workers in the united states with bachelor degree or higher (2002-2016)

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	8.195	33.994		.241	.814
	Number of female workers in the united states with bachelor degree or higher (2002-2016)	.004	.001	.960	7.372	.000
	Estimated Median Earnings of all female workers-part time and full time in dollars (2002-2016)	-.001	.001	-.057	-.440	.668

a. Dependent Variable: Revenue of the cosmetic beauty industry (2002-2016)