

Research on Factors Affecting the 3D Jelly Cakes Demand of Hanoi Customers

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Abstract

The study analyzes some factors affecting Hanoi consumers' demand for 3D jelly cake. Based on the theory of commodity demand, the research team conducted a survey and collected answers from 308 consumers on some factors affecting 3D jelly cake demand. The synthesis and analysis of survey data indicate that the demand for 3D jelly cakes of Hanoi consumers is influenced by many factors such as the price of the product, tastes, prices of substitutes, and complementary goods... In addition, the research team also considered the advantages of 3D jelly cake compared to other products, as well as discussed, some solutions to stimulate consumer demand with this new and aesthetic product.

Keywords: Influential factors, demand, jelly, 3D jelly cake, consumers, Hanoi

1. Raising the issue

3D jelly cake is not only an art but also a culinary quintessence with natural flavors and beautiful shapes. The artist combines flower shapes with familiar animals and introduces folk motifs into each work. Making jelly cakes is very simple, but shaping is extremely difficult. The jelly powder is boiled, poured into the cake mold, and then with a medical needle and a design needle, the flowers are skillfully created by the baker. (Bich Van, 2021)

With their aesthetics and novelty, 3D jelly cakes are also chosen as a gift to replace traditional birthday cakes at parties. Enjoying a 3D jelly cake is also enjoying a work of art. The blend of flavors and designs gives the audience a satisfying taste, sight, and a myriad of wonderful flavors. 3D jelly cakes are made from simple ingredients, such as jelly powder mixed with fruit juices, pandan leaves, milk, and chocolate to enhance their taste. (Nhat Vy, 2022)

3D jelly cakes are not widely available. Currently, most of the products are only sold online and have not been imported into big supermarkets, grocery stores, or bakeries, even though this is an eye-catching product with healthy natural ingredients. Therefore, the research team has conducted a survey with Hanoi consumers to study the factors affecting the demand for 3D jelly cake, thereby offering some solutions to stimulate the demand for this product.

2. Theoretical basis

The theory of demand for goods is presented a lot in the textbooks and lectures of the subject Microeconomics. In this article, the research team analyzes the theory of demand for goods based on documents from Anh, N.T.V., & Duong, L.X., (2021).

Demand (D): "Demand is the quantity of consumers who are willing and able to buy products at various prices during a given period of time, other things being constant." Buyers tend to increase the quantity of a good demand when its price falls and vice versa, which can be explained by the substitution effect and the

income effect. The inverse relationship between price and quantity demanded holds true for most goods in an economy, which economists call this relationship:

Quality Determinants (Q^D): “The quantity demanded of a certain good or service tends to increase when the price of that good or service decreases and vice versa (with all other factors are constant)”.

In order to see the factors affecting the consumption of products of enterprises, managers need to understand the factors affecting demand. Analysis of factors affecting demand helps managers make appropriate decisions in the strategy to stimulate demand and promote product consumption. For each different commodity, the factors affecting demand will be different. The common factors affecting the demand and quantity demanded of goods can be summarized in Table 1 as follows:

Table 1. Factors affecting demand and quantity demanded.

Factors	Relationships	Correlation
Px: Price of the commodity	$P_x \uparrow \Rightarrow Q^D_x \downarrow$ $P_x \downarrow \Rightarrow Q^D_x \uparrow$	Inverse
I: Income	Normal goods: $I \uparrow \Rightarrow D_x \uparrow$ Inferior goods: $I \uparrow \Rightarrow D_x \downarrow$	Positive Inverse
N: Population	$N \uparrow \Rightarrow D_x \uparrow$ $N \downarrow \Rightarrow D_x \downarrow$	Positive
Py: Price of related goods	Substitute goods: $P_y \uparrow \Rightarrow D_x \uparrow$ Complementary goods: $P_y \uparrow \Rightarrow D_x \downarrow$	Positive Inverse
T: Taste	$T \uparrow \Rightarrow D_x \uparrow$	Positive

D_x : Demand for good X

Q^D_x : Quantity demand for good X.

Source: Duong, L.X. (2012)

3. Overview of 3D jelly cakes

3D jelly cakes:

Originating from Japan, 3D jelly cakes were imported to Vietnam and chosen by many customers, with 2 main types: 3D floating jelly and 3D sinking jelly. They can be made with simple ingredients such as jelly powder, seasonal fruit juice, milk, coconut water, chocolate, cocoa, orange... It will not be too much to consider them a work of culinary art, where the worker must be very attentive and creative. (Phan Huong, Cong Dien, 2018)

On the background of the transparent jelly block, the baker used colors created from fruits and vegetables: purple from butterfly pea flowers or beetroots; white from fresh milk; yellow from pineapples; red from red dragon fruits to create flowers and funny animals, making anyone who once tasted cannot help but admire and appreciate the meticulousness and sophistication of the cake. 3D jelly cake is a new and very hot culinary trend. Many young people have been passionate about studying how to make 3D jelly cakes with the desire to make unique presents for their loved ones. Enjoying a 3D jelly cake is enjoying a whole work of art. That is the comment of many people when trying it once since these cakes are both satisfying in terms of taste, sight, and feeling the countless wonderful flavors that mother nature has bestowed on us. (Phan Huong, Cong Dien, 2018)

3D jelly cakes can be made with many different tools such as spoons, molds, or straws. Depending on their "aesthetic taste", artisans can create beautiful and unique cakes in their own way. The 3D jelly cakes have a wide range of colors and sweet flavors. (Tran Phuong Nga, 2022)

3D jelly cake originates from Japan - the country of the rising sun, which is famous for its unique dishes and artwork. It has just been introduced to Vietnam a few years ago, but 3D jelly cake attracts a lot of consumers. (Le Trang, 2022)

Steps to make a 3D jelly cake:

According to Tran Phuong Nga (2022), there are 5 steps to make a 3D jelly cake:

(i) Making a base layer of jelly

Mix the jelly powder with water, boil with some sugar and pandan leaves, then pour the jelly into the mold and let it cool at room temperature.

(ii) Pouring the cake base

Mix clear jelly with cocoa powder, water, and sugar to create a brown base. The white jelly base includes clear jelly, coconut milk, condensed milk, and non-dairy creamer.

(iii) Making colored jelly

All colors will be created on a white jelly base. You can use matcha powder to create green, red yeast rice powder to create red, chocolate syrup to create brown, red dragon fruit juice to create pink, or passion fruit to create yellow.

(iv) Creating decorations

Method 1. Draw 3D jelly cake patterns with a straw: Make the straw's tip pointed, pour the jelly in the middle of the jelly cake, and use that straw to create the petals' shape.

Method 2. Draw petals with a needle: Use the smallest needle to create a red stamen in the middle of the cake base, then suck the pink jelly and gently press to create a petal shape. In addition, green and brown jelly can be used to create leaves and leaf veins.

Method 3. Pour the jelly into the mold: Pour a thin layer of clear jelly into the mold, then add the colored jelly and the white, blue, or pink jelly to create the cake base.

(v) Finishing 3D jelly cake

Put the 3D jelly cake in the refrigerator for about 1-2 hours to freeze.

A satisfactory 3D jelly cake will have a clear and beautiful texture. You can use the cake chilled or have it with milk tea.

Advantages of 3D jelly cake:

3D jelly cake is shaped individually on each one, bringing an interesting experience for people to enjoy. The richness of natural colors from Vietnamese fruits and flowers is the perfect source for creating unique and beautiful cakes. This cake is a combination of Vietnamese cuisine and art, with natural flavors and beautiful shapes.

The artists shape familiar flowers and animals, putting folk motifs into each work (Bich Van, 2021).

3D jelly cake is not only just a dessert, but it is also a creative art form (Dang Duong, 2022).

According to ZBonShop.vn (2019), 3D jelly cake has several uses such as:

- Jelly cake made from pure Siamese coconut water has a natural, moderate sugar level and a cool taste without the need to add refined sugar. Therefore, 3D jelly cake does not have a lot of calories, helping to maintain body weight.

- 3D jelly cake helps reduce bad cholesterol and increase good cholesterol for the body, helping to prevent cardiovascular disease.

- Jelly and fruits are rich in folic acid, which helps prevent hair problems such as weak and broken hair.

- 3D jelly cake contains many B vitamins and amino acids to help strengthen the immune system.
 - Jelly is rich in aspartic acid, which promotes cell regeneration, collagen production and prevents signs of aging.
 - Besides, 3D jelly cake also contains vitamins B3 and B8, which help prevent skin problems such as inflammation and acne.
 - Amino acids and Inositol present in jelly also contribute to reducing stress and preventing neurological symptoms.
 - Jelly cake helps joints increase lubrication and prevent arthritis.
 - Jelly cakes are made from fresh coconut water; the colors to decorate the cakes are 100% from natural flowers and fruits: green from green tea powder or pandan leaves; blue from the butterfly pea flower; white from fresh milk; yellow from the gardenia seeds or passion fruit; red from red yeast rice powder; pink from red dragon fruit or beetroot; dark brown color from cocoa and purple from purple sweet potato or rosemary leaves.
- 3D, 4D jelly has just been introduced to Vietnam a few years ago, but this cake attracts a lot of consumers (Le Trang, 2022).

4. Research methodology

Theoretical research methodology

Analytical and synthetic methodology are used to clarify the theoretical basis of Demand, factors affecting the 3D jelly cake bridge.

The article reviews the research on goods and service demand and 3D jelly cakes. From there, determine and analyze the influence of factors on the 3D jelly cakes demand.

Practical research methodology

- Investigation and survey method:

Based on factors affecting the 3D jelly cake demand, the research team conducted a preliminary survey. The preliminary survey was sent to 5 consumers who are knowledgeable about 3D jelly cake for trial. After that, it has been adjusted according to the opinions of the surveyed people. After completing the large-scale survey, it is sent to individuals and consumers through the Google Form platform (<https://forms.gle/mff3w8eDHf6HrccXA>)

- Data collection method:

The data collection method conducted by the research team is based on the convenience sampling method and the “snowball” method (the method of finding the next object based on the suggestion or recommendation of the subject just surveyed). The number of survey questionnaires collected was 308, of which 7 respondents did not want to learn about 3D jelly cakes, so the number of respondents included in the analysis of factors affecting demand was 301.

- 3D jelly cake demand analysis through econometric model

Based on the influencing factors, combined with the demand analysis method according to the econometric model, the study estimates the demand for 3D jelly cake. Specifically: With two factors of price (P), the price of related goods including substitute goods (PTT) and the price of complementary goods (PBS), the research team will build a regression equation to build the relationship between these factors and the quantity demanded of 3D jelly cakes.

General model:

$$Q = a \cdot P + b \quad (1)$$

In which: P is the price of 3D jelly cake; Q is the quantity demanded of 3D jelly cake (showing the willingness and ability to pay of the respondents). a, b are the coefficients.

$$QBT = c \cdot PTT + d \quad (2)$$

In which: PTT is the price of substitute goods for 3D jelly cake (birthday cake; jelly; other types of jelly ... with prices from 220k - 270k); QBT is the quantity demanded of 3D jelly cake (showing the willingness and ability to pay of the respondents when there is a change in the price of substitute goods). c, d are the coefficients.

$$QBTS = e \cdot PBS + f \quad (3)$$

In which: PBS is the price of complementary goods of 3D jelly cake (set of spoons, forks, candles ... with prices ranging from 12 - 20k); QBTS is the quantity demanded of 3D jelly cake (showing the willingness and ability to pay of the respondents when there is a change in the price of complementary goods). e, f are the coefficients.

The procedure is taken as follows:

Step 1: Use EViews 8 software to run the model with collected secondary data.

Step 2: Check the statistical significance of the regression coefficients with the explanatory variables and the statistical significance of the regression model with a significance level $\alpha=0.05$.

A regression coefficient is statistically significant if:

- Prob < $\alpha=0.05$
- Prob(F-statistic) < $\alpha=0.05$

Step 3: Check the explainability of the model through the coefficients R-squared and Adjusted R-squared.

A model is explanatory (fit) if:

- R-squared > 0.6
- Adjusted R-squared > 0.6

Step 4: Check the model's defects with $\alpha=0.05$.

A model is good (*can be used for analysis*) when the regression coefficients in the model are statistically significant, and the R-squared, Adjusted R-squared should not have autocorrelation and heteroskedasticity. At the same time, the residuals of the model should follow the standard normal distribution.

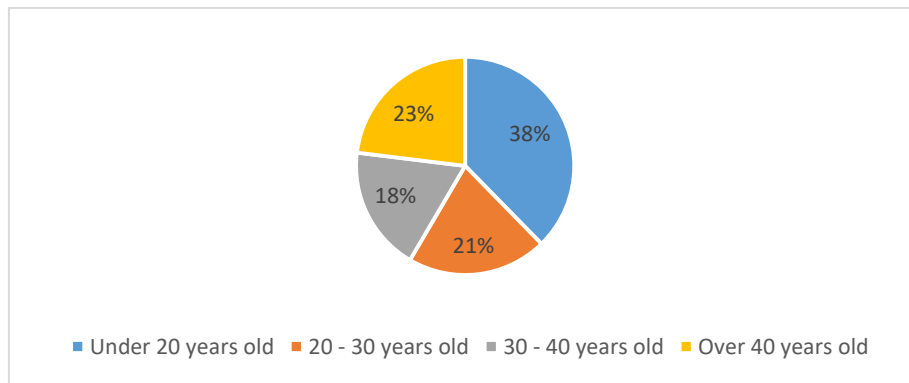
In the study, the authors used tools on EViews 8 to check for these defects. Specifically:

- Breusch-Godfrey test to check autocorrelation. The model does not have an autocorrelation defect at some level p if Prob (F-statistic) and Prob (Obs *R-squared) > $\alpha=0.05$.
- Breusch-Pagan-Godfrey to test heteroskedasticity. The model is not subject to heteroskedasticity if Prob (F-statistic) and Prob (Obs*Chi-squared) > $\alpha=0.05$.
- Jarque - Bera to check if the residuals of the model follow the standard normal distribution. The residuals of the model are normally distributed if Prob (Jarque - Bera) > 0.05.

5. Analysis of factors affecting the 3D jelly cakes demand of Hanoi consumers

5.1. Survey subjects and general information about 3D jelly cake

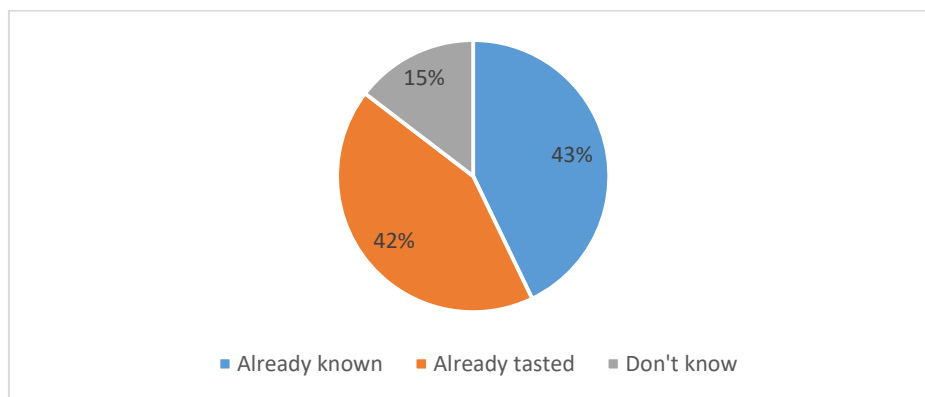
Figure 1. Age of survey respondents



Source: Survey results

Among 308 survey participants, 116 people are under 20 years old (38%); 64 people from 20 to 30 years old (21%); 57 people from 30 to 40 years old (18%); and 71 people over 40 years old (23%).

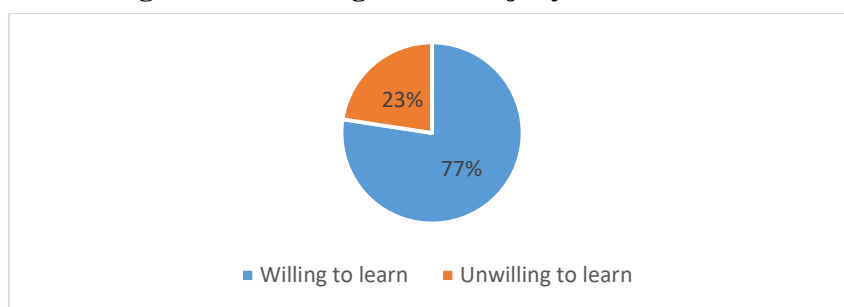
Figure 2. Consumer awareness of products



Source: Survey results

Among 308 survey participants, 132 people have already known about 3D jelly cake (43%); 131 people have tasted it (42%); and 45 people have not heard of it (15%).

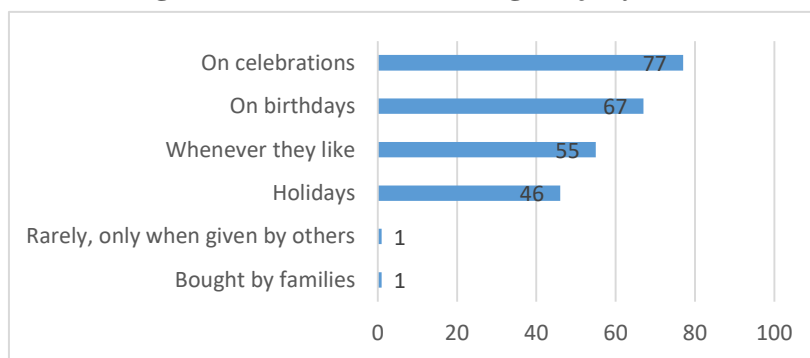
Figure 3. Learning about 3D jelly cake demand



Source: Survey results

Among 45 people who have not heard of 3D jelly cake, 24 people want to learn about this product (77%); 7 people did not want to explore and stopped the survey (23%).

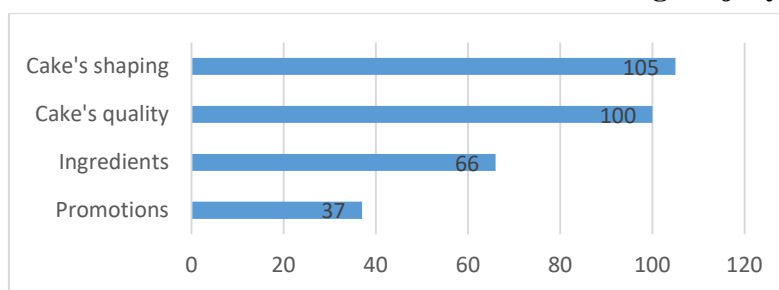
Figure 4. Occasions for using 3D jelly cake



Source: Survey results

Among 131 people who have tasted 3D jelly cake, 77 people usually eat it on celebrations (59%); 67 people usually eat it on birthdays (51%); 55 people regularly eat it whenever they like (42%); 46 people regularly eat it on holidays (35%); 1 person rarely eats it, only when given by others (0.8%); and 1 person regularly eats it when bought by their families (0.8%).

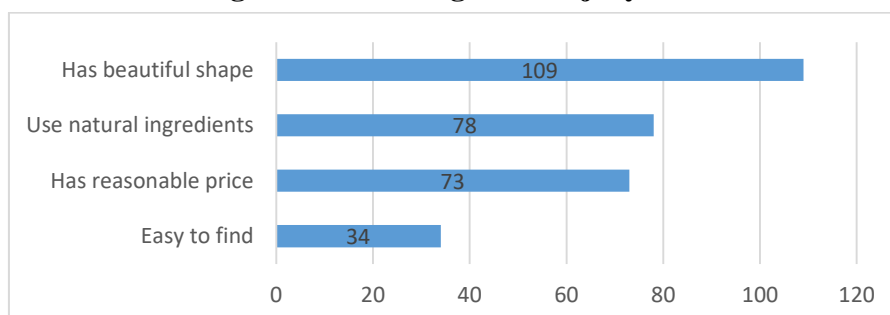
Figure 5. Factors consumers consider when choosing 3D jelly cake



Source: Survey results

Among 131 people who have tasted 3D jelly cake, 105 people are interested in the cake's shaping (80%); 100 people are interested in the cake's quality (76%); 66 people are interested in ingredients (50%); and 37 people are interested in promotions (28%).

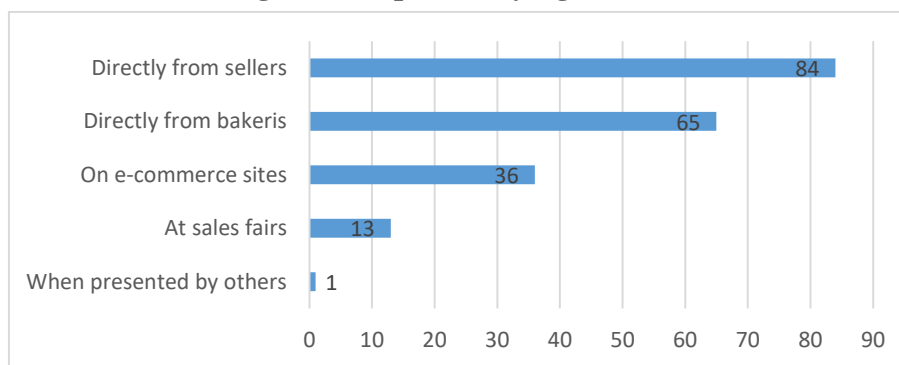
Figure 6. Advantages of 3D jelly cake



Source: Survey results

Among 131 people who have tasted 3D jelly cake, 109 people think that 3D jelly cake has a beautiful shape (83%); 78 people think that the cake uses natural ingredients (60%); 73 people think that cakes are reasonably priced (56%); and 34 people think that cakes are easy to find (26%).

Figure 7. Popular buying channels



Source: Survey results

Among 131 people who have tasted 3D jelly cake, 84 people usually buy it directly from sellers (64%); 65 people usually buy it directly from bakeries (50%); 36 people often buy it on e-commerce sites (28%); 13 people often buy it at sales fairs (10%); and 1 person eat this cake when presented by others (0.8%).

5.2. Factors affecting the demand and quantity demanded of 3D jelly cake by Hanoi consumers.

Results of the 3D Jelly Cake Demand survey with 301 respondents, the research team focused on considering the following factors: *Price of 3D jelly cake, consumer tastes, prices of substitute and complementary goods*. The results show that:

5.2.1. 3D jelly cake price factor

Table 2. Relationship between price and quantity demanded of 3D jelly cake.

P (thousand VND)	Q (quantity)
150	282
200	257
250	201
300	130
350	77
400	54

Source: Survey results

Table 3. Regression results on the relationship between price and quantity demanded of 3D jelly cake.

Dependent Variable: Q				
Method: Least Squares				
Date: 07/28/23 Time: 18:17				
Sample: 16				
Included observations: 6				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
P	-1.000571	0.072460	-13.80868	0.0002
C	441.9905	20.86493	21.18342	0.0000
R-squared	0.979453	Mean dependent var		166.8333
Adjusted R-squared	0.974317	S.D. dependent var		94.57149
S.E. of regression	15.15601	Akaike info criterion		8.535873
Sum squared resid	918.8190	Schwarz criterion		8.466460
Log likelihood	-23.60762	Hannan-Quinn criter.		8.258006
F-statistic	190.6796	Durbin-Watson stat		2.003943
Prob(F-statistic)	0.000159			

Source: Estimated results

From the estimated results, we can see that there is a negative relationship between price and quantity demanded of 3D jelly cake, specifically the relationship between P and quantity demanded (Q) is shown by the following equation:

$$Q = -1.000571 * P + 441.9905$$

It indicates that when the price increases by 1 thousand VND, the demand for 3D jelly cake will decrease by 1,000571 units of product (consistent with the theory).

Model's fit verification

+ The coefficients are statistically significant because the coefficient Prob (P)=0.0002 < 0.05; Prob (C)=0.0000 < 0.05.

+ The regression model is suitable because the Prob coefficient (F-statistic) = 0.000159 < 0.05.

+ The coefficient of determination R-squared and Adjusted R-squared are 0.979453, respectively; 0.974317 > 0.6.

Checking for autocorrelation defects, the results are given in Table 4.

Table 4. Autocorrelation defect test

Breusch-Godfrey Serial Correlation LM Test:			
F-statistic	1.551538	Prob. F(2,2)	0.3919
Obs*R-squared	3.648477	Prob. Chi-Square(2)	0.1613

Source: Model test results

According to Table 4, the Prob. F and Prob. Chi-Square are > 0.05. The model does not have autocorrelation defects.

Checking the variance of the variable error, the results are given in Table 5.

Table 5. Verification of variable error variance

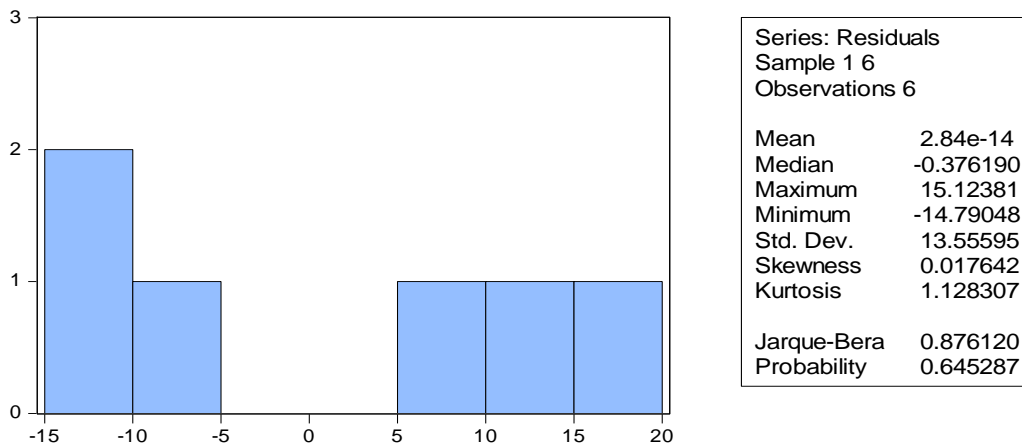
Heteroskedasticity Test: White			
F-statistic	0.114343	Prob. F(2,3)	0.8957
Obs*R-squared	0.424975	Prob. Chi-Square(2)	0.8086
Scaled explained SS	0.012117	Prob. Chi-Square(2)	0.9940

Source: Model test results

According to Table 5, the Prob values. F and Prob. Chi-Square are > 0.05. The model is not flawed with variable variance.

The residuals of the model follow a normal distribution, with Prob values (Jarque-Bera) in the model > 0.05.

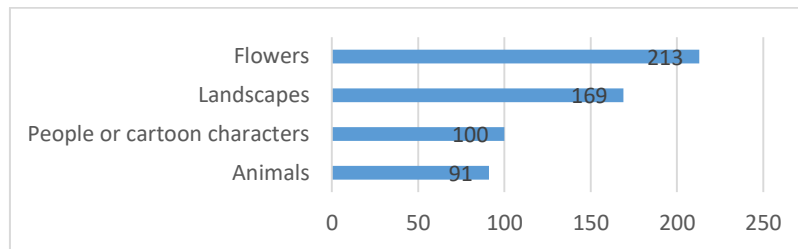
Figure 8. Normal distribution residuals



Source: Model test results

5.2.2. 3D jelly cake taste

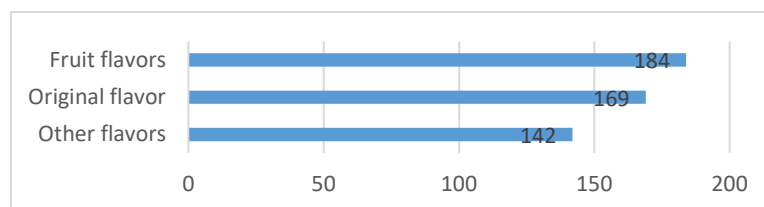
Figure 9. Favorite 3D jelly cake decoration



Source: Survey results

Among 301 survey participants, 213 people like flower cakes(71%); 169 people like landscape cakes (56%); 100 people like person or cartoon character cakes (33%); and 91 people like animal cakes (30%).

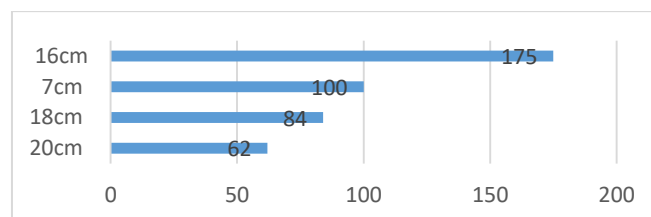
Figure 10. Favorite 3D jelly cake flavors



Source: Survey results

Among 301 survey participants, 184 people like fruit flavors (61%); 169 people like original flavor (56%); and 142 people like other flavors (47%).

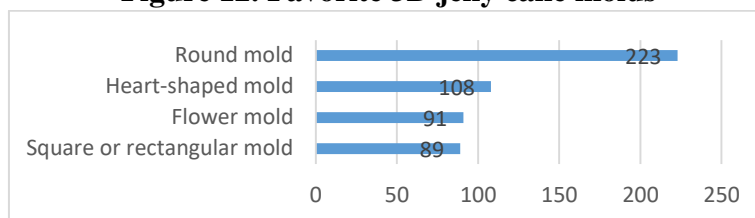
Figure 11. Favorite 3D jelly cake size



Source: Survey results

Among 301 survey participants, 175 people like the 16cm size (58%); 100 people like the 7cm size (33%); 84 people like the 18cm size (28%); and 62 people like the 20cm size (21%).

Figure 12. Favorite 3D jelly cake molds



Source: Survey results

Among 301 survey participants, 223 people like round mold (74%); 108 people like heart-shaped mold (36%); 91 people like flower mold (30%); and 89 people like square or rectangular cake mold (30%).

5.2.3. Substitute goods' prices factor

Some products can be used to replace 3D jelly cakes such as:

- Original birthday cakes
- Synthetic flavoring jelly
- Almond panna cotta with lychee dessert
- Other types of jelly (Asian grass jelly)

The relationship between the price of substitute goods and the quantity demanded of 3D jelly cake through the survey results is described in Table 6.

Table 6. Relationship between substitute goods' prices and quantity demanded of 3D jelly cake.

PTT (thousand VND)	QBT (quantity)
220	78
230	95
240	107
250	119
260	141
270	145

Source: Survey results

Table 7. Regression results on the relationship between substitute goods' prices and the quantity demanded of 3D jelly cake.

Dependent Variable: LOG(QBT)				
Method: Least Squares				
Date: 07/28/23 Time: 18:35				
Sample: 16				
Included observations: 6				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
LOG(PTT)	3.074573	0.225492	13.63493	0.0002
C	-12.19185	1.240042	-9.831801	0.0006
R-squared	0.978938	Mean dependent var	4.714672	
Adjusted R-squared	0.973672	S.D. dependent var	0.238063	
S.E. of regression	0.038628	Akaike info criterion	-3.408477	
Sum squared resid	0.005968	Schwarz criterion	-3.477890	
Log likelihood	12.22543	Hannan-Quinn criter.	-3.686345	
F-statistic	185.9113	Durbin-Watson stat	2.401199	
Prob(F-statistic)	0.000168			

Source: Estimated results

From the estimated results, we can see that there is a positive relationship between the price of substitute goods and the quantity demanded of 3D jelly cake, specifically the relationship between PTT and QBT is shown by the following equation:

$$\text{LOG (QBT)} = 3.074573 * \text{LOG(PTT)} - 12.19185$$

It shows that when the price of substitute goods increases by 1%, the demand for 3D jelly cakes will increase by 3,074573% (consistent with the theory).

Model's fit verification

+ The coefficients are statistically significant because the coefficient Prob (PTT)=0.0002 < 0.05; Prob (C)=0.0006 < 0.05.

+ The regression model is suitable because Prob coefficient (F-statistic) = 0.000168 < 0.05.

+ The coefficient of determination R-squared and Adjusted R-squared are 0.978938, respectively; 0.973672 > 0.6.

Checking for autocorrelation defects, the results are given in Table 8.

Table 8. Breusch – Godfrey Serial Correlation LM Test

Breusch-Godfrey Serial Correlation LM Test:			
F-statistic	1.874442	Prob. F(2,2)	0.3479
Obs*R-squared	3.912638	Prob. Chi-Square(2)	0.1414

Source: Model test results

According to Table 8, the Prob values. F and Prob. Chi-Square are > 0.05. The model does not have autocorrelation defects.

Checking the variable error variance, the results are given in Table 9.

Table 9. Heteroskedasticity Test

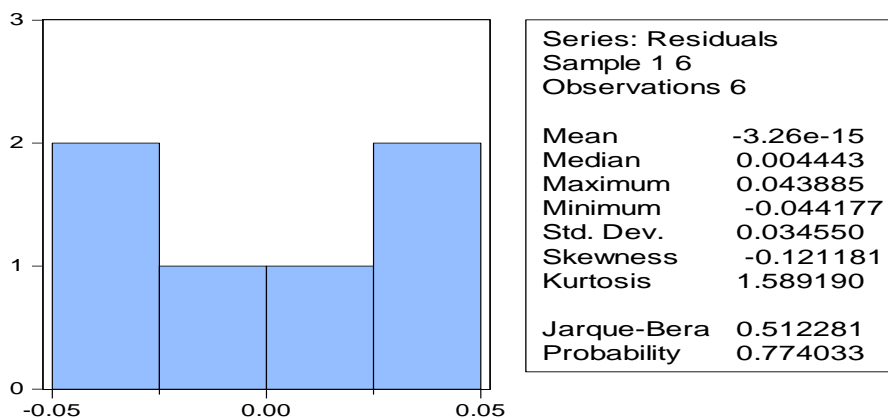
Heteroskedasticity Test: White			
F-statistic	4.305676	Prob. F(2,3)	0.1313
Obs*R-squared	4.449793	Prob. Chi-Square(2)	0.1081
Scaled explained SS	0.582616	Prob. Chi-Square(2)	0.7473

Source: Model test results

According to Table 9, the Prob values. F and Prob. Chi-Square are > 0.05. The model is not flawed with variable variance.

The residuals of the model follow a normal distribution, with Prob values (Jarque-Bera) in the model > 0.05.

Figure 13. Normal distribution residuals

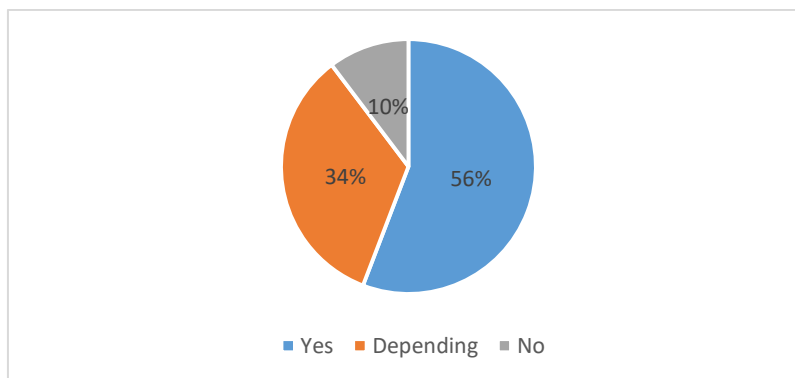


Source: Model test results

5.2.4. Complementary goods' prices factor

Using 3D jelly cake can come with spoons, forks, candles... for about 10,000 VND/set of included products. The research team has conducted this survey to determine the need for supplementary goods.

Figure 14. Demand for complementary goods



Source: Survey results

Among 301 survey participants, 168 people want to buy complementary goods (56%); 102 people want to buy complementary goods depending on each occasion (34%); and 31 people do not want to buy complementary goods (10%).

Table 10. Relationship between complementary goods' prices and quantity demanded of 3D jelly cake

PBS (thousand VND)	QBTS (quantity)
12	275
14	229
16	174
18	126
20	118

Source: Survey results

Table 11. Regression results on the relationship between complementary goods' prices and quantity demanded of 3D jelly cake

Dependent Variable: QBTS				
Method: Least Squares				
Date: 07/28/23 Time: 18:43				
Sample: 15				
Included observations: 5				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
PBS	-20.85000	2.477061	-8.417232	0.0035
C	518.0000	40.24748	12.87037	0.0010
R-squared	0.959377	Mean dependent var		184.4000
Adjusted R-squared	0.945836	S.D. dependent var		67.31493
S.E. of regression	15.66631	Akaike info criterion		8.630077
Sum squared resid	736.3000	Schwarz criterion		8.473852
Log likelihood	-19.57519	Hannan-Quinn criter.		8.210785
F-statistic	70.84979	Durbin-Watson stat		1.861687
Prob(F-statistic)	0.003518			

Source: Estimated results

From the estimated results, we can see that there is a negative relationship between the additional price and the quantity demanded of 3D jelly cake, specifically the relationship between PBS and QBTS is shown by the following equation:

$$QBTS = -20.85000 * PBS + 518.0000$$

It shows that when the price of additional goods increases by 1 thousand VND, the quantity of jelly cake demanded will decrease by 20.85000 units of product (consistent with the theory).

Model's fit verification

+ All coefficients are statistically significant because Prob coefficient (PBS)=0.0035 < 0.05; Prob (C)=0.0010 < 0.05.

+ The regression model is suitable because the coefficient Prob (F-statistic) = 0.003518 < 0.05.

+ The coefficient of determination R-squared and Adjusted R-squared are 0.959377, respectively; 0.945836 > 0.6.

Checking for autocorrelation defects, the results are given in Table 12.

Table 12. Breusch – Godfrey Serial Correlation LM Test

Breusch-Godfrey Serial Correlation LM Test:			
F-statistic	1.874442	Prob. F(2,2)	0.3479
Obs*R-squared	3.912638	Prob. Chi-Square(2)	0.1414

Source: Model test results

According to Table 12, the Prob. F and Prob. Chi-Square are > 0.05. The model does not have autocorrelation defects.

Checking the variance of the variable error, the results are given in Table 13.

Table 13. Heteroskedasticity Test

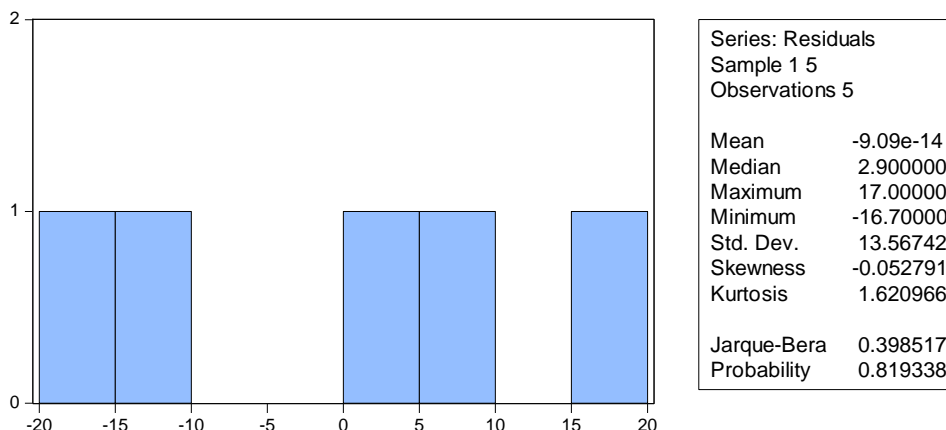
Heteroskedasticity Test: White			
F-statistic	6.019062	Prob. F(2,2)	0.1425
Obs*R-squared	4.287654	Prob. Chi-Square(2)	0.1172
Scaled explained SS	0.479248	Prob. Chi-Square(2)	0.7869

Source: Model test results

According to Table 13, the Prob. F and Prob. Chi-Square are > 0.05. The model is not flawed with variable variance.

The residuals of the model follow a normal distribution, with Prob values (Jarque-Bera) in the model > 0.05.

Figure 15. Normal distribution residuals



Source: Model test results

6. Some exchanges and discussions

3D jelly cakes are still developing in our country in particular and worldwide in general, especially in tropical regions, since eating them is cool and healthy, combining many different delicious flavors, suitable for all ages and vegetarians (Anh Thu, 2021).

However, the survey results show that the number of people who know and have tasted 3D jelly cake only accounts for 42% of the total survey participants, the number of people who know and have not yet tried the product, and the number of people who have not heard of 3D jelly cake still accounts for a major proportion. Therefore, it is necessary to have solutions to promote 3D jelly cake to stimulate consumer demand for this product. Stores or 3D jelly bakeries need to promote advertising and communication activities about the uses and advantages of 3D jelly cakes compared to conventional cakes on mass media, websites, and networks. For effective marketing and promotion activities, stores or bakeries need to regularly update new types of 3D jelly cakes, create attractive promotional content and videos to attract customers. It is necessary to identify the right potential customers to promote the brand promotion and quality of 3D jelly cakes.

3D jelly cake consumption is often during festivals, birthdays, and holidays, so stores should have discounts for buyers on special occasions. These discounts are a way to show gratitude to customers, like those who enjoy works of art. In addition to discounts, stores can diversify forms of promotions such as giving away vouchers, accumulating reward points when buying 3D jelly cakes – this retain customers, especially customers have bought a few times at the store effectively, they will tend to buy more than usual to be able to accumulate more reward points and vouchers. For shops that sell a combination of 3D jelly cakes and many other cakes, on special occasions, it is possible to give away a small product or discount, accumulate points, give vouchers when buying a variety of products to stimulate customers to buy more.

The diversity of cake molds is important because buyers are interested in this factor. Stores need to constantly update cake models, new ways of shaping, in line with current trends and corresponding to each object and customer segment. In addition, it is necessary to ensure the quality of the ingredients, prioritize to the maximum the baking ingredients as well as coloring materials derived from nature to the baking process, it is necessary to ensure food hygiene and safety, to ensure the taste and decoration of 3D jelly cakes. When the quality of cakes increases, it will effectively attract customers, retain customers and customers are a potential brand promotion channel for the store.

The major selling channel is directly from the sellers or bakeries because customers haven't believed completely in indirect buying forms, from quality to delivery.... Therefore, stores need to find solutions to bring 3D jelly cakes into large supermarkets, shops, and grocery stores, promote 3D jelly cakes business activities on social media platforms, e – commercial platforms..., so consumers can find these products more easily.

Product's price: The research team built a demand function $Q = -1,000571 * P + 441,9905$. Between the price and quantity demanded of 3D jelly cake, there is an inverse relationship (consistent with theory). Then to maximize revenue, the value of the price elasticity of demand in this case must be 1. Therefore, the price for the bakeries/sellers of 3D jelly cakes (size 20 cm - about 10 to 20 users) to maximize the revenue in this case is 220,869VND.

Product's taste: The diversity of 3D jelly cakes' shapes is well received by customers. The survey also shows that flowers and landscapes are the most popular decorations. In addition, it is necessary to take advantage of ingredients from tropical fruits to enrich the flavor of 3D jelly cakes. At the same time, bakeries should focus on 16cm cake size, which is the most popular size according to the survey.

Substitute goods' prices: The results show that there is a positive relationship between the price of substitute goods and the demand for 3D jelly cakes, so sellers should also pay attention to market prices of substitute products such as original birthday cakes, synthetic flavoring jelly and other types of jelly to increase 3D jelly cake consumption.

Complementary goods' prices: The survey results show that the price of complementary goods (spoons, forks, candles...) has a negative relationship with the consumption of 3D jelly cake (consistent with the theory). Therefore, sellers also need to consider the price of additional products. For example, stores can promote customers with additional products in order to increase the convenience of using 3D jelly cakes.

Conclusion

In conclusion, in the article "Research on Factors Affecting the Demand for 3D Jelly Cakes of Hanoi Consumers", through the above analysis, synthesis, and evaluation, the research team concluded that 3D jelly cake is a good product for health, bringing many creative and artistic elements and has potential for development on the market. Based on analyzing the current situation of the demand for 3D jelly cakes of Hanoi consumers in recent years, the results show a consistency with the theory. However, the survey within the scope of this research only collected 308 answers, based on demand theory for analysis. With this 3D jelly cake product, the research team can continue to conduct research on a larger scale and can deploy some follow-up research contents such as research intentions, product consumption decisions, or product consumption trends, thereby laying the basis as well as objective judgments, creating new research directions on a broader scale and providing more specific solutions to stimulate consumer demand for this artistic product.

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