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Empirical Validation of Hicks and Slustky's Theory of Income-Substitution effect on Wine Consumption in a Recession Period: Evidence From Abakaliki, Ebonyi State, Nigeria

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Abstract
Wine consumption in Nigeria has increased in the last two decades and plummeted in the last two years following a deepening economic down turn in Nigeria. This study is an attempt to validate theoretical position of substitution and income effect on consumption of wine in a recession period in Nigeria: Evidence from Abakaliki. In a period of economic recession individuals and households are rational in their consumption purchases because they tend to make consumption decisions that will maximize their satisfaction given their income and price of the commodity they wish to consume. In other to evaluate the price –income consumption behaviour of wine consumers in Abakaliki Metropolis, a total of 176 adult respondents were randomly selected and a questionnaire was administered through google form, processed and analysed. The study adopted qualitative response econometric approach using logit and probit estimation method. The response variable is consumer switching behaviour whereas the explanatory variables include: gender, age, habit, income, price, price of substitutes, economic hardship, belief system, advertisement health condition and change of location. The result obtained revealed that increase in price of wine by one percent significantly lowers the consumption of wine by 16 percent whereas increase in income of low income group to middle income increases wine consumption to about 2.3 percent and moving from middle income to high income increases wine consumption by about 16 per cent.. The result also indicated that, age, gender, economic hardship and health status have negative effect on consumers switching behaviour of wines in Abakaliki. The study found that individual wine consumers tend to alter their preferences of wine consumption due to changes in income price and price of substitutes. The study therefore validates Hicks and Slustky's theory of income-substitution effect on change of consumption since, increase in wine consumption is significantly and positively related to increase in income and rise in price. The study therefore recommends that the government should complement household income to make wine shops, retail and whole sales, cuisines restaurants and the entire hospitality industry sub sector to contribute towards Nigeria's inclusive growth.

Keywords: wine, consumer behaviour, price, income, logit and probit

1. Introduction

Consumer behaviour of an individual changes during the period of economic down turn, although, rational Consumers aim at maximizing the utility of a commodity given the price of the commodity. In effect, every consumer is limited in his choice decision depending on two cardinal determinants: income and price. Nkoro and Uko (2012); Noko (2016) contend that economic recession is associated with declining income, rising prices, high unemployment, declining economic activities and low productivity.

These indicators of economic recession negatively affect the purchasing power and consumption ability of the people. Consumers cautiously reduce spending on all goods and may reduce the consumption of luxury and conspicuous goods due to economic hardship (Sarmento et al, 2019). However, differences in income and habit also affect consumers' decisions on the consumption of luxury goods and necessities. Nevertheless, advertisement persuasion and brand loyalty influence consumers' decisions on the consumption of certain goods.

In the last three decades, wine consumption in Nigeria and Abakaliki in particular has witnessed significant growth. The manufacturing, import of wines and retailing increased significantly during the period. The total volume of wines imported to Nigeria during the period of 2022 stood at 41m liters amounting to $104m in 2022 (Statista, 2023). The purchasing power and disposable income of the people persistently fall leaving them with a decision option of consumption switching to low-price alternatives such as beer or palm wine. The uncertainty surrounding the consumption of wines has negatively affected wine imports, wine distribution and retail markets with many shops closing down and importers shutting down their operations.Wines are alcoholic and non-alcoholic beverages consumed by different classes of people at different seasons and occasions. The price of wines is higher than other beverages (beer, stout, malt, mineral drinks) which serve as alternatives for the consumer especially when the wines become unaffordable. Wine which includes fortified, still wines, fresh grape wines and sparkling wines regarded as upper class wines. Wines consumed by the rich and pseudo-rich class because of its high prices. An increase, in wine consumption, correlates with people's wealth and the health benefit of wine consumption (Schaefer et al 2018). In Nigeria, the middle-income group occasionally imitate the consumption pattern of the rich class in the wines especially during festivals and ceremonies. Consumer purchases of wine increase during special celebrations and festivities because there are considered to be special drinks (Verdon, 2021).

In a period of economic recession individual consumer willingly find altertive consumptions not minding their favourites (Sarmento et al, 2019). Currently, due to the economic downturn the demand for wines has reduced with many Switching to less expensive alternatives. In extreme conditions individuals prefer to reduce expenses by spending more of their income on goods of necessity (food, water and medication). The economic downturn has devastated all sectors of Nigeria's economy in an unmitigated state.

The consequences of the COVID-19 pandemic, the Russian- Ukraine War have negatively affected the global economy (Saadoui, et al, 2022). Nigeria is not exempted from the effect of rising prices, unemployment, dwindling income and consumption and multi-dimensional poverty. Besides, sub-national crisis that pervades the country (Banditary, Boko-Haram, insurgency and separatist agitations) worsen the uncertainties and lowers economic activities. These no doubt exacerbate the countries economic downturns with the attendant fall in income, decline in aggregate demand for goods and services resulting to consumption substitution.

Changes in consumption plan culminating in reduction of individual tastes and preferences that are caused by declining purchasing power and rising prices of goods have negative effects on a country's gross domestic product (GDP) (Mankiw, 2007). Economic recession overtely and covertely correlates with a drop in consumption in the economy due to natural phenomena and policy shocks.

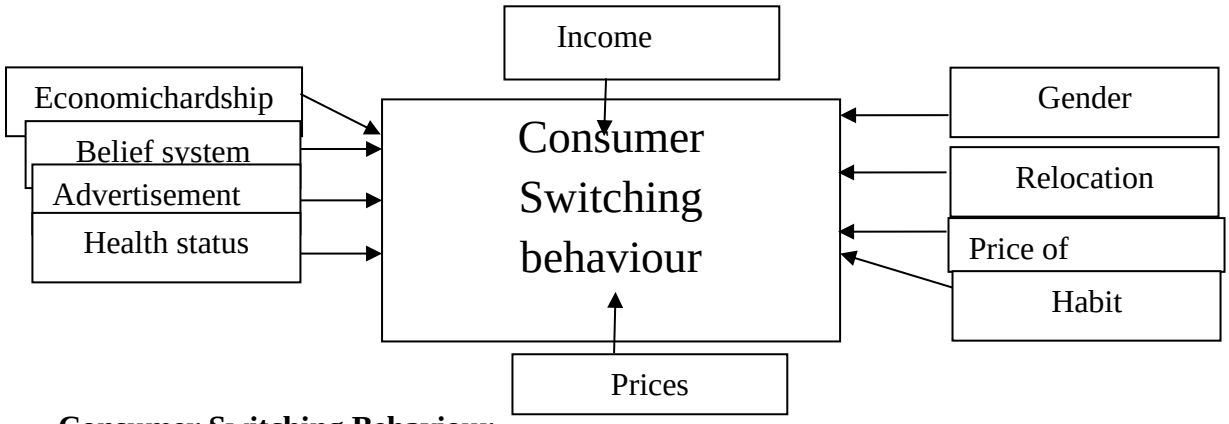
In Nigeria, the current policy on deregulation of the downstream sector, devaluation of the naira and the rising cost of energy have manifested adverse effects on conumers' income line.

The substitution of in consumption as a function of increase in price and fall in purchasing power of the people have caused many firms, shops cuisines and wineries to shut down thereby creating labour demand and reducing income earning ability (Vinod and Jayant, 2013). This trend like a circus, throws more people into the poverty net with no hope of surviving. The (WDI, 2023) states that Nigerians who live below the poverty line of 1.90 dollars/day increased from 40 per cent in 2022 to about 46 per cent in 2023. The increase in the level of poverty to about 26 million people in one year is traceable to the effect of the economic meltdown which is traeable to the policies of oil subsidy removal and currency devaluation.

Several intervention policies have been made by the government to mitigate these shocks and raise consumption spending through cash transfers to vulnerable groups, wage awards, presidential grant schemes, and single-digit interest loans of one billion for 750 big firms in Nigeria to reduce borrowing costs and boost investment. All these intervention packages by the government seem a mirage and fluke, considering that the economic condition of the average consumer has not changed. Given the scenarios, the paper poses two questions: Do a decline in income and a persistent rise in the price of wines affect consumer substitution of wine consumption behaviour behaviour? Is there any significant effect an increase in income through grants has on wine consumption behaviour of wine consumers in Abakaliki, Ebonyi State? The study aims to validate Hicks and Slustky's theory of income and substitution effects on consumers behaviour in a recesionay period.

2. Review of Related Literature

Conceptual Framework



Consumer Switching Behaviour

Consumer switching behaviour is the act of altering one's decision-making behaviourr over the choices of goods or services before him to satisfy his needs. However, consumer switching behaviour is determined by a set of factors such as income, prices, advertising, and social and demographic factors (Kan and Drakopolous, 2018). Consumers make decisions about what to buy and what not to buy depending on what satisfies their utility. In effect, consumers are rational in their choices to the extent of their income, prices and wealth (Wohlgenant, 2021). The value of the sense of belonging and self-esteem, family and accomplishment influenced the behavuiour of wine drinking (Judica & Perking, 1992).

Concept of Income

Income is regarded as an individual's earnings from labour services. Household income declined during periods of economic recession due to rising unemployment and cuts in working

hours. Consumers therefore are ready and willing to adjust their consumption to match with the decline in income. It is evident that wine consumers become more rational in their choices and substitute luxury goods for less expensive goods that are of necessity. Expenditure on other less expensive beverages and necessities increase more than wines, sparkling champagne and brandy.

Price: This refers to the amount of money expended in exchange for value. It is the value paid for a good or service in the market. Prices of goods vary following market changes, wine. Pricein Nigeria is seen to depend on the volatility of the exchange and rises with the fact in the value of the naira. Price is seen as a key purchasing determinant (Montes and Fuentes, 2004) and people reduce their purchases as price rises (Lecoep and Viser, 2006). However, Lange (2002) found that rich individuals are indifferent to price changes but are more influenced by their preferences.

Government grants and Palliative

The demand for wines made insignificant progress during COVID-19 despite government palliatives because of the closure of wine bars, cuisines and restaurants (Macedo et al, 2023). In periods of economic recession, individuals are more prone to switch to necessities than to luxury wine consumption. In Nigeria, government palliatives and grants were the feelings of stupendous living and royalty is associated with designed to mitigate the economic hardship of subsidy removal of the like in price of premium motor spirit. It is conjectural whether the palliatives have improved the living standard of the average Nigerian or have increased the level of poverty. The rising level of poverty will hurt the consumption of wines because the poor are rational in scaling their preferences.

Taste/Habit

Habit is one of the determinants of the consumption of many goods. Individuals find it difficult to change their consumption of a good they have formed the habit of consuming due to a price rise. Their demand is alwaysKelastic (Mankiw, 2004). There are groups of people who are strong-willed in their consumption style as a personal identity and pride. This group of people do not alter their consumption of wine because the price of wine has risen (Castellini and Samoggia, 2018). Habitual consumption of wine was found to be prevalent among several consumers in Australia (Aplin et al, 2021). People also form the habit of wine consumption to deal with the hardship caused by the recession.

Theoretical Literature

This study is anchored on two theories:

Howard and Sheth's theory of Consumer Behaviour

Howard and Sheith (1969) attemptedto explain the buying behaviour of individual consumers or groups of consumers over a given period. Henry et al (2022) opine that the assumption of buying behaviour was not spot-determined but systematically repetitive for products such as(wines, food and beverages) with a short cycle consumption indicating a high and frequent repetitive consumption purchase. On the other hand most durable consumers such as(phones, television, and automobiles), the consumption cycle is longer such that consumers repeat their consumption very often. Given these two types of consumers, their behaviour varies in each situation and is limited to their habits, information, income and prices of the goods.

Hicks andSlustky's theory of income-substitution effect.

The substitution effect occurs when an individual consumer substitute one commodity to another due to changes in the price of the commodity or service or changes in his income. It is a replacement of consumption purchases with another good owing to an increase or decrease in the price of a commodity. The theory assumes that when the price of a good rises, it becomes more expensive when compared to other goods in the market and rational consumerswill therefore switch to the less expensive goods. Viran (2022) infers that the substitution effect is always positive and the quantity purchased by a consumer depends on the nature of the good. On the other hand, (Koutsoannis, 2005) refers income effect as the change by change in consumers' purchasing power or real income. A fall in price will lead to the adjustment of income so that the purchasing power of the consumer remains the same and vice versa. Viren (2022) observed that rational consumers increase their purchases when their purchasing power increases following a fall in the price of a good especially of a normal good. The effect of a change in income on the consumption of a normal good is always positive but negative for inferior goods because consumers tend to reduce their purchases when their income rises.

Empirical Findings

Castills et al (2023) found a positive correlation between habit and wine consumption. The study adopted the qualitative response method and the goal framing theory using a sample of 762 consumers from the Canary Islands and reported that there was an increase in the consumption of wines during COVID-19 as a way of cushioning the effect of stress and hardship.

In the same vein, the findings of Aplin et al (2021) explored millennial consumers' wine consumption habits by using exploratory focus groups through chain referral sampling/interviewees recruiting other interviewees from among their acquaintances). The study found a positive correlation between consumer habits and wine consumption in Australia.

Fabio et al (2018) in a study of drinking to get high conducted through a web-based survey at the University of Siena found that about 69.3 per cent engaged in the habit of drinking during the week whereas 12 per cent drank wine to get high. It concludes that in old age, the female gender considers wine as part of the diet in contrast to drinking wine to get high.

A study conducted by Aplin et al (2021) in Australia investigated the role of intention and habit in predicting adults' drinking behaviour. The study applied the ANOVA method to estimate the level of habit in the consumption of wine. The result indicated that habit is a stronger predictor of wine consumption than intention.Outreville and Le (2017) studied the determinants of the price of wine as a consumer good or investment plan using the content analysis method. The study discovered that the price of wine obeys the law of demand. The higher the price of wine the lower the quantity demanded of it.

Mike (2022) studied the effect of the price of wine on wine consumption in a period of stagflation. The study found that the effect of price rise on the consumption of wine varies from a person, it results in substitution effect to less expensive beverages.

Nwosu and Vincent (2020) in a study of the effect of changes in price on consumption patterns of petrol, rice and beans in Owerri applied Econometric techniques. The result of the study showed that price was critical in determining the quantity consumed of wines than needed. It revealed that there was a positive and non-significant relationship between price and consumption of petrol, rice and beans in Owerri.

3. Methodology

The study adopted the econometric method of logit and probit used in estimating qualitative data for cross-sectional analysis. Thus, a public opinion survey which made use of the researcher's designed questionnaire was applied. This method was used because the study required primary data from the respondents.

Model specification and method of analysis

Data collected from the study was subjected to both descriptive and inferential statistical analysis. Simple descriptive statistics such as frequency, mean, percentage, and standard deviation were used to describe the statistical properties of the data. Thereafter, we used linear logistic regression to estimate the regression models.

Specifically, the study used a proportional odds (ordered logit) regression method of analysis. In such a case, the dependent variable is categorical and rank-ordered. The central idea behind the ordinal outcomes is that there is a latent continuous metric (defined as y*) underlying the observed responses (Salisu, 2016). y* is an unobserved variable whose effect is felt when it crosses certain thresholds. According to Salisu (2016), the general form of the latent variable model is,

$$y_i^* = \alpha_0 + \alpha_1 x_1 + \alpha_2 x_2 + \ldots + \alpha_k x_k + e \quad (1)$$

$$y_i^* = x_i'\alpha + e_i \quad (2)$$

$$y_i = j \text{ if } u_{j-1} < y_i^* \leq u_j \quad (3)$$

Where, $i = 1, \ldots, N$.

The probability that observation i will select alternative j is:

$$p_{ij} = p(y_i = j) = p(u_{j-1} < y_i \leq u_j) \quad (4)$$

$$= F(u_j - x_i'\alpha) - F(u_{j-1} - x_i'\alpha) \quad (5)$$

For the ordered logit, F is the logistic cumulative distribution function (cdf), defined as,

$$F(z) = e^z / (1 + e^z) \quad (6)$$

In the consumption function, $y_i = (1,2)$ for (low, high) with one threshold; and The consumption model is specified as,

$$\text{ConsSWB} = f(G, Ag, Y, P, H, AV, BS, ECNH\ Px, rel) \quad (7)$$

Where

ConsSWB = Consumer switching Behaviour

G = Gender

Ag = Age

Y = Income

P = Price

H = Habit

ADV = Advertisement

PH = Poor Health

Px = Price of substitute

ECOH = Economic Hardship

RELC = Relocation

Data Presentation

PROBIT RESULT (LOG ODDS)

. probit Wineprefi.Gender Age i.Incomeleveli.Pricerisei.Poorhealthi.Advertisement.Believesysi.Econhdshpi.Priceofsubstitute i.Relocation, nolog

Probit regression Number of obs = 176
LR chi2(17) = 128.00
Prob > chi2 = 0.0199
Log likelihood = -99.030439 Pseudo R2 = 0.0571

Winepref	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
Gender						
Female	-.043837	.0199259	-2.20	0.042	-.3864185	.4740925
Age	-.0110016	.0041831	-2.63	0.031	-.0454132	.02341
Incomelevel						
Middle	.0686762	.0208742	3.29	0.009	-.3886551	.5260075
High	.5818374	.2365193	2.46	0.014	-.1968402	.360515
Pricerise						
Yes	-.5011138	.2432591	-2.06	0.040	.0234964	.9787312
Indifferent	.2826536	.4446466	0.64	0.525	-.5888377	.154145
Poorhealth						
Yes	-.0970446	.0285425	-3.40	0.007	-.5694126	.3753235
Advertisement						
Yes	.081561	.0348551	2.34	0.030	-.3818101	.5449322
Indifferent	-.2338138	.342884	-0.68	0.495	-.905854	.4382265
Believesys						
Yes	.1350536	.2287881	0.59	0.555	-.3133629	.5834701
Indifferent	.4520785	.4094574	1.10	0.270	-.3504432	.2546
Econhdshp						
Yes	-.024733	.0060324	-4.10	0.000	-.5292761	.4798102
Indifferent	-.1747007	.0959894	-1.82	0.067	-.9987827	.6493812

```
                |
Priceofsubstitute |
Yes |   .1104883   .05115192.16   0.046    -.3607118    .5816884
Indifferent |   .2360775   .4670524     0.51   0.613    -.6793283    .151483
                |
      Relocation |
Yes |  -.2028086   .0726913    -2.79   0.043    -.7066333    .3010161
Indifferent |  -.2048982   .3373194    -0.61   0.544    -.8660321    .4562357
                |
           _cons |    .437379   .5529264     0.79   0.429    -.6463369    1.521095
------------------------------------------------------------------------------
```

PROBIT RESULT (AVERAGE MARGINAL EFFECTS)

```
. margins, dydx(*)

Average marginal effects                        Number of obs     =        176
Model VCE: OIM

Expression   :Pr(Winepref), predict()
dy/dx w.r.t. : 2.Gender Age 2.Incomelevel 3.Incomelevel 1.Pricerise 2.Pricerise 1.Poorhealth
1.Advertisement
               2.Advertisement 1.Believesys2.Believesys 1.Econhdshp2.Econhdshp
1.Priceofsubstitute
               2.Price of substitute 1.Relocation 2.Relocation

------------------------------------------------------------------------------
                |            Delta-method
                |      dy/dx   Std. Err.      z    P>|z|     [95% Conf. Interval]
------------------+---------------------------------------------------------------
         Gender |
Female  |  -.0139244   .0063293-2.20   0.042    -.3864185    .1504277
            Age |  -.0034975   .0013298-2.63   0.031    -.0454132    .0074193
                |
Incomelevel |
Middle  |   .0227571   .00691713.29   0.009    -.3886551    .1736903
High  |   .1637044   .06654652.46   0.014    -.1968402    .3506071
                |
Pricerise |
Yes  |   .1683082   .0837354     2.01   0.044     .0042434     .332373
Indifferent  |   .0998916   .1514109     0.66   0.509    -.1968683    .3966514
                |
Poorhealth |
Yes  |   -.031004   .0091188-3.40   0.007    -.5694126    .1204806
                |
   Advertisement |
Yes  |    .025385   .01084832.34   0.030    -.3818101    .1694626
Indifferent  |   -.078659   .1177194    -0.67   0.504    -.3093847    .1520668
                |
Believesys |
Yes  |    .044293   .0752944     0.59   0.556    -.1032813    .1918672
```

Indifferent	.1348193	.1103634	1.22	0.222	-.081489	.3511276
Econhdshp						
Yes	-.0077748	.0806743	-4.10	0.000	-.5292761	.150344
Indifferent	-.0570441	.1395177	-1.82	0.067	-.9987827	.2164056
Priceofsubstitute						
Yes	.03547	.0772723	2.16	0.046	-.3607118	.1869209
Indifferent	.0731151	.1368321	0.53	0.593	-.1950708	.341301
Relocation						
Yes	-.0642547	.0814704	-2.79	0.043	-.7066333	.0954243
Indifferent	-.064952	.1098451	-0.59	0.554	-.2802446	.1503405

Note: dy/dx for factor levels is the discrete change from the base level.

4. Result Discussion

We used the logit and probit method to estimate the determinants of consumer switching behaviour in the consumption of wine during the economic recession with data from 176 respondents in Abakaliki, Ebonyi State, Nigeria. The questionnaire was administered using a Google Form to reach a wide range of adult residents of the study area. Preference for wine during the period of economic downturn was used to determine consumer switching behaviour. We considered factors such as gender, age, income level, price, health status, advertisement, belief system, price of substitutes, and change of location as potential determinants of preference for the product. In each case, we estimated both the log odds and the average marginal effect results and both results are presented. However, the latter lends itself to easier interpretation because the regression coefficients are rates of change of the dependent variable concerning the independent variables.

Overall, the signs of the regression coefficients of the logit model agree with those of the probit model which implies that either method is appropriate for estimating the model.

Our result shows that females have a lower probability of about 0.01 of wine preference during recession compared to males; implying that female consumers have a higher tendency to switch away from wine consumption during recession compared to the male folk.

We also found that an increase in a consumer's age by one year lowers their preference for wine by 0.4% on average indicating that age hurts wine preference for other beverages. In other words, consumers switch away from wine to other beverages as they get older.

We found that preference for wine increases with an increase in income level. Moving from low-income to middle-income increases the chances of wine preference by 2.3% while moving from middle-income to high-income level increases the probability by 16%. However, the price negatively affect wine preference as we found that an increase in the price of wine significantly lowers preference for the product by 16%. The result comforms with the empirical findings of Mike (2022) and Nwosu and Vincent (2020) that increase in price of wine causes consumers to switch off to other beverages or other goods of necessity.

Another significant factor is the health status of the consumer. Poor health status significantly lowers wine preference by 2.9%, which means that consumers tend to switch away from wine consumption when their health is failing.

Advertisement also influences wine preference positively. The study found that exposure to advertisement of the product increases the chances of preference by 2.7% whereas indifference to advertisement has no significant effect on preference for the product. The result implies that

advertisement stimulates the desire to consume wine even during the recession. On the other hand, change in belief system appears to have no significant effect on consumer switching behaviour in Abakaliki, Ebonyi State, perhaps because the respondents are not easily persuaded to change their beliefs.

We also found a negative link between economic hardship and wine preference, which suggests that consumers tend to switch from wine consumption to other beverages during periods of economic hardship. This is based on the finding that wine preference falls by 54.6% in the area during a period of economic downturn. About 63% of the respondents felt that the current economic downturn in the country has adversely affected the consumption of wine beverages in Abakaliki, Ebonyi State.

We also investigated whether consumers switch brandsof wine due to a change in the price of similar brands. The results showed that consumers tend to switch away from a particular brand when there is a change in the price of a substitute. Specifically, the probability of wine preference falls by 3.5% for consumers who are sensitive to price changes.

Finally, a change of location also lowers the preference for wine by 6%. This implies that consumers who change location, perhaps due to recession, are 6 times less likely to keep up with their consumption of wine than other beverages in their new location.

5. Conclusion and Recommendation

In conclusion, this study has empirically validated Hicks and Slutsky's theory of income and substitution effect consumer behaviour. This study advances empirical evidence that economic downturns such as low-income levels, rise in prices and poor health conditions significantly affect the wine markets in Abakiliki, Ebonyi State, Nigeria. The loss in revenue and low turnover have negatively impacted the growth of the wine market. the study has explored the factors that influence wine consumption switching behaviour in Abakaliki, Ebonyi State Nigeria. The study also confirms the validity of the theory in consumer preferences especially in periods of economic downturn. All the determinants of consumer behaviour conform with the a priori expectation and show how each variable influences the consumer's decision plan. The government should provide a cushioning and coping strategy to boost household consumption in the form of grants and cash- handouts to boost income and consumption. The Federal Government should encourage local wine production so as to reduce high dependence on wine imports and reduce the huge foreign exchange spending on wine imports.

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