

RESEARCH PAPER

THE DETERMINANTS OF POTTERY DEMAND IN GHANA

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ABSTRACT

The pottery industry in Ghana has been experiencing low demand for its products due to the influx of plastic products and other substitutes. Empirical studies reveal that consumers prefer these traditional products for their domestic and aesthetic uses. This paper examined the determinants of pottery demand in Ghana. Two pottery centres each in five regions in Ghana in addition to 1421 pottery consumers were randomly selected for the study. Using descriptive statistics under the qualitative and quantitative research designs, the study revealed that price of pottery products and their availability play a very significant role in determining demand. Results on quality and perceived purpose or function of pottery products are however mixed.

Keywords: *Pottery, demand, determinants, Ghana*

INTRODUCTION

Pottery in its totality refers to the type of indigenous wares which are produced by firing clay at low temperatures of 600-850 degrees Celsius. They are unglazed, hand-made with simple tools and equipment. Throughout the ages, even before written history, pottery has been used as a medium of expression (Peterson, 2011). Traditional pottery has socio-economic potentials and has contributed significantly to archaeological method and theory through investigations of technological style and the transmission of knowledge within communities (Bedaux, 2000; David *et al.*, 1991; Gosselain,

2000; Walde *et al.*, 2000; Wallaert-Pêtre, 1999; Lechtman, 1977). Despite pottery's significant contributions, it is distressing to note that just a few people are demanding for pottery products and there is a sharp decline for them in Ghana to the extent that potters are quitting the pottery profession.

Ghana as a nation is endowed with abundance of clay which is the principal raw material used in pottery production. The availability of the raw material in almost every region of Ghana has made pottery production a source of employment for many indigenes of the various

regions. Ghana has developed considerable history in terms of pottery production which is evidenced by the emergence and growth of every family home producing pottery. Pottery like any other art plays an important educational role, bringing artistic skills, values and practices into the public eye which provides a form of expression and gives validation to the experiences, history and cultural heritage of societies where the majority of the population may have been historically marginalized (Marshall, 2002).

The assumption of consumer sovereignty, implying that the consumer does whatever he/she likes with his or her income is very imperative to producers so they try their best to know what determines ones demand in order to rake in some income for themselves. Having knowledge of what goes into a consumer's demand for a product makes producers position themselves strategically to produce to meet specifications. However knowing exactly what determines consumers' demand for a product is arduous if not impossible for producers to determine since they come into contact with diverse consumers and moreover human beings are difficult to predict. It is therefore expedient that we understand the determinants for the demand for pottery in Ghana in order to increase patronage.

Demand for pottery can be defined as the quantity of the clay products that consumers are willing and able to purchase at a given price and within a given period of time. Consumers have to be willing to purchase before they purchase and sometimes the lure of producers proves futile. They come to the market with prior knowledge of what they want to buy, apparent quality risks, quality awareness and perceived satisfaction they desire to acquire from the product before they purchase (Caswell and Joseph, 2007). With the perceived satisfaction, it is assumed that the consumers choose a product that will give them the maximum satisfaction attainable.

The law of demand states that holding any other factors constant, there is an inverse relationship between price and quantity demanded (Marshall, 2002). This implies that, at a lower price, consumers demand more of a particular product and demand less of the product at a higher price. Price is seen as a major determinant of demand, nevertheless there are other factors that determine demand. According to Tomek and Robinson (2002), one's demand for a product is a function of the price of the product in question, price of other related products, their income, taste and preference as well as socio-economic and demographic factors. In examining the factors that influence a buyer's decision, Gary and Kotler (2000) cited social and demographic factors like age, gender, and educational level as critical in influencing the decision to buy. Ruel *et al.*, (2005) indicated that income level, taste and preference and prices are the major determinants of the consumption pattern of a person. Before consumers buy they consider their income level, the price of the products and assess their preference for the product. Ruel *et al.* (2005) add that, people's preferences are influenced by their knowledge and education, habits, cultural norms and personal experiences. Lipsey and Chrystal (1999) noted that, apart from price, price of related commodities, and consumers' income, cultural factors also influence demand.

This study therefore specifically examines the determinants of the demand for pottery products in Ghana, the effects of the socio-demographic factors on pottery demand and then makes recommendations to these traditional potters on how to produce and increase demand for their products.

METHODOLOGY OF THE STUDY

The study employed both quantitative and qualitative research approaches in divulging data from producers, users and non-users of pottery products. The qualitative approach enabled the study to focus on subjective information, such as experiences and opinions on the phenomena whilst the quantitative approach

provided a platform for the use of statistical analysis to establish the relationships between the co-variables. Two pottery production centres each were purposively selected from the following regions: Greater Accra (Accra and Afienya), Volta Region (Kpando and Vume), and Ashanti Region (Afari and Mfensi), Central Region (Winneba), Brong Ahafo (Tanoso) and the Northern Region (Tamale). These regions had at least four production centres each with the exception of Ashanti and Brong Ahafo which had over 10 production sheds in a centre. The purposive sampling technique was found appropriate since the study's research design was based on the gathering of qualitative data and focused on the exploration and interpretation of experiences and perceptions regarding the demand for pottery products in Ghana.

However, the simple random sampling approach was used to select 1,500 respondents who visited these pottery centres whether to buy or admire pottery products. This sample was achieved by regular visits for 12 months to these production centres and interacting with customers who visited these pottery centres. Research Assistants were trained to assist in the data collection. The use of survey, interviews and observations contributed immensely to the data collection.

Analysis

A database was developed and frequencies and percentages were established after the data was assembled, edited and coded. Statistical analysis was carried out using the logistic regression analysis procedure in STATA 11. The use of chi-square test enabled the study to assess statistical significance and the association between the various variables. For the qualitative findings, descriptive analysis was employed. The comprehensive nature of the study required significant effort in data administration including the management of a voluminous data set and combining data from multiple survey assessments in production centres in Ghana. Furthermore, the data analysis for this study was performed using the multivariate analysis tech-

nique.

RESULTS AND DISCUSSION

This section presents the results of data obtained in both descriptive statistics and quantitative manner. In all, 1,500 participants were sampled for the study. However, after removing questionnaires with incomplete responses, the study obtained 1,421 participants representing a response rate of 94.73%.

Socio-demographic characteristics of respondents

The 1421 respondents consisted of the general public whether or not they have bought pottery products within 12 months period prior to the study. This was done on a recall basis. On the average, a respondent was aged 37.7 (SD 14.8) years with a range of 22–70 years. A slight majority of the respondents were females representing approximately 50.9% of the sample. Other information relating to the sample characteristics including educational level, employment status, type of accommodation, and income are shown in Table 1.

Majority (53.6%) of the respondents were employed, and 39.7% were students while the remaining 6.8% of the respondents were actively looking for jobs but could not find. Again, most of the respondents were earning GHS 300 (approx. USD 100 or below) per month. This group constituted 52.64% of the respondents. Only a few respondents had their monthly incomes above GHS 650 and this represented 11.47% of the sample. In terms of education, none of the respondents had no formal education. This suggests that each of the respondents had attained at least basic education. Indeed, 51.0% of the sample had attained basic level of education while 31.25% had attained secondary education (in the form of post-basic education). Only 252 (17.73%) respondents had attained tertiary level of education suggesting that those with higher levels of education were few. As shown by the χ^2 test, these factors are associated with demand for pottery.

Table 1: Socio-demographic characteristics of respondents

| | Frequency N (%) | Test Statistic χ^2 (p – value) |
|--|--------------------|--|
| Gender | | |
| Male | 698 (49.12) | 15.30 (0.000) |
| Female | 723 (50.88) | |
| Total | 1421 (100) | |
| Employment status | | |
| Employed | 761 (53.55) | 74.63 (0.000) |
| Unemployed | 96 (6.76) | |
| Students | 564 (39.69) | |
| Total | 1421 (100) | |
| Income | | |
| Up to GHS300 | 748 (52.64) | 24.27 (0.000) |
| GHS 301 – GHS 650 | 510 (35.89) | |
| GHS 651 and above | 163 (11.47) | |
| Total | 1421 (100) | |
| Level of Education* | | |
| Basic | 725 (51.02) | 25.10 (0.000) |
| SHS [#] | 444 (31.25) | |
| Tertiary | 252 (17.73) | |
| Total | 1421 (100) | |
| Accommodation/Residence | | |
| Shared Accommodation | 965 (67.91) | 42.82 (0.000) |
| Rented Accommodation | 147 (10.34) | |
| Own Accommodation | 309 (21.75) | |
| Total | 1421 (100) | |
| Knowledge/awareness about pottery | | |
| No Knowledge/Unaware | 626 (44.05) | 57.96 (0.000) |
| Knowledge/Aware | 795 (55.95) | |
| Total | 1421 (100) | |

*There was no uneducated person in the sample hence its exclusion.

[#] This includes all post-secondary education including A/O level, Vocational and Technical education

** GHS3.00 = USD 1.00

Demand for pottery products in Ghana

Respondents' view about the quality of pottery products, the purpose they expect pottery products to serve, and how they see price of substitutes and their associations with demand are presented in Table 2. Out of a total of 1421 respondents, 67.28% reported that they had ever purchased or demanded pottery products ranging from earthenware bowls and cups/mugs (46.5%), vase (31.09%), decorative

pieces inter alia (22.41%) for those who have bought pottery products. The mean number of times a respondent purchased pottery product was 2.72 times. Respondents were also asked about how easily they find pottery products on the market. In this regard, 57.9% reported that pottery products were easily accessible, in that it is easy to find such products, while 42.2% reported that they found it difficult to find the pottery products on the market when even they

want to buy one. Further, respondents were also asked to give their impressions about pottery products in relation to price. In this regard, slight majority (50.95%) of the respondents indicated that pottery products were relatively expensive.

On the other hand, 42.08% of the sample saw the price of pottery products to be moderate while only 6.97% indicated that pottery products are cheap. This suggests that majority of Ghanaians see pottery products to be expensive relative to other plastic products on the market. In terms of knowledge about the product, 55.95% of the respondents confirmed having good knowledge about the product while the rest were unaware and had no knowledge about pottery products. The large number of respondents being unaware or having no information

about the product suggests the absence or inadequate advertisement of the industry.

It is evident from Table 2 that majority (51.86%) of the respondents perceived pottery products to be of low quality relative to the plastic products while 48.14% of the sample reported high quality for pottery products. The influx of most kitchen appliances (electric ones) together with the upsurge in plastic products might perhaps explain this perception. However, the waste generated by plastics is far beyond the benefits they may offer. One other objective of this study was to find out the function the respondents expected pottery products to perform. It is interesting to know that more than half of the respondents expected pottery products to depict or perform some form of cultural functions.

Table 2: Perceptions about pottery products in Ghana

| | Frequency N (%) | Test Statistics χ^2 (p-value) |
|--|--------------------|---------------------------------------|
| Pottery availability | | |
| Easy to find | 822 (57.85) | 879 (0.000) |
| Difficult to find | 599 (42.15) | |
| Total | 1421 (100) | |
| Perception about pottery price | | |
| Expensive | 724 (50.95) | 74.77 (0.000) |
| Moderate | 598 (42.08) | |
| Cheap | 99 (6.97) | |
| Total | 1421 (100) | |
| Perception about quality | | |
| High Quality | 684 (48.14) | 1.5 (0.220) |
| Low Quality | 737 (51.86) | |
| Total | 1421 (100) | |
| Expected purpose of pottery product | | |
| Aesthetics | 570 (40.11) | 4.08 (0.043) |
| Cultural | 851 (59.89) | |
| Total | 1421 (100) | |
| Views on price of pottery substitutes | | |
| Expensive | 93 (6.54) | 45.31 (0.000) |
| Moderate | 342 (24.07) | |
| Cheap | 986 (69.39) | |
| Total | 1421 (100) | |

Specifically, 851 (59.89%) respondents reported that they expected pottery products to be produced for or serve cultural purposes. On the contrary, 40.11% of the respondents expected pottery products to perform aesthetic functions in society. This suggests that the expectations of respondents about the purpose or function of pottery tend to have a significant ($p < 0.05$) influence on pottery demand. Finally, respondents were requested to give their impressions about prices of substitutes of pottery products such as plastics and other imported ceramic products. The imported pottery and ceramic products such as mugs, decorative pieces, etc. that are imported into the local market are very cheap comparatively and very attractive simply because of the finishing. Most of the products are very well glazed and this makes them very attractive. Most of our local products are not glazed as seen on Fig. 1. The information reveals that prices of other products (substitutes) were very much associated with demand for pottery in Ghana as shown by the p – values in Table 2. It must be noted that except for perception about quality levels ($p > 0.05$), all other

factors were significantly associated with pottery demand.

In order to examine the factors influencing the demand for pottery in Ghana, and the direction of associations, this study adopted a logistic regression method. The results of the logistic estimation are presented in Table 3 using pottery demand as the dependent variable. A positive sign of an estimated coefficient implies that increases in that particular variable tend to increase demand for pottery products whilst a negative coefficient predicts otherwise. The study allowed 5% error level. Two regressions were done. In the first regression, i.e., Regression 1, individual specific characteristics or socio-demographic characteristics such as age, income, education, gender *inter alia* were controlled whiles in the second stage they were included.

As noted earlier, socio-demographic factors were not included in the first regression as shown in Table 3. The purpose was to know the product and market related factors affecting



Fig. 1: Pottery products on display

Table 3: Results of Logistic regression for pottery demand in Ghana

| Product Specific Factors | Regression 1 | Regression 2 |
|--|--------------|--------------|
| | Coefficients | |
| Pottery availability | | |
| Easy to find | a | a |
| Difficult to find | -5.9525*** | -5.9561*** |
| Perception about Pottery price | | |
| Expensive | -0.4011** | -14.5285 |
| Moderate | -1.1596* | -14.2223 |
| Cheap | A | A |
| Perception about quality | | |
| Low Quality | a | a |
| High quality | 0.0936 | -0.4098 |
| Expected purpose of pottery product | | |
| Aesthetics | 0.8106*** | -6.0635 |
| Cultural | a | A |
| Views on price of pottery substitutes | | |
| Expensive | 1.9071** | 13.3394 |
| Moderate | 0.6821* | 5.4754 |
| Cheap | a | A |
| Socio-demographic Factors | | |
| Gender | | |
| Male | - | a |
| Female | - | 1.0623* |
| Age | | 0.01378 |
| Employment status | | |
| Employed | - | -20.6258 |
| Unemployed | - | a |
| Students | - | -22.9193 |
| Income | | |
| Up Ghc300 | - | a |
| GHS 301 – GHS 650 | - | 0.0109 |
| GHS 651 and above | - | -0.3943 |
| Level of Education* | | |
| Basic | - | -2.9965** |
| SHS [#] | - | -15.6405 |
| Tertiary | - | A |
| Accommodation/Residence | | |
| Shared Accommodation | - | -4.1813 |
| Rented Accommodation | - | a |
| Own Accommodation | - | 6.0146*** |
| Knowledge/awareness about pottery | | |
| No Knowledge/unaware | - | -0.4498* |
| Knowledge/Aware | - | A |
| Constant | 4.7292*** | 45.8287 |

*(**)*** denotes significance at 10%, 5%, and 1% level respectively
^aIndicates base level variable

pottery demand whiles control for socio-demographic factors. In regression 1 from Table 3 above, four factors: price of pottery, price of related products such as plastics, availability and perceived purpose of pottery products were statistically significant in determining the demand for pottery products (see Table 3). The signs of these factors were also expected a priori except the sign of purpose (aesthetics). Thus, higher prices of pottery products and its scarcity on the market tend to lower the demand within the sampled population.

Specifically, when individuals perceive pottery products to be expensive they tend to substitute plastics products and consequently demand less of pottery products *ceteris paribus*. Similarly, when they perceive the price of substitutes such as plastics as expensive or moderate they tend to buy more of pottery products. Thus, demand for pottery in Ghana is inversely related to the price of plastics. Also, the uneasy availability of the product makes it difficult to demand pottery. This can also influence the price of the pottery products. The argument is that if the products are less visible and scarce, sellers get the opportunity to increase prices arbitrarily. In situations where people have to travel long distances for pottery products, it is more attractive and economically beneficial for them to buy plastics.

Again, the purpose that people expect pottery products to perform significantly affects demand for pottery products. In the present study, pottery products that serve aesthetic purposes have higher likelihood to increase demand relative to those that are specially made for religious and cultural purposes (in the control group). Nortey *et al.*, (2013a) called for break in monotony and conservatism and spur innovations in form by producing pottery products that are aesthetically pleasing to the eye. Whiles the coefficient of quality of pottery products was not statistically significant in determining demand, its positive sign is important to guide producers about the quality standards of pottery products.

One of the key objectives of the present study was to find the effects on socio-demographic factors on pottery demand. To achieve this objective, we run a second logistic regression by maintaining all the variables in regression 1 while including socio-demographic variables such as age, gender, income, education, place of residence and one's knowledge about pottery products.

This second regression reveals interesting results about the sample. Product availability maintained its sign and statistical significance at 1% level as shown in Table 3. Whiles price of pottery products and price of substitutes related negatively to demand, they were not statistically significant. Captivatingly, the sign of the coefficients of quality and purpose of pottery changed despite their insignificance.

Regarding socio-demographic factors, four of the variables were statistically significant (see Table 3) in the determination of pottery demand. For instance, the coefficient of female was positive and statistically significant at 10% level. The implication is that females patronize pottery products than their male counterparts (control group). Also, people who live in their own houses are more likely to demand more of pottery products than those who do not own houses themselves. This suggests that pottery producers should produce to suite the taste of such groups. Education has emerged as one of the high level determinants of pottery demand. However, the sign was negative for basic education and secondary education (insignificant). This means that individuals with low level of education do not or are less likely to patronize pottery products. The reason could be the unattractive nature of the pottery products and the related quality issues. Ignorance or no knowledge about pottery product was found to exert a significantly negative effect on demand. This means that individuals who are less informed and have little or no knowledge about pottery demand less relative to those who are aware and well informed about pottery products (in the control group).

The other variables: income and employment were not statistically significant in influencing pottery demand. Particularly the sign of income provides a lot of implications for pottery producers. For instance, the coefficient of income of GHS 600 or higher (approx. USD 200) was negative. This suggests that as income rises, beneficiaries are less likely to demand pottery products suggesting that pottery products are inferior goods. Producers can reorganize production to meet the needs of low income groups.

RECOMMENDATIONS

In order for demand of pottery products to compete favourably with plastic products and other imported ceramic products the following recommendations would be key to such an acceleration:

1. There is the expediency to develop the traditional pottery products to meet the expectations as revealed by the study. The imported ceramic products do come in other coatings such as glaze which makes their products impervious and attractive. It therefore calls for technology of producing glazes using available non-essential materials. This can be achieved when academia and industry work on developing glazes from local materials and running training workshop for these potters to enable them explore further and apply same on their products.
2. Quality was a factor influencing demand and this must be looked at. Pottery products are mostly produced with single clays and the use of a more composed body of materials would influence strength of the products. The use of other additives such as feldspar to reduce firing temperature and cost and the addition of manganese to give alternate effects are welcoming ideas to increasing the quality and even the aesthetics of the products.
3. Price was found to be a key variable in

determining the demand for pottery products. Comparatively pottery products in Ghana are expensive compared to their substitutes because the cost of firing is very high. Technocrats must assist in building fuel efficient kilns and this study suggests a firewood or saw dust kiln where the waste products of materials becomes the fuel source for these kilns. It will reduce the cost of firing and implicitly the cost of production.

4. Pottery production centres must not be located at areas where road accessibility and getting the products is a challenge. Since the products are very fragile, bad roads can lead to damages of the product during transportation and thereby demotivating customers to settling for other substitutes which are readily available in the cities and towns.
5. The potters must place weight on design development, revision and in-depth exploration of materials and forms. This certainly must be done in collaboration with technocrats as Nortey *et al.*, (2013b) called for background motivation and training of more technocrats in the field of ceramics to develop the industry.

CONCLUSION

The main objective of this paper was to investigate the determinants for pottery demand in Ghana so as to help producers to reorganize their production methods to meet the demands of the market. After applying logistic regression methodology, the results of the study suggests that price of pottery products, and the availability of pottery products play very significant roles in determining demand.

Though about 52% of the respondents perceived pottery products to be of low quality while a little over 40% expected pottery to perform aesthetic function the results regarding these variable are mixed. This calls for further research in the field to unravel the effects of

quality and purpose on demand. The influx of plastic products and imported ceramic products should not cripple the pottery industry. It is incumbent on producers to create awareness through exhibitions for the general public to be well informed about pottery products and to make the products more accessible.

REFERENCES

- Bedaux, R. M. A. (2000). Some aspects of present-day Dogon pottery: an ethno archaeological approach. In: Roy, C.D. (Ed.), *Clay and Fire: Pottery in Africa. Iowa Studies in African Art*, IV:109-128, University of Iowa School of Art and Art History, Iowa City.
- Caswell, J. A. and Joseph, S. (2007). "Consumer Demand for Quality: Major Determinant for Agricultural and Food Trade in the Future? University of Massachusetts Amherst, Department of Resource Economics Working Paper No. 2007-4, <http://www.umass.edu/resec/workingpapers>, accessed on June 15, 2016.
- David, N., Gavua, K., MacEachern, A. S. Sterner, J. (1991). Ethnicity and material culture in North Cameroon. *Canadian Journal of Archaeology*, 15: 171-177.
- Gary, A. and Kotler, P. (2000). "Marketing; An Introduction" 5th Edition, Prentice Hall Publishers.
- Gosselain, O. P. (2000). Materialising identities: An African Perspective. *Journal of Archaeological Method and Theory*, 7(3): 187-217.
- Lechtman, H. (1977). Style in technology: some early thoughts. In: Lechtman, H., Merrill, R. S. (Eds.), *Material Culture: Styles, Organization, and Dynamics of Technology*. West Publishing Co., St. Paul, Minnesota.
- Lipsey, R. G. and Chrystal, K. A. (1999). "Principles of Economics" 9th Edition, Oxford: University Press.
- Marschall, A. (2002). "Principles of Economics" 8th Edition, New York: Macmillan Publishing Co.
- Nortey, S., Okai, E. F. and Bodjawah, E. K. (2013a). Breaking Monotony: A Reflective Study in Teaching Decorative Pot making, *Teaching Artist Journal*, 11(2): 69-80.
- Nortey, S., Opoku-Amankwah, K. and Bodjawah, E. K. (2013b). Factors Influencing Low Specialization Decisions Within the KNUST Industrial Art Degree Programme, *International Journal of Education Through Art*, 9(2): 205-218.
- Peterson, B. (2011). Artistry and Aesthetics: Pottery beyond mere utility, <http://pottery.about.com/od/theptotersspace/a/pottery.htm>. Accessed on February 15, 2016.
- Ruel, M. T., Minot, N. and Smith, L. (2005). "Patterns and determinants of fruit and vegetable consumption in the sub-Saharan Africa: A Multi-Country Comparison. *International Food Policy Research Institute*, 3: 45-59.
- Tomek, W. G. and Robinson, K. L. (2002). *Agricultural product prices*. New York: Cornell University Press.
- Walde, D., David, N. and MacEachern, S. (2000). Style and the identification of artifact production systems: an explicitly scientific approach. In: Roy, C.D. (Ed.), *Clay and Fire: Pottery in Africa. Iowa Studies in African Art*, IV: 77-108, University of Iowa School of Art and Art History, Iowa City, pp. 77-108.
- Wallaert-Pêtre, H. (1999). Manual laterality apprenticeship as the first learning rule prescribed to potters. In: Owen, L.R., Porr, M. (Eds.), *Ethno-Analogy and the Reconstruction of Prehistoric Artifact Use and Production*. Mo Vince Verlag, Tubingen.