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Determinants of Output among Pig Farmers in Abia State, Nigeria

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Abstract
A study of the factors that determined pig output among thirty pig farm owners randomly sampled from a list of pig farmers in Aba South Local Government Area and Umuahia North Local Government Area, derived from Abia State Ministry of Agriculture and Water Resources showed that stock size (p=0.01), labour cost (p=0.05) and cost of feed (p=0.01) were the factors that determined pig output in the area. Whereas the signs of stock size and cost of feed coefficients were positive, that of labour cost was negative; indicating that increased stock size and feed intake will lead to increased production and thus more farm income to the pig farm owners while more money spent on labour would reduce the income that sale of pig and or pig products would generate for the producers. Labour saving strategies are therefore advocated for the pig farmers to enjoy the full benefits of increased output and resultant farm income as stock size increases. Technologies on sourcing feed from indigenous sources could help depress cost incurred by farmers in their pig production. Non-Governmental Organizations (NGOs) interested in reducing poverty and hunger in developing countries could explore supporting researches tailored to accomplish such goals. Greater number of young men should also be encouraged to go into pig farming because of its fecundity and ability to generate income faster than other livestock. The enterprise has great prospects in self-employed agricultural practice.
Keywords: Determinants, Output, Pig farmers, Abia State

1. Introduction

Over the years, pig farming has emerged as an effective enterprise and can be a reliable one due to certain attributes of pigs and the Nigeria production system. Pigs are monogastric simple stomach animal with a high survival rate and have the ability to utilize a host of agro-industrial by-products and crop residues, with little or no processing and at minimal cost (Ter Meulen and El Harith, 1985, Tewe and Adeschinwa, 1995). Pigs are known to be prolific producers realizing twenty to thirty (20-30) piglets from 2½ litter per year. Its ability under efficient management and balanced nutrition to reach slaughter weight of about 80 to 90kg in about 7 to 8months makes it one of the most efficient feed converters. The production of pigs in an economically viable livestock system, therefore calls for the provision of nutritionally balanced ration. This however, represents 50 to 83% of the production cost in a commercial pig enterprise (Tewe and Adesehinwa, 1995).

Traditional animal production practiced in Nigeria does not give proper attention to the health of animal's feeding and shelter, hence animals cannot perform optimally under this kind of husbandry practice as their health, production, technical efficiency, general efficiency and profit are adversely affected (Ojo, 2002). According to (Ngoka, 1979), this kind of husbandry lacks planning and predisposes the animals to undesirable weather conditions and diseases. Dwindling profit in a pig enterprise has been reported to be a function of poor quality feeds resulting from unbalanced ration (Adesehinwa and Ogunmodede, 1995). However studies on pig and Poultry Industries seem to reveal that the initial enthusiasm in these enterprises especially pig production, is being constrained due largely to dwindling profit margins (Oguntowora *et al.*, 1980).

Evidences abound in different parts of the world that pig industry is moving forward quite unlike what is obtainable in Nigeria. Pig International (1997) reported that a single integrated Spanish Company "VALL Company of Spain" hit a production target of two million seven hundred thousand (2.7M) pigs as early as 1986 with directors still making projection of making it four million (4M) by the year 2002. A similar report was given about farmers choice in Kenya, a company that single handedly produces virtually all the national herd of sows in Kenya having 2500 sows in contract and another 2000 from internal production (Pig international, 1999). It is however pathetic to compare all these figures with the meager one million three hundred thousand (1.3m) reported of Nigeria in pig population. Notwithstanding, pig population in Nigeria in the recent years has shown a noticeable increase from nearly two million (2m) pigs in 1984 and rose to seven million (7m) in 1997 In 2002 it declined to be five million one hundred thousand (5,100,000) (FAO, 2003). This indicates that the pig

industry is dominated by small scale and medium scale holders. It is pertinent to say that the small scale holders form co-operative which creates jobs for families and youths who are engaged in rearing these pigs. In this way, pig farming adds as an economic boost. In Abia State particularly, the veterinary services reported 27,000 pig owner families (FAO, 1998). This important pig population is expected to contribute highly to the food security of low income rural and peri-urban (sub-urban) population and thus increase the nation's wealth.

According to Eusebio (1980), backyard pig farming and large scale pig production are more profitable than medium scale pig production. His claim was that large scale pig producers enjoy economies of scale which lowers the unit cost of production on the part of small scale production. He further claimed that the cost of feeding is skipped. He disfavoured medium scale production for the reason that purchasing of feed ingredients are made in small quantities. Furthermore, equipment is usually used below full capacity and as such production fails to offset the running cost. However, he failed to point out the dangers of the high mortality associated with small scale production that is mostly traditional in nature.

Ojo, (2000), said that the problem associated with small scale farming is that their scale of operation makes it difficult for them to get loan due to lack of collaterals. Based on those factors it is now clear why pig production in Nigeria has remained at all time underdeveloped in spite of all policies that successive government made.

Generally, livestock production in Nigeria is not as efficient relative to the developed countries. The livestock industry is frustrated with a lot of problems which has resulted to negative growth of the sector. For instance, there was a sharp decline in livestock output between 1984 and 1989. (FAO, 1998) Added to that, Adu (1997) reported a decrease in annual growth rate of livestock population in Nigeria from 7.6% in 1990 to 1.9% in 1994. He further stated that this was as a result of poor management as well as improper feeding.

Apart from poultry, there is no class of animals that is subjected to such heavy losses resulting from the failure to follow good sanitation, proper feeding and disease preventive practices as pig. Despite the inherent productive capabilities of pigs, its production in Nigeria is low and is faced with a number of problems viz inadequate supply of feed, water, worm infestation, good health management, religious, veterinary services, housing, waste disposal and effluence liquids as well as government policy.

Inadequate supply of feed poses the most critical problem. A number of pig farmers are faced with this problem leading to heavy losses due to malnutrition's and increased death of embryo during early stage of pregnancy (Izunobi 2006). Hence, feed is a major constraint in animal production and thus determines both productivity and growth performance of livestock (Lanyasunya *et al.*, 2005). Consequently, some farmers are vouching for small scale production mainly to reduce cost of feeding. Whether this will necessitate increased output is a question that quickly comes to mind. There are indications that pig production in the study area is mostly in the hands of small scale producers who may not have access to credit because generality of the farmers are assumed to be peasants.

In Nigeria, enormous piggeries exist in villages and towns which are made up of few breeding stock and piglets which are mostly indigenous breeds in which case disease occurrences hardly lead to consultation with veterinary practitioners (Osayemi 1993). The demand for pork in Abia State has remained higher than supply as most shops that deal on processed pork are always running short of supply due to excess demand. Inadequate supply of feed has been one of the problems militating against pig production in Nigeria due to high cost of feed ingredients (Ngoka, 1979). Therefore this study is expected to provide relevant information that would encourage individual (farmer) not only those that are already in piggery, but also new entrants to venture into pig farming. The broad objective of the study was to access the determinants of pig output in Abia State. Specific objectives were to examine the socio-economic characteristics of farmers that are involved in pig production and examine the factors that determine output of pig in the study area

Findings from the study would be of great importance for further enquiry and research. It will also aid policy makers in formulation, implementation and evaluation of policies .Finally, the finding from this work would be of immense benefit to livestock producers, extension agents, students of agricultural schools and corporate bodies for further research work.

3.0 Methodology

The study was conducted in Abia state in South-Eastern Nigeria. The state has common boundaries with Rivers, Akwa Ibom, Enugu, Imo, and Eboyi States. The cross sectional data used for the study were collected from 60 pig farmers in Aba South and Umuahia North Local Government Areas. The procedures adopted in the selection of these farms were through fact finding visits to offices of Abia State Ministry of Agriculture and Natural Resource. Random sampling technique was used in selecting the respondents using the sampling frame from the Ministry.

Data collection was done using a well structured and pre-tested questionnaire and complemented with personal interview to obtain the primary data. Simple descriptive statistics such as mean, frequency table and percentage were used to achieve objective of the study as it relates the socio economic characteristic of farmers, while the

factors that influence pig output in the study area was achieved using multiple regression analysis.

The implicit form of the model is specified as follows:

$Y = F(X_1, X_2, X_3, X_4.X_5, X_6)$ where, Y = Output in naira, X_1 = Stock size in numbers, X_2 = Cost of labour in naira, X_3 = Cost of feed in naira, X_4 = Cost of medication in naira and X_5 = Capital in naira

4.0 Results and Discussion

Socio-economic characteristics of the respondents

The socio-economic characteristics of the respondents are presented in Table 1.

The data showed that 37% of the respondents were within the age bracket of 41-50, 28% fall under 21-30 years of age. The age of the farm business manager is likely to influence his attitude, motivations and behavioral patterns which in turn influence sensitivity to risk investment behavior (Onyebinama, 2004).

In addition, the distribution of respondents according to gender indicated that majority of the pig farmers were male corroborating work by Oni and Yusuf (1999) that there were more males than the females in pig farming. The situation in Anambra State was relatively higher than that observed in Abia state. Whereas male pig farmers were about 55% for Abia there were about 63.3% for Anambra (Uneze and Onugu, 2012).

The result of occupation engaged by farmers showed that 65% of the respondents were farmers as their major occupation, 17% were civil servant who keep backyard piggery as their minor occupation 13% of the respondents were traders and 8% were full housewife. The implication is that majority of the respondents engaged in farming as their major occupation. The education status of the respondent showed that 48% of the respondents attended tertiary education, 42% attended secondary education and 10% only have had primary education training. Thus, among the pig farmers sampled, there was none that have not had at least a primary educational experience even if uncompleted. However, more of pig farmers in Anambra State had more of primary education (60%) than those in Abia State (10%) (Uneze and Onugu, 2012). If the educational factor is explored to best advantage among pig farmers in Abia, they would do relatively well in their ability to learn skills useful for improved productivity than those of their counterparts in Anambra State. Education is very important in pig production and facilitates the understanding of risk and uncertainty (Olabisi, *et al.*, 1992). Majority of these pig farmers have not been in the business for too long since that 81% of the farmers were not experienced beyond 10 years. It also means that with the past decade awareness has grown in the area in pig farming encouraging the relatively educated persons to go into the enterprise. It has been observed that previous experience in farm business management will enable the farm business manager to set a realistic time and cost targets, allocate and utilize resource efficiently and identify production risk (Onyebinama, 2004).

Socio-economic Characteristics of piggery Farmers in the study area

Table 1: Distribution of the Respondents according to Socio economic Characteristics

Variables	Frequency	Percentage
Age		
21-40	29	45
41-60	28	50
61-70	3	5
Sex		
Female	5	8
Male	55	52
Marital Status		
Single	14	23
Married	40	67
Divorce	4	7
Widow	2	3
Farmers Occupation		
Trading	8	13
Farming	39	65
Civil servant	10	17
Housewife	3	5
Education		
Primary	6	10
Secondary	25	42
Tertiary	29	48
Farming experience		
1-5	26	43
6-10	23	38
11-15	4	7
16-20	3	5
21-25	4	7
Total	**60**	**100**

Source: Field survey, 2010

4.2 Determinants of Pig Output

The regression results of the factors that influenced the output of pig farmers are presented in Tables 2. The exponential form of the function was chosen as the lead equation because the coefficient of multiple determination (R^2) was 0.485, indicating that the independent variable included in the model accounted for about 49% of the variation in the output of pig enterprises and more importantly, it also has more significant variables than other equations. Besides, the F-ratio was significant at 1% level and thus implied that the data fit the model.

The lead equation indicates that stock size and cost of feed were significant at 1% while cost of medication was significant 10% level. However, all these estimated variables were positive in their signs. . Stock size being significant at 1% in indicates that increase in stock size will result to increase in output and vice versa. This is in line with *a priori* expectation. The output of pig farmers with greater number of swine are bound to have more output given the same enabling environment for production.

However, cost of labour was negative and significant at 5% level. This implies that there is an inverse relationship between cost of labour services and the output of piggery enterprise. In piggery enterprise management, the place of energetic labourer(s) cannot be overemphasized, and this means expending money where such manpower cannot be derived from family labour. This will increase the cost of production and thereby depress returns accruing from increased output of pig. Hence an increase in labour input *ceteris paribus* will reduce output given the technology available in the study area. This also conforms to *a priori* expectation (Amos 2006).

Cost of feed variable was positive in sign contrary to the expected sign. This implies that the money expended by the farmers on feed intake by pigs did not depress income. This is probably because there are relatively cheap feed sources for pigs and the technology used by these farmers are relatively the same. More cheap and indigenous sources of feed need to be explored as that would help position these farmers to provide more animal protein through their continued production of pig. Eusebio (1984) had argued that pig production would serve as an urgent measure to alleviate animal protein difficulty in Nigeria particularly in areas where there is no prohibitions to their production and consumption, of which Abia State is one of such areas. Similarly, cost of

medication was positive in sign. This implies that as more cost is incurred in treating the pigs the output of pig increases. This is plausible given that the good health status of pig is a factor for its productive performance. High mortality rate, absence or minimal healthcare, supplementary feed and improper housing have been identified as problems that constraint pig production (Wabacha *et al*., 2004). Given that pig is a prolific animal would, spending on medication is a key factor to overcoming the associated problems of its production and also mean increased and improved output from pig. Pigs that are in good health status would attract more patronage in the market. Thus, as more pig farmers have access to the medication through the services of veterinary personnel or practitioners, the better their performance in managing their production.

Table 2: Determinants of Output of pig farmers in Abia State

Variable	Linear	Semi-log	Double-log	Exponential
Constant	-136475.300	-3691467,000	5.489	11.643
	(-0.617)	(-1.556*)	(1.831*)	(43.057***)
Stock size	0.454	0.054	-0.171	0.421
	(30953***)	(2.037**)	(0.04***)	(3.905***)
Labour cost	0.169	-0.128	-0.134	-0.262
	(-1.587*)	(-1.063)	(-1.152)	(-2.613**)
Cost of feed	0.289	0.473	0.474	0.352
	(2.474**)	(3.936***)	(4.066***)	(3.217***)
Cost of medication	0.0003	0.035	0.231	0.137
	(0.024)	(0.292)	(2.004*)	(1.960*)
Capital	0.055	0.155	0.080	-0.009
	(0.518)	(1.305*)	(0.693)	(-0.091)
R-square	0.416	0.252	0.296	0.485
F-ratio	7.682***	4.623**	5.773***	10.168***

Source: Regression statistics from field survey, 2010.
*** Significant at 1% level; ** Significant at 5% level; * Significant at 10% level
Values in parenthesis are t-rations

5.0 Conclusion

The study focused on the determinants of pig production in Abia state, South-Eastern Nigeria. It examined the socioeconomic characteristics of the pig farmers and found out that pig farming has grown in the area in the last decade and attributed it to educational awareness among other variables. It employed the ordinary least squares regression whereby the four functional forms were fitted to data in the analysis to test the viability of the production factors. The study showed that the major determinants of output are labour cost, stock size and cost of feed. The study concludes that labour cost, stock size and cost of feed were the target variables to be considered in planning for increased output of pig among farmers in the study area and such planning should be gender sensitive. Given that pig is prolific, policies that lead to increased output are bound to affect the economic life of the farmers and the farm families. Pig would contribute in making animal protein available in the area. Labour saving strategies and exploring alternative but indigenous feed sources could reasonable help to tame depression of farm income and are therefore necessary to enjoy the full of increased pig output in the area.

References

Adegeye A.J. and J.S. Dittoh,(1985) Essential of Agricultural Economics, Impact publishers Nigeria, Limited Ibadan. Pp. 49-104

Adeshinwa,A.O.K., G..E.O. Makinde and O.J. Oladele(2003) Socio-economic Characteristics of Pig farmers as Determinants of Pig feeding Pattern in Oyo State, Nigeria. Livestock Research for Rural Development 15(12)'Retrieved May 10,113 from http://www.lrrd.org/lrrd15/12/ades1513.htm

Adesehinwa, A.O.K. and B..K. Ogunmodede (1995).Swine feeds and practical Feed Composition techniques in National pig production Training manual N.A.E.L.S/ABU. Pp27-56

Adu, I..F. (1997) Reviving Nigeria Livestock Industry. The role of stakeholders,Livestock Echo Vol 10:23-26

Amos T.T. (2006) Analysis of Backyard Pig production in Ondo State, Nigeria. *International Journal of Piggery Science* 5 (3): 241-250.

Eusebio, J.A. (1980) Pig production in the Tropics, Longman group Limited Essex U. K.

Eusebio, J.A. (1984) Pig Production in the Tropics, Zaria, International Tropical Agriculture Series

FAO (1998) Food and Agricultural Organization of the United States

FAO (2003) Food and Agricultural organization of the United Nations, Quarterly Bulletins of Statistics.

Jakonda, S..Z. (1975) Improvement of livestock production, nutrition and feeds. Nigeria Journal of Animal

Production.Vol.2(1)12-21
Ladan, J. and U. Amogu (1996) Livestock Development policies in Nigeria. Paper presented at the Seminar for Humid and sub-humid zones of Sub-sahara African organized by the CTA in Abidjan 5-6 February 1996
Mbanasor, O.A. (2000) Future of Livestock industry in Nigeria. Book of proceedings 25th Annual NSAP Conference,19-23 March 2000 Umudike
Momoh, O.M. and D. Najime (2000) Productively of Some Commercial Pig farms in Gboko L.G.A of Benue State , 25th Annual N.S.A.P Conference, 19-23 March, 2000, Umudike
NAERLS (1995) NAERLS South East zonal Extension Briefs. Ahmadu Bello University Zaria Vol No.7
Ngoka, D.A. (1979) Principles of Livestock Production in the Tropics, Alphabet Publishers, Owerri. Pp.1-67
Nwaeze, N.J. (2002) Agricultural Production Economics, Nsukka Nigeria: Express Publishers
Ogunfowora, O. (1980) An Evaluation of the state of Developed and Economics of pig production in Nigeria Report prepared for the Federal livestock Department Lagos, Nigeria
Ojo, S.O. (2000) Enhancing livestock production in Nigeria Book of proceeding of the 25th Annual NSAP Conference 19-23 March 2003,Umudike.
Olayemi, S.O and E. O. Theadry (1982). Introduction to Agriculture production Economics University Press Ltd Ibadan.
Oni, O.A. and S.A. Yusuf (1999) The Effects of farmers' socio-economic characteristics on livestock production in Ibadan Metropolis. In: Proceedings of 4th conference Animal Science Association of Nigeria, IITA; Ibadan, Pp. 245-248
Onyebinama, U.A.U. (2000) Economics and Production Management for Agriculture. Alphabet Publishers Owerri.
Pig International (1999) Kenya's Dominants integrator Vol. 29, number 12,December,pp26-30
Pig international September (1997) Europe's Biggest produce Vol. 27, No 9 pp57-61
Tanko, L. (2002) Efficiency of Resources use in poulty production in kebbi state. Book of Proceedings, 25th NS.A.P Annual Conference 19-23 March 2000, Umudike.
Tewe, O.O. and A. O. K. Adesehiwa, (1995), Resources Requirements of Profitable Pig farming in Nigeria in National Pig Production Training Manual NAELS/ABU. Pp.16-26
Uneze, C. U. and C. U. Onugu (2012) Characteristics and Constraints of Pig Production in Rural Communities of Anambra State, Nigeria. Proceedings of the 26th Annual Conference of the Farm Management Association of Nigeria (FAMAN) Pp. 450-455
Wabacha, J..K., J.M. Mulei, C.M. Kyule and W. Oluch-Kosura (2004) Characteristics of Smallholder Pig Production in Kikuyu Division Central Kenya. Preventive Veterinary Medicine 63(3-4): 183-195