

APPENDICES

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Appendix 1: Questionnaire for rice farmers

*These questionnaires have been designed to execute a research purposely for academic work. The researcher is **Samuel Ahado** a student pursuing master's degree in International Development and Agricultural Economics at the Czech University of Life Sciences, Prague. The main objective of the research is to assess the competitiveness of local rice production and its contribution to food security in the Northern region of Ghana. All information provided will be used solely and exclusively for academic purpose and would be treated with the necessary confidentiality it deserves. Information provided would be used to make sound empirical analysis and also suggest policy recommendations that would help improve and sustain domestic rice production to enhance food security as well as farmer's socio-economic well being and standard of living in the region. The entire interview will take nearly one hour of your time and you are kindly requested to provide honest and genuine answers within your possible best.*

Section 1: Biodata of Farmer

1. Name of Interviewer
2. Name of Region.....
3. Name of District
4. Name of Community.....
5. Name of Respondent/compound.....
6. Age of Respondent.....
[1] Less than 20 years [2] 21-30 years [3] 31- 40 years
[4] 41-50 years [5] 51-60 years [6] 61+ years
7. Sex of Respondent [1] Male [2] Female
8. Religion. [1] Christianity [2] Moslem [3] Traditionalist
9. Marital Status [1] Married [2] Single [3] Divorced [4] Widowed
10. Educational Background [0] No Formal Education [6] Primary Education
[9] JHS [12] SHS/Technical/Vocational [15] Tertiary

11. Main occupation [1] Farming [2] Civil/Public Servant [3] Trading [4] Artisan [6] Student [7] Other (specify)

12. Minor occupation

Section 2: Farming and Production System

13. How did you acquire your farm land? [1] Own/Family [2] Rent [3] Squatter

14. What is the size of your rice farm in acres/hectares?

15. Number of years in rice cultivation.....

16. What other crops do you cultivate?

Crop	Acreage (ha)

17. What is your household (HH) size?

18. Number of HH members who work on the farm

19. What varieties of rice do you cultivate?

a..... b

c.....

20. What production system do you use in producing your rice? [1] Rain-fed agriculture [2] Irrigation system

21. What cropping system do you use in producing your rice?

[1] Mono cropping [2] Mixed cropping

22. How do you prepare your land for rice cultivation?

[1] Tractor Service [2] Bullock Service [3] Hoe/ Cutlass [4] Weedicides

[5] Other (specify).....

23. What type of labour do you make use in the rice production process?

[1] Group Labour [2] Hired Labour [3] Family Labour [4] Self Only

24. How do you thresh your paddy rice please specify.....

25. How do you dry your rice?.....

26. How many years do you cultivate on piece of land before moving on to another?

.....

27. Is there any possibility to increase your acreage? [1] Yes [2] No

i) If yes what motivate you to increase your acreage.

ii) What is the cost involved in expanding your acreage?

iii) If no possibility to expand rice farm why?

28. Do you have any storage facility for your harvested crops? [1] Yes [2] No

(i) Do you have communal or cooperative form of storage in your area? [1] Yes [2] No

(ii) If yes which of the storage form do you belong to? [1] Communal storage [2] Cooperative storage

(iii) What type of storage facility do you have? [1] Traditional wood/thatch structure [2] Concrete structure [3] Metallic structure.

(iv) If no storage facility why? [1] Expensive to construct [2] No surplus to store [3] Other (specify).....

(v) Do you encounter any storage problems? [1] Yes (specify)..... [2] No

(vi) If you face any storage problem specify how you control it

.....

29. What are some of the diseases and pests that affect your rice on the farm? [a] Pest [b] Disease

30. Section 3: Economics of Production

Input	Quantity Used	Unit Cost GH¢	Total Cost GH¢
Local seeds (kg/ha)			
Improved/Certified seeds (kg/ha)			
Ploughing (per ha)			
Harrowing (per ha)			

Herbicides (litres/ha)			
Organic fertiliser			
Inorganic fertiliser NPK Urea			
Family Labour (person-day/ha)			
Hired Labour (person-day/ha)			
Planting			
Transport			
Harvesting			
Threshing			

31. Please, indicate the total number of bags of rice you harvested and the price per 50kg bag during the last farming season (2014/2015).

Rice plot	No. of bags	Price per bag GH¢		Total Revenue	
		Farm gate	Local market	Rev. farm gate	Rev. local market

Section 4: Technology and Financial Support

32. Have you had some training in rice production? [1] Yes [2] No

If yes, who gave you this training?

33. Would you like to receive training in rice production? [1] Yes [2] No

34. Would you be willing to pay for the training yourself? [1] Yes [2] No

35. Where do you receive extension service from? [1] MOFA [2] NGO.....

[3] Other (specify).....

36. How often do Extension Officers visit you?

[1] Once a week [2] Once a month [3] Other (specify).....

37. Have you ever visited a demonstration /exhibition farm? [1] Yes [2] No

38. Do you belong to a farmer association? [1] Yes [2] No

39. What benefits do you derive from the group as a member?

.....
.....

40. Has the fertiliser subsidy programme informed your decision to cultivate rice?

[1] Yes [2] No

41. Do you have access to tractor services for farm operations such as ploughing, carrying farm produce, harvesting, threshing etc. (as proxy to level of agric. mechanisation)? [1]

Yes [2] No

42. Please, indicate any credit source(s), amount, interest rate and payment schedule.

Credit source	Amount GH¢	Interest Rate	Payment schedule	Ability to repay

Section 5: Constraints and Challenges in rice farming during the cropping season

43. What are some of the constraints you faced on your rice farm during the cropping season?

Mention them

44. What are some of the main challenges you encountered as farmer during the last cropping season. Can you mention them.....

Section 6: Marketing of paddy rice by rice farmers in the area

45. How do you market your farm produce (rice) and other staples? [1] At farm gate [2] local market

46. What quantity of your proceeds do you consume?

47. Do you keep some of your rice as seeds for the next season? [1] Yes [2] No

48. Do you have ready market (demand) for your produce at the marketing centres than at farm gate?

49. What is the cost involved in transporting your rice to the marketing centres?
.....

50. Do you have proper road network to transport your produce to the marketing centres?
[1] Yes [2] No

51. What are some of your expectations from the government about your rice production?
.....

Questions for focus group discussion

1.What do you think can be done to improve marketing of paddy rice and food security in the area?
.....
.....

2.What is the level of paddy rice patronage in the area by rural consumers?
.....
.....

3.Do you have any idea how rural consumers can be enticed to patronize local rice in the area?
.....
.....

4.Do you have any idea about the potential market opportunities this area has regarding the assorted imported rice in the markets?
.....
.....

5.How does the activities of middlemen influence your profit margin considering the different information regarding producer price in the area?
.....

Appendix 2: Questionnaires for middlemen

Section 1: Biodata of Middlemen

1. Name of district
2. Name of community
3. Name of middlemen
4. Age
5. Sex of Respondent [1] Male [2] Female
6. Religion. [1] Christianity [2] Moslem [3] Traditionalist
7. Marital Status [1] Married [2] Single [3] Divorced [4] Widowed
8. Educational Background [0] No Formal Education [6] Primary Education
[9] JHS [12] SHS/Technical/Vocational [15] Tertiary
9. Minor occupation.

Section 2: Marketing relationship with paddy producers

10. What is the general attitude of rice producers to price changes in the area?
.....
11. Are the rice producers will to sell their rice to you at farm gate price? [1] Yes [2] No (i) If no why.....
12. How many middlepersons serve the area?
13. What is the quantity (in 50kg bags) of rice you normally purchase from the rice producers during the cropping season?
14. Considering the transport and other cost involved in purchasing from the farm gate level, do you make considerable profit. Specify cost involved. [1] Profit [2] Loss
15. How does the national price of rice influence your profit level in the area?
Specify please.....
16. What problems do you face with the rice farmers when purchasing paddy rice from them?
17. Can you kindly estimate the national average price of paddy rice in the area?.....

THE END

THANK YOU FOR YOUR TIME, PATIENCE AND PARTICIPATION.

Appendix 3: FOB and CIF price of imported rice by Finatrade.

FOB AND CIF PRICES OF IMPORTED RICE BY FINATRADE COMPANY

Country	Rice type	FOB (US\$/MT)	CIF (US\$/MT)
Vietnam	White long grain 5% broken	428.00	524.30
	White long grain 100% broken	350.00	428.75¹
	Jasmine 5% broken	595.00	728.88
Thailand	White rice 100% grade B	565.00	692.13
	White broken A.1	532.00	651.70
USA	White rice 5% broken	530.00	649.25
	White rice 10% broken	515.00	630.88

Source: Finatrade Ghana September, 2016.

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Appendix 4: Input-oriented VRS DEA Model results for the individual rice farmers in the sample

¹ The price in the bold colour was the CIF price used for the DRC ratio calculations in this study since the quality of locally produced rice in the country is very low.

Appendix 4: Input-oriented VRS DEA model results for the individual rice farmers

Input-oriented VRS DEA Model results for the individual rice farmers in the sample

DMUs	$O\text{TE}_{\text{CRS}}$	$P\text{TE}_{\text{VRS}}$	Scale Efficiency	RTS
1	0.224	0.805	0.279	Increasing
2	0.26	0.666	0.391	Increasing
3	0.107	0.375	0.284	Increasing
4	0.604	0.619	0.975	Increasing
5	0.275	0.726	0.379	Increasing
6	0.604	0.705	0.856	Decreasing
7	0.434	0.517	0.839	Decreasing
8	0.535	0.569	0.939	Increasing
9	0.112	0.267	0.418	Increasing
10	0.396	0.45	0.881	Increasing
11	0.232	0.34	0.681	Increasing
12	0.407	0.702	0.58	Increasing
13	0.65	1	0.65	Increasing
14	0.267	0.667	0.4	Increasing
15	0.37	0.44	0.839	Increasing
16	0.258	0.399	0.646	Increasing
17	0.573	0.673	0.852	Increasing
18	0.15	0.588	0.255	Increasing
19	0.388	0.592	0.654	Increasing
20	1	1	1	Constant
21	1	1	1	Constant
22	0.717	0.765	0.938	Increasing
23	0.375	0.562	0.668	Increasing
24	0.313	0.527	0.593	Increasing
25	0.309	0.611	0.506	Increasing
26	0.375	0.67	0.56	Increasing
27	0.081	0.102	0.802	Increasing

28	0.14	0.456	0.308	Increasing
29	0.652	1	0.652	Increasing
30	0.55	0.954	0.577	Increasing
31	0.2	0.52	0.385	Increasing
32	0.232	0.356	0.652	Increasing
33	0.395	0.425	0.929	Increasing
34	1	1	1	Constant
35	1	1	1	Constant
36	0.346	0.52	0.665	Increasing
37	0.2	0.681	0.294	Increasing
38	0.471	0.482	0.977	Increasing
39	0.332	0.361	0.919	Increasing
40	0.293	0.774	0.379	Increasing
41	0.362	1	0.362	Increasing
42	0.25	0.735	0.34	Increasing
43	0.185	0.423	0.437	Increasing
44	0.458	0.699	0.656	Increasing
45	1	1	1	Constant
46	1	1	1	Constant
47	0.603	0.664	0.908	Increasing
48	0.394	0.509	0.774	Increasing
49	0.236	0.5	0.471	Increasing
50	0.325	0.555	0.586	Increasing
51	0.275	0.462	0.595	Increasing
52	0.5	1	0.5	Increasing
53	0.35	1	0.35	Increasing
54	0.25	0.532	0.469	Increasing
55	0.15	0.34	0.442	Increasing
56	0.28	0.376	0.745	Increasing
57	0.3	0.557	0.539	Increasing
58	0.15	0.346	0.433	Increasing
59	0.25	0.508	0.492	Increasing

60	0.329	0.503	0.653	Increasing
61	0.471	1	0.471	Increasing
62	0.32	0.498	0.643	Increasing
63	0.714	0.877	0.814	Increasing
64	0.105	0.207	0.505	Increasing
65	0.3	0.568	0.529	Increasing
66	0.225	0.655	0.343	Increasing
67	0.25	1	0.25	Increasing
68	0.673	0.806	0.835	Increasing
69	0.55	1	0.55	Increasing
70	0.571	1	0.571	Increasing
71	0.288	0.521	0.553	Increasing
72	0.743	0.744	0.999	Decreasing
73	0.449	0.572	0.785	Increasing
74	0.286	0.655	0.436	Increasing
75	0.265	0.305	0.868	Increasing
76	0.638	0.643	0.992	Increasing
77	0.55	0.599	0.919	Increasing
78	0.206	0.481	0.427	Increasing
79	0.667	0.667	1	Constant
80	0.579	0.828	0.698	Decreasing
81	0.537	0.871	0.616	Increasing
82	1	1	1	Constant
83	0.342	0.467	0.733	Increasing
84	0.547	0.67	0.816	Increasing
85	1	1	1	Constant
86	0.135	0.34	0.397	Increasing
87	0.56	0.696	0.805	Increasing
88	0.289	0.583	0.496	Increasing
89	0.322	0.412	0.782	Increasing
90	0.237	0.354	0.67	Increasing
91	0.124	0.356	0.347	Increasing

92	0.191	0.256	0.746	Increasing
93	0.233	0.293	0.797	Increasing
94	0.30	0.355	0.845	Increasing
95	0.786	1	0.786	Increasing
96	0.46	0.615	0.748	Increasing
97	0.186	0.212	0.881	Increasing
98	0.815	0.832	0.979	Decreasing
99	1	1	1	Constant
100	1	1	1	Constant
101	0.679	0.763	0.891	Increasing
102	0.597	0.637	0.937	Increasing
103	0.867	0.873	0.993	Decreasing
104	0.17	0.573	0.297	Increasing
105	0.571	1	0.571	Increasing
106	0.826	0.84	0.983	Increasing
107	0.507	0.60	0.846	Decreasing
108	0.155	0.334	0.463	Increasing
Pooled	0.44	0.64	0.68	

Appendix 6: A snapshot depicting questionnaire administration between researcher and respondents as well as means of transport to wards in the study area

