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PART A:

Journal Name:	American Journal of Experimental Agriculture
Manuscript Number:	MS: 2012/AJEA/1447
Title of the Manuscript:	<i>TECHNICAL EFFICIENCY OF TOMATO PRODUCTION: THE CASE OF IRRIGATION COMPANY OF UPPER REGION (ICOUR) IN THE KASENA NANKANA DISTRICT OF NORTHERN GHANA</i>
Manuscript received on (Date)	
Review comment submitted (Date)	



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PART B: Review Comments

	Reviewer's comment	Author's comment (if agreed with reviewer, correct the manuscript and highlight that part and write here 'Corrected'/ if not agreed, give suitable justifications)
General comment:	While this paper is set in an unusual context, the authors did not fully exploit this setting. The limitations of the method are not indicated, and the contribution the literature was not entirely clear to me.	Thanks!
Specific comments:	The tone of the paper is a little informal at times, and lacks objectivity. Tables and equations are not always indicated by their respective numbers.	Corrected, to the best of our ability
Title and abstract	The title appears too long and detailed. Estimating technical efficiency in tomato production in Ghana might do. The abstract has an unusual structure. The policy recommendation could be omitted from the abstract.	Corrected
Introduction	- The first and second paragraph are somewhat general, and presumably known by the readers of the journal. Perhaps these paragraphs could be shortened? - The information on tomatoes in Ghana is somewhat limited, as is the information on the country. An introductory table with GDP/cap, rainfall, soils, tomato production, yields. Etc might be a useful addition. - As this is an interdisciplinary journal, it might be useful to define technical efficiency in the introduction - The contribution to the literature is not clear from the introduction. Is this a new method? Or is a known method applied to a new context? What is special about this context? What are the research implications of the findings (any suggestions for future research)?	Corrected
Review of literature (Heading may differ in the case of review paper)	This section is not present, but could be included separately or as a part of the introduction	Corrected
Materials & methods (Heading may differ in the case of review paper)	- This section would benefit from a few graphs. The explanation of the concepts of production function, technical efficiency and cost min/profit max which leads to allocative efficiency might be accompanied by a graph. - A Cobb-Douglas production function usually corresponds to a logarithmic estimation:	Corrected We did not mean to state the Cobb-Douglas production



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	$Y = K^{\alpha} L^{1-\alpha}$ The function above is a constant returns to scale function, which can be rewritten using logarithmic functions. • I did not understand equation (2). Where did the exponential function come from? • I did not understand the relationship between expression (2) and (3) • It might be useful to denote the units of all variables. • The selection of input variables was not clear to me. Ideally, one wants to include all inputs into the production function, often leading to 20+ variables. Why was the set restricted to the chosen set, and how could this restriction affect the estimates? • Similarly, what is the argument behind the choice of the inefficiency effect variables? It might be good to postulate a hypothesis in the introduction and test this hypothesis. • It seems that not having the physical inputs but costs instead would be a common problem. It might be good to refer at that point to other papers who have used the cost instead of the inputs. • • The comment on the estimation of the cost function was unclear to me. • The information on the dataset appears a bit limited. If the questionnaire is short, perhaps it could be attached in appendix. It would be good to get a sense of the various variables collected. • Also, perhaps the description of the sample could be moved to the data section, and the description of the study area to the introduction section. • The sample description is limited. It would be good to mention the descriptive statistics (mean, variance) of all the variables used, in addition to some general information like gender,	function, but just to mention that we were using the stochastic frontier model with Cobb-Douglas specification. These have been explained Corrected In the re-estimation of the model we have used the conventional inputs and physical quantities as much as possible. Comment no longer necessary. It has been deleted More information has been provided Corrected Corrected
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	education, wealth, number of crops, secondary occupations. Etc. Where are the villages selected (can we include a map?)	
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Results & discussion (Heading may differ in the case of review paper)	• The result section talks about the “expected” sign of variables. It might be useful to make a note of this “expected” sign in the model section • I am concerned that by severely limiting the number of inputs one induces an “omitted variable” bias which results in a situation in which the coefficients cannot be interpreted causally but as mere correlations. This is a common problem in agricultural economics, and various solutions are possible like a fixed effects analysis. These solutions might not be applicable here, but still the problem could be recognised in the paper. • The comparison of the various technical efficiencies is something that could be moved to the conclusion of the paper. Also, am I correct to understand that the most efficient farmer of the sample gets 100 and the least 0? Doesn't that imply that one cannot compare these numbers between different studies as what one measures is a relative distance to the frontier within the sample. • The meaning and computation of the gamma parameter were unclear to me. Perhaps this information could be added in a footnote? Similarly, it might be useful to add info on how the sigma square is computed. • Would it be useful to interpret not only the sign and significance, but also the magnitude of the coefficients? • Do you have age of the farmer? It would be interesting to see whether experience is still significant if you add age • The title of table 1 is a bit long	With the re-estimation of the model all the relevant variables have been considered with their physical quantities except ‘other costs’. Yes, technically one cannot compare efficiency scores of different studies but loosely we can make some comparison like in Battase and Coelli's (1992). This is quite lengthy. Could I humbly request the reviewer to have a look at the appendix of Battese and Coelli (1993). Unfortunately, the age variable was problematic, and so it was omitted. Corrected
Conclusion	• I was not convinced by the first conclusion. With so many omitted variables, it is difficult to attribute a causal interpretation to the coefficients found. Perhaps a simple regression analysis could accompany the main results (one that includes all the available inputs). Corrected • The second conclusion (output positively affects poverty) is not backed up by literature/evidence. Perhaps this could be dropped? • I feel that the link between this study and FASDEP appears a bit forced, perhaps one could reduce the section on this, and just use it	



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	to motivate the paper in the introduction? The essence of bringing in FASDEP is to satisfy the policy aspect of the study. What we have done now is to give some background to FASDEP in the introduction, as suggested by other reviewers so that what is in the discussion is not hanging. • The link with the output market is an interesting one, and provides an interesting background. However, unless data has been collecting among the sample on marketing, I am not sure how relevant is. Corrected • The discussion of international trade lack nuance. We know since the theories of Ricardo that comparative advantage between countries resulting in trade has a positive net effect on both countries. However the distributional consequences can be severe when one lacks a safety net. However, being against international trade is like being against technological progress: both shift the production frontier outwards. Corrected • The author(s) should recognise that one cannot force consumers to purchase item A or B (that is unless one forbid the consumption directly). Hence giving policy recommendations along these lines are not very useful. Corrected • The concluding statement is very strong and might not be fully appropriate for a scientific article. This would be a point at which one summarises the research, the contribution the literature and perhaps future avenues of research. • The conclusion has been subsumed under the discussion and it's no longer necessary • In addition, while the article's main goal is to compute the technical efficiency and look at the determinants, the conclusion is about poverty. While this might be a good motivation, there is no evidence being presented that the tomato farmers are poorer than other farmers, are increasingly poor, etc. So unless one cites references linking poverty/suicides to technical efficiency or presents evidence	
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	using the data on this matter, I feel that the conclusion might appear too subjective. Corrected	
References	I would recommend the authors to also check out the following references: M. Ali and D. Byerlee, "Economic Efficiency of Small Farmers in a Changing World: A Survey of Recent Evidence," Journal of International Development, 3, 1 (1991): 1-27. C. Barrett, "How Credible Are Estimates of Peasant Allocative, Scale or Scope Efficiency? A Commentary," Journal of International Development (1997). S. Kumbhakar and A. Bhattacharyya, "Price Distortions and Resource-Use Efficiency in Indian Agriculture: A Restricted Profit Function Approach," REStat (1992): 231-239. S. Sherlund, C. Barrett, and A. Adesina, "Smallholder Technical Efficiency Controlling For Environmental Production Conditions" JDE (2002).	Corrected