



SDI Review Form 1.6

PART 1:

Journal Name:	American Journal of Experimental Agriculture
Manuscript Number:	MS: 2012_AJEA_2868
Title of the Manuscript:	DETERMINANTS OF COMMERCIALIZATION OF SMALLHOLDER TOMATO AND PINEAPPLE FARMS IN GHANA.

General guideline for Peer Review process is available in this link:

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- This form has total 9 parts. Kindly note that you should use all the parts of this review form.



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PART 2: Review Comments

	Reviewer's comment	Author's comment (if agreed with reviewer, correct the manuscript and highlight that part in the manuscript. It is mandatory that authors should write his/her feedback here)
<u>Compulsory</u> REVISION comments	Thank you for giving me the opportunity to review this manuscript. Because I was involved in researching of such subject matter, I have read it eagerly. The household data may be useful if relevant methodology is employed. But that is not the case here. First, measurement of variables is meaningless and lacks essence of economics. Land and labor productivity, for instance, were measured by 'value of crop in US\$/ha' and 'value of crop in US\$/days labor', respectively. This is totally meaningless because productivity has nothing to do with value (price), but with quantity of the crop output per unit input (of labor or land). Second, most statistical measures reported are less relevant and unreliable. Correlation analysis is not a rigorous method because of its limitations. It is sensitive to trends. For instance, value of crop sales and fertilizer used are the products of their respective quantities and prices; hence they are affected by price trends and other common macroeconomic factors. Accordingly, correlations between variables might be significant because of price movements, not because of quantity movements. Correlation coefficients greater than 0.8 usually indicate strong relationships, between 0.6 and 0.8 moderately strong, and less than 0.6 weak relationships. However, all the correlation coefficients reported are weak, suggesting the	We strongly disagree with this reviewer. It looks to us that he/she does not understand the issues he/she is trying to review. No wonder he/she wants to remain anonymous. First, what does the reviewer mean by "measurement of variables is meaningless and lacks essence of economics"? It is perfectly alright in economics to talk about quantities and/or values of variables depending on the type of analysis and context. For example, it is standard practice to undertake production function analysis using either quantities or values of the relevant variables. The reviewer wrongly interprets value as <i>price</i>, ... but value is quantity X price, and that is what has been done here. Second, the reviewer does not simply understand what has been done in this paper. Note that the data used is NOT TIMES SERIES but CROSS-SECTIONAL DATA. And therefore issues about trends do not arise. The key issue here about the correlations was to show whether the variables were positively or negatively related to



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	absence of true relationships between the variables, as opposed to the interpretation by the authors. Third, for OLS estimates to be valid (BLUE), at least three most important test results need to be reported with the regression results: (a) heteroscedasticity test (tests for constant variance of the residuals), (b) Ramsey specification regression-error test for omitted variables (tests for omitted variables), and (c) variance inflation factors (VIF) for the independent variables (tests for multicollinearity). I am sure these assumptions will not be satisfied with the given number and type of explanatory variables. Only seven variables were included into the regression models, which is unlikely to accept the obscene of omitted variables. Only two explanatory variables were significant (out of seven) in both models. But the adjusted R^2 is high (0.68 for tomato and 0.70 for pineapple), which is not supported by the parameter estimates. This inconsistency by itself suggests presence of data and estimation problems. The sample size used for the pineapple model is very small (42 in the model and 52 in the figure) which is not acceptable, even for academic exercise. The explanatory variables are also the same in both regression models requiring simultaneous estimation of the two equations by a linear two-equation SUR model to identify the underlying common determinants of commercialization of tomato and pineapple farms, if any. If this linear interdependence is significant, the separate estimation of the two equations would be misleading, leading to endogeneity problem. So tests are required. Fourth, distribution of the intensity of commercialization was	volume of sales. Third, the reviewer unfortunately is mixing apples and oranges – all these statistical tests are more relevant to TIME SERIES rather than CROSS-SECTIONAL data. Even the DW test statistic reported in the econometric model is only indicative and not strictly relevant to a cross-sectional data. Also, the comment that “sample size used for the pineapple model is very small (42 in the model and 52 in the figure) which is not acceptable” is not found anywhere either in the books or in practice. Even the basic statistics and econometric text books indicate that the standard t-test that is normally used in these analyses requires a minimum sample size of 30. Also, one should avoid a large number of independent variables when the sample size is not so large. The comments of this reviewer must therefore be summarily dismissed since they relate more to time series data, which is not what was used in this analysis. Also, other comments such as “commercialization status” and “proxies for food security” are based only on the reviewer’s limited knowledge of the subject matter and lack any credible theoretical basis.
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reported as ‘commercialization status’ in the figures, which is incorrect. Rather, it would be distribution of commercialization scale or index (better if Kernel density estimate is used). Commercialization *status* should be determined from the distribution of the *commercialization index* as commercial, semicommercial, or noncommercial, as the case may be. This index was estimated but not used in the analysis.

Finally, ‘area under food crops’ and ‘food production per adult equivalent’ cannot be proxies for food security situation of a household. Land allocated to food crops cannot guarantee food availability to the household if sufficient amount is not produced. Even if sufficient amount of food is produced, it may not indicate food security of the household because food crops can also be sold, not only consumed. The notion in this case totally ignores the definition of household food security and the relevant food security indicators available in theoretical and empirical literature.

Generally, explanatory variables, commercialization and food security situations of households were not correctly measured and estimated. The paper is ***not publishable*** because it did not employ relevant methodology, and hence, failed to generate reliable empirical evidence.



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Minor REVISION comments		
Optional/General comments		