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A Typology of Young Cocoa Farmers in Ghana - Attitudes, Motivation and Aspirations

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Abstract

The average age of cocoa farmers over the decades suggest that most people tend to venture cocoa farming career at a latter age of their lives. While older farmers are less likely to well adopt good agricultural practices and are more risk averse in farm investments, young cocoa farmers are more likely to well adopt good agricultural practices to enhance yields. This rationale is partly behind the drive to bring more young people into cocoa farming with the government, donor agencies and civil society organizations making great investments into the young people with the aim to increase national production as well as secure the future of the Ghanaian cocoa industry. However, the young people tend to be considered as a relatively homogenous group when the reality is great heterogeneity in young people's characteristics, past experiences, and future aspirations. We argue in this paper that it is important to know the typology of youth within the farming communities in order to make judicious investments. This paper introduces the concept of young cocoa farmer typology as a means for targeting prudent investment and extension delivery. The paper is based on a survey that was conducted in Offinso, Wassa Akropong and Asumura in the Ashanti, Western and Brong-Ahafo regions of Ghana respectively with a total of 120 young cocoa farmers. Using the two-step clustering approach, three types of young cocoa farmers were derived: positive young cocoa farmers (34.2%), pessimistic young farmers (36.7%) and stuck young farmers (29.1%). Results suggest that these young farmers' exposure and previous experiences, in particular their familiarity with successful cocoa farmers in their immediate environment significantly motivated their attitudes towards cocoa farming. Further, the future aspirations of young farmers could significantly affect their attitudes. It is thus recommended that government policies and programmes or interventions to increase youth in cocoa farming for cocoa sustainability be more targeted, with customized approaches that addresses heterogeneity among cocoa farmers in order that interventions may achieve the desired impact.

Introduction

Many authors (e.g., Boahene et al., 1999; Anim-Kwapong et al., 2005; Baffoe-Asare et al., 2013) have noted that older farmers have risk averse attitudes towards cocoa farming and are less likely to well adopt good agricultural practices that enhance yields. In Ghana majority of cocoa farmers are aged (above 50 years old) and this raises concerns of sustainability in the cocoa industry. Meanwhile, analyses of the average age of cocoa farmers from some studies suggest that the narrative of ageing cocoa farmers may not be accurate since their average age has remained fairly constant for over two decades (Figure 1).
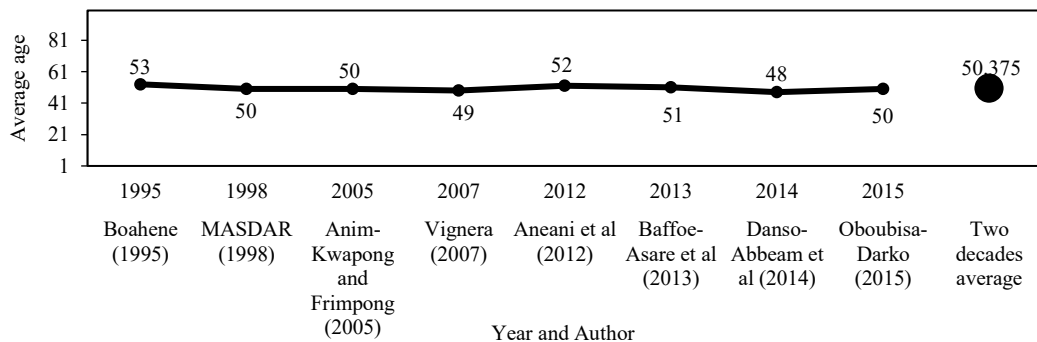

Figure 1: Average age of cocoa farmers over the years based on previous research
Source: Authors' construct

In either case, the relative old age of cocoa farmers is a reason for low cocoa productivity and hence the concern about the sustainability of the cocoa industry in Ghana (Dormon et al., 2004; Ogunleye and Oladeji, 2007 cited in Anang et al., 2011). On the other hand, many other studies have suggested that younger farmers have positive attitudes towards cocoa farming as they tend to be more innovative and apt to adopt good agricultural practices (e.g., Baffoe-Asare et al., 2013; Zhang et al., 2012; Adesina et al., 2000). In consideration of this, the Government of Ghana, donor agencies and civil society organizations are making investments into young cocoa farmers with the objective of increasing national production as well as securing the future of the Ghanaian cocoa industry[1]. However, a question to answer to enable prudent and targeted investment by the Government is whether all young cocoa farmers are the same in terms of attitudes towards cocoa farming. There may be heterogeneity within young cocoa farmers in terms of attitudes to farming and farm investments given that, even under similar conditions, farmers make different choices (Darnhofer and Walder, 2014).

Farmer typology research has progressively become a great tool to identify homogenous and heterogeneous farmers groups in terms of attitudes (Food and Agricultural Organization (FAO), 2014). Giving the investments by the Ghana Cocoa Board (COCOBOD) and other agencies into young cocoa farmers, there is the need to recognize heterogeneity among these farmers to target policy for the expected impact. Attitude is mostly defined as "a persistent disposition to respond either favourably or unfavourably to a given object" or "a positive or negative response towards an object" (Mills et al., 2013; Fishbein and Ajzen, 1975 cited in Bennett et al., 1999; Willock et al., 1999). In addition, according to and Ajzen's (1975), attitudes are formed from a combination of beliefs of an individual. Darnhofer and Walder (2014) noted that an individual's aspirations play an important role on his/her attitudes towards an object while Valeeva (2007) indicated that some farmer experiences can motivate their attitudes.

This study therefore aims to employ typologies to segment young cocoa farmers based on attitudes and perceptions about cocoa farming, and assess some factors that could motivate different attitudes. Further, the relationship between young cocoa farmer attitudes and their future aspirations are also assessed.

Methodology

Research Site
Three rural communities were involved in this study: Offinso-Abroma, Wasa Akropong-Japa and Asumura in the Ashanti, Western and Brong Ahafo regions of Ghana respectively. These communities present some variances in terms of their sizes, economic activities, road accessibility and opportunities for the youth to thrive among other features.

Abroma is specifically in the Afigya Kwabre district of Ashanti region with its population dominated by indigenes with a few migrants who work as labourers or caretakers of cocoa farms. Comparatively, Abroma is a smaller community but with farming, especially cocoa farming as the major economic activity in the community. Many of the youth in this community are engaged in cocoa farming while the rest are into other trades such as food vending, dressmaking, hairdressing, carpentry and masonry. On the other hand, Wasa Japa in the Western region is comparatively a bigger community and though it is known to be a cocoa growing community, currently small-scale surface mining for gold (galamsey) has emerged as the major activity in the area. It is a very busy and vibrant community compared to the other areas (Abroma and Asumura) with a lot of migrants especially the youth from different regions purposely to mine gold. The gold mining activity have opened the community up to many business opportunities especially for the youth. These include; sale of mobile top-up vouchers, mobile money agents, lottery agents, gold buyers, food vendors, petty trading, mobile phone repairs, taxi drivers, and many more. Land for cocoa farming has significantly reduced and still reducing as some farmers are selling their farms to gold miners. Similar to Wasa Japa, the third community, Asumura which is in the Asunafo North Municipality of Brong Ahafo region has a lot of migrant. However, this community seem cut-off from the rest of the world due to lack of access to mobile communication network and poor road to the place and therefore many move out to other places in search of better livelihoods. The community lies behind one of the biggest forest reserves in

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[1] For instance, in 2016, a five-year programme with the aim of getting over 800,000 youth into the cocoa farming business was implemented by a consortium of organizations at the cost of US$74 million. In addition, the Ghana government through the Ghana Cocoa Board (COCOBOD) recently introduced two award schemes (Most Promising Young Cocoa Farmer Award and Most Enterprising Female Cocoa Farmer Award) to encourage and attract the youth into the cocoa business. More so, in 2016, Ghana's government reported to have identified and supported a total of over 30,000 youth to undertake cocoa farming as a business (Oppong, 2015).

the country. Farmers and some youth wish to expand their cocoa production activities, however, they are not able to do so since the land for farming are limited.

Research Approach/Design
The study adopted survey research methods. The survey focus on quantitative questions for characterization of respondents, and included open ended questions in order to determine the motivations, aspirations and constraints of the youth with respect to cocoa farming.

Target Population
This comprised the youth who are already involved in cocoa farming. A total of 120 cocoa youth were selected across the three communities for the study. In every community 40 respondents were selected. This was made possible with the help of Kuapa Kokoo extension officers who provided a list of cocoa farmers in the communities for random sampling of respondents.

Data collection procedure
A questionnaire was designed and uploaded in a research console Mobenzi Researcher®, which was used for data collection on a mobile device. The questionnaire contained both close and open ended questions to collect quantitative and qualitative data concurrently. Data was collected in June, 2016.

Sampling Procedure
A multistage random sampling was used in this study. First, three rural communities (i.e., Abroma, Wasa Japa, and Asumura) were randomly selected from list of cocoa growing communities around Offinso and Wasa Akropong from Kuapa Kokoo and Cocoa Health and Extension Division (CHED). A list of cocoa farmers was then obtained for the second stage of the random sampling. Youth (18-35 years old (Ministry of Youth and Sports, 2010)) involved in cocoa found on the farmers' list were randomly selected. This was followed by random sampling of household heads in the list to help obtain youth in their households to add up to the initially selected youth on the list. This enabled the attainment of 40 youth in each rural community and hence a total sample size of 120 youth.

Data Analysis
Seven statements were adopted from Social and Political Division of TNS East Africa (2012) to segment young cocoa farmers into types. These are:
   A. I am proud to be a cocoa farmer
   B. It is my destiny to be a cocoa farmer
   C. There is no better investment than cocoa farming
   D. If I had a choice, I would not be a full-time cocoa farmer
   E. Any farming method that saves me time is worth paying for
   F. I would prefer if my children do not end up working as cocoa farmers
   G. There is no hope for cocoa farmers like me

Farmers were to respond whether they agreed, were neutral or disagreed with each of the statements above, Data was analyzed using a two-step clustering approach in IBM SPSS version 22. Unlike the classical methods of cluster analysis which are the K-means and the Hierarchical methods, the two-step approach enables both continuous and categorical attributes to be grouped. Furthermore, the two-step method can automatically determine the optimal number of clusters (Schiopu, 2010). Chi-square test were used to identify significant aspirations and motivations causing attitudinal differences. Young cocoa farmer perceived constraints in cocoa farming was also assessed.

Results and discussions

Youth cocoa farmer typologies
Three clusters were derived from seven inputs (Silhouette measure of cohesion and separation = 0.4) using the two-step clustering approach. However, important predictors of the clusters were five inputs, (i.e., A, B, C, D and G) contributing from 53% to 100% of the cluster differences. While E and F, contribute about 4% to 20% of the cluster groupings (Figure 2.
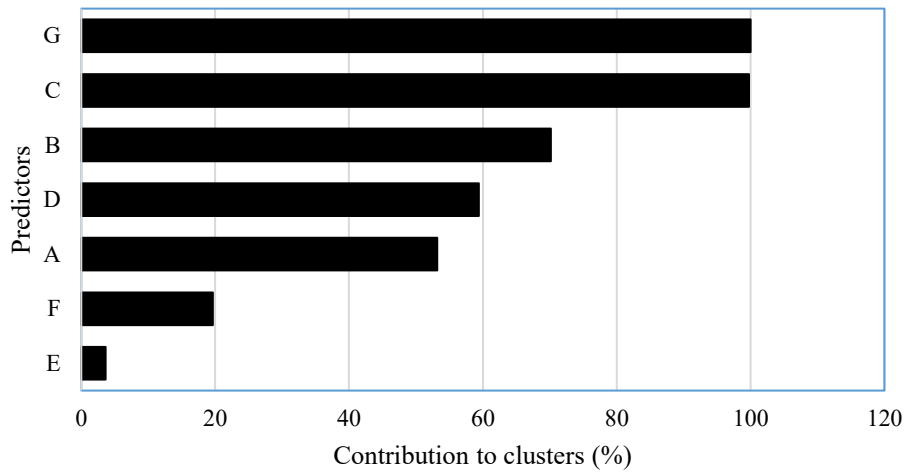
Figure 2: Predictor importance in cluster groupings.

Where:
    A. I am proud to be a cocoa farmer
    B. It is my destiny to be a cocoa farmer
    C. There is no better investment than cocoa farming
    D. If I had a choice, I would not be a full-time cocoa farmer
    E. Any farming method that saves me time is worth paying for
    F. I would prefer if my children do not end up working as cocoa farmers
    G. There is no hope for cocoa farmers like me

A majority (36.7%) of the youth could be classified as pessimistic while about 29% felt trapped into cocoa farming (Figure 3). These youth cocoa farmers who felt stuck or trapped in cocoa farming agreed that they were not destined to be cocoa farmers and hence not proud as cocoa farmers. They indicated that being a full time cocoa farmer was not their choice even though they found themselves in this situation. They also noted that there was no hope for cocoa farming and believed that there were better investments options than cocoa however, they have no option than to be cocoa farmers due to circumstances beyond them. On the other hand, the young cocoa farmers with pessimistic attitude had similar determination towards cocoa farming as those with positive attitude excepts that, those with pessimistic attitudes also believed there was no hope for cocoa farmers.
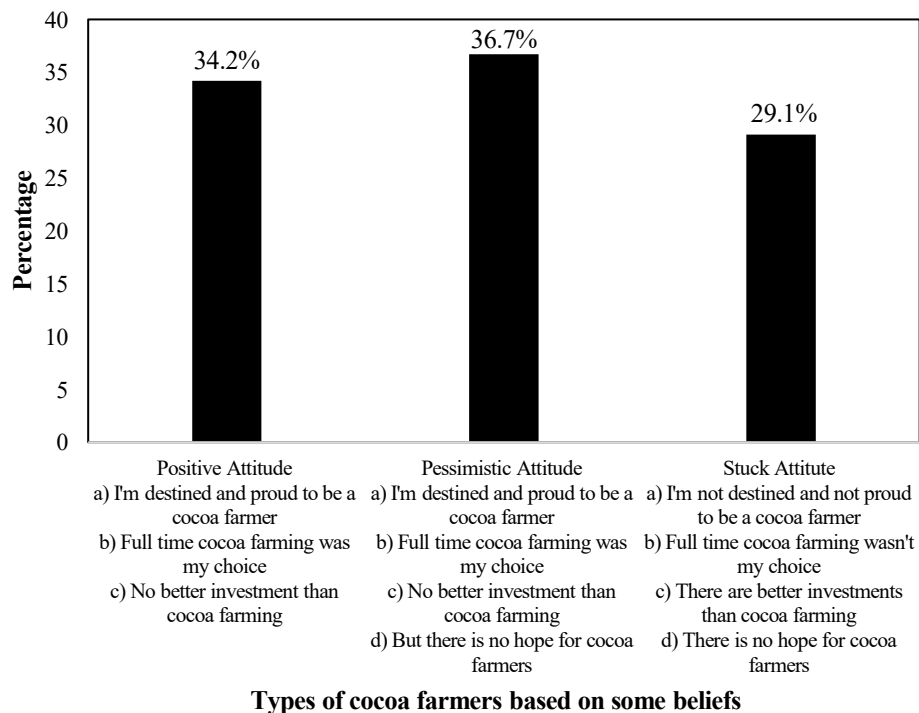

Types of cocoa farmers based on some beliefs

Figure 3: Attitudes of youth cocoa farmers in Ghana

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Motivations of youth cocoa farmers

According to Howley and Dillon (2012), young cocoa farmers with dissimilar fundamental motivations for farming may have very different attitudes. Two major factors motivated the differences in attitudes of young cocoa farmers. These were family members' involvement in cocoa farming ($p=0.008$, $\chi^2 (2) = 9.56$) and knowing a successful cocoa farmer ($p=0.001$, $\chi^2 (2) = 7.996$). These were such that youth who did not have family members involved in cocoa farming were more likely to have a stuck attitude towards cocoa farming (Figure 4). In addition, the more the youth get to know other successful cocoa farmers they were more likely to be positive towards cocoa farming (Figure 5). However, the later does not seem to be a strong motivator of attitudes, in that, about 61% of the youth within the stuck group knew other successful cocoa farmers but were still not motivated to be positive towards cocoa farming (Figure 5).
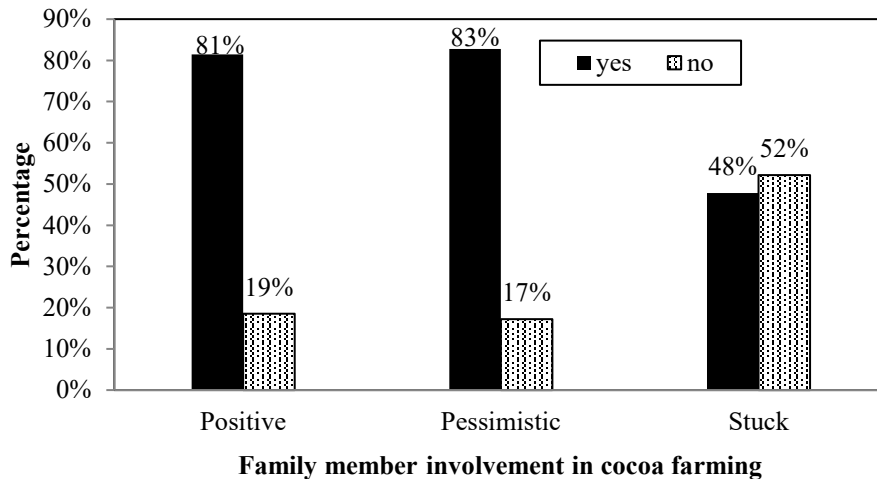

Figure 4: Influence of family member involvement in cocoa farming on youth cocoa farmer's attitudes
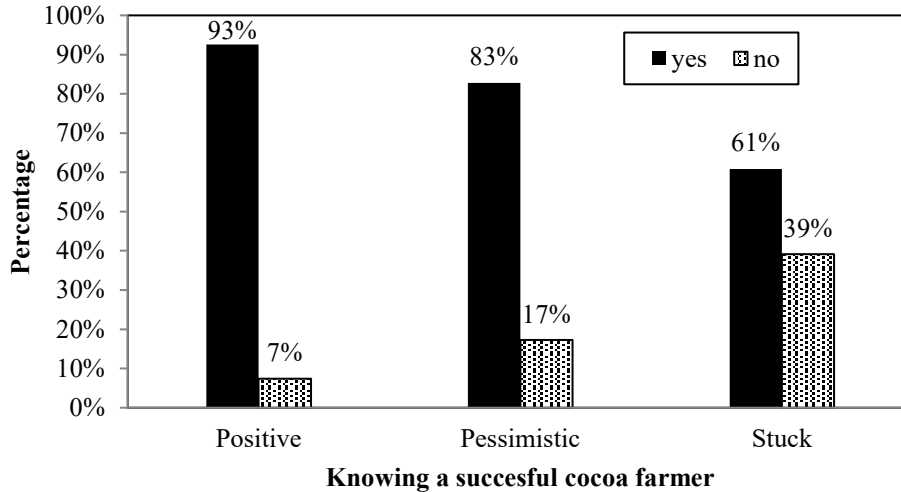

Figure 5: Influence of knowing a successful cocoa farmer on youth cocoa farmer's attitudes

Relationship between Attitudes and Aspirations

Several factors were assessed to identify how the attitudes of the youth affected their future aspirations. These included whether young cocoa farmers aspired to live near or far from their families ($p=0.055$, $\chi^2 (2) = 5.804$), whether they aspired to live in urban or rural areas ($p=0.277$, $\chi2 (2) = 2.566$) and whether they aspired to remain in cocoa farming throughout their life time ($p=0.000$, $\chi^2 (2) = 28.26$). Results suggest that only the desire to remain in cocoa farming was a significant influence of youth cocoa farmers' attitudes. All positive young cocoa farmers desired to be cocoa farmers all their life time, about 86% of the pessimistic young farmers desired to remain in farming all the life time, while about 60% of those who feel trapped in cocoa farming desired to quit cocoa farming at a certain point in life if they had the chance (Figure 6).
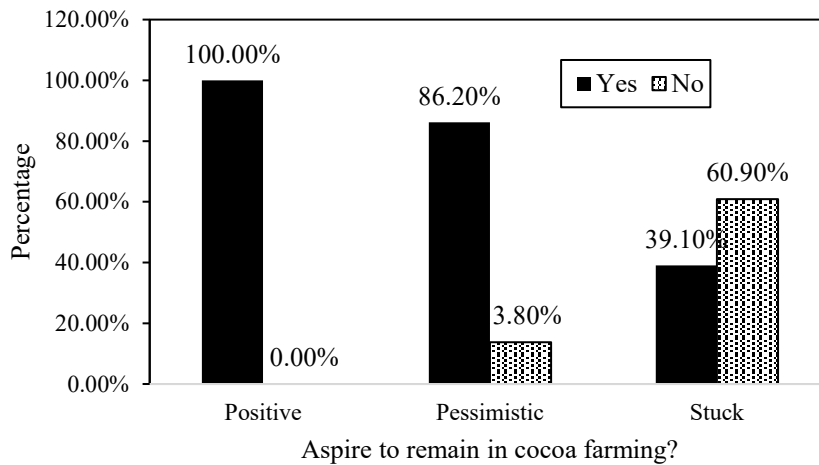
Figure 6: Is young farmer's aspiration to make cocoa farming their life time occupation likely to influence their attitudes?

Relationship between some respondent characteristics and attitude typology

There were no statistically significant relationship between some farmer characteristics and young cocoa farmer typology (Table 1). These included, educational level, sex, being a first born and being born and raised in the community. More interesting was that, marital status and the community where the youth resided had a significant relationship with the young cocoa farmers' attitude (Table 1, Figure 7). This was such that the unmarried were more likely to feel trapped in cocoa farming while the married were more likely to be optimistic about cocoa farming. The finding about relationship between youth attitudes and the communities involved in the study seems surprising. Even though many of the youth in Abroma community were engaged in cocoa farming with a population dominated by indigenes, and few migrants, most youth in this community had pessimistic attitudes towards cocoa farming (Figure 8). By contrast, most youth cocoa farmers in Wasa Japa had positive attitudes although small-scale surface mining has currently emerged as the major activity in the area. The gold mining activity has opened the community up to many business opportunities especially for the youth. In addition, it was unexpected that most young cocoa farmers in Asumura will feel trapped in cocoa farming since the main economic activity in this community was cocoa farming. Nonetheless, there are not many other opportunities for the youth to explore in Asumura other than cocoa farming and this could account for their attitudes. Perhaps the difference in attitude could be that in Wassa Japa cocoa farming might be more of a choice, so that we can assume that many of the young farmers in Wassa Japa choose to farm, since there are alternative livelihoods in the area with mining. In Asumara, you have little choice but to farm.

Table 1: Relationship between farmer typology and demographic variables

Demographic variable	Chi-square (df)	Significance (p)
Sex	5.17 (2)	0.075
Position among sibling	0.81 (2)	0.668
Marital status	6.09 (2)	0.048*
Educational status	-	-
Born and raised in community	2.36(2)	0.307
Community of residence	30.206(4)	0.000*

- Chi-square assumptions of minimum expected cell frequency of 20% or less was not met.
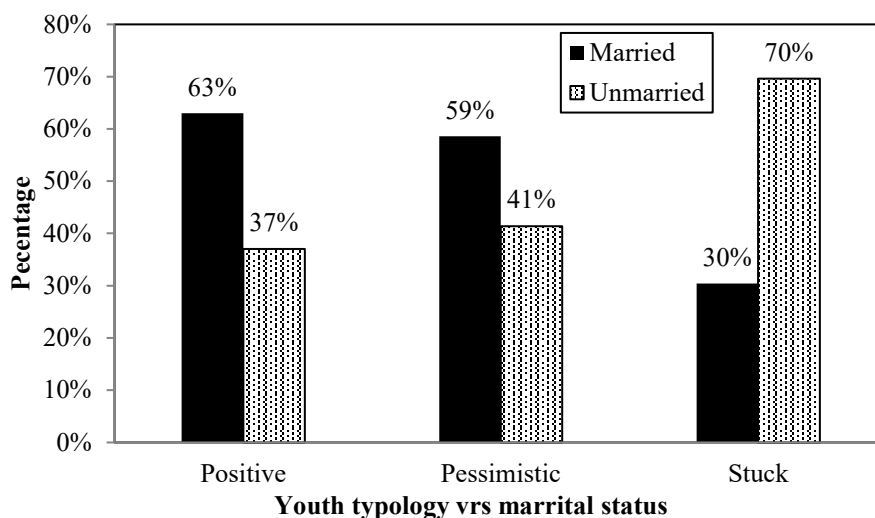df – degree of freedom.
*Significant at p ≤ α=0.05.

Figure 7: Relationship between young cocoa farmer attitudes and marital status
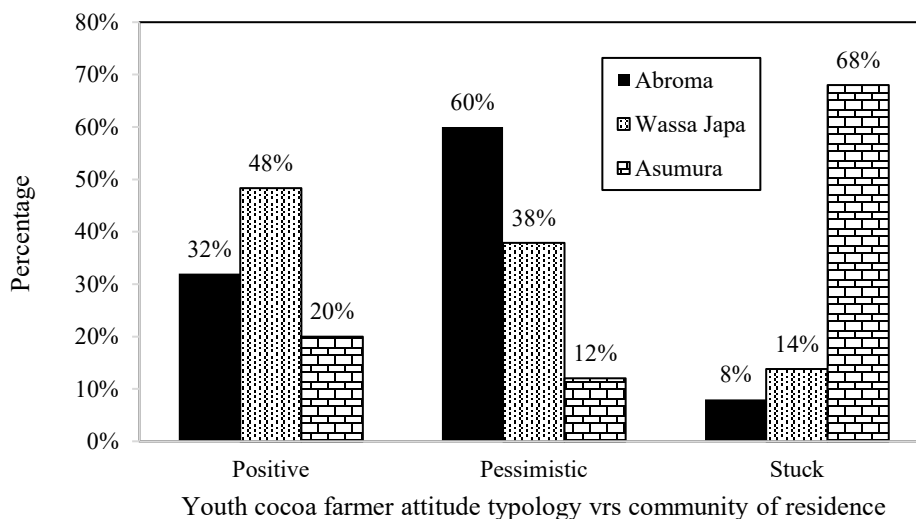

Figure 8: Relationship between young cocoa farmer attitudes and community of residence

Conclusion

This study has demonstrated heterogeneity in the attitudes, motivations and desires of young, rural cocoa farmers. The findings can help policymakers and practitioners anticipate responses of the young cocoa farmers to various programmes, interventions and incentives as certain typologies may be dominant in particular areas as evidenced by the finding that young cocoa farmers with stuck and pessimistic attitudes were mostly from the Asumura and Abroma communities (see Valbuena et al., 2008; Carmona et al., 2010; Lincoln and Ardoin, 2016). The typology research has provided some understanding of young farmer attitudes that could exist and hence can form the basis for designing and planning of customized farmer programmes and interventions so that different interventions would be targeted to specific farmer groups or types for maximum impact as has been noted by several authors (e.g., Defra, 2008; Blackstock et al., 2009; Barnes et al., 2010; Vanclay 2005; Darnhofer and Walder, 2014). In addition, applying these typologies can enhance resource maximization of initiatives that target farmers (Vanclay 2005; Blackstock et al. 2009; Barnes et al., 2010).

In conclusion, an appreciation for the heterogeneity among young cocoa farmers, it is again recommended that on-going government policies and non-government programmes and interventions to increase youth in cocoa farming for cocoa sustainability must move from the traditional one size-fits-all approaches to more targeted and customized approaches that are more likely to facilitate success and sustainability (FAO, 2014).

References

Adesina, A.A., Mbila, D., Nkamleu, G.B., and Endamana, D. (2000). Econometric analysis of the determinants of adoption of alley farming by farmers in the forest zone of Southwest Cameroon. Agr. Ecosyst. Environ. 2000; 80:255-265.

Ajzen, I., and Fishbein, M. (1980). Understanding attitudes and predicting social behaviour. Prentice-Hall, Inc., Englewood Cliffs, NJ.

Anang, B.T., Fordjour, E., and Boateng, V.F. (2011). Farmers' management practices and the quality of cocoa beans in Upper Denkyira District of Ghana. *Asian Journal of Agricultural Sciences* 3(6): 487-491, 2011

Aneani, F., Anchirinah, V. M., Owusu-Ansah, F., & Asamoah, M. (2012). Adoption of some cocoa production technologies by cocoa farmers in Ghana. Canadian Centre of Science and Education, *Sustainable Agriculture Research, 1(1),* 104-117.

Anim-Kwapong, G.J., and Frimpong, E.B. (2005). Vulnerability of agriculture to climate change-impact of climate change on cocoa production. Vulnerability and adaptation assessment under The Netherlands climate change studies assistance programme phase 2 (NCCSAP2). Cocoa Research Institute, Tafo, Ghana; 2005.

Baffoe-Asare, R., Abrefa, J.D., and Annor-Frempong, F. (2013). Socioeconomic factors influencing adoption of codapec and cocoa high-tech technologies among small holder farmers in Central Region of Ghana. *American Journal of Experimental Agriculture 3(2): 277-292, 2013* SCIENCEDOMAIN *international www.sciencedomain.org*

Barnes, A.P., Wrerford, A., Butterworth, M., Seminov, M., Moran, D., Evans, N., and Fitt, B.D.L. (2010). Adaptation to increasing severity of phoma stem canker on winter oilseed rape in the UK under climate change. J Agric Sci 148:683–694

Bennett, R., Meister, A.D., and Wilkinson, R. (1999). Sustainable soil management in New Zealand: Farmer beliefs, attitudes and motivations (No. 21). Centre for Applied Economics and Policy Studies, Massey University.

Blackstock, K.L., Ingram, J., Burton, R., Mills, J., Brown, K.M., and Slee, B. (2009). Understanding and influencing behaviour change by farmers to improve water quality. Sci Total Environ

Boahene, K. (1995). Innovation adoption as a socio-economic process: The case of the Ghana Cocoa Industry. Amsterdam: Thesis Publishers

Boahene, K., Snijders, T.A., and Folmer, H. (1999). An integrated socioeconomic analysis of innovation adoption: the case of hybrid cocoa in Ghana. Journal of Policy Modeling, 21(2), 167-184.

Carmona, A., Nahuelhual, L., Echeverría, C., and Báez, A. (2010). Linking farming systems to landscape change: An empirical and spatially explicit study in southern Chile. Agric Ecosyst Environ 139: 40-50.

Danso-Abbeam, G., Addai, K.N., & Ehiakpor, D. (2014). Willingness to pay for farm insurance by smallholder cocoa farmers in Ghana. *Journal of Social Science for Policy Implications,* March 2014, Vol. 2, No. 1, pp. 163-183

Darnhofer, I., and Walder, P. (2014). Farmer types and motivation. In Encyclopedia of Food and Agricultural Ethics (pp. 710-715). Springer Netherlands.

Defra (2008). Understanding behaviours in a farming context: bringing theoretical and applied evidence together from across Defra and highlighting policy relevance and implications for future research [online]. Agricultural Change and Environment Observatory Discussion Paper. London: Defra

Dormon, E. N. A., Van Huis, A., Leeuwis, C., Obeng-Ofori, D., and Sakyi-Dawson, O. (2004). Causes of low productivity of cocoa in Ghana: farmers' perspectives and insights from research and the socio-political establishment. NJAS-Wageningen journal of life sciences, 52(3-4), 237-259.

FAO. (2014). Understanding smallholder farmer attitudes to commercialization –The case of maize in Kenya. Rome.

Fishbein, M., and Ajzen, I. (1975). Beliefs, Attitude, Intention, and Behaviour: An Introduction to Theory and Research. Addison-Wesley Inc.

Ghana Cocoa Board (1998): Socioeconomic Study of Cocoa Farmers in Ghana. MASDAR International Consultant.

Mills, J., Gaskell, P., Reed, M., Short, C., Ingram, J., Boatman, N., Jones, N., Conyers, S., Carey, P., Winter, M., and Lobley, M. (2013). Farmer attitudes and evaluation of outcomes to on-farm environmental management. Report to Department for Environment, Food and Rural Affairs (Defra). CCRI: Gloucester

Obuobisa-Darko, E. (2015). Socio-economic determinants of intensity of adoption of cocoa research innovations in Ghana. *International Journal of African and Asian Studies* www.iiste.org ISSN 2409-6938 An International Peer-reviewed Journal Vol.12, 2015

Ogunleye, K.Y., and Oladeji, J.O. (2007). Choice of cocoa market channels among cocoa farmers in ILA Local Government Area of Osun State, Nigeria. Middle-East J. Sci. Res., 2(1): 14-20.

Oppong, F.K. (2015). Ghana's efforts at sustaining cocoa production. "Presentations – Cocoa Market Outlook Conference, 2015". International Cocoa Organization (ICCO). https://www.icco.org/about-us/international-cocoa-agreements/doc.pdf.

Şchiopu, D. (2010). Applying Two-Step cluster analysis for identifying bank customers' profile. *Buletinul*, *62*, 66-75.

Social and Political Division of TNS East Africa (2012). Do Attitudes Matter? Presentation and discussion of the Farmer Focus pilot study.

Valbuena, D., Verburg, P. H., and Bregt, A. K. (2008). A method to define a typology for agent-based analysis in regional land-use research. Agriculture, Ecosystems and Environment, 128(1), 27-36.

Valeeva, N. I., Lam, T. J. G. M., and Hogeveen, H. (2007). Motivation of dairy farmers to improve mastitis management. Journal of Dairy Science, 90(9), 4466-4477.

Vanclay, J. (2005). Using a typology of tree-growers to guide forestry extension. *Annals of Tropical Research* 27(1): 97-103

Vigneri, M. (2007). Drivers of cocoa production growth in Ghana. ODI Project Briefing, No.4. overseas development institute, London

Zhang, W., Li, F., Xiong, Y., and Xia, Q. (2012). Econometric analysis of the determinant of adoption of raising sheep in folds by farmers in the semiarid Loess Plateau. Ecol. Econ. 2012; 74:145-152.