International Journal of Economics, Commerce and Management
United Kingdom ISSN 2348 0386 Vol. 13, Issue 2, Feb 2025

https://ijecm.co.uk/

RELATIONSHIPS REGARDING INCENTIVES, RECORDKEEPING PROPENSITY, AND SELECTED FACTORS OF SMALL FARM PRODUCERS IN THE ALABAMA BLACK BELT AND SURROUNDING COUNTIES REVISITED

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Abstract

Incentives are supposed to influence participant action, such as in the case of small farm producers and recordkeeping. Thus, this study revisited and assessed relationships regarding incentives, recordkeeping propensity, and selected factors of small farm producers. The data were obtained from a group of small farm producers and were analyzed using descriptive statistics. The results revealed that most or many of the participants were part-time producers, males, and Blacks. Regarding age, education, and annual household income, most of the participants did not respond to the question. Moreover, correlation analysis revealed that farming status had a statistically significant and positive association with incentives. However, correlation analyses showed that the relationships were not statistically significant between gender and incentives and between recordkeeping propensity and incentives. The findings infer that selected demographic characteristics may have "important" relationships with incentives, notwithstanding that in this case only farming status had a statistically significant association with incentives. Yet, this could not be effectively determined as many of the participants did not respond to the other demographic questions. Also, incentives did not have statistically significant relationships with recordkeeping propensity. This may be because most of the participants did not use recordkeeping templates or record items. Recordkeeping should be encouraged among small farm producers.

Keywords: Alabama Black Belt, Incentives, Recordkeeping Propensity, Selected Factors, Small Farm Producers

INTRODUCTION

Incentives are "items" or "cajoling benefits" given to participants in a program; they may be monetary or nonmonetary. Singer & Ye (2013) explained that monetary incentives range from small to large amounts. They indicated that nonmonetary incentives include donations to charity, vouchers, and other tangible gifts. They also indicated that incentives may be prepaid or conditional. Prepaid incentives are given to participants before they are contacted regardless of whether they take part in an activity or not, while conditional incentives are given to participants in an activity conditioned on their participation in that activity.

According to Stephens & Townsend (2013, p. 2), there are some baseline preconditions for incentives to be effective. "First, people must have: (1) skills or knowledge required to complete the incentivized behavior, and (2) resources, for example, financial, and the corresponding opportunity to complete the incentivized behavior. Second, incentives should: (1) target behaviors that would otherwise not occur; that is, when participants are not intrinsically

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motivated; (2) take into account the level of quality at which the task is completed, (3) be used repeatedly over time, not just on one occasion, (4) be delivered immediately after the incentivized behavior occurs and be concretely tied to that behavior, and (5) be made meaningful to the intended population."

Further, incentives may be given to farmers to get them to take part in an activity or to adopt a practice. For example, Pineiro et al. (2020) stated that incentives may be in the form of policies enacted for farmers to motivate them to adopt practices that will protect the environment and at the same time, improve their productivity and competitiveness. Additionally, they stressed that incentives may be: market-based, which encourages farmers to change their behavior in an activity; regulatory, which is implemented through the requirement of improved services by farmers, and cross-compliance, which is directed to farmers to keep land in good agricultural and environmental condition.

On their part, Kuteesa & Kyotalimye (2019) emphasized that incentives play a significant role in motivating farmers to enhance their recordkeeping practices. They argued that financial incentives, such as performance-based incentives, subsidies, and cash bonuses promote recordkeeping behaviors among farmers. According to them, farmers who demonstrate good recordkeeping practices have higher chances of obtaining loans at favorable interest rates. They maintained that proper recordkeeping increases profit margins and market opportunities. Antle (1996) also argued that recordkeeping is essential for the effective management and sustainability of farms. They indicated that for small [farm] producers, maintaining records can enhance productivity, compliance with regulations, and access to markets. However, Jayne et al. (2010) observed that the adoption of recordkeeping among small [farm] producers is often low due to perceived complexity, time constraints, and lack of immediate benefits.

Although recordkeeping affects farm outcomes, many small farm producers do not keep records, and it is possible that incentives may change that. Thus, the purpose of this study is to revisit and assess relationships regarding incentives, recordkeeping propensity, and selected factors of small farm producers in the Alabama Black Belt and surrounding counties. The objectives are to: examine demographic characteristics; examine recordkeeping propensity based on incentive categories; and examine specific relationships between selected demographic characteristics and incentive categories.

LITERATURE REVIEW

This literature review focuses, first, on incentives, other factors, and non-farm producers. Second, it focuses on incentives, other factors, and farm producers. They are discussed sequentially.

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Incentives, Other Factors, and Non-Farm Producers

Wineman & Durand (1992) emphasized that a mix of tangible and intangible incentives is more likely to lead to recruiting subjects and reducing attrition. They used cash incentives in their study. As a result of this, 67% of contacts agreed to participate in the study. The researchers surmised that when requisite incentives are given, there is a higher likelihood that response rates will improve.

Mhurchu et al. (2011) reported that respondents in a healthy food study believed that the main factor affecting the prevalence of food was cost. Also, they reported that participants welcomed the idea of economic incentives to promote healthy eating on the condition that the incentives were worthwhile, simple, and convenient to use. Further, they found that the preferred option for delivery of incentives was through pre-loaded electronic cards.

Finkelstein et al. (2019) focused on the effectiveness and cost-effectiveness of incentives as a tool for the prevention of non-communicable diseases. They reported a lack of evidence that incentives provide a requisite strategy to reduce or prevent non-communicable diseases, as reported in other studies.

Vlaev et al. (2019), in their study, concluded thus: “After reviewing the mounting evidence on the uncertain effect of financial incentives to improve health behaviors, Thirumurthy et al. concluded that the principle that individuals respond to incentives has considerable empirical support, but the devil is in the details because the magnitude of the effects differs substantially based on the nature of the behavior, the size of the incentive, the population involved, the social context, and the design…Further insights from the behavioral sciences could allow us to combine incentive schemes with other policy tools to ensure long-term effectiveness…[to avoid some participants reverting] to past behaviors once the incentive is withdrawn (p. 7).” In other words, incentives may be effective, but only for the short-term and they are situation-specific.

Xue et al. (2021) found that incentives through tax reduction, charger availability, and income had significant and positive effects on the penetration of electric vehicles. Additionally, household income had a positive effect on the adoption of electric vehicles. They surmised that governments should maintain tax incentives and focus on the installation of more charging stations.

Liu & Liu (2022) examined the impact of incentives on job performance, business cycle, and population health in emerging economies. They found that monetary incentives positively affect job performance, population health, and employee loyalty.

Gonzalez et al. (2024) reported that social status in association with monetary incentives causes a change in physical activity. Specifically, they reported that participants with prior

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relatively low physical activity who received monetary incentives increased the number of daily steps by 12%; whereas participants with prior relatively high physical activity who received monetary incentives decreased their number of steps by 25%. The authors speculated that the monetary incentives (an extrinsic reward) caused the motivation to exercise (an intrinsic attribute) to decrease for the latter group.

Incentives, Other Factors, and Farm Producers

Miller (2000) argued that despite the incentives given to a select group of farm producers in a recordkeeping study, the retention rate was lower than anticipated. For instance, 23% and 44% of participant farmers, respectively, dropped out of the project before the end of Year 1 and Year 2. In the study, the requirement was for participants to complete records each year before incentives were given; however, many of the participants did not complete the records. The author concluded that, probably, the average incentive payment of $220/farm was not enough. Thus, participants partially completed their record books.

Tefera et al. (2003) provided incentives that entailed improved access to the market and better prices. They found that the market incentives enhanced the activity of farmers irrespective of the unavailability of functional research and extension systems. Also, the authors found that participants had very low recordkeeping capabilities, which led to questionable and unreliable income data.

Wolf et al. (2011), in their study, analyzed the demand for financial recordkeeping attributes by three groups of farmers, namely, farmers/clients of a university farm financial record program, farmers/clients of a large agribusiness firm, and a sample of farmers/clients in the USDA National Agricultural Statistics Service (NASS) database. The farmers were asked which of three main financial record systems they use: (1) a simple cash system, (2) a general cash/accrual accounting system, and (3) a farm cash/accrual accounting system. Option 1 entailed an electronic checkbook, Option 2 entailed a double-entry accounting, and it could generate either cash or accrual reports, and Option 3 included all the general cash/accrual system attributes. However, the actual recordkeeping type used varied: for the NASS group, the most common recordkeeping format was paper, 41%; for University clients, the most common recordkeeping format was computerized farm cash/accrual system, 75%; and for the Agribusiness clients also, the most common recordkeeping format was farm cash/accrual system, 45%, albeit less than the university clients.

Olsen & Lund (2011) reported that farmers who prioritized economic incentives in the rubric of investments had better financial outcomes than farmers who did not prioritize economic incentives. Consequently, the latter group had lower off-farm incomes and productivity

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compared to the former group. The authors concluded that the enhanced outcomes of incentives on investments enhance more efficient policies.

Pineiro et al. (2020) found that independent of the incentive type, programs linked to short-term economic benefits have a higher adoption rate than those aimed solely at providing ecological services. In the long-term, one of the main motivations for farmers to adopt sustainable practices is the perceived benefits either for their farms, the environment, or both. In addition to perceived benefits, are, respectively, technical assistance and extension services in promoting sustainable practices. Furthermore, they found that policy instruments are more effective if their design takes into consideration the characteristics of the target population and the related trade-offs among economic, environmental, and social outcomes.

Tedesco et al. (2022) reported that socioeconomic factors, in particular, governance, monitoring systems, and experiences and beliefs of participants affect whether incentives are effective. Moreover, they reported that for successful results, there were both positive socioeconomic and ecological outcomes. They thought that achieving forest restoration at sufficient levels would require appropriate management of socioeconomic factors that enhance or restrict the successful use of incentives.

Ding et al. (2022) found that market incentives had a significant effect on farmers giving up synthetic pesticides and choosing green pesticides in pesticide application. Also, livelihood dependence (that is, the proportion of income accrued) had a significant effect on farmers choosing green and low-toxic pesticides in pesticide application; the educational level of the household head had a significant impact on farmers choosing green and low-toxic pesticides in pesticide application. Additionally, Technical training also had a significant effect on farmers choosing between green and toxic pesticides in pesticide application.

Ryan et al. (2022), in their analysis of farmers' willingness to accept (WTA) payments (incentives) for nutrient management practices, found that the effect of the payments decreased over the course of three surveys. They also found that farmers' WTA was 1-6 times higher than what existing incentive programs offer. The authors proposed that the existing incentive programs should scale up their payments for farmers or offer more payments to enhance sustainable watershed management.

Tackie et al. (2022), in a study on recordkeeping, reported that the majority were part-time producers, males, over 55 years of age, had less than a four-year college degree, and earned less than $40,000 in annual household income. Also, a little over 50% kept records, but 47% did not keep records; four percent kept records fully and 39% kept records partially. Of the socioeconomic characteristics, only gender had a statistically significant and negative effect on recordkeeping.

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Tackie et al. (2023), in another study, also found that most of the participants were part-time, male, Black, and older. Moreover, they had less than a four-year college degree, and an annual household income of less than $40,000. Further, they reported that there was a statistically significant and negative relationship between farming status and incentives, and a statistically significant and positive relationship between recordkeeping propensity and incentives.

Fred & Gathiou (2024) reported that purchase recordkeeping, sales recordkeeping, and cash recordkeeping significantly affected the sustainable growth of agribusinesses. The authors recommended periodic training and capacity building to improve staff recordkeeping capabilities.

METHODOLOGY

Design

The methodology used in this study follows those used by Tackie et al. (2023).[1] The research design used in the study entailed both a cross-sectional design and a quasi-experimental design because the subjects were studied at a point in time, and at the same time, the subjects were not randomly assigned to their respective groups. The participants were recruited from two sub-regions of the Alabama Black Belt and surrounding counties, in particular, the West Alabama Black Belt (WABB) and the East Central Alabama Black Belt (ECABB). This area runs from the east-central part of the state to the west-central part of the state, also commonly called South Central Alabama. Small farm producers in surrounding counties with identical characteristics as those in the targeted counties were qualified to be in the groups. There were four such participants in the groups.

Further, the participants were given monetary incentives; those who were placed in the WABB group were the immediate incentives group and those who were placed in the ECABB group were the delayed incentives group. Those in the immediate incentives group received a set dollar amount every month for a set period and those who were placed in the delayed incentives group received two times the amount of the immediate incentives group but at half the time of the immediate incentives group. Ultimately, the two groups received the same amount of incentives. There were 21 participants in WABB and 15 participants in ECABB, making a total of 36 small farm producers.

Data Collection

The basis of the study is that when small farm producers are given incentives and are given recordkeeping templates, they will keep records. In fact, participants were given both

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specific recordkeeping templates and monetary incentives. The study generated data from a questionnaire developed by Tackie (2021). The questionnaire had two parts; the first part entailed farmer classification and related characteristics. The second part focused on demographic characteristics. The questionnaire was submitted to the Institutional Review Board of the researchers' Institution for review and approval. It was then administered to the participants in the two sub-regions of the Alabama Black Belt and surrounding counties described earlier. Specifically, the participants were from Autauga, Barbour, Butler, Dallas, Greene, Hale, Jefferson, Lowndes, Macon, Montgomery, Sumter, Talladega, and Wilcox counties. Furthermore, the data were obtained by interviewing producers who participated in the study and availed themselves to be interviewed. The interviews were done in the first quarter of 2023. Yet those who did not avail themselves to be interviewed were also captured in the study. The fact that some did not avail themselves to be interviewed despite the efforts made was an indication that they either did not use the templates or did not record the requisite items in them.

Data Analyses

The data analyses were conducted using descriptive statistics, particularly frequencies and percentages as well as Spearman's Rho correlation analysis. The frequencies and percentages were used to assess all data; however, the correlation analysis was used only for selected data; for incentives and selected demographic characteristics: farming status and gender; also, for incentives and whether participants used recordkeeping templates or not. The classification of the incentives was: 1 for immediate incentives and 0 for delayed incentives; the classification of farming status was: 1 for full-time producers and 0 for part-time producers; the classification of gender was: 1 for male and 0 for female, and the classification of recordkeeping propensity was: 1 for more/less detailed recordkeeping and 0 for did not use/did not record in recordkeeping templates. All the analyses were run using SPSS 12.0© (MapInfo Corporation, Troy, NY).

RESULTS AND DISCUSSION

Table 1 reflects the demographic characteristics of the participants. Approximately 22% were full-time producers and 78% were part-time producers; 78% were male producers and 22% were female producers; 97% were Black producers, and three percent were White producers. Also, six percent were 65 years or older, and 94% did not respond to the question; six percent had either a four-year college degree or a post-graduate/professional degree, and 94% did not respond to this question. Additionally, three percent earned $20,000-29,999 as

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annual household income, another three percent earned over $70,000 as annual household income, and again 94% did not respond to this question.

The demographic results are consistent with those of Tackie et al. (2023) for small farm producers in Alabama. For example, in terms of farming status, gender, and race/ethnicity. Also, when one examines age, education, and annual household income, they follow a similar trend. However, the “no responses” in this case are higher than those in Tackie et al. (2023), 94% in this case versus at least, 55% in Tackie et al. (2023). One may deduce vis-à-vis Tackie et al. (2023) that they did not want to disclose these data.

Table 1. Demographic Characteristics of Respondents (N = 36)

Variable	Frequency	Percent
Farming Status		
Full-time	8	22.2
Part-time	28	77.8
Gender		
Male	28	77.8
Female	8	22.2
Race/Ethnicity		
Black	35	97.2
White	1	2.8
Age		
20-24 years	0	0.0
25-34 years	0	0.0
35-44 years	0	0.0
45-54 years	0	0.0
55-64 years	0	0.0
65 years or older	2	5.6
No Response	34	94.4
Educational Level		
High School or Below	0	0.0
Two-Year/Technical Degree	0	0.0
Some College	0	0.0
College Degree (4-year)	1	2.8
Post-Graduate/Professional Degree	1	2.8
No Response	34	94.4
Annual Household Income		
$19,999 or less	0	0.0
$20,000-29,999	1	2.8
$30,000-39,999	0	0.0
$40,000-49,999	0	0.0
$50,000-59,999	0	0.0
$60,000-69,999	0	0.0
Over $70,000	1	2.8
No Response	34	94.4

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The participants were given five recordkeeping templates focusing on the economic, marketing, and financial aspects of production. Table 2 shows incentive categories and recordkeeping propensity. The incentive categories were created to measure the behaviors of the participants regarding recordkeeping. Recordkeeping propensity is observable due to a particular participant's behavior. Fifty-eight percent (58%) were in the immediate incentives group, and 42% were in the delayed incentives group. Three percent of the producers kept more detailed records using the recordkeeping templates; another three percent kept less detailed records, and 94% did not use the recordkeeping templates or did not record items. Although the authors premised that if producers are given incentives, they would keep the requisite records, it is clear that the assumption or "hypothesis," did not occur as expected." It is highly possible that incentives alone may not be enough; maybe something more has to be done. This is in line with what is in the literature; for example, in Miller (2000) and Tefera et al. (2003), where in both cases, recordkeeping was done partially and/or in a poor manner.

Table 2. Responses Reflecting Incentives Category and Recordkeeping Propensity (N = 36)

Variable	Frequency	Percent
Incentives		
Immediate	21	58.3
Delayed	15	41.7
Recordkeeping Propensity		
More detailed	1	2.8
Less detailed	1	2.8
Did not use/did not record	34	94.4

Moreover, correlation analyses were conducted between incentives and two demographic characteristics, farming status and gender. Most of the remaining demographic characteristics did not have enough observations as the participants chose not to respond to them or avail themselves. Table 3 presents the estimates for the correlation analyses between incentives and farming status, and incentives and gender. The results reveal that incentives and farming status had a strong positive association, and the relationship was statistically significant at the 1% level, $\rho(34) = 0.452$, $p = 0.006$. The finding indicates a strong linear relationship between the two variables. On the contrary, the result between incentives and gender reflects a weak negative association and it was not statistically significant, $\rho(34) = -0.045$, $p = 0.794$. The results appear similar to the ones reported by Tackie et al. (2023) for an identical group of small farm producers.

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Table 3. Correlation between Incentives and Demographic Characteristics

Variable	N	ρ	df	p
INC/FAS	36	0.452***	34	0.006
INC/GEN	36	-0.045	34	0.794

Note: ***Significant at 1%

Furthermore, a correlation analysis was conducted between incentives and recordkeeping propensity, whether more detailed/less detailed recordkeeping and did not use the templates. Table 4 depicts the estimates for the correlation analysis between incentives and recordkeeping propensity. The result in this case also indicates that there was a weak negative association between incentives and recordkeeping propensity, and it was not statistically significant, $\rho(34) = -0.041$, $p = 0.812$. The finding is in opposition to the one obtained by Tackie et al. (2023) where they found a positive and significant relationship between incentives and recordkeeping propensity.

Table 4. Correlation between Incentives and Recordkeeping

Variable	N	ρ	df	p
INC/REKP	36	-0.041	34	0.812

CONCLUSION

The study revisited and assessed relationships regarding incentives, recordkeeping propensity, and selected factors of small farm producers in the Alabama Black Belt and surrounding counties. Specifically, it examined demographic characteristics, analyzed recordkeeping propensity, and analyzed relationships between selected demographic characteristics and incentive categories, as well as between recordkeeping propensity and incentive categories. The data were obtained by using a questionnaire and analyzed using descriptive statistics. The results showed that a majority of the producers were part-time farmers; were males; and were Blacks. However, a majority (94% each) chose not to respond to the age, educational level, or income question. Additionally, there were more participants in the immediate incentives group compared to the delayed incentives group; also, most of the participants did not use the recordkeeping templates. Of the few who used the recordkeeping templates, three percent kept less detailed records, and another three percent kept more detailed records. The correlation analyses showed that farming status had a positive and

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statistically significant relationship with incentives. However, gender and recordkeeping propensity had negative relationships with incentives, and the relationships were not statistically significant.

First, the findings indicate that demographic characteristics may have relationships with incentives. Second, the findings indicate that recordkeeping propensity does not have a relationship with incentives. However, the latter finding may be situation-dependent, as in Tackie et al. (2023) who obtained the opposite result. This notwithstanding, a caution is provided as many of the participants did not respond to the questions or did not use the templates. It would have been preferred if all the participants in the sample had used the recordkeeping templates, and also, responded to the questions. That said, recordkeeping should be encouraged among small farm producers. Based on the preceding, a couple of recommendations are made. First, researchers should not let participants or farm producers complete records on their own. Instead of explaining the recordkeeping templates and letting them go and complete them on their own, the participants should be assembled in a room at selected times or on selected days to complete recordkeeping templates. Second, the provision of incentives should be conditioned on participants recording information or data into recordkeeping templates and being cross-checked. Future studies are suggested, as the study has laid additional groundwork for further studies. Future studies entail replicating this study, and possibly, using a larger sample size.

ENDNOTES

1. Tackie et al. (2023). Relationships regarding incentives, recordkeeping propensity, and selected factors of small producers in the Alabama Black Belt and Surrounding Counties, *Professional Agricultural Workers Journal*, *9*(2), 50-61.

ACKNOWLEDGEMENTS

This research is funded by the United States Department of Agriculture, National Institute of Food and Agriculture (USDA NIFA), Agriculture and Food Research Initiative (AFRI) Program, Award Number 2021-69006-33885.

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