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Full Length Research Paper

Religiosity and consumer behavior in developing countries: An exploratory study on Muslims in the context of Burkina Faso

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The interest of researchers on religiosity and consumer behavior is explained by the fact that religion has an influence, not only on the social behavior of individuals, but also on their consumption behavior (Fam et al., 2004; Nasse, 2006; Mansori, 2012; Diop, 2012). Most of the studies on the topic are from Western and Asian countries. Little research on the subject has been conducted in Africa and particularly in Burkina Faso. Therefore, this study aims to explore the concepts of religiosity and consumer behavior in Burkina Faso in order to consider the role of culture in management and marketing products such as "halal" products. Burkina Faso is a country where religion plays an important role while a definite portion of believers contribute to increase the consumption of industrial alcoholic drinks, and ignorance in the sector of marketing seems also to be a barrier that slows down the production and the consumption of industrial non-alcoholic drinks. The approach is a mixed one based both on a qualitative survey and a quantitative survey. The results show that Muslims religiosity affects consumer behavior in the context of Burkina Faso.

Key words: Religiosity, consumer behavior, non-alcoholic drinks, consumption, marketing.

INTRODUCTION

First, the practice of marketing in the context of Burkina Faso is recent; then most of the research topics on marketing are directed to other sectors because making a research on religious beliefs and consumption seems to be a taboo. In addition, there are no official statistics on the consumption and marketing of industrial drinks. Thus, conducting a research on the concepts of religiosity and

consumer behavior in the particular context of Burkina Faso is justified by the use of these concepts in the management and in the marketing of both the Western and the Asian contexts; and the need to verify the results of Western research and Asian research in the African context in general, and in Burkina context in particular. Management and marketing in the West and in Asia have

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brought results; researchers have tested and verified the different marketing theories about culture and consumer behavior in order to be reassured that cultural consumption patterns are not the same (Diop, 2004; Usinier, 1999). It also provides managerial solutions to companies, in order to adapt industrial drinks to consumption, and to the needs and to the expectations of consumers. Therefore, this research is an exploratory study which topic is: The influence of religiosity on consumer behavior towards industrial non-alcoholic drinks in Burkina Faso.

In Burkina Faso, one can observe an increasing rate of industrial drinks consumption. Indeed, industrial drinks are among the events of daily life and customs. In Burkina context, industrial drinks have a food function (Sow, 2005), a religious function (Dumbili, 2013), and a medical function. Thus, one can find the industrial drinks during some events such as funeral rites, traditional wedding ceremonies, religious wedding ceremonies, modern wedding ceremonies, religious rituals and worship ceremonies, religious baptismal, during the feast of Ramadan, during the feast of Tabaski. For this reason, some authors mention that the purchases of products such as industrial drinks prevail during religious festivals (Porter, 2013: 31).

For Sow (2005: 6), the industrial drinks consumption rate is increasing and tripled from 1993 to 2002 in Burkina Faso for both industrial non-alcoholic drinks and industrial alcoholic drinks. However, Burkina Faso is a country where religion plays an important role (Bazié, 2011: 16) and it may influence the behavior of individuals in consumption. In West Africa, in general, and Burkina Faso in particular there are Animists, Christians and Muslims (Nasse, 2012: 31).

Today, according to the national statistics, Burkina Faso is composed of 60.5% of Muslims, 23.2% of Christians (19% Catholics and 4.2% Protestants), 15.3% of Animists, 0.6% of other religions and 0.4% without religion (National Institute of Statistics and Demography, 2006). Among Muslims there are for instance Shiites, Sunnis, Lahilaa. In addition, the industrial drinks and particularly the industrial non-alcoholic drinks are food supplements (Sow, 2005) which are very important for the Burkinabe population, as they help to curb vitamin deficiencies, to combat deficiency in minerals, to combat hunger, and to relieve thirst. In Burkina Faso, an observation is that religious beliefs contribute to strongly encourage the consumption of industrial non-alcoholic drinks while companies in the industrial drinks sector have some difficulties to adapt industrial non-alcoholic drinks to the real expectations and needs of consumers. Religiosity is one of the factors that strongly contribute to the consumption of industrial non-alcoholic drinks, and this fact may lead one to the following question: What is the perception of religious consumers on the consumption of industrial non-alcoholic drinks as compared to the consumption of industrial alcoholic

drinks?

Religious beliefs appear to be some catalysts that facilitate the business and the consumption of industrial non-alcoholic drinks. However, marketing ignorance in the industrial drinks sector seems to be a barrier to the consumption of industrial non-alcoholic drinks in the particular context of Burkina Faso. The observation of the Burkinabe context could lead a researcher to wonder why some believers are increasingly oriented towards industrial alcoholic drinks consumption rather than towards industrial non-alcoholic drinks consumption.

Thus, the research question in this study is: Why Muslims, who should be less tolerant towards the industrial alcoholic drinks consumption by drinking industrial non-alcoholic drinks, find themselves rather at the base of the increase of the consumption of industrial alcoholic drinks?

The research question is structured on the following fundamental questions:

1. What are the dominant religious beliefs in the context of Burkina Faso?
2. How can we measure religiosity in the context of Burkina Faso?
3. What is the relationship between the degree of religious beliefs and consumers behavior towards industrial non-alcoholic drinks in the religious groups of Burkina Faso?
4. Finally, can religiosity be a valuable cultural variable in the consumption of industrial non-alcoholic drinks in Burkina Faso?

This study begins with an introduction focused on a review of the literature on the concept of religiosity and the concept of consumer behavior. For further, the link between religiosity and consumer behavior is underlined, and then the different theories which are concerned are brought out. Finally, the materials and methods, the results and the discussion of the results, the conclusion and the references are presented.

LITERATURE REVIEW

In this research, it is a concern to clearly define the concept of religiosity, and the concept of consumer behavior, and also to present the various previous research conducted, and finally to show that the research problem mainly comes within the field of culture and consumption, as well as marketing. A more thorough review of the literature brings out what has been discussed by different authors. The research topic is as follows: The influence of religiosity on consumer behavior towards the industrial non-alcoholic drinks in the context of Burkina Faso. This topic thus connects different concepts namely religiosity and consumer behavior. The issue here is to firstly define the various concepts and

secondly to recall the various theories of the study.

The concept of religiosity

The concept of religiosity has been defined by several authors. Mokhlis (2006: 64) defines religion as the degree to which certain values and beliefs to certain ideals are held, practiced and become as a mark of identity. According to Patel (2010), the concept of religiosity is defined as the degree to which an individual is attached to a particular religious group. The definition that Delener (1990) gives to the concept of religiosity joins that of Patel (2010). Delener defines the concept of religiosity as the degree of commitment of an individual to a particular religious community. Bonewell (2008) defines religiosity following the same perspective as that of Allport and Ross (1967: 141) by showing that religiosity is a social term that is used to mention the fact for an individual to be religious; this means that religiosity is defined as the degree of belief of an individual or the degree of commitment of an individual, or the degree of faith or the belief system of an individual; however, unlike other authors, Bonewell (2008) goes further in their definitions by distinguishing two types of religiosity that make up the concept of religiosity: the extrinsic and the intrinsic religiosity; according to these authors, extrinsic religiosity can be defined as the act of referring to the use of religion or the use of religious faith to provide comfort or to improve one's status, whereas intrinsic religiosity is to integrate religion or religious faith in one's own life and to make it a religious value.

However, these definitions of the concept of religiosity may raise many critics given the fact they are defined in a Western context or in an Asian context. This study is exploratory, and it is interesting to find out a definition of religiosity in the context of Burkina Faso. In the context of Burkina Faso some authors have already discussed in a succinct manner the concept of religiosity in their research but not in a concise manner. First, Ouédraogo (2007) shows that people of a certain degree of belief have an influence in resolving some conflicts between employers and employees in the context of Burkina Faso. Thus, the description of Ouédraogo shows that religiosity is related to the degree of belief of a personality which in some cases can be perceived in a community; the person is then useful to the group through his or her influential leadership character. However, this brief description of a real situation let us perceive that the concept of religiosity is confined in a company's human resources management context, the famous company "Oumarou Kanazoé" in Burkina Faso. Moreover, Nasse (2006) shows how Christianity as a religion, brought by missionaries affects Kasim culture through the early believers. Here, religiosity is reduced to the notion of religious affiliation and it brings an ethnic group to borrow words and also to import trade items, into the group.

Later on, Nasse (2012) underlines the devotion and the commitment of missionaries to the fulfillment of religious activities in the context of Burkina Faso. The mere mention of the concept of religiosity by Nasse is limited to a Christian dimension and does not extend to other religions such as Islam and animism. Then, Kini (2012) also underlines the concept of religiosity by showing that company management success in the Burkinabe context is influenced by the foundation of faith in God. Notwithstanding, the definition of the concept of religiosity by Kini is limited by the fact that it comes from a much more evangelical vision. In the context of Burkina Faso, the concept of religiosity can take another meaning, taking into account a number of daily realities observed. In this context, therefore, the concept of religiosity can be defined as the degree of commitment and the degree of dedication of a given individual to God, the supreme being, expressed either by the commitment to religious activities or by the compliance of one life to religious precepts or the devotion to take on some good actions.

Once the concept of religiosity is defined, it is essential to define consumer behavior concept.

The concept of consumer behavior

The marketing concept in consumer behavior is defined by several authors. Western authors like Esso and Dibb (2004) and Bergadaa and Faure (1995) define consumer behavior as the how and the why individuals consume particular goods or services. The approach of the concept of consumer behavior by Bergadaa and Faure (1995) and Esso and Dibb (2004) shows that it has its sources in studies that are conducted in the context of Western consumption and why it cannot be generalized.

For Mokhlis (2008), the concept of consumer behavior is similar to that of the consumer's consumption choices. According to Mokhlis, consumers make decisions along the lines of their choices to consume or not to consume a certain product. The approach of the concept of consumer behavior by Mokhlis is connected to that of religion; to the point that it is impossible to see that other factors may influence consumers' consumption choices. Moreover, the approach of this concept by Mokhlis is much more located in an Asian context. According to Diop (2004), consumer behavior corresponds to a given consumer's attitude adopted by individuals who consume a given product; and this consumer attitude is specific to each sociocultural context. This approach to consumer behavior concept has some limits because it was made in a Senegalese context and oriented only on the Muslim consumer. However, the approach of the concept of consumer behavior some years later by Diop (2012) is much more relevant (even if the context is still that of Senegal) in that the author shows that consumer behavior includes these values that significantly influence the shopping and consumption choices of individuals,

and these values are knowledge, beliefs, manners and customs. In the context of Burkina Faso, the concept of consumer behavior can be approached as how individuals decide, examine, evaluate products and services and make purchases in terms of choice, consumption, quality, taste, advertising or price.

A review of previous literature in this research can contribute to make more understandable this topic that covers culture and consumption in the context of Burkina Faso.

The following are the different theories of this research.

The individualistic theory of consumer behavior

Luna and Gupta (2001), Shavitt et al. (2008), De Mooij and Hofstede (2011), Nayeem (2012), Frank, Enkawa, and Schvaneveldt (2015) emphasize the individualistic approach of consumer behavior by showing that consumer behavior may be affected by his or her personality and his or her character as well as his or her attitude. They show that consumer behavior is driven by a behavior that is usually a link to the particular consumer's individual experience.

The collectivist theory of consumer behavior

In contrast to the individualistic theory of consumer behavior, Luna and Gupta (2001), De Mooij (2003), Arnould and Thompson (2005), Banyte and Matulioniene (2005), Salciuviene et al. (2005), Soares et al. (2007), Claussen et al. (2008), and Nayeem (2012) support the collectivist approach to consumer behavior. The collectivist approach to consumer behavior states that consumer behavior may be affected by the society or the group that the individual shares a number of values, or the attitude of the community.

The culturalist theory of consumer behavior

However, Fam et al. (2002), De Mooij (2003), Jung and Kau (2004), Ezzo and Dibb (2004), Arnould and Thompson (2005), Banyte and Matulioniene (2005), Mokhlis (2006), Claussen et al. (2008), Mokhlis (2009), Mokhlis (2010), Alam et al. (2011), Al-Hyari et al. (2011), Durmaz et al. (2011), Derakhshide and Rezaie (2012), Nayeem (2012), Benabdallah and Jolibert (2013), Mustafar and Borhan (2013), Ahmad et al. (2015), Baazeem (2015), Cole (2015), Esteban et al. (2015), Nurbasari (2015), and Campanella (2016), support the culturalist approach of consumer behavior. The culturalist perspective of consumer behavior indicates that the behavior of a given consumer is driven by his or her own culture and therefore some cultural consumption dimensions are stated by these authors.

The economic theory of consumer behavior

Finally, Simon (2000), Matthew and Morrison (2003), Ouédraogo (2007), Kitchathorn (2009), Nasse (2012), Shamba and Livian (2014), Van Laethem and Body (2008), and Nasse (2015) briefly express their ideas in the sense of the economic theory of consumer behavior. The economic theory of consumer behavior points out that a given consumer will repurchase some products when these products have the greatest value in terms of quality or when these products give an absolute satisfaction at a reasonable price as compared to their qualities.

The literature review confirms that there is little research on culture and consumption in the West African context (Diop, 2004) and particularly in the context of Burkina Faso. The literature review shows that it is good to consider in the marketing research, the concept of culture in market analysis to better understand consumers and their different behaviors. Understanding consumer differences and similarities in culture can also help companies either to standardize or either to tailorize their marketing strategies to meet the expectations and the needs of consumers. The literature review also reveals that there is no previous research on culture and consumer behavior in the particular context of Burkina Faso; particularly, a research that more precisely correlates religiosity and consumer behavior. The literature review also identifies some variables that could influence the process of decision to purchase and the consumption of industrial non-alcoholic drinks in a context where there are several religious practices.

Moreover, the theories that are fully adopted are the individualistic theory of consumer behavior, the collectivist theory of consumer behavior, the economic theory of consumer behavior and the culturalist theory of consumer behavior because they emphasize the importance of certain variables such as religiosity and consumption, two major aspects of culture. These theories are adopted because they provide a clear explanation of the culturalist behavior, the individualistic behavior, the collectivist behavior of consumers in an environment where religiosity, an important aspect of culture may have an influence on consumer behavior towards industrial non-alcoholic drinks. In the Western context, it has already been shown that religiosity (Delener, 1990; Ezzo and Dibb, 2004; Durmaz et al., 2011; Benabdallah and Jolibert, 2013) influences the behavior of consumers and it is very important to check this also in the specific context of Burkina Faso. However, the economic theory of consumer behavior is only partially adopted because economic factors are very important to consider in a developing country like Burkina Faso where the purchasing power of most consumers is low (Nasse, 2014); but these economic factors alone cannot explain variations in the sales and purchase decisions processes of products concerning consumers,

what means that other factors may well influence consumer behavior. Among these factors there are not only individualistic factors, collectivist factors, but also cultural factors in general, and religious factors in particular.

Link between religiosity and consumer behavior

In the *American context*, authors like Amankwaa et al. (2012) show with a positivist epistemological position and a quantitative approach that religiosity and behaviors of consumers are linked through a study at a University in Georgia in the United States of America. Students who do not consume alcohol or whose level of alcohol consumption is very low have a strong involvement in religious practice. Their study then revealed that religiosity is closely linked to consumer behavior towards industrial drinks. In the *European context*, Benabdallah and Jolibert (2013) on the basis of a constructivist epistemological position and a qualitative study show that the relationship between religiosity and the consumption behavior of Algerian immigrants in France is significant. According to these authors, if the degree of religiosity of the individual is high, the individual will tend to remain faithful to the consumption practices as allowed by his or her religion. Campanella (2016) through a postpositivist epistemological posture and both a qualitative approach and a quantitative approach, demonstrates how religiosity influences the consumption choice of Muslim consumers in Sweden. Campanella finds that 88.7% of Muslims living in Sweden frequently consume "halal products" and for them that need answers a religious principle that is the commitment to do what is right. In the *Asian context*, Mokhlis (2009), through a positivist epistemological position and a quantitative approach examines the influence of religiosity on some aspect of consumer behavior; he discovered that factors such as quality, impulse buying, and the notion of price, from consumers are closely related to the concept of religiosity. Mokhlis therefore finds that religiosity intimately influences consumer behavior. Then, Alam et al. (2011) through a positivist epistemological position and a quantitative approach examines the relationship between religiosity and consumer behavior Muslims in Malaysia and they find that religiosity is a factor that determines the behavior of consumption Muslims. Finally, Al-Hyari et al. (2011) through a constructivist epistemological position and a qualitative approach and a study of consumer behavior in Saudi Arabia, demonstrates that the link between religiosity and consumption behavior of the Saudi Muslims is total, and this is what explains the fact that these consumers are boycotting a certain number of products that are insane for consumption.

In the *African context*, Diop (2012) through an exploratory research and a qualitative approach shows that there is indeed a relationship between religious values of Islam and marketing values as practiced in

Senegal. Diop demonstrates how the belief in the values of the Islamic religion has a particular influence on the behavior of Senegalese consumers. Diop shows that in the African context in general, and in the particular context of Senegal, religiosity influences the behavior of the Muslim consumers.

The results obtained through various observations and the literature review in the sociocultural context of Burkina explains some behaviors related to religiosity. This explains why some Muslims whatever their degree of belief, contribute to increase the number of consumers of industrial alcoholic drinks. In Burkina Faso, Islam is the dominant religion in terms of statistics according to the National Institute of Statistics and Demography (INSD). A first observation is that during the month of Ramadan, there is a critical drop of the consumption of the industrial alcoholic drinks; and after the month of Ramadan there is a rise of the consumption of the industrial alcoholic drinks. Another observation is that the practice of Islam in Burkina is a moderate practice due to the influence of animism in Burkina which does not prohibit the consumption of industrial alcoholic drinks. According to Bazié (2011), alcoholic drinks are used in the traditional animist rituals of Burkina. In addition, the Burkinabe context is particular, because within the same family you can find animists, Christians and of Muslims who live together and who are sharing the same meals and the same drinks. Therefore, Muslims practitioners that are converted from the African animist religion, and who live in harmony with other religious believers do not apply rigorously the precepts of Islam as it should. This contact between Islam and African traditional religion (animism) is called syncretism or black Islam by Quéchon (1971: 206). This religious syncretism known in the West African region explains the fact that some Muslims whatever their degree of belief contribute to increase the number of consumers of industrial alcoholic drinks in the context of Burkina Faso.

Research hypotheses or research propositions

The following are the research hypotheses (Figure 1):

- H1 or P1:** *Religiosity influences consumer behavior.*
- H2 or P2:** *If the degree of religiosity is high, the consumer behavior towards industrial non-alcoholic drinks is high and the consumer behavior towards industrial alcoholic drinks is low or null.*
- H3 or P3:** *Personality traits influences consumer behavior.*

MATERIALS AND METHODS

The epistemological posture is post-positivist. The approach is hypothetico-deductive with a literature review, a qualitative survey and a quantitative survey. For the qualitative study the research is carried out using an instrument that is an interview guide addressed

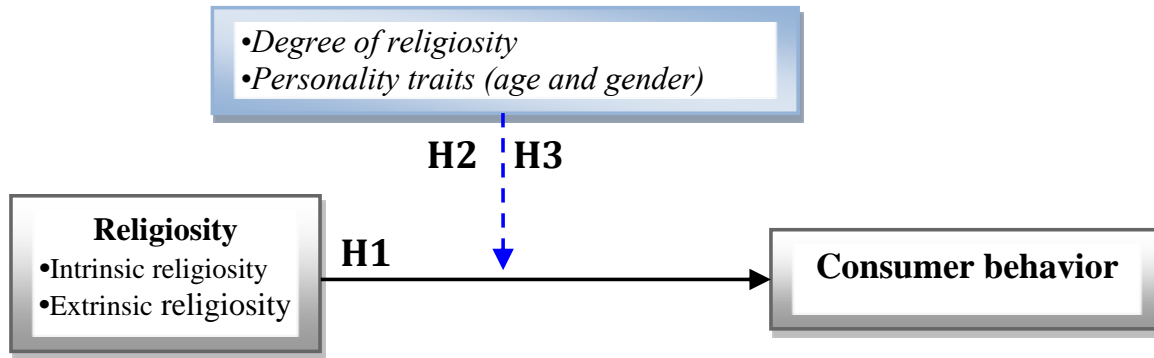


Figure 1. Research model.

to consumers of industrial drinks. The number of questions is twenty-one (21). These questions are constructed using the variables identified by the literature review. First, the random sampling strategy is simple and it consists in identifying places (restaurants and snack bars) where industrial non-alcoholic drinks are sold and where the consumers of industrial drinks are; and then to ask them for an interview in their own free time. The interviews take place in the participant's home or at a location chosen by the participant, and where there is less noise. The identified participants are encouraged to invite other dedicated participants who meet the research criteria, and who agree to provide their regular participation in the study. This qualitative survey is conducted using a semi-structured interview guide addressed to respondents who are experienced industrial consumers of soft drinks. The interviews are carried out using a digital voice recorder, then, they are transcribed by hand thanks to the audio software "SONY sound organizer." The "saturation criterion" is used to stop data collection, because generally the last interview does not give more information. The country where the research is conducted is Burkina Faso. The research field is Ouagadougou, in the province of Kadiogo for a period of two years. The participants considered the following criteria that include age, gender, religion, education level, marital status, profession, social class and nationality. First, the age of participants ranges from 10 to over 64 years. The gender of participants includes women and men who are Muslims. Third, the education level of participants is from primary school to university. Participants are also from different professional categories and different social classes. Then, a content analysis is performed by considering the themes and the relevant verbatims. Qualitative survey data are supplemented by direct observation and indirect observation. The interview guide is validated by teachers and University professors (Dr. Bado Niamboué at Florida A. and M. University and Pr. Marc Bidan of the University of Nantes in France and Dr. Elvis Yevudey at Aston University). The post data validation is made and respondents reiterated the same views. Data are measured on a regular basis with the same instruments and the same results are obtained.

For the quantitative survey, the research is conducted using a questionnaire. The number of questions is thirty-nine (39). This is an adaptation of a scale measuring religiosity in the context of Burkina Faso, from the religious orientation scale of Allport and Ross (1967). Items are measured on a Likert scale in four (4) items ranging from "totally disagree" to "strongly agree." These four (4) items are respectively "totally disagree", "slightly agree", "agree", "strongly agree." The Likert scale of four (4) point is chosen not only to avoid neutral answers and collect the good answers, but also to allow respondents to save time because most respondents encountered were in rush. First, the sampling strategy to locate the participants consists of identifying places (restaurants and snack

bars) where industrial drinks are sold and where consumers of industrial drinks are, and to ask them to fill questionnaire. A random sampling technique is used because of lack of time. The questionnaire is pre-tested. To set the sample size, the following formula is used: $n = (p \times (1-p)) / (e / 1.96)^2$; with p representing the observed percentage and maximum error e (Ganassali, 2009: 51). The maximum error associated with sample is 0.5% = is to say that the error is estimated for an observed percentage of 50%. In this case the formula becomes: $n = (0.5 \times (1 - 0.5)) / (e / 1.96)^2 = 0.25 / (e / 1.96)^2$. The number of people to interview for a maximum error of 6.5%, and n is = 229 people. The total number of respondents is 235, which is representative. The research field is Ouagadougou, in the province of Kadiogo. Investigations are conducted for a period of two years. Participants considered the following criteria that include age, gender, religion, education level, marital status, profession and social class. The age group ranges from 10 to 45 years and above. The gender of participants includes women and men. Third, the participants' level of education is from primary school to university. Participants are also from different professional categories and different social classes. Quantitative data is processed using the sphinx plus²-V5software, the sphinx IQ software and the Sphinx IQ²software. The chosen measuring instruments allow one to understand as much as possible the phenomenon to be measured and accurately to measure what one wants to measure (Carrino et al., 2010). The questionnaire is validated by Dr. Bado Niamboué at Florida A and M University and by Dr. Elvis Yevudey at Aston University.

RESULTS

Results of the qualitative study

For the qualitative approach an interview guide is used and the total sample is 10 interviewed.

They are all Muslims, including men and women from all the social classes that have a level of education from primary school level to the university level; and they live in the city of Ouagadougou. First, the results clearly show that religiosity influences consumption behavior towards industrial non-alcoholic drinks in the context of Burkina Faso. Second, there is an influence of religiosity on the consumption behavior of Muslims believers towards industrial non-alcoholic drinks. Some Muslims prefer industrial non-alcoholic drinks:

"My religion that is Islam forbids it formally for a Muslim to consume alcohol, even to carry alcohol or sit on a table where there is alcohol. ... Personally, considering my religion I will choose industrial non-alcoholic drinks; Because of my religion. Yes, my degree of belief has influenced this choice." Respondent 1.

Muslims who have a high degree of religiosity and whose doctrinal practice is perceived in their consumption behaviors tend to prohibit the consumption of industrial alcoholic drinks and increase the consumption of industrial non-alcoholic drinks. Here is an evidence of the verbatim of the respondent 8:

"I have a religion, Islam. Yes, I have a denomination because I am part of the Sunni community and I practice it. I strongly believe in my religion. I would say that I participate moderately in term of my commitment. I would say that I do not participate enough in the activities of my religion. Uh, my Muslim religion does not prohibit industrial non-alcoholic drinks consumption. Industrial alcoholic drinks consumption is prohibited in Islam. (...) I have always preferred industrial non-alcoholic drinks because my religion forbids industrial alcoholic drinks consumption." Respondent 8

In addition, some factors related to personality such as age, profession, have an influence on consumer behavior towards industrial non-alcoholic drinks. One observation is that the more the person is young, s/he tends to prefer industrial non-alcoholic drinks. This can also be explained by the fact that the young often do not have enough financial means to procure industrial alcoholic drinks because Burkina Faso is a poor country, poverty is much more felt at the youngest population level who is unemployed; Burkinabe law also prohibits access to drinking establishments to very young people. Industrial alcoholic drinks being expensive, most young people are not rich enough to the point of always being able to meet expenses regarding the consumption of industrial alcoholic drinks because it is in this age that one finds the most unemployed; this brings them to sometimes consume industrial non-alcoholic drinks:

"And, yes, I have a religion, my religion is Islam, I am practicing, (...) In terms of alcohol consumption, whatever attraction to alcohol my religion condemns it without reservation there is not half measures. (...) Well, if there is a choice between these two drinks, industrial alcoholic drinks and industrial non-alcoholic drinks as a Muslim I would prefer the industrial non-alcoholic drinks." Respondent 10 (unemployed, age 23 years).

In contrast, some adults have the means to purchase industrial alcoholic drinks and to consume; it is in this age fringe that people have a little more money. However, there are also health reasons for the fact that some

adults are much inclined towards the consumption of industrial alcoholic drinks because most of the older people should pay attention to sugar:

"I am a Sunni Muslim. I strongly believe in God. I may not know everything, but there is not a religion that does not consume. In every religion, there is a consumption of drinks. There is not a religion in which one does not drink. For me, one should not consume industrial alcoholic drinks and your children are sacked from school because, because their dad body smells and drinks too much, and cannot pay their education; one should not consume alcoholic drinks if at one's home there is not something to eat or some money to buy vegetables or some money aside for food; and we see that it is because of alcohol that there are problems like this at home, then this is not good. You need to consume and make sure that at home there is everything; if there are not so do not consume (...) I will choose the industrial alcoholic drinks because I do not drink industrial non-alcoholic drinks. It's my choice. I'd rather have a beer. No, it's my choice beliefs are not concerned." Respondent 7 (age 64 years)

Moreover, gender is also a factor that influence consumer behavior towards industrial non-alcoholic drinks because it is noticed that Muslim women are much oriented towards the consumption of industrial non-alcoholic drinks:

"I have a religion; it is Islam. (...) I strongly believe in my religion. (...) Alcoholic beverage consumption is prohibited in Islam. (...) I have always preferred industrial non-alcoholic drinks because my religion forbids industrial alcoholic drinks consumption. " Respondent 8 (single woman, age 27 years)

The analysis of the verbatim shows that the most popular industrial non-alcoholic drinks in this research are: Coca-Cola is first with 23.33%, Fanta is second with 20%, Dafani is third with 16.66%, Lafi water, Fruity, and Sprite are fourth with 11.66% for each of them (Table 1).

In contrast, it is found that the most popular industrial alcoholic drinks are: Brakina is first with 40%, Beaufort is second with 28%, Sobbra, Guinness, Flag, and 33 Export are fourth with each 8% (Table 2).

Results of the quantitative study

The value of the chi-square shows that the items are sufficiently homogeneous and correlated to each other (Table 3).

The alpha of Cronbach value between different items of religiosity (a total of 20 items) is 0.84 indicating that the items are strongly correlated. In addition, the alpha of Cronbach value between the different items of extrinsic religiosity (11 items) is 0.73 indicating that the items are

Table 1. Classification of the most popular industrial non-alcoholic drinks.

Industrial non-alcoholic drinks	Frequency	Relative frequency	Percentage
Coca-cola	17	17/60	28.33
Fanta	12	12/60	20
Dafani	10	10/60	16.66
Sprite	07	07/60	11.66
Eau lafi	07	07/60	11.66
Fruity	07	07/60	11.66

Source: Nasse (2016).

Table 2. Classification of the most popular industrial alcoholic drinks.

Industrial alcoholic drinks	Frequency	Relative frequency	Percentage
Brakina	10	10/25	40
Beaufort	7	7/25	28
Sobbra	2	2/25	8
Guinness	2	2/25	8
Flag	2	2/25	8
33 Export	2	2/25	8

Source: Nasse (2016).

Table 3. Results of the alpha of Cronbach.

Variable	Number of items	Alpha of Cronbach
Religiosity	20	0.84
Intrinsic religiosity	9	0.78
Extrinsic religiosity	11	0.73
Consumer behavior	9	0.63

Source: Nasse (2016).

strongly correlated. Then, the alpha of Cronbach value between different items of intrinsic religiosity (9 items) is 0.78 indicating that the items are strongly correlated. In addition, the alpha of Cronbach value between the different items that fall within the consumer behavior towards industrial non-alcoholic drinks (9 items) is 0.63 as indicating that the items are strongly correlated. For further these data reveal that most survey respondents are much more oriented towards intrinsic religiosity rather than extrinsic religiosity. In the quantitative approach a questionnaire is used and the overall or total sample is of 235 respondents; all Muslims and sample characteristics are summarized in the following Table 4.

The processing of the data has revealed relevant identical relationships between the variables. First the correlations between "religiosity" and "consumer behavior", shows that the relationship is very significant with a p-value = <0.01; and a degree of freedom df = 400; and the chi-square is = 3034.32. Second, correlations

between "personality traits" and "consumer behavior", shows that the relationship is very significant with a p-value = <0.01; and a degree of freedom df = 320 and the chi-square is = 2636.49 (Table 5).

DISCUSSION

The results obtained through both the quantitative study and the qualitative study allow the comparison of theoretical hypotheses or propositions and the results of empirical research to check whether the various hypotheses or propositions set out at the beginning of the research are confirmed. The results of the quantitative survey have provided a number of significant items and thus they confirm the hypotheses. First of all, observations and document analysis, and the results of the quantitative study show clearly that there is a probable link between religiosity and the consumer

Table 4. Details of the quantitative sample.

Parameter		Percentage
Religious affiliation	Muslims Shiites	24.7
	Muslims Lahilaas	37.4
	Muslims Sunnis	37.9
Age	10 to 25 years old	83
	26 to 35 years old	8.5
	36 to 45 years old.	8.5
	46 and more	0
Social class	Poor	38.3
	Rich	61.7
Marital status	Single	57
	Married	32.8
	Divorced	10.2
Profession	Private sector	17
	Unemployed	73.6
	Public sector	9.4
Level of education	University studies	60.4
	High school studies	39.6
	Primary school studies	0
Gender	Men	24.3
	Women	75.7
Nationality	Burkinabe	80.4
	Non Burkinabe	19.6

Source: Nasse (2016).

Table 5. Results of the different relationships between variables.

Variables crossing	Results
"Religiosity" and "Consumer Behavior"	p-value = < 0. 01; $\chi^2 = 3034.32$; df = 400. The relationship is very significative.
"Intrinsic religiosity" and "Consumer Behavior"	p-value = < 0. 01; $\chi^2 = 3771.06$; df = 400. The relationship is very significative.
"Extrinsic religiosity" and "Consumer Behavior"	p-value = < 0. 01; $\chi^2 = 3829.13$; df = 400. The relationship is very significative.
"Personality traits" and "Consumer Behavior"	p-value = < 0. 01; $\chi^2 = 2636.49$; df = 320. The relationship is very significative.

Source: Nasse (2016).

behavior (Patel, 2010; Diop, 2012) towards industrial non-alcoholic drinks, although this influence appears to be very partial; not only the degree of relationship between intrinsic religiosity and consumer behavior towards industrial non-alcoholic drinks is significant but also the degree of relationship between intrinsic religiosity and the consumer behavior towards industrial non-alcoholic drinks is very significant. The quantitative

results clearly show that most respondent are much oriented toward intrinsic religiosity with 67% of respondents who consume industrial non-alcoholic drinks and 23% who consume industrial alcoholic drinks. Similarly, the qualitative study confirms the same results through analysis of transcripts.

Thus, one can conclude that hypothesis 1 and proposition 1 is confirmed.

H1 or P1: Religiosity influences consumer behavior towards industrial non-alcoholic drinks

Second, previous studies on religiosity and consumer behavior have shown that the greater the degree of religiosity of the individual is, the higher then it tends to adhere to consumer principles advocated by religion (Mokhlis, 2008). In the context of Burkina, the results of the quantitative study and the qualitative study show that a large variability of the degree of religiosity can be explained by a high variability of consumption (and / or purchasing) of industrial non-alcoholic drinks and a non-consumption or a low consumption of industrial alcoholic drinks. The perceived degree of religiosity has a dampening effect on the consumption (and / or the purchase) of industrial non-alcoholic drinks. Therefore, if the degree of religiosity is high, the consumption (and / or the purchase) of industrial non-alcoholic drinks is high and the consumption (and / or purchase) of industrial alcoholic drinks is low or null; so, hypothesis 2 or proposition 2 is confirmed.

H2 or P2: If the degree of religiosity is high the consumption behavior towards industrial non-alcoholic drinks is high and the consumer behavior towards industrial alcoholic drinks is low or null

Third, the quantitative and qualitative results show that personality influences the consumer behavior towards industrial non-alcoholic drinks. Not only this can be observed but also the degree of relationship between personality and consumer behavior towards industrial non-alcoholic drinks is very significant; hypothesis 3 or proposition 3 is confirmed:

H3 or P3: Personality influences the consumer consumer behavior

Conclusion

The main conceptual contributions are the conceptual enrichment. Concepts such as religiosity and consumer behavior have already been defined by prominent authors in the Western context, in the Asian context; and in the African context. However, these concepts are discussed, analyzed and enriched again in the context of Burkina Faso for some specific needs related to their understandings and their uses. In terms of methodological contributions, it is essential to recognize a creation of new tools through a mixed approach that takes into account the socio-cultural realities of Burkina Faso. Concerning theoretical research contributions, this study confirms that in the context of Burkina Faso religiosity has a partial influence on consumer behavior towards industrial non-alcoholic drinks. This result leads to new theoretical findings that religiosity influences

consumer behavior with some different choice factors, such as government measures on products, natural taste of products.

Regarding the managerial contributions of the research, it is essential to take into account the concept of religiosity in the marketing of the industrial non-alcoholic drinks in Burkina Faso. This research led to the creation of a new research model that can inspire managers of different companies in the industrial drinks sector to change their marketing strategies and the management of this sector which is important for the economy. The results provide relevant information on how companies operate in the manufacturing and marketing of industrial drinks, and how they can be positioned according to their marketing strategies in a country where the consumer behavior of different religious groups affects the consumption of industrial non-alcoholic drinks. Religiosity affecting the consumption of industrial non-alcoholic drinks managers can avoid putting industrial alcoholic drinks places next to Muslim worship places what may help to solve or to avoid some social conflicts. Here is evidence by one respondent:

"Sale of industrial alcoholic drinks next to a Mosque is forbidden, considering the prayer hours, if we do not pay attention, if the noise is higher than the other it is problematic; a drunkard may also come to urinate next to the mosque." (Respondent 1)

The diversification of this sector and the sufficient production of drinks can solve a need in terms of industrial non-alcoholic drinks, often expressed mostly by religious people in the festive season (Ramadan and Tabaski) because some Muslim consumers often want to consume "halal products" but the environment does not favor this (Diop, 2012: 20); for example during the Muslim feasts a remark is that there is usually a shortage of industrial non-alcoholic drinks, what is driving some consumers to drink industrial alcoholic drinks. In addition, for Muslims putting halal drinks on the market, during the Ramadan and Tabaski could meet the expectations of some. Finally, lowering the prices of industrial non-alcoholic drinks may help address the lack and the need of food for a large majority of Burkinabe (Sow, 2005), the low purchasing power of the majority of Burkinabe and the medical function of these drinks. On this basis, one can conclude that in the context of Burkina Faso some Muslims whatever their degree of belief, contributes to increase the consumption of industrial alcoholic drinks and this can be explained by religious syncretism (Quéchon, 1971). This religious syncretism shows that the practice of Islam in Burkina is a moderate practice due to the influence of animism (the dominant religion in the past, from which the majority of believers have turned to Islam) which does not prohibit the consumption of industrial alcoholic drinks. The influence of religiosity on

consumer behavior towards industrial non-alcoholic drinks is partial; because some of the believers have difficulty in meeting the consumption practices of their religion, especially in this specific consumption area.

The inclusion of the concept of religiosity in the management and marketing of industrial beverage companies could be the answer to the basic needs and the core expectations of some consumers in Burkina Faso, as well as some key solutions to eradicate poverty, social conflicts (Dumbili, 2013), and a development factor for jobs creation.

Implications for companies in the context of Burkina

It is essential to take into account the concept of religiosity in the manufacture and marketing of industrial drinks. The management of companies in this sector should plan the diversification of industrial non-alcoholic drinks with innovative products and highly qualitative and environment friendly products which also take into account the expectations and the needs of both religious and non-religious people.

Implications for the authorities of Burkina

There is an emergency for the authorities to set up some mechanisms to tackle the counterfeit industrial drinks on the market and to help protect the environment from the excessive pollution by drinks packaging for a sustainable development. There is also a need to considerably reduce the prices of industrial non-alcoholic drinks and to rather increase the price of the industrial alcoholic drinks.

Future research

It would be helpful not only to extend this research to other different research areas different from the industrial drinks sector, or to extend it to other religious believers, or to conduct it in other African countries to see whether the results are the same.

CONFLICT OF INTERESTS

The authors have not declared any conflict of interests.

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Full Length Research Paper

Impact of non-performing assets on the profitability in Indian scheduled commercial banks

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Banking in modern times is the kingpin of all economic activities. It is instrumental in shaping the economic destiny of a country. Banks are considered as the nerve-centres of economics and finance of any nation and the barometer of its economic prospective. Since the banks have stupendous investment potential, they can make a significant contribution in eliminating poverty and problem of unemployment. It can bring about a progressive reduction in inter-regional/ state, inter-sectoral and inter-personal disparities in India. The banking sector is facing the problem of rising NPAs at present. The purpose of the study is to measure the impact of NPAs on the profitability of Indian scheduled commercial banks for the period of ten years. The study discusses the impact of NPA on the profitability in India scheduled commercial banks for the past ten years from 2007-2008 to 2016-2017. The ratio analysis, regression analysis, tests of equality of means, cross correlogram with the help of E-Views 10 software were used to identify the variables pertaining to NPAs on the profitability of the banking sector. There is an increasing trend of NPAs of Scheduled commercial banks in India.

Key words: Gross NPA, Net NPA, gross advances, net advances, total assets and profitability.

INTRODUCTION

Commercial banks play an important role in the development of a country. A sound, liberal and dynamic banking system is an essential requirement for economic development of any nation. As an important sector of an economy, commercial banks act as the backbone of economic growth and wealth by acting as a substance in the process of development of nation. They instruct the habit of saving and mobilize funds from several small households and business firms feast over an extensive geographical area. The funds so mobilized are used for

productive purposes in agriculture, industry, trade and commerce. In this present scenario, non-performing assets become very serious problem for the banks while extending loans.

The increase in the profitability of a bank is always preceded by the composition of assets and liability. Non-performing assets are defined as an advance where, on the date of the balance sheet, an amount to be paid to the bank is due for a period of 180 days. The loans which are unpaid beyond the due dates are categorized as

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Abbreviation: NPAs, Non-performing Assets; RBI, Reserve Bank of India.

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non-performing assets or non-performing loans. Non-performing assets can be Gross NPAs and Net NPAs. Non-performing loans raise to such an extent that revenues fall off and loan loss expenses, as well as operating costs engage all the incomes that continue. The causes of NPAs include disaster, sickness of the industries, in effective recovery process, business cycle, lending policy, absence of monitoring and follow up loan and managerial problems. The proportion of non-performing assets on selected variables is identified with the help of the following ratios:

- i) Ratio of Gross NPA to Gross Advances;
- ii) Ratio of Net NPA to Net Advances;
- iii) Ratio of Gross NPA to Total Assets;
- iv) Ratio of Net NPA to Total Assets.

The non-performing assets increased up to Rs. 95825 crores as per the CRISIL report. The gross NPA increased from 3.3% in 31.03.2013 to 4% in 31.03.2014. Banks and other financial institutions are facing the problem of recovery of dues and banks' approach in managing fraudulent activities in the banking sector. It is important for a developing economy and the failure of NPA may have adverse effect on the banking sector and financial Institutions. The different aspects of literature review related to non-performing assets over the period have been collected and used for this study purpose. But there is an enormous gap existing for the complete research of non-performing assets on quality aspects. Most of the research and studies are being done on causes, and management aspects of NPAs. This study will fill the gap on the impact of NPAs on the profitability in Indian Scheduled Commercial Banks. The objectives of the study are to analyze the impact of NPA on the profitability of Indian scheduled commercial banks, to find out the Gross NPA and Net NPA of Scheduled Commercial Banks in India, to offer suitable solution for the management of NPA in banks.

LITERATURE REVIEW

Many researchers have done research related to NPA and they find out different implications. Chijoriga (2000) and Batra (2003), in their study, stated that in banks, irrespective of profitability, liquidity and competitive functioning, NPA has a serious effect on the psychology of bankers related to disposition of funds towards credit delivery and credit expansion. Michael et al. (2006) insisted that, NPA affects profitability, liquidity and solvency position of banks by affecting its operational efficiency. It is essential to have a serious look on NPA, since it may affect the growth and survival of banks. Borbora (2007) pointed out that, banking sector must maintain efficient NPA management system to avoid negative financial performance. Panta (2007) emphasized

that, after the initiation of banking sector reforms in 1992, most of the banks are taking initiatives to maintain NPA level and try to improve their profitability position. Banks also consider the guidelines of RBI related to income recognition, asset classification and its norms related to various provisions. Panta (2007) pointed out that, relationship exists between NPA and bank failure all over the world. Rajput et al (2011), in their study increasing level of non-performing assets (NPAs) in the banking sector can sternly affect the economy of the country. The reason for financial and economic reduction which in turn bad signals when NPAs are not correctly managed. Kumar and Gupta (2012) try to find out the effect of NPA on public sector banks of India by analysing their financial performance.

Rajput et al. (2011) try to find out the effect of NPA on public sector banks of India by analysing their financial performance. Chaudhary and Sharma (2011), using projection of trend analysis, try to find out the efficiency of public and private sector banks in NPA management. Kumar and Singh (2012) conducted a study on NPA by selecting top performers of public sector banks and few foreign banks in India and analysed the important factors which cause NPA problems and also try to find the effective measures which are essential for effective NPA management. Patidar and Kataria (2012) conducted a research on the comparative study between SBI and Associates, Old Private Banks and New Private Banks and Nationalized Banks of the benchmark category and try to find out the significant difference of NPA and its impact on priority sector lending on the total NPA. For the study, they used regression analysis and ratio analysis. Chatterjee et al. (2012) conducted a study and the result of their findings are NPAs have a negative effect on the achievement of capital adequacy level, funds mobilization, banking system credibility and productivity on the overall economy. Their study also reveals that private sector banks can protect themselves by adapting to the changing environment whereas public sector banks are facing enormous problems.

Mir and Jegadeeshwaran (2013) conducted a study, "NPA and causes for NPA". They collected secondary data for five years and carried out analysis by using various tools like mean, CAGR, ANOVA and Rank. In their findings, they ranked the performance of banks based on NPA management. Das and Dutta (2014) conducted a study, "The growth of NPA in the public and private sector banks in India". They collected data from 'report on trend and progress of banking in India, RBI report on currency and finance, RBI economic surveys of India' and analysed by focusing on sector wise non-performing assets of the commercial banks. The result of their study shows that the performance of the banks is low because of worse NPA management. Ranjan and Dhal (2013) conducted a research on the Indian commercial banks' nonperforming loans by using regression analysis and they analysed the terms of credit,

risk preference based on the size of the bank and macro-economic shocks. Das and Dutta (2014) conducted a study, "The growth of NPA in the public and private sector banks in India". They collected data from „report on trend and progress of banking in India, RBI report on currency and finance, RBI economic surveys of India" and analysed by focusing on sector wise non-performing assets of the commercial banks. The result of their study shows that the performance of the banks is low because of worse NPA management.

Arora and Ostwal (2014) conducted a study titled, "The classification and comparison of loan assets of public and private sector banks"; the results of the study show that, public sector banks and financial institutions are having high level of NPAs compared to private sector banks. Tripathi et al. (2014) conducted a study on the impact of priority sector advances, unsecured advances and advances made to sensitive sectors by banks like SBI group and other nationalised banks on Gross NPAs of banks using multiple regression model. Parmar (2014) states that the management of NPA is a challenging task for every bank as it affects banks' profitability position and performance. Loan defaulters are the main reason for NPA.

Tandon et al. (2017) focuses on banks' specific, macroeconomic determinants of the non-performing loans and their impact on the banking profitability. They selected 35 public and private sector banks for the period 2007 -2016 and used multivariate analysis to find out the result. Their study conveys that, PSU banks - NPA management requires more attention to increase their profitability and performance. According to Swain et al. (2017), the present core financial problem of banks is NPA. The proper recovery of loans can boost the performance of banks in India. Therefore, an attempt is made to measure the effectiveness of NPA recovery measures. Selected recovery measures like Lok Adalat, Debt Recovery Tribunal and SARFAESI Act are taken for the study purpose and the efficiency of NPA recovery. From the study, the recovery of NPAs is still a major concern for commercial banks in India. The reasons for the poor recovery from NPAs are the mechanism created and banks are not able to derive full benefits. Banerjee and Mitra (2018), In their study NPA have a direct influence on the profitability, liquidity and solvency of the bank. Growing NPA has been one of the major problems of Indian Banking System. To know the position of NPA in banking groups and it anticipated the facts of Gross NPA of all Public Sector Bank, Nationalised Bank, SBI Group, Private Sector Bank, All Scheduled Commercial Bank. Manu and Maheshwari (2018), in their study, the Non-performing assets have been varying from time to time which effect the bank's profitability during the study period. The study reflects ROA, ROE and ROCE as measures bank's profitability, Gross NPA and Net NPA as measures non-performing assets of the banks. The study recommends rigorous policies to be executed by

governing system to control constant increasing of Banks's NPA which will provide loss of tax payer's money in India. Valliammal and Manivannan 2018, in their study the impact of non-performing assets on the financial performance is the emphasis for this study. there is a very high relationship between decrease of profits and increase in various assets related to the study. Banking groups essential to emphasis more on handling financial assets in order to increase profitability of the banks. Varma (2018) presents growing problem of NPAs in Indian banking sector and its management. Bank frauds involving Punjab National Bank (PNB) and the companies associated with businessmen like Nirav Modi and Mehul Choksi as well as the Rotomac case could not have come to a worse time. The Indian banking system is already reeling under the pressure of growing NPAs, or non-performing assets. This has already caused a slowdown in disbursal of bank credit, in turn affecting productive investment. The key issue is one of poor regulation. This paper analyses the various schemes introduced to restriction of non-performing assets, which emerged out as a greatest challenge for government as well as for the RBI to reduce NPAs.

The following hypotheses were formulated and tested for the study purpose as follows:

- H0: There is no significant difference in NPA having direct and negative impact on the profitability of the bank;
 H1: There is significant difference in NPA having direct and negative impact on the profitability of the bank.

METHODOLOGY

The present study is based on census method. The secondary data were collected from the annual reports of Indian Bank Bulletin, Reserve Bank of India Annual reports, RBI websites, Various issues of Economic survey, various news daily papers and magazines dealing with the current banking scenario. The period of the study is ten years from 2007-2008 to 2016-2017. The ratio analysis, regression analysis, tests of equality of means, cross correlogram with the help of E-Views 10 software were used to identify the variables pertaining to NPAs on the profitability of the banking sector.

RESULTS AND DISCUSSION

Ratio of gross NPA to gross advances

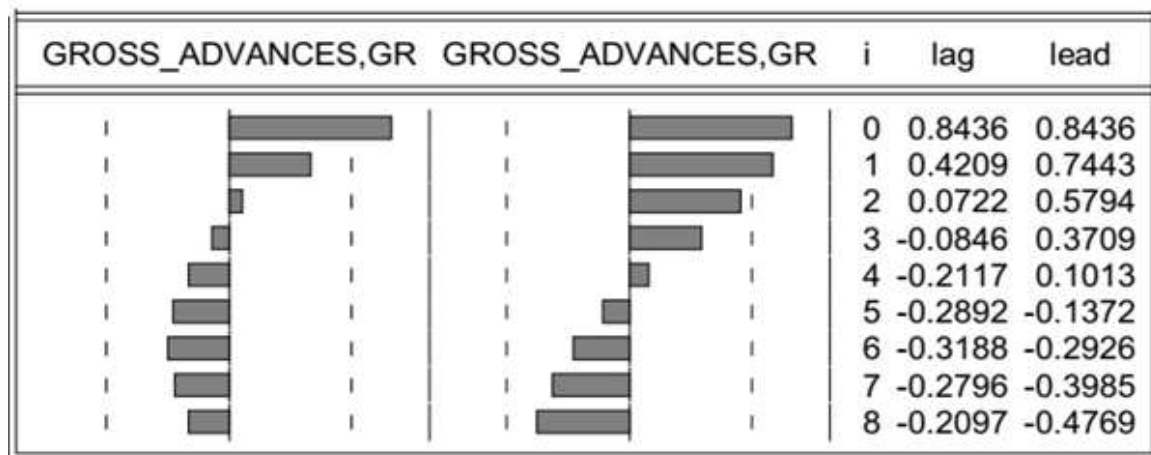
The data were used to analyze the gross advances and gross NPAs outstanding and gross NPA % of scheduled commercial banks over a ten years period as shown in Table 1.

Sontakke and Chandan (2013) provides the amount of Gross Advances to Gross NPA and the percentage of Gross NPA from 2008 to 2012. The amount of advances increased from Rs. 25079 crore in 2008 to 51,589 crore in 2012. The amount of NPA also increased from Rs. 564

Table 1. Ratio of Gross NPA to Gross Advances.

Year	Gross Advances	Gross NPA (Amount)	Gross NPA %
2007-2008	25078	563	2.3
2008-2009	30382	683	2.3
2009-2010	35449	846	2.4
2010-2011	40120	979	2.5
2011-2012	46488	1423	3.1
2012-2013	59718	1935	3.2
2013-2014	68757	2633	3.8
2014-2015	75606	3233	4.3
2015-2016	81673	6119	7.5
2016-2017	85139	7918	9.3

Source: Data calculated from Statistical Tables Relating to Banks in India, R.B.I., Mumbai Issues of relevant years.

**Figure 1.** Cross Correlogram of Gross Advances and Gross NPA.

to Rs. 1,423 from 2008 to 2012. Similarly, NPA percentage rose from 2.3 in 2008 to 3.1 in 2012. This study supports the present research. Table 1 indicates the amount of Gross advances, Gross NPA and % of Gross NPA from 2007-2008 to 2016-2017. The amount of Gross advances increased from Rs.25,078 crore in 2007-08 to Rs.85,139 crore in 2016-2017. The amount of gross NPA increased from Rs.563 crore in 2007-2008 to Rs.7,918 crore in 2016-2017. Similarly, % of Gross NPA increased from 2.3% in 2007-2008 to 9.3% in 2016-2017.

The increase in Gross NPA has direct and negative impact on the profitability of banks. As with the correlogram, the computed cross correlation is an asymptotically consistent approximation as the overall means were used in the computation. Cross correlations are not necessarily symmetric around lag 0. The dotted lines in the cross correlogram are the approximate two standard error bounds computed as $\pm 2/(\sqrt{T})$. This

hypothesis holds good for Scheduled commercial banks in India by means of calculating the correlation technique. The results of ratio of Gross NPA to Gross Advances with profitability reveal that, there exists a negative correlation to the extent. The reductions in the non-performing assets have an indirect impact on the profitability which shows the stringent collection mechanism followed by the banks by applying constant control over non-performing assets (Figure 1).

Ratio of Net NPA to net advances

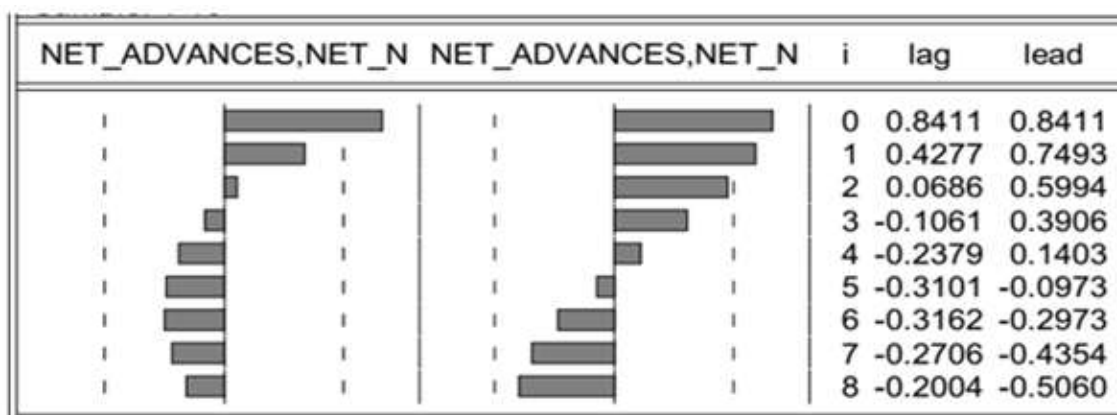
The data were used to analyze the Net advances and Net NPAs outstanding and as a Net NPA % of Scheduled Commercial Banks over the 10 years period (Table 2).

Ravindra et al. (2013) provide the amount of Net Advances, Net NPA and the percentage of Net NPA from 2008 to 2012. The amount of advances increased from

Table 2 Ratio of Net NPA to Net Advances.

Year	Net Advances	Net NPA (Amount)	Net NPA %
2007-2008	24769	247	1
2008-2009	29999	315	1.1
2009-2010	34970	387	1.1
2010-2011	42987	417	1.1
2011-2012	50735	650	1.3
2012-2013	58797	986	1.7
2013-2014	67352	1423	2.1
2014-2015	73881	1758	2.4
2015-2016	78964	3498	4.4
2016-2017	81716	4331	5.3

Source: Data calculated from Statistical Tables Relating to Banks in India, R.B.I., Mumbai Issues of relevant years.

**Figure 2.** Cross Correlogram of Net Advances and Net NPA.

Rs. 24,770 crore in 2008 to 50,842 crore in 2012. The amount of NPA also increased from Rs.247 crore to Rs. 649 crore from 2008 to 2012. The percentage of Net NPA increased from 1.1% in 2008 to 1.12% in 2010. Then it declined to 0.97% in 2011 due to increase in provisions. Later the percentage of NPA again increased to 1.4% in 2012. This study supports the present research. Figure 2 indicates the amount of Net advances, Net NPA and % of Net NPA from 2007-08 to 2016-17. The amount of Net advances increased from Rs.24,769 crore in 2007-08 to Rs.81,716 crore in 2016-17. The amount of Net NPA also increased from Rs.247 crore in 2007-08 to Rs.4,331 crore in 2016-17. Similarly, % of Net Gross NPA increased from 1% in 2007-2008 to 5.3% in 2016-2017.

The increase in Gross NPA has direct and negative impact on the profitability of banks. As with the correlogram, the computed cross correlation is an asymptotically consistent approximation as the means used in the computation are the overall means (Figure 2). Cross correlations are not necessarily symmetric around lag 0. The dotted lines in the cross correlogram are the

approximate two standard error bounds computed as $\pm 2/(\sqrt{T})$. This hypothesis holds good for Scheduled commercial banks in India by means of calculating the correlation technique. The results of ratio of Net NPA to Net Advances with Profitability reveal that there exists a negative correlation to the extent. The reductions in the non-performing assets have an indirect impact on the profitability which shows the stringent collection mechanism followed by the banks by applying constant control over non-performing assets.

Ratio of gross NPA to total assets

Table 3 shows the relationship between Gross NPA and Total Assets; the results for testing the equality of variances for non-performing assets by Gross NPA and Total Assets using data in the work file "Grunfeld_baltagi_pool.WF1". At 1% level of significance the F table value is 3.0. The F table value is greater than

Table 3. Influence of Gross NPA (Amount) and Gross advance on Gross NPA%.

S/N	Variables	Coefficient	SE	't' value	'p' value
	Constant	1.520			
1	Gross Advance	-0.467	0.000	-0.771	0.466 ^{NS}
2	Gross NPA (Amount)	0.001	0.000	11.089	0.000*
	R Value	0.993			
	R ² Value	0.986			
	F Value	244.48*			

* - Significant at 1% level; NS, Not Significant.

The resulted equation is formulated as follows: Gross NPA % = 1.520 - 0.467 (Gross Advance) + 0.001 (Gross NPA (Amount)).

Method	df	Value	Probability	
t-test	18	1.797216	0.0891	
Satterthwaite-Welch t-test*	15.13800	1.797216	0.0923	
Anova F-test	(1, 18)	3.229987	0.0891	
Welch F-test*	(1, 15.138)	3.229987	0.0923	
*Test allows for unequal cell variances				
Analysis of Variance				
Source of Variation	df	Sum of Sq.	Mean Sq.	
Between	1	13.12200	13.12200	
Within	18	73.12600	4.062556	
Total	19	86.24800	4.539368	
Category Statistics				
Variable	Count	Mean	Std. Dev.	Std. Err. of Mean
GROSS_N	10	4.070000	2.414332	0.763479
TOTAL_AS	10	2.450000	1.515292	0.479178
All	20	3.260000	2.130579	0.476412

Figure 3. Test for equality of mean between series of gross NPA to total assets.

F calculated value. $F_{\text{tabulated}} > F_{\text{calculated}}$, that is, $3.0 > 1.8$. The test statistics provide strong evidence of the presence of scheduled commercial banks, decisively rejecting the null hypothesis of equal variances and alternative hypothesis accepted (Figure 3).

As with the correlogram, the computed cross correlation is an asymptotically consistent approximation as the means used in the computation are the overall means. Cross correlations are not necessarily symmetric around lag 0. The dotted lines in the cross correlogram are the approximate two standard error bounds computed as $\pm 2/(\sqrt{T})$. This hypothesis holds good for Scheduled

commercial banks in India by means of calculating the correlation technique. The results of ratio of Gross NPA to Total Assets with profitability reveal that, there exists a negative correlation to the extent. The reductions in the non-performing assets have an indirect impact on the profitability which shows the stringent collection mechanism followed by the banks by applying constant control over non-performing assets (Figure 4).

Ratio of Net NPA to total assets

Figure 5 shows the relationship between Net NPA and

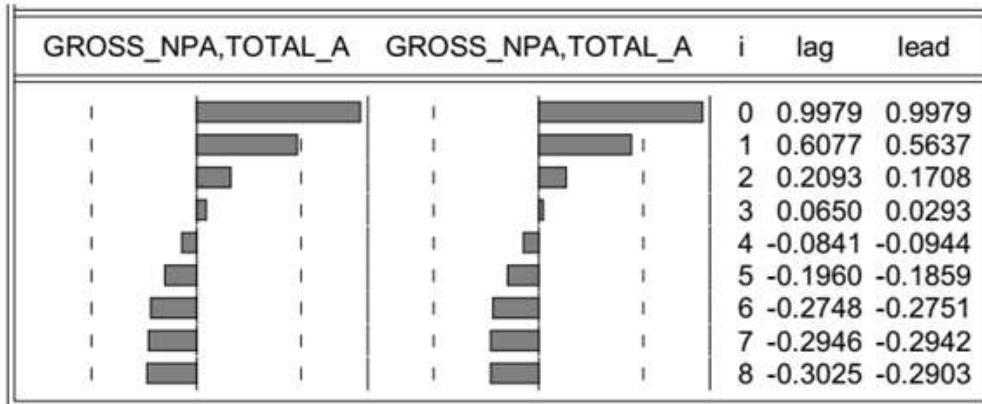


Figure 4. Cross Correlogram of Gross NPA and total assets.

Method	df	Value	Probability
t-test	18	1.611566	0.1245
Satterthwaite-Welch t-test*	14.38468	1.611566	0.1288
Anova F-test	(1, 18)	2.597144	0.1245
Welch F-test*	(1, 14.3847)	2.597144	0.1288

*Test allows for unequal cell variances

Analysis of Variance			
Source of Variation	df	Sum of Sq.	Mean Sq.
Between	1	3.960500	3.960500
Within	18	27.44900	1.524944
Total	19	31.40950	1.653132

Category Statistics				
Variable	Count	Mean	Std. Dev.	Std. Err. of Mean
NET_NPA	10	2.150000	1.513091	0.478481
TOTAL_AS	10	1.260000	0.872035	0.275762
All	20	1.705000	1.285742	0.287501

Figure 5. Test for equality of mean between series of net NPA to total assets.

total assets; the results for testing the equality of variances for non-performing assets by Net NPA and Total Assets using data in the work file "Grunfeld_baltagi_pool.WF1". At 1% level of significance the F table value is 3.0. The F table value is greater than F calculated value. $F_{\text{Tabulated}} > F_{\text{Calculated}}$, that is $3.0 > 1.61$. The test statistics provide strong evidence of the presence of scheduled commercial banks, decisively rejecting the null hypothesis of equal variances and alternative hypothesis accepted.

As with the correlogram, the computed cross correlation is an asymptotically consistent approximation

as the means used in the computation are the overall means. Cross correlations are not necessarily symmetric around lag 0. The dotted lines in the cross correlogram are the approximate two standard error bounds computed

as $\pm 2/(\sqrt{T})$. This hypothesis holds good for Scheduled commercial banks in India by means of calculating the correlation technique. The results of ratio of Net NPA to total assets with profitability reveal that, there exists a negative correlation to the extent. The reductions in the non-performing assets have an indirect impact on the profitability which shows the stringent

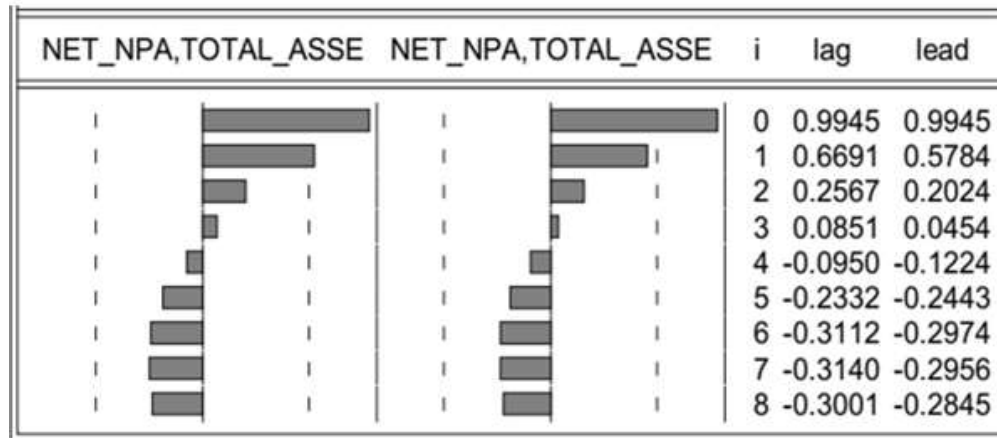


Figure 6. Cross correlogram of Net NPA and total assets.

Table 4. Influence of Net NPA (Amount) and Net Advance on Net NPA%.

S/N	Variables	Coefficient	SE	't' value	'p' value
	(Constant)	0.884			
1	Net Advance	-0.001	0.001	-0.979	0.360 ^{NS}
2	Net NPA (Amount)	0.001	0.000	10.281	0.000*
	R Value	0.990			
	R ² Value	0.980			
	F Value	175.49*			

* - Significant at 1% level; NS, not significant.

The resulted equation is formulated as follows: $\text{Net NPA \%} = 0.884 - 0.001 (\text{Net Advance}) + 0.001 [\text{Net NPA (Amount)}]$.

collection mechanism followed by the banks by applying constant control over non-performing assets (Figure 6).

Regression analysis

Influence of gross NPA (Amount) and gross advance on gross NPA%

The relationship between the selected independent variables (Gross NPA (amount) and Gross Advance) and the dependent variable Gross NPA% has been found by using multiple regression analysis. The result of the independent and dependent variables using regression analysis is discussed in Table 3.

The multiple linear regression co-efficient is found to be statistically fit, as R^2 is 0.986 for Gross NPA%. The result clearly indicates that, the independent variables contribute about 98.6 percent of the variation in the Gross NPA% and this is statistically significant at 1 percent level. It is found from the analysis that; the gross advance is having negative association and Gross NPA (Amount) is having positive significant association. The resulted equation shows that Gross NPA% is predicted by 0.467

unit decrease of gross advance and 0.001 unit increase of Gross NPA (Amount).

Influence of net NPA (Amount) and net advance on Net NPA%

The relationship between the selected independent variables (Net NPA (amount) and Net Advance) and the dependent variable Net NPA% has been found by using multiple regression analysis. The result of the regression between the independent and dependent variables is discussed in Table 4.

The equation is formulated as follows:

$$\begin{aligned} \text{Net NPA \%} &= 0.884 \\ &- 0.001 (\text{Net Advance}) \\ &+ 0.001 [\text{Net NPA (Amount)}] \end{aligned}$$

The multiple linear regression co-efficient is found to be statistically fit, as R^2 is 0.980 for Net NPA%. It shows that the independent variables contribute about 98.0 percent of the variation in the Net NPA% and this is statistically significant at 1 percent level. It is found from the analysis

that; the net advance is having negative association and Net NPA (amount) is having positive significant association. The resulted equation shows that Net NPA% is predicted by the 0.001 unit decrease of net advance and 0.001 unit increase of Net NPA (Amount).

Implications and future scope of study

The success of banking sector is determined by its profit and quality of assets. Though banks are providing various services like, lending, networks and generating employment to the public, its growth and survival depends on the quality of assets it possesses and the profitability position it holds. The greatest challenge for banking sector is the existence of Non-Performing Assets (NPA). NPA creates threat to the assets of the banks and for its survival by affecting its liquidity and profitability. Hence, it becomes essential to strengthen the financial systems in the developing economies and emerging markets. It is evident that, sound financial systems will assist in achieving economic growth through fund mobilization and utilizing them productively to transform various risks involved. The banking sector can improve their recovery process by focusing on large borrowers and they can implement some strict norms to solve this problem. It is the right time that, government should take some effective measures to improve the settlement of pending cases and banks can avoid mandatory lending to some priority sector. Thus, serious concern is essential on the part of NPA, otherwise it may collapse the profitability of banks and that in turn may affect the growth on Indian economy.

It is the onus on the concerned bank which has given the loan to tackle the problem of NPA. Therefore, the recommendations of Narasimham Committee which suggest that, the asset management companies or asset reconstruction fund must redress the NPAs to be reviewed. The use of technology will bring important change in the way banks manage their NPAs. Bankers may resort to Compromise Settlement or One Time Settlement for the recovery measures. Lok Adalats and Debt Recovery Tribunals are other ways for the recovery of dues as a part of NPA remedial measures. RBI may take actions against defaulters by publishing their names in Newspapers, broadcasting the information in media, which may enable other banks and financial institutions. Banks may prefer one-time settlement as a corrective measure and other existing ways to recover dues are Lok Adalats and Debt Recovery Tribunals. If banks found that dues are because of genuine reasons like, draught, floods or other natural calamities then they can restructure their plans accordingly.

Conclusion

It can be concluded that, non-performing assets on the

profitability have an adverse impact on the scheduled commercial banks in India. The non-performing assets or bad loans are adversely affecting the world economy from time to time. This leads to crisis around the world. Now, the central banks are taking effective steps against the non-performing assets and they try to create a safe and productive banking sector. The study on NPA is the need of the hour and many authors had made efforts to study the performance of NPA and its impact on banking sector. In this paper the authors had tried to give critical view on NPA and try to give some possible solution to resolve the effect of NPA on banking sector. The increasing level of NPA can severely affect the banking sector. It was found from the study that, there was evidence for increase in the non-performing assets. The various analyses were used to find out the impact of NPAs on the profitability of the scheduled commercial banks. It was significantly related to the Ratio of Gross NPA to Gross advances and Ratio of Net NPA to Net Advances, Ratio of Gross NPA to Total Assets and Ratio of Net NPA to Total Assets is insignificantly related to each other. Thus, the profitability of the banks has reduced, due to rise in the non-performing assets of the scheduled commercial banks in India.

Limitations of the study and future research directions

NPAs are changing with the period. The study is done for the present period without predicting future advances. The study is restricted to the functioning of Indian Scheduled Commercial Bank, relating to its impact of NPAs on profitability. Thus, the important limitations are as follows: the data are collected for 10 years period from 2007-08 to 2016-17. The source for finding non-performing assets is taken from the annual reports and website of Reserve Bank of India. The findings need to be confirmed by further evidence in other foreign banks and then the rest of the world. Researcher should discover how the NPAs work across different banking sector. Future research may focus on causes and management of NPAs of Indian Scheduled Commercial Banks. Future research can also be conducted to know the performance based on the NPAs of banking sectors in India.

CONFLICT OF INTERESTS

The authors declare that they have no conflict of interest.

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Full Length Research Paper

The growth determinants of micro and small enterprises and its linkages with food security: The case of Mecha district, Amhara region, Ethiopia

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The study assessed the growth determinants of micro and small enterprises (MSEs) and its linkages with food security in Mecha district of Amhara region. The research was conducted to fill the empirical gaps regarding the linkages of MSEs growth with food security. Previous researches conducted in Ethiopia on the MSEs growth did not explicitly show the relationships of the growth of those enterprises on households' food security. The objectives of the research were: to identify the determinant factors of MSEs growth, to assess the household food security status of MSEs operators, and to examine the linkages of MSEs growth with households food security status. The research was mixed research and conducted through concurrent triangulation design. The data collection methods were questionnaire, key informant interview and focus group discussions. Stratified sampling method and purposive sampling methods were implemented to select samples. The data was analyzed through a binary logistic regression and chi-square test. The findings of the study show that the factors that significantly determine the MSEs growth were government support, work premise accessibility, training, previous work experience, record keeping, possession of license and lack of market linkages. The chi-square test of independence result indicates that, there is a significant relationship between MSEs growth and the households food security status. Thus, as the MSEs grow, the households' food security status of MSE operators' improves.

Key words: Micro and small enterprises, Mecha district, operators, households food security, growth.

INTRODUCTION

Ethiopia has been struggling to address food insecurity for decades, however food insecurity is a major problem for millions of Ethiopians (Anderson and Farmer, 2015; FEWS NET, 2016). Various assessments indicate that more than one-third of the Ethiopian population were food insecure (MoFED, 2013; WFP and CSA, 2014). The Amhara region is among the most food insecure regions in Ethiopia and about 35% of the region's population is

food insecure (WFP and CSA, 2014). Teshome (2010) found that in Mecha district of the Amhara region only 5% of the households could cover their annual food consumption. Similarly, Achenef et al. (2016) also indicated that food insecurity is highly prevalent at Mecha district and more than half of the households were food insecure.

Prioritizing the Micro and Small Enterprises (MSEs)

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development is key for enhancing the income of urban households and food security; as indicated by Tacoli (2017) urban food security in the low and middle income contexts is mainly determined by income of households. The MSEs sector is a major source of employment in developing countries by employing half of the urban population, and generates about one-third of the urban income (Prediger and Gut, 2014; Todaro and Stephen, 2012). Vandenberg (2006) also indicated that the MSEs have bigger contribution for food security, poverty reduction and employment generation for the urban households.

Skinner and Haysom (2017) identified that there is a rural bias in the food security agenda that neglects the urban MSEs operators which have serious policy implications on food security. The Ethiopian government ignored the development of MSEs as a primary mechanism for reducing urban food insecurity. For instance, the food security program of Ethiopia did not consider the MSEs as a key means of reducing urban food insecurity (MoARD, 2009). However, in the 2015 urban productive safety net program, the MSEs were identified as one means of reducing the urban food insecurity. The 2015 urban productive safety net program targets to integrate the MSEs development with urban food security (MUDHCo, 2015; Federal Negarit Gazette, 2016).

Various researches have been conducted on the food (in) security situation in Ethiopia. For instance, Teshome (2010) and Achenef et al. (2016) studies about the food insecurity conditions of rural households. Etana and Tolossa (2017) explored how unemployment could lead to food insecurity in Addis Ababa. However, most researches conducted on food security in Ethiopia centered at the rural areas and researchers gave little for urban food insecurity. Furthermore, the food security status of urban households that operates the MSEs in the urban areas of the Amhara region was less explored.

The impacts of MSEs development for enhancing urban food security was not well studied although various researchers studied the roles of MSEs in Ethiopia. For instance, Siyum (2015) studied on the role of MSEs in urban poverty alleviation at Addis Ababa. Bereket (2010) also studied on the role of MSEs for employment creation and income generation in Mekelle city. Thus, there is lack of empirical studies on how the MSEs growth links with the food security status of households.

The existence of many food insecure urban households in Ethiopia, poor initiation on behalf of the government to use the MSEs for alleviating urban food security, and limited empirical studies on exploring MSEs potential for enhancing urban food security motivates the researcher to be interested on this issue. The researcher explores that there is lack of researches conducted to assess the determinant factors for MSEs growth and how it links with urban food security in the Amhara region. Thus, the study was conducted to fill these empirical and knowledge gaps.

The objective of the study was to assess the growth determinants of MSEs and its linkages with food security. The specific objectives of the study were:

- (1) To identify the determinants of micro and small enterprises growth.
- (2) To assess the micro and small enterprises operators household food security status.
- (3) To examine the linkages of MSEs growth with households food security.

MATERIALS AND METHODS

The research approach was a mixed research. For the study, the researcher utilized both quantitative and qualitative data collected through survey, key informant interviews and focus group discussions. The research design was a cross-sectional survey design. Victor Jupp (2006) defines cross sectional survey design any collection of data from a sample of individuals (or groups) at a particular point in time as a basis for inferring the characteristics of the population from which the sample comes. For the research the data was collected at one point of time and have no time dimension.

The populations of this study were the MSEs operators at Mecha District and Merawi town administration in the Amhara region. Based on Mecha district technical vocational enterprises development (TVED) office and Merawi town administration TVED office reports, there were about 3639 active MSEs operators in 2016. A proportionate stratified sampling and purposive sampling techniques were employed to draw the samples. The researcher stratified the MSEs operators into five strata based on the type of their business sector. The MSEs sectors categorized for stratification were the manufacturing, construction, trade, urban agriculture and service sectors. The researcher took the samples through the sampling formulae of Taro Yemane (Israel, 1992)

$$n = \frac{N}{1 + N(\epsilon)^2}$$

where N is the population, n is the sample, and e is sampling error.

The researcher has employed survey questionnaire, key informant interviews and focus group discussions (FGDs) to collect primary data. Before administering the questionnaire, the researcher conducted a pre-test for about 10% of the samples. The information gathered through key informant interview was used to triangulate information collected with questionnaire and FGDs. The researcher conducted four FGDs which mainly focused on qualitative data. Check list was prepared as an instrument for collecting data through the FGDs.

The independent variables of the study were identified based on previous literatures and studies. These variables were: sex, level of education, ownership form, licensing, record keeping, experience, training, premise accessibility, market linkages and government support (Table 1).

To analyze the data collected through questionnaires, the researcher employed Statistical Package for Social Sciences (SPSS) software. The researcher applied a binary logistic regression model to identify the determinants of MSEs growth. The data analysis focuses on the binary MSEs growth outcome (Growing" or "Survival") and which of the factors are predictive of the MSEs growth.

The researcher has identified the growth status of MSEs based on their employment growth. In various studies, change in employment size, sales turnover and total assets is used to measure enterprises growth. According to Tefera et al. (2013) it is

Table 1. Independent variables.

Variable	Categories	Variable definition
Sex	Male Female	Sex of the MSE operators
Level of education	No education Grade 1-8 Grade 9-12 Above 12 th Grade	The operators level of education
Ownership form	Sole proprietorship Partnership Cooperatives	Whether the MSE owner is a sole-proprietor, partnership or cooperatives.
Licensing	Not Licensed Licensed	Whether the MSE is formally registered and licensed or not.
Record keeping	Does not keep records regularly Keep records regularly	Whether the MSE operators keep record of their operations regularly or not
Experience	No Experience Have Experience	The MSE operators prior work experience
Training	No training Have training	Whether the MSE operators get training
Premise Accessibility	Not accessible Accessible	The accessibility of the MSEs work places for their customers.
Market linkages	Do not have market linkages Have market linkages	Whether the MSEs have market linkages or not
Government Support	Not Supported Supported	Provision of government support services for the MSEs

difficult to access reliable data on the growth of fixed assets and sales hence measuring of growth through changes in employment size is objective and reliable. Similarly, Abay et al. (2014) claims that most MSEs operators/owners in Ethiopia do not keep records and they are extremely reluctant to give accounting information to external parties. Thus, it is difficult to get reliable time series data on growth of fixed assets/sales. Therefore, to identify the MSEs growth, the researcher took employment size growth as a means of measuring the MSEs growth. To do so, Evans (1986) formula of firm growth is

$$gr = \frac{\ln St' - \ln St}{Ea}$$

where *gr* represents the MSE growth, *St'* represents the enterprises current employment size, *St* represents the enterprise's initial employment size, and *Ea* represents the enterprise's age.

By taking the growth (*gr*) result, the MSEs growth status is categorized into either growing or survival. In other words, if *gr* is > 0 the MSE growth status is growing; and if *gr* is ≤ 0 the MSE growth status is survival.

The researcher utilized a binary logistic regression model to identify the determinant factors of MSEs growth. The data analysis focuses on the binary MSEs growth outcome (Growing" or "Survival") and which of the factors are predictive of the MSEs growth.

The functional form of logistic regression model is specified as follows (Gujarati, 2009; Landau and Everitt, 2004).

$$P_i = E(Y = 1/X_i) = \frac{1}{1 + e^{-(\beta_0 + \beta_i X_i)}} \quad (1)$$

For ease of exposition, Equation 1 is written as:

$$P_i = \frac{1}{1 + e^{-Z_i}} \quad (2)$$

The probability that a given MSE is growing is expressed by Equation 2, while the probability for an MSE being survival is expressed by:

Table 2. Binary logistic regression model result.

Variable	B	Sig.	Exp(B)
Sex	-0.209	0.596	0.811
Level of education	-0.050	0.816	0.951
MSEs ownership form	-0.079	0.773	0.924
Business license	1.790***	0.007	5.989
Record keeping	1.645***	0.000	5.183
Previous experience	1.646***	0.000	5.187
Access for training	1.738***	0.000	5.689
Premise accessibility	0.949***	0.000	2.584
Market linkages	0.440***	0.001	0.644
Government support	1.478***	0.000	4.385
Constant	-7.367	0.000	0.001
-2Log likelihood	215.961	-	-
Model Chi-square	249.330	0.000	-
Correctly predicted Survival MSEs	92%	-	-
Correctly predicted Growing MSEs	83.7%	-	-
Overall cases correctly predicted	89%	-	-

***Significant at 1% level.

$$1 - P_i = \frac{1}{1 + e^{Z_i}} \tag{3}$$

Therefore, we can write:

$$\frac{P_i}{1 - P_i} = \frac{1 + e^{Z_i}}{1 + e^{-Z_i}} \tag{4}$$

Now, $\frac{p_i}{1-p}$ is simply the odd ratio in favor of MSE growing; the ratio of the probability that a MSE growing to the probability of the MSE being survival. Finally, taking the natural log of Equation 4, we obtain:

$$L_i = \ln \left[\frac{P_i}{1 - P_i} \right] = Z_i = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \dots + \beta_n X_n \tag{5}$$

where P_i is a probability of growing ranges from 0 to 1 and Z_i is a function of “n” explanatory variables (x) which is also expressed as:

$$Z_i = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \dots + \beta_n X_n \tag{6}$$

where β_0 is an intercept, $\beta_1, \beta_2, \dots, \beta_n$ are slopes of the equation in the model, L_i is log of the odds ratio, which is not only linear in X_i but also linear in the parameters. X_i is the vector of relevant MSE characteristics.

If the disturbance term (U) is introduced, the logistic regression model becomes:

$$Z_i = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \dots + \beta_n X_n + U_i \tag{7}$$

The MSEs growth linkages with households food security was examined through chi-square test. First, the households’ food insecurity status was identified through the Household Food Insecurity Access Scale (HFIAS). The HFIAS is an effective measurement in indicating food security (Odusina, 2014). According to Coates et al. (2007) the HFIAS yields information on food insecurity at the household level and it is a continuous measure of the degree of food insecurity in the household in the past 30 days. Seifu et al. (2015) suggests that the HFIAS is a valid tool to measure the household food security (insecurity) in urban and rural settings. The HFIAS score has nine occurrence questions and each occurrence question has one frequency of occurrence question. The HFIAS score variable was calculated for each household by summing the codes for each frequency-of-occurrence question. The maximum score for a household is 27 and the minimum score is 0. Based on the HFIAS score the households were categorized into three levels of food security: food secure, moderately food insecure and severely food insecure.

For this study, content analysis was applied for analyzing the qualitative data. The researcher has prepared a list of categories depending on the previous literatures and the data for the analysis of data obtained through interviews and focus group discussions.

RESULTS AND DISCUSSION

Determinant factors of the MSEs growth

The binary logistic regression model was applied to estimate the effects of hypothesized independent variables on the growth of MSEs (Table 2).

The binary logistic regression model indicates that determinant for MSEs growth are: government support, market linkages, accessibility of working premises for customers, access to training, previous work experience in a related business, record keeping practice and

possession of business license. However, operators' sex, level of education, and MSEs ownership form were found insignificant for the MSEs growth.

The government support provision is statistically significant for the MSEs growth at less than 1% level of significance. Enterprise who gets government support has a better opportunity to grow than those MSEs who did not get government support services. The odd ratio shows that those MSEs who receive government support are 4.385 times more likely to grow than MSEs that do not have government support. Related to this result, Berihu et al. (2014) also found that government support was essential for the MSEs, and those enterprises who have utilized all available government support achieved better growth because the government provides resources, entrepreneurial training, and skill upgrading. The researcher found that the Amhara regional government TVED bureau and the Mecha district TVED offices provide different types support for the MSEs such as finance, working premises, training, land, and market linkages. Thus, the government support services play a key role for facilitating the MSEs growth.

Accessibility of working premises for the customers positively affects the MSEs growth at less than 1% level of significance. Accessibility of working premises has a positive relationship with the MSEs growth. By looking at the odds ratio, an MSE whose working premises are accessible to customers has 2.584 times more likely to grow than other MSEs whose working premise is inaccessible for customers. Accessibility of working premise to customers indicates better access to market, the presence (or absence) of which can affect firm growth. The MSEs operators said that they were interested to establish their MSEs in the downtowns to get more customers though the renting prices of working premises at downtown areas is costly.

Access for training is a significant factor for MSEs growth at 1% level of significance. Access for training has a positive relationship with the MSEs growth. The odds ration indicates that MSEs run by those operators who get training related to the MSE business are 5.689 times more likely to grow than other MSEs run by operators that did not get training. Access to training became a significant variable because it facilitates the opportunity for MSE operators to use their potential, and it facilitate skill and knowledge and experience sharing. Abraham (2013) also found that access to training is a significant factor for MSEs growth. For Amha (2015), access to training before starting business was a statistically significant factor that negatively affects MSEs growth. However, his study focused at the determinant factors of MSEs owned by the youth operators.

Previous work experience in a related business affects the MSE growth at 1% significance level. Previous work experience and MSEs growth has positive relationships. The odds ratio shows that MSEs run by operators who have previous work experience in the MSE business are

5.187 times more likely to grow than MSEs run by inexperienced operators. The MSE operators who have experience use their previous skill and knowledge to make the enterprises profitable and perform efficiently which facilitates for the growth of their MSEs. Amha (2015) found that experience in similar business positively influences the growth of youth MSE operators. Berihu et al. (2014) also observed that previous work experience was a main factor for MSEs success and "...those who have worked as employees in factories in the formal sector tend to perform better. Likewise, for Abraham (2013) previous work experience of the manager among the significant factors for the MSEs growth.

Record keeping practice affects the growth of MSE positively at 1% significance level. Record keeping practice has a positive relationship with the MSEs growth. The odds ration indicates that MSEs that keep records regularly are 5.2 times more likely to grow than other MSEs who did not keep records. Fantaye (2016) also identified that MSEs that adopt a formal record keeping and financial control system in their internal practice perform better than others which did not keep recordings. Recording the profits and losses have benefits for showing the MSE operators about the progress, profits and failure of their enterprises and enhances to make adjustments for the operations of their MSEs. Keeping the MSEs records regularly is important for establishing market linkages with customers, wholesalers and other MSEs. Keeping records also have a positive role in facilitating government support provisions for the MSEs because the government tends to provide support to those enterprises which keep records regularly.

Possessing license is another significant factor for MSEs growth, which is a determinant factor at less than 1% significance level. MSEs who have business license are 5.987 times more likely to grow better than other MSEs who do not have business license. Possession of license was used as a pre-requisite for the MSEs to access the support services. Because the support services from the government are provided for registered (licensed) MSEs this could positively affect their growth. Licensing also facilitates for market opportunities, access to finance and enables the MSEs to compete for bids and contracts.

Household food security status of MSEs operators

In the study area, the majority of MSE operators' households were found food insecure. About 42.3% of the households were food secure, 37.7% were moderately food insecure and 20% of the households were severely food insecure (Table 3).

The result shows that there exist distinctions across MSEs sectors on the food security level of the operators households. The survey result shows that about 41.8% of

Table 3. A cross tabulation of the MSEs Sectors with households food security status.

Parameter	Household's food security status (HFS)			Total		
	Food secure	Moderately food insecure	Severely food insecure			
MSEs Sectors	Manufacturing	Count	38	30	23	91
		% within The HFS	25.3	22.4	32.4	25.6
	Trade	Count	30	54	23	107
		% within HFS	20.0	40.3	32.4	30.1
	Service	Count	46	38	22	106
		% within The HFS	30.7	28.4	31.0	29.9
	Construction	Count	14	4	0	18
		% within HFS	9.3	3.0	0.0	5.1
	Urban Agriculture	Count	22	8	3	33
		% within The HFS	14.7	6.0	4.2	9.3
Total	Count	150	134	71	355	
	% within The HFS	100	100	100	100	

The MSEs sectors x The household's food security status cross tabulation.

households from the manufacturing sector were food secure and the rest 58.2% households were food insecure. From the trade sector, about 28% were food secure and 72% of the households were food insecure. From the service sector about 43.4% were food secure and the remaining 56.6% were food insecure. From the construction sector, 77.8% of the households were food secure and the remaining 22.2% of households were food insecure. From the urban agriculture sector, 66.7% were food secure and the remaining 33.3% were food insecure households.

The result indicates that majority of households from the construction sector and the urban agriculture sector have a better level of food security. The majority of households from the trade sector followed by the manufacturing and service sectors were found to be food insecure.

Thus, we can say that for enhancing the households' food security, the type of the MSE sector matters, the manufacturing and urban agriculture sectors contribute for reducing food insecurity than the trade and service sectors. This could happen due to the better support that the sectors receive from the government. The urban agriculture, construction and manufacturing sectors, are prioritized in the government support services, and receiving a better government may help them to ease food insecurity. The operators of the urban agriculture sector participate in food production, which enhances food availability for their households, so their sector helps them to have a better level of food security. The trade

and service sectors receive the lowest support from the government than other sectors and this condition handicapped their growth and the contribution of these MSE sectors in enhancing urban food security. Many food insecure households seen in the manufacturing sector could be due to the low level of growth in the sector than the others although the MSEs in the manufacturing sector receive various supports from the government.

The linkages of MSEs growth and households food security

The MSEs growth status was categorized into survival and growing based on the change in employment size as an indicator of enterprises growth. Then the linkages of MSEs growth with households food security were assessed through chi-square test (Table 4).

The survey result indicates that about 150 households were food secure from the whole participants in the survey and 134 households were moderately food insecure but 71 households were severely food insecure. From the whole severely food insecure households, 78.9% of them work in an enterprises whose growth status is survival and the rest 21% operators work at a growing MSEs. From those operators whose household was moderately food insecure (134 households), about 72% of them works in a survival MSE, while 27.6% of them works in a growing MSE. About 150 households

Table 4. A chi-square test on MSEs growth with households food security level.

Parameter	Level of food security				Chi-square Tests	
	Food secure	Moderately food insecure	Severely food insecure	Total		
Survival	Count	73	97	56	226	26.092***
	Percent	48.7	72.4	78.9	63.7	
MSEs growth status	Count	77	37	15	129	
	Percent	51.3	27.6	21.1	36.3	
Total	Count	150	134	71	355	
	Percent	100	100	100	100	

***Indicates that coefficients are statistically significant at 1%.

were food secured households and from those households 51.3% of them works in a growing MSEs while the rest 48.7% work in a survival MSEs.

The chi-square test result indicates that there is a significant relationship between the MSEs growth status and the households level of food security at 1% level of significance ($\chi^2=26.092$, $df=2$, $p=0.000$). In a chi-square test, we reject the null hypothesis if 2-sided significance reported in the last column and in the row corresponding to the Pearson chi-square is less than the significance level selected (Ajai and Sanjaya, 2009).

We can state the null hypothesis as the operator's household food security level is not dependent with the MSEs growth status. As it is clearly seen in the table, the p-value (0.000) is less than the commonly accepted level (0.05), so that we can reject the null hypothesis. From this result, we can claim that when the operator's MSE grows, the operator's household's food security status improves.

In the key informant interviews, the researcher found that there is little cooperation among government institutions at Mecha district for facilitating the MSEs growth and enhancing the food security of urban residents. The TVED offices, the food security offices did not cooperated for common targets and acted separately.

Regarding the relationship between food security and the informal economy in South Africa, Even-zahav (2016) found that the informal food economy plays a key role as a daily/weekly food access and utilization node in South Africa. However, his study covers the whole informal sectors beyond the MSEs.

The statistical result in this study indicates that the MSEs sector could play a key role for alleviating food insecurity. However, this study shows that growing an MSE but not running the MSE reduces food insecurity. Similarly, Fraser et al. (2014) expressed that the MSEs are an integral component of addressing the urban food insecurity because the MSEs are source of employment and urban food consumption.

Related studies on the role of MSEs for food security in

Ethiopia indicated that operating in an MSE does not bring a radical improvement in food security status of households. For instance, Siyum (2015) reported that operating in the MSEs, the MSEs can decrease food shortage of the operators.

Conclusions

The study indicated that the determinants for the MSEs growth (at 1% level of significance) are availability of government support, accessibility of working premises for customers, access for training, prior work experience of the operators, and proper record keeping practices at the MSEs. These factors affect enterprises growth positively. Therefore, to promote the MSEs as a means of alleviating urban food security, we need to focus on these variables. In other words, disregarding the impacts of these variables on the growth of MSEs affects the concerned bodies' efforts to improve the livelihoods of MSEs operators particularly the food security status of urban households.

The study indicated that there is variation among MSEs sectors in enhancing food security. The operators' households food security status at the manufacturing and urban agriculture MSEs sectors were found better than the food security status of trade and service sectors. Thus, we can conclude that for enhancing the households' food security, the type of the MSE sector matters. However, the government favored the urban agriculture, manufacturing and construction sectors for providing various support services. The support provisions by the government have its own role for the construction and urban agriculture sector operators to have better food security status than others. Therefore, extending the support service provision for all MSEs sectors could improve the food security status of MSEs operators across various sectors.

The findings show that there is a significant relationship between MSEs growth status and the operator's

households food security at 1% level of significance. From the chi-square statistics result, we can pronounce that as the MSEs growth improves from survival to growth status, the operators' households food security level improves. An ownership of MSEs is not just a solution for the food insecurity problem. Instead, facilitating the conditions for MSEs growth seems the key solution for the urban food insecurity problem of Ethiopia.

RECOMMENDATIONS

The study indicated that the MSEs growth and food security has a positive relations. Thus, integrating the urban food security and MSEs development policy is crucial. For the implementation of the urban food insecurity policy needs holistic approaches that integrate various government institutions. Clear procedures that enhance the implementation of the urban food security policy, and a follow up mechanism to correct implementation failures shall be arranged.

The MSEs sector must be supported through strengthening municipal level capacity to address the nexus between urban food insecurity and informal economy and enhancing institutions that provide an enabling environment for MSEs. The focus of the government must be on facilitating the growth of established MSEs than rushing to increase the number of new MSEs.

CONFLICT OF INTERESTS

The author has not declared any conflict of interests.

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