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NETWORKS AND MARKET ACCESS FOR SMALL-SCALE DAIRY ENTERPRISES IN KENYA: A PRODUCT DIVERSIFICATION PERSPECTIVE

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Abstract

The dairy sector in Kenya has not benefitted from the massive opportunities that could be reaped from exploiting the market for value added dairy products at national and regional levels. Dairy products rate highly as the most nutritious and wholesome food products and therefore present huge opportunities for growth based on increasing urban food demand and a rising middle class that is increasingly demanding processed and ready to consume, healthy and nutritious products. This empirical investigation used quantitative and qualitative analysis and found that Small Scale Milk Vendors(SSMVs)in Kiambu, County, Kenya, had added value to milk at varying degrees though most of the milk was still sold in raw form and had adopted various methods to influence customer uptake of the dairy products. Access to markets for diversified products had a positive linear relationship on dairy enterprise performance. The study recommends that the government of Kenya and key actors in the dairy sector in an effort to boost the economy and create employment have a major role to play in helping the SSMVs find markets for their value added dairy products. The study proposes that an intervention for SSMVs in the dairy sector in Kenya based on innovative models anchored on establishing informal and formal networks should be explored as an option to increasing market access for their value added dairy products. This will help in disposal of seasonal surpluses; reduce losses along the dairy chain and increase productivity and incomes of the SSMVs and the government.

Keywords: Dairy, Diversification, Institution, Market, Value Addition

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Introduction

Agricultural growth has averaged 7% per annum since 2005 and a lot of value addition and employment are being created in the form of agricultural trade, agro-processing, urban retailing and food services, with these trends offering great opportunities for smallholder dairies in Kenya (AGRA, 2017). Dairy production is increasing rapidly in East Africa, which hosts roughly 3 million dairy farmers, with Kenya having 2.1 million dairy farmers who are increasingly acquiring improved dairy cattle (local animals cross bred with exotic ones) and a growing interest in dairy goats (Wambugu, Place & Franzel, 2010). Approximately 80% of dairy farming households in Kenya have improved dairy cows which produce on average 7-8kg/cow/day; with the potential for farmers' breeds to produce three times as much (Wambugu *et al.,* 2010). Comparisons with neighboring Kenya and Tanzania show that in terms of per unit income per capita, consumption of dairy products in Uganda remains very low, in spite of growth in income levels generally; in Kenya, where incomes are lower, some $0.07 of every dollar of income is spent on milk and dairy products, while in Uganda the figure is less than $0.02 (Staal & Kaguongo, 2003). Milk production increased during the 1990s at an annual rate of 4.1% in Kenya and 2.6% in Uganda, the reason for such growth being a high domestic consumption, with Kenya reporting a per capita consumption of 145 litres per year, which is among the highest rates in the developing world (Wambugu *et al.,* 2010). However, increasing evidence from research has shown that milk losses in Kenya are very high leading to loss of income for the dairy enterprises (Republic of Kenya, 2011; Stichting Nederlandse Vrijwilligers, 2013).

Previous studies by the Ministry of livestock and fisheries have indicated that dairy farmers lose about 95 million litres of milk annually due to wastage and spoilage in farms and along the market chain (Bolo, Lorika and Obonyo, 2011).A report by FAO (2018) argues that food losses are caused by institutional voids in the value chain among other causes. Professionals in the dairy sector are of the view that milk is nature's almost wholesome and perfect food though it provides an ideal medium for the growth of micro-organisms hence its short shelf life, underscoring the need for value addition to extend its shelf life, reduce milk losses and increase its market potential (Singh, 2005; Vaswani, 2005). With national diets shifting away from staples such as grains to livestock, horticultural and processed foods which add value within the agri-food system (AGRA, 2017), there is huge potential to be reaped from value added dairy products. However, small and medium enterprises (SMEs) are constrained due to lack of access to key inputs, finances and markets and more stringent health and quality standards requirements of more urbanized and consumer driven markets, hence there is the concern that most SMEs are lagging behind, underscoring the need for African governments to be more proactive in promoting an inclusive transformation of their agri-food systems based on promoting small farmers and SMEs on a commercial basis (AGRA, 2017).

Evidence from research indicates that dairy production and marketing are topics on which many Kenyans have conducted sophisticated and precise scientific research (Intergovernmental Authority on Development Center for Pastoral Areas and Livestock Development, 2013). However, research also shows that only a small portion of Kenya's livestock production is exchanged through official channels: official figures give a partial impression of the size and

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organization of the livestock sector hence providing an unreliable basis upon which to estimate the contribution of livestock to agricultural Gross Domestic Product (GDP) (Intergovernmental Authority on Development Center for Pastoral Areas and Livestock Development, 2013). A call has been made on the obligation to include the value of un-marketed and informally marketed livestock production in order to make an accurate assessment of the contribution of the sector to GDP estimates, besides the officially recorded sales figures, in order to contribute to evidence based discussions especially on the dairy policy in Kenya (Intergovernmental Authority on Development Center for Pastoral Areas and Livestock Development, 2013). Questions have been raised on the resilience of value chains given that smallholders who form a huge portion of the agri-food sector in Africa are simply not organized to have much voice in the political agenda and are faced with the practical realities of dealing with weak public institutions as they search for markets for their products (AGRA, 2017). This paper is a response to these calls and seeks to provide both quantitative and qualitative findings on the level of access to markets by informal dairy enterprises often referred to as Small Scale Milk Vendors (SSMVs) in Kiambu County, Kenya. The paper is structured as follows; first is a review of the theoretical framework. Second is a review of literature on access to markets for diversified dairy products and the effect on performance of business enterprises. Third is the methodology employed in the study. Finally, based on the review of literature, the paper gives recommendations on interventions that can improve access to markets for SSMVs value added dairy products.

Institutional Theory in Relation to Diversification in Businesses

The institutional theory has been used to explain firm diversification in transition economies (Peng, Lee and Wang, 2003; Yuan, Jun & Hailin, 2004). The researchers contend that institutional relatedness contributes to firm diversification, in the sense that the firms share institutional characteristics such as government support, social networks and cognitive pillars of executives who are in decision making and that diversified firms are a more effective form of business operation in developing countries (Yuan *et al.,* 2004).Similarly, Day and Wensley (2002) contend that institutional theory is based on 'isomorphism' which is a limiting process that makes companies in a market resemble other companies that confront the same commercial conditions (become more like their peers). Support for these assertions is provided by various researchers who argue that institutional theory provides legitimacy and useful insights on the basis of interpretation of organizational similarity and differentiation over time and space (Donaldson, 2006; Scott, 2004; Turcan, 2012). Yuan *et al.* (2004) argued that due to institutional voids in developing countries, the lack of well established product markets, lack of contract enforcement and government interference in economic activities, diversified firms would be a more effective form of business operation. The theory can therefore be used as a basis for understanding the nature of the market space in terms of related diversification in developing countries.

According to Yuan *et al*.(2004), in transition economies, the market was inefficient or ineffective due to two reasons, first there was a lack of resources for economic development which are critical to firm strategic decision making and second, the market became inefficient or ineffective when transactions of resources were dominated or controlled by non-market exchange

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governance. In order to overcome market failure, internal markets should be established for exchange of critical resources which are difficult to obtain from external markets (Yuan *et al.*, 2004). Through the internal markets, firms invest retained earnings in new businesses and this leads to diversification (Yuan *et al.*, 2004). The study by Yuan *et al.* (2004) further suggests that firms that diversify earn higher return on equity than non-diversified firms and that firms that diversify have higher growth rates in assets than non-diversified firms. The central argument underlying this perspective is that where firms are constrained in terms of access to crucial resources controlled by external institutions, they use the resources within the organization to develop new products targeted at local markets which leads to better performance.

A different perspective is offered by Donaldson (2006) who highlighted the challenges of the institutional theory arguing that the theory fails to study organizational performance and therefore many arguments of institutional theory remain unproven assertions, the theory is a profound cynical view that fails to recognize that work organizations can produce real outcomes of value, the theory fails to accord sufficient strength to the argument that many organizations are under competitive pressure to improve their operational effectiveness, some evidence provided on the theory actually show that over time, organizations become more unlike as opposed to the concept of 'isomorphism' which the theory advocates: strategy theorists arguing that differentiation can be a valuable strategy which is 'dysisomorphism' even for organizations in the same industry and that institutional theory research tends not to produce knowledge that will lead to organizational change and improvement. Support for this alternative view is provided by Lee, Peng and Lee (2008) who criticized the institutional theory on the basis that although institutions powerfully shape strategic choices in organizations, institutions also change in character and potency over time. They argued that institutions need to adapt to new institutional realities failure to which such lack of adaptation may make the previous fit with old institutional requirements unable to ensure continued legitimacy and even survival (Lee *et al.*, 2008).The central argument in these perspectives is that the business environment keeps changing with time and that it is incumbent on institutions to also change faced with these realities in order for them to maintain their relevance. Failure to change with the changing realities may render them unable to perform their role as legitimate sources of guidance and providers of policies that shape business practice. This could explain the turnaround of Kenya Dairy Board (KDB) in the licensing of the informal dairy sector in Kenya in recognition of the dominance of the sector in the country and the role it played in the economy of the country.

Institutional Voids

Institutions have been defined from three perspectives: The first is regulative institutions that involve legislation and government regulations and policies that organizations have to comply with, the second is normative institutions that entail business practices, business policies and ethical standards and thirdly is cognitive institutions that reflect the way people interpret and make sense of the world around them on the basis of rules, belief systems, cultural values and identities, either as consumers, producers or policy makers (Trienekens, 2011). Developing countries are characterized by institutional voids: defined as situations where institutional

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arrangements that support markets are absent, weak or fail to accomplish the role expected from them, Mair and Marti (as cited in Trienekens, 2011). Government legislation, regulations and policies can constrain upgrading and value addition by setting trade barriers for production materials and production technology, by limiting free flow of information, by imposing unfavourable taxes and denying infrastructural investments that would benefit value chains (Trienekens, 2011).For instance, evidence based on a study conducted by Techno Serve (2008) on the dairy sector in Kenya found that some elements of taxation policy affect value addition to dairy products. For example, there is a high level of taxation for yoghurt processing versus other forms of processing (Techno Serve, 2008). This suggests a need to re-evaluate the taxation policy on value addition to dairy products in order to encourage investment in value addition activities.

Business practices and characteristics of business relationships can limit value adding and profits in value chains (Trienekens, 2011). This is supported by Tvedten, Hansen and Jeppesen (2014) who alluded to the fact that informal dominance coupled with inefficient management practices are detrimental to enterprise development. This is corroborated by evidence provided by Odero-Wanga, Mulu-Mutuku and Ali-Olubandwa (2009) in a study on value added milk products with regard to the constraints affecting women owned micro-enterprises in three districts: Nakuru, Nairobi and Kiambu, Kenya which found that with regard to related product diversification, 99.1% of the SSMVs sold fresh milk, 88% processed fermented milk, 36.1% processed yoghurt, 3.7% processed ice-cream and 0.9% processed ghee and butter. The dairy enterprises were constrained in terms of access to finance for purchasing value addition equipment, lacked formal training on value addition skills and also lacked knowledge and skills on marketing which impacted negatively on the income generated from the sales of the value added dairy products (Odero-Wanga *et al.,* 2009). They recommended that women need to be included in planning of development programmes at all levels so that they could articulate the challenges they faced in an attempt to enhance value addition to milk (Odero-Wanga *et al.,* 2009). They also recommended that research needed to focus more on value addition technologies that are relevant and appropriate for the women micro-enterprises with the focus being on affordability and accessibility (Odero-Wanga *et al.,* 2009).

Evidence from research suggests that smallholders are usually disadvantaged and see marginal benefits from inclusion in value chains due to a myriad of reasons; key among them being that production by poor farmers is very fragmented, quality of intermediaries in agricultural markets is varied, they lack information about market opportunities, they lack institutional and infrastructural support, changes in the institutional environment, lack of availability of resources among other challenges (Trienekens, 2011; Zylerberg, 2013).Support is provided by Pedersen and McCormick (1999) who argued that African business systems are characterized by fragmentation due to the institutional environment in which they operate. Further evidence from research suggests that in developing countries, strategic management is an inherently contextual activity strongly shaped by institutions with several studies offering solutions on how African companies can develop coping strategies in the face of institutional voids (Tvedten, Hansen and Jeppesen, 2014).

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Numerous strands of knowledge have been advanced on how African businesses can deal with these institutional voids. One strand of knowledge argues that the barriers are surmountable through effective governance, upgrading and through use of intermediaries as well as integrating into a broader institutional structure based on cooperatives or producer groups that lowers transaction costs for companies(Zylerberg, 2013).This is supported by New Institution Economics literature which suggests that institutions are transaction-cost minimizing arrangements that may evolve with changes in the nature and sources of transaction costs hence influencing the way businesses operate (Pedersen and McCormick, 1999; AGRA, 2017). It has been touted that cooperative organizations are an essential institution for inclusive agricultural development in rural Africa though for every success story, there are many failures (AGRA, 2017).However, it has been reported that a major challenge of using cooperatives as an intervention to deepen integration of smallholders into agricultural value chains is the lack of sufficient customer service and business orientation which hinders their ability to handle commercial and technical problems faced by members, coupled with the fact that they are not considered as credible partners by service and financial service providers and other actors in the value chain (AGRA, 2017). Evidence from the dairy sector in Kenya suggests that the demise of milk processors, mostly based on cooperatives in the first decade of liberalization was high with 50%of them collapsing, majority citing unfair competition from the informal sector (Kurwijila and Bennet, 2011).To date, some dairy cooperatives in the country have since collapsed or are faced with huge survival challenges. It has therefore been recommended that to enable smallholders remain competitive, new institutional arrangements are required, London and Hart (as cited in Tvedten, Hansen and Jeppesen, 2014; AGRA, 2017).

Among the new institutional arrangements that have been be explored is contractual engagements. A study by Sahara and Gyau (2014) that compares contractual agreements between farmers selling to traditional and supermarket channels found that in many developing countries, the role of modern market agents involving contractual arrangements with farmers is growing. The results of their study suggest the importance of verbal agreements in the contractual arrangements between farmers and buyers (Sahara and Gyau, 2014). According to them, in verbal arrangements, buyers have to communicate aspects that are regulated in their agreements more frequently which prevents misunderstanding between farmers and buyers, buyers can offer advice to farmers on quality issues and can discuss with farmers on payment and price mechanisms (Sahara and Gyau, 2014). Their report continues to assert that buyers can improve the trust of farmers by providing payment on time, by following up on their promises, by offering fair prices for farmers' products and providing quicker responses to farmers' complaints and concerns (Sahara and Gyau, 2014).In addition, cross-border trade and market integration of the domestic food markets can help smoothen out price volatility that creates imbalances in markets due to seasonal variation in domestic markets as a result of huge dependence on rain fed agriculture (AGRA, 2017).

A different school of thought argues that when faced with challenges, disadvantaged value chain actors may be motivated to improve their position by getting involved in a different market channel and by enhancing value added with such upgrading strategies being fostered by non-

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value chain actors such as non-governmental organizations (NGOs), public–private partnerships and development organizations(Trienekens, 2011).This is supported by a report by AGRA (2017) that asserted that agribusiness firms, NGOs and governments can help smallholders address the challenges they face, with their intervention having the potential for a higher payoff, while being cognizant of the need for medium-sized firms to flourish so that the overall food economy thrives as fast as possible to meet the increasing needs in Africa. This could explain the efforts made by organizations such as Department for International Development (DFID) through the Business Services Markets Development Programme (BSMDP) in consultation with the Kenya Dairy Board (KDB) and other sector players (Baiya and Kithinji, 2010) as well as Smallholder Dairy Project (SDP)to revise the old dairy policy in Kenya which resulted in the licensing of the informal dairy sector (Kaitibie, Omore, Rich, and Kristjanson,2010).It could also explain the entry of The Dairy Traders Association (DTA), a body formed in 2009 to ensure self regulation of the informal milk market at cluster level, which enforces a traders' code of conduct and members seen not to be adhering to it are subjected to fines which has reduced milk adulteration (Baiya and Kithinji, 2010).

A different perspective that has been advanced is that the base of the pyramid (BOP) market segments in Africa must be modified or re-invented to accommodate their needs by developing relationships with non-traditional partners, co-inventing custom solutions and building local capacity, London and Hart (as cited in Tvedten, Hansen and Jeppesen, 2014). This must be complemented by identifying promising business opportunities and having innovative responses (not necessarily radical innovations) to the opportunities in the market given their insight knowledge of the particular institutional and competitive environment (Tvedten, Hansen and Jeppesen, 2014). All these perspectives seem to suggest that different models may be applied to solve the challenges faced by SMEs and micro-enterprises in Africa in terms of improving access to markets for their products. This study seeks to argue that depending on the nature of business conducted by the SME or micro-enterprise, custom made solutions must be developed with an aim of forging good and beneficial economic and social relationships at various institutional levels in order to improve market access for their diversified products.

Diversification and Market Performance Relationship

A report by Ireland Dairy Industry Prospectus (2009) indicated that, "Global economic growth provides the foundation for increased demand for dairy products. Demand for milk products in China, Asia, Russia, Ukraine, Argentina and the Middle East continue to outstrip supply for all dairy products." The report also stated that, economic growth in developing countries was crucial as dairy consumption is responsive to income growth in these countries; with rising incomes, as well as high population growth rates in developing countries, consumers diversify their diets and consume more dairy products leading to a greater demand for more high-value products (Ireland Dairy Industry Prospectus, 2009). Evidence from Kenya suggests that beyond stimulating sales and income growth among smallholders, transforming agribusiness value chains such as dairy has the potential to become a core segment of renewed industrialization strategies (AGRA, 2017).

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Increasing evidence indicates that, since 2003, dairy production in Kenya has grown impressively as manifested by an increase in production from 2.8 billion litres in 2002 to 3.8 billion litres in 2006, representing a growth of 30%, milk intake by processors also increased from 178 million litres to 362 million litres during the same period representing a growth of 253%, while milk prices increased from a low of $0.08 per litre to a high of $ 0.20 per litre (Republic of Kenya, 2009). In the year 2006, Kenya exported about 14 million litres of milk worth $ 7.78 million compared to less than one million litres exported prior to 2003 (Republic of Kenya, 2009). Performance of the sector has continued to improve with processed milk increasing to 406.5 million litres in 2009 with milk prices rising to $0.30 per litre during the same period (Republic of Kenya, 2010). According to Republic of Kenya (2011), the dairy sub-sector recorded major output increases of formally marketed milk from 406.5 million litres in 2009 to 515.7 million litres in 2010. This being the largest percentage increase observed over the last 5 years. Despite this growth, the uptake of milk by processors is still low which means that the variety of milk products produced is also low.

A study conducted by Chistensen and Montgomery (1981), on the moderating effect of market structure variables: market share, market concentration, market growth, market profitability and absolute firm size, on the diversification, performance linkage, found that firms located in markets which constrain their growth or profitability are the most likely to diversify. Christensen and Montgomery (1981) in their studies found that highly diversified firms tend to compete in less attractive markets in which they wielded less market power and hence had lower performance. These findings were complimented by other studies which argued that firms operating in industries characterized by low profitability and few growth opportunities tended to expand by entering new businesses and that this was the only opportunity for turning their fortunes around (Rumelt,1982; Burgers, Padgett, Bourdeau and Sun,2009). Hence product diversification was a means of escaping the poor profitability of the firms' industry and a means of reducing perceived performance gaps (Christensen & Montgomery, 1981). Sukpinach and Rugman (2007) introduce a notion of intra-regional and inter-regional selling with their study indicating that higher levels of intra-regional sales tend to improve the impact of product diversity on performance compared to venturing into inter-regional selling. The study by Sukpinach and Rugman also seemed to suggest that at high levels of intra-regional sales, there exists a non-linear relationship (inverted J-curve) between product diversification and a firm's performance supporting the resource based and transaction cost theories.

Chistensen and Montgomery (1981) reported that firms or businesses in low opportunity markets are likely to find a similar lack of opportunity in markets which they could enter through constrained diversification, therefore they are likely to pursue unrelated diversification. Chistensen and Montgomery (1981) concluded that successful performance is the outcome of market opportunity combined with the capacity to take advantage of that opportunity, the low performance of unrelated portfolio firms suggesting the danger of inattention to market structure in entry decisions or of knowingly entering highly fragmented, low profit markets. Chistensen and Montgomery (1981) asserted that market structure variables should be investigated which can lead to more realistic assessments of turnaround potential. The dairy sector presents huge

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opportunities for growth based on increasing urban food demand and a rising middle class that is increasingly demanding processed and ready to eat and drink products. The urban population growth rates in Sub-Saharan Africa between 2010 and 2015 were 4% compared to 2.5% in Asia and 1.4% in Latin America and the Caribbean coupled with the fact that Africa has caught up with the average level of urbanization in all developing countries (AGRA, 2017). A report by AGRA (2017) indicated that one of the interventions to promote enterprise growth in the context of value chain food processing is policy and institutional innovations and related investments aimed at helping entrepreneurs acquire the right skills and tools to improve product marketing and capture a large share of the urban food demand. Based on the preceding arguments, we argue that small scale milk vendors (SSMVs) can improve their performance through pursuing related diversification in dairy products, hence tap into the huge market potential of the increasing urban food demand.

According to Yuan *et al.* (2004) in a study that aimed at exploring the relationship between diversification, internal transaction and performance found that with the progress of marketization, that is, when product markets become more open and liberal, competitive pressures increased in product markets. According to them, the question for diversified and non-diversified firms therefore was how to sell their products in the market and that control over distribution channels or networks through which a firm sells its products to customers becomes an important means to get access to the market and also helps a firm explore its market power and create an entry barrier to rivals (Yuan *et al.,* 2004). The liberalization of the dairy sector in 1992 resulted in the entry of SSMVs into the market who are increasing their product range through value addition to milk hence offering stiff competition to the formal dairy sector and controlling over 80% of the domestic market as a result of taking customer needs into consideration (Bolo, Lorika and Obonyo, 2011).The explanation being that milkin the informal channel is sold at lower prices to consumers than the formal channel, it generates immediate cash flow to farmers, the preference by Kenyans for raw milk due to the high butterfat content, easy accessibility, it can be sold in variable quantities (Techno Serve, 2008; Muriuki, 2011) and recent trends indicate that it offers customers a variety of value added dairy products at competitive prices. Licensing and recognition of the informal channel helped alleviate the problem where government services to large and small producers had in many cases ceased to function or were very erratic with instances of unpaid or overly delayed payment for milk deliveries (Bolo, Lorika and Obonyo, 2011).

Access to Markets for Diversified Value Added Dairy Products

Global trends suggest thatin India which is the largest milk producer in the world, the informal dairy sector commands a 42% market share compared to the formal sector which commands a paltry 13% of the market with the remaining 45% of milk production being consumed in the rural areas (Vaswani, 2005). The reason for the stagnation of the formal (organized market) has been attributed to lack of research and development on innovative dairy products and the restricted product portfolio comprising 8% of packaged milk and 5% western milk products while the informal (unorganized) sector has a wider product portfolio with 23% value added

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dairy products that are aligned to consumer preferences and 19% of the market share of liquid milk (Vaswani, 2005).

Similar trends are found in Kenya based on a report presented by Kiptarus (2005) which indicated that raw milk vendors (informal channel) in Nairobi and other urban centers offer the main competition to the formal dairy sector in milk marketing with the market segment occupied by the raw milk market, both licensed and unlicensed, being more than 80%. The report also stated that among the challenges experienced by the dairy sector include poor access to markets by farmers due to poor road infrastructure especially during the rainy season leading to a lot of wastage (Kiptarus, 2005). It continued to suggest that the global market is very competitive with regard to diversity of milk and milk products of high international standards and there was therefore need for cooperation between farmers, research institutions and government to have high processing efficiency, which leads to lower consumer price and quality,diversified global products (Kiptarus, 2005).This is supported by Pedersen and McCormick (1999) who argued that relatively inefficient production and high prices in the formal sector have made it difficult to penetrate low-income markets, hence making room for a large informal sector in Africa. These findings were supported by Vyas (2005) in his report titled "Add Value or Perish…", who asserted that value addition to dairy products effectively insulates producers of milk from the vagaries of the commodity market that are subject to price fluctuations during periods of shortage and periods of glut as a result of changing weather patterns.

Increasing evidence from research based on various studies indicate that the informal market channel offers better prices than the formal channel hence attracting more players. For instance a study on the cost-benefit analysis of smallholder dairy cattle enterprises in different agro-ecological zones in Kenya highlands, indicated that for farmers in all agro-ecological zones, informal markets offered higher prices than dairy cooperatives, but specifically, upper midlands were making more profit compared to their counterparts in lower highlands due to higher milk prices sold through informal channels compared to prices offered by cooperatives(Mburu, Gitu and Wakhungu, 2007). The findings from the study also indicated that physical access to markets has a direct bearing on farmers production costs and the price they receive for their dairy products: the high returns in upper midlands was attributed to low cost of production and better prices offered by informal marketing channels (Mburu *et al.*, 2007). Their study indicated that in Kiambu, there were shortages and surpluses of milk during the dry and wet seasons respectively, experienced by cooperatives and therefore policies to improve the operational efficiencies of dairy cooperatives would have a self accelerating effect on productivity (Mburu *et al.*, 2007).

A different study conducted by Muia, Kariuki, Mbugua, Gachuiri, Lukibisi, Ayako &Ngunjiri (2011) in Nyandarua county, Kenya indicated that the dairy sector posts low prices for milk with the low prices being attributable to poor road infrastructure and long distance to markets which lead to high transportation costs; the high costs as well as inappropriate use of technologies makes smallholder dairy production in the county to be very uncompetitive leading to poor performance of the sector. Only 30% of the households surveyed had access to good roads; with milk being highly perishable and farmers lacking the capacity to invest in cooling equipment, the

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high volumes of milk produced during the rainy season are therefore associated with high post-harvest losses, with the only alternative being selling the surplus milk at low prices through the informal channels (Muia *et al.,* 2011).

Regulatory Environment and Access to Markets

Evidence from research suggests that data on agribusiness regulations as measured by The World Bank's Enabling the Business of Agriculture (EBA) on eight topical areas, including access to markets, that are relevant for various players such as producers, suppliers, traders, processors and marketers can be used to compare a country's legal and regulatory environment with that of others (AGRA, 2018). Kenya's EBA score for 2017 on access to markets was the lowest based on the eight topical areas at 32.98% with a ranking of 59 (AGRA, 2018).EBA can be used as a platform and tool to prompt policy dialogue leading to reform and impact (AGRA, 2018); hence the need for Kenya to foster more dialogue and prioritization on the need for an enabling environment in terms of access to markets for dairy enterprises and particularly the SSMVs. This 'requires the building of a critical set of institutions and institutional arrangements and adapting these to evolving country contexts' (AGRA, 2018).

Changing Demographics and Potential for Market Growth of Value Added Dairy Products

Evidence from research suggests that changing demographics and lifestyles are driving food consumption trends with consumers outsourcing food preparation, emphasizing the need for prepared foods in the form of convenience foods that are safe and healthy (Patil and Singh, 2005). There has been a growing interest in value added dairy products as manifested in increased consumption patterns exhibited by consumers in Kenya. This could be attributed to the rising numbers of a sophisticated middle class who are increasingly demanding value added dairy products as well as products made from value added dairy products such as cheese. This portends a promising future for the industry as recent trends have indicated. Despite this huge potential, the dairy sector faces inadequate exploitation of value addition which robs the country of the opportunity to increase the shelf life of dairy products (Republic of Kenya, 2008) and hence minimize the losses along the market chain.

The need for value addition is providing an opportunity for the development of a range of newly formulated dairy products, shelf life extension using newer preservation technologies, convenience and novel packaging systems and could be the cutting edge for the growth of the dairy sector in the future (Patil and Singh, 2005). Rising populations, increasing urbanization, education and health and safety awareness campaigns provide the potential for exploiting and incorporating valuable dairy ingredients in existing and new product formulations, which calls for researchers and entrepreneurs to adopt a holistic approach to product development encompassing new dimensions of value addition while taking into account international quality and safety standards and global environmental practices (Patil and Singh, 2005). For instance, pizza is becoming an international dish for which mozzarella cheese is an essential ingredient (Singh, 2005) while the flavoured milk market was growing by 27% in value terms in India as of 2005 (Baisya, 2005). With the value earned from the export of cheese being higher than that of

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other dairy products exported in the world market (Sardana and Dokras, 2005), this presents an opportunity to rake in good returns from increased production of cheese based on the changing consumption patterns in Kenya and a growing preference for pizza due to increased urbanization.

Vaswani (2005) in a report on value addition in the dairy sector emphasized on the need for research and development by the dairy industry on new products with added value and greater differentiation to meet diversified needs of consumers with the products providing effective solutions to generic health problems, functional food needs, immunity against health ailments and most importantly, should pass the ultimate test of taste.This is supported by Vyas (2005) assertions that value refers to attributes not intrinsic in a product that a consumer finds useful but as a corollary, the consumer is willing to pay a premium for the product that he/she would not have paid had it been lacking in these attributes. Vyas (2005) suggested that due to socio-economic and cultural changes, there is need to segment consumer markets based on their different requirements for value added dairy products as they attach different values to the same offering. Based on the preceding arguments, we argue that various institutions in the dairy sector in Kenya should invest a lot in research on; better value addition technologies that are cost effective, fortification of dairy products to make them more healthy for consumers, varieties of additional value added dairy products in line with consumer tastes and preferences, additional safety standards along the entire dairy value chain, sensitizing and training farmers and SSMVs on all these aspectsas well as linking farmers with both internal and regional markets for their value added dairy products. This will go a long way in increasing the productivity and performance of the entire dairy sector in the country.

Methodology

This study employed the descriptive research design. The design is used to examine the correlational relationships among variables. The design was deemed appropriate for the study as it attempts to describe a group of people, a phenomenon or an event (Salkind, 2010) based on the influence on another variable. When there is some kind of influence of one variable on the other, the correlation can either be none, positive or negative (Walliman, 2011). Correlational research is a form of descriptive research that attempts to establish the patterns of association among variables at a particular point in time without any manipulation based on the premise that if a statistically significant relationship exists between two variables, then it is possible to predict one variable using the information available on another variable (Mugenda, 2008; Mugenda & Mugenda, 2012).

Both quantitative and qualitative data was collected. Quantitative research involves numeric descriptions of attitudes and opinions of a population by studying a sample of that population using a closed-ended questionnaire or structured interview for data collection (Creswell, 2013). It is an approach for testing objective theories by examining the relationship among variables and the variables can then be analyzed using statistical procedures (Creswell, 2013). Qualitative research involves exploring and understanding the meaning individuals or groups ascribe to a social problem using open-ended questions, with data analysis involving inductively building

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from particulars to general themes, and the researcher making interpretations from the meaning of data (Creswell, 2013). Qualitative data was then subjected to quantitative analysis in this study. A study by Chepkoech (2010) on regulation of dairy production in Kenya used both quantitative and qualitative research designs. Odero-Wanga *et al.* (2009) in their study on value added milk products and the constraints to women owned micro enterprises used an interview schedule based on both open and closed-ended questions. Consistent with similar studies in the dairy sector, the design was therefore chosen because the study seeks to establish the influence of the independent variables on the dependent variable.

Population of Study

A population describes the wider set from which the research sample is drawn (Cramer & Howitt, 2004). According to Odero-Wanga *et al.* (2009), it is difficult to estimate the population of SSMVs as most of them do not register with the Kenya Dairy Board. As a result, it was difficult to determine the population of milk bars in Kiambu County and therefore estimates were used based on available literature. According to a report by Stichting Nederlandse Vrijwilligers (2013), Kenya has approximately 4636 milk bars. Odero-Wanga *et al.* (2009) indicated that Kiambu accounted for 15% of the licensed small scale dairy processors, which includes milk bars, in Kenya. This indicates that Kiambu County has approximately 696 milk bars. The study population was therefore approximately 696 milk bar owners in Kiambu County. Most of the milk produced in Kiambu is sold in the county and in Nairobi (Odero-Wanga *et al.,* 2009; Kaitibie *et al.,* 2010). Kiambu County was chosen as the basis for investigation because according to information provided by the Ministry of livestock, the county is ranked as the leading in the country in milk production. In the year 2012, the county produced 267.5 million litres of milk valued at $0.06 billion (County Government of Kiambu, 2013).

Milk in the informal channel is sold at farm level and through mobile milk traders and milk bars. Milk sold through milk bars includes both producers and non-producers of milk with Kiambu County being dominated by milk bars and small scale mobile traders (Kaitibie *et al.,* 2010). Milk bars therefore formed the basis of the investigation. The milk bars were mainly targeted in this study as they have a business premises and therefore have the potential to undertake value addition to milk. As small scale milk vendors (SSMVs) are not easily tracked and statistics in the informal dairy sector are not available, to obtain data one has to rely on the use of recall information (Kaitibie *et al.,* 2010). The milk bars do not keep dairy records and therefore information obtained from the respondents was based on recall.

Sampling Frame

The Sampling frame included all the milk bar owners in Kiambu County numbering approximately 696. Kiambu County has 12 sub-counties namely: Gatundu South, Gatundu North, Ruiru, Thika, Githunguri, Kiambu, Limuru, Kikuyu, Lari, Juja, Kiambaa and Kabete. Sampling refers to taking part of some sample population to represent the whole population (Alreck & Settle, 2004). Clustered sampling was used to divide Kiambu County into sub-counties or clusters. This reduced variance, where people in one sub-county may have had

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polarized views and therefore markedly increased reliability and confidence obtained from the study. Clustered sampling is appropriate when respondents are widely dispersed over a wide geographical area: the clusters should be large enough to sample the entire region adequately (Alreck & Settle, 2004). Kiambu County has 12 sub-counties and each sub-county was treated as a cluster. Simple random sampling was then used to select respondents in each sub-county.

Sample and Sampling Technique

The number of respondents in each sub-county was arrived at by dividing the total sample size by the number of clusters to obtain the number to be within each cluster assuming equal sizes. This brought the number of respondents in each cluster to 21. As a pre-condition, to be included in the sample, the dairy enterprise must have been operating in the informal dairy sector during the study period.

Mugenda (2008) suggested the following formula for estimating sample sizes in social surveys:

$$n = \frac{Z^2pq}{d^2}$$

Where:

n is the desired sample size if the target population.

Z is the standard normal deviate at the required confidence level. Confidence level at 95 per cent (standard value of 1.96).

p is the proportion in the target population estimated to have the characteristic (raw milk= 80%, value added products=20%)

$q = 1-p$

d is the margin of error

$$= \frac{1.96^2*0.20*0.80}{0.05^2} = 246$$

Number of respondents in each cluster was therefore determined by dividing the sample size with the number of clusters which were 12.

246 ÷ 12 = 20.5 which is approximately 21 respondents.

It is normal practice to adjust the sample size for finite populations, but in this study, the practice was avoided in order to improve the precision of the results. Burgers *et al.* (2009) however argued that is not appropriate to take a large sample and relate performance to diversity but rather investigation should be done based on unique situations and challenges facing industries. Therefore the sample was deemed sufficient for the study.

Data Collection Instruments

A semi-structured questionnaire was used as the data collection instrument which contained closed-ended questions as well as open-ended questions. The advantage of closed-ended questions is that they are quick to answer and require no specialized writing skills from the respondent and are easier to code. The advantage of open-ended questions is that they allow respondents to provide their own views. Secondary data included literature review as well as classifying the industry segments based on the ISIC Rev. 4 codes where products belonging to

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different four-digit ISIC industries within the same two-digit industry group were treated as related while products from two-digit ISIC industry groups were treated as unrelated (Palepu, 1985; Hitt *et al.,* 1997).

Data Collection Procedures

Both primary data and secondary data were used in the study. Primary data covered the background information and the independent variable, that is, access to markets in relation to product diversification. It also covered the dependent variable, that is, dairy enterprise performance. Secondary data mainly covered product diversification based on the ISIC Rev. 4 codes. According to Odero-Wanga *et al.* (2009), any sign post advertising the business premises of a dairy enterprise must be authorized and paid for. As most of the milk bars were not licensed, they lacked a business name, only having the name "milk bar" at the entrance to the premises. In respect to this, only the name of the milk bar owner was elicited from the respondents for those who were willing to provide their names.

Pilot Testing

The questionnaire was pre-tested to ensure that quality data was collected. A pre-test involves administering the data collection instrument to a small group of individuals (n=10-30) who are similar to the target population for whom the researcher wants to generalize study results (Aparasu, 2011).The purpose of pre-testing is to ensure that items are clearly presented so that respondents understand and interpret the questions or items in the same way (Mugenda, 2008). Pre-test results can help the researcher identify problems with clarity of questions, response categories, directions and other problems that may interfere with the respondents completing the survey consistently and accurately (Aparasu, 2011). The selection of the sample dairy enterprises to be pre-tested depended on the proximity and willingness of the respondents to participate in the exercise. The questionnaire was discussed with the respondents to identify any shortcomings in the instrument. Information arising out of the pre-testing exercise was used to make the necessary adjustments before undertaking the main data collection exercise.

Reliability, Validity and Accuracy of Data Collection Instruments

Cronbach's alpha test of reliability was used to measure the internal consistency of items in the questionnaire; when a measure is internally consistent, all of the individual questions or items making up that measure should correlate well with the others (Cramer & Howitt, 2004). According to Mugenda & Mugenda (1999), Cronbach's is based on the split-half reliabilities of data from all possible halves of the instrument, it's use reduces the time required to compute a reliability coefficient in other methods and results in a more conservative estimate of reliability which helps to avoid erroneous conclusions. A high coefficient implies that there is high consistency among the items in measuring the concept of interest. According to Field, Miles and Field (2012), a value of 0.7 is an acceptable value for Cronbach's alpha. Bryman (2008) on the other hand recommended that a minimum level of 0.6 for Cronbach alpha coefficient is good.

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Validity refers to whether an instrument measures what it was designed to measure (Field *et al.*, 2012). Content validity considers the extent to which the contents of a test are relevant to and representative of the construct definition, that is, representativeness of selected items in relation to the whole of what is to be measured (Salkind, 2010). To ensure content validity the researcher worked closely with the supervisors for their insight into the questionnaire. Substantive validity considers the extent to which responses of a test are consistent with the construct definition and includes evidence of the processes through which examinees respond to the test items and of consistencies among responses to different items (Salkind, 2010). To ensure substantive validity and accuracy of responses, the questionnaires were administered to the respondents through personal interviews. The interviewer contacted potential respondents and asked qualifying questions before beginning the enquiry and if the interviewer needed the respondent, the interview proceeded while if the respondent was not required, the interview was terminated with an explanation (Alreck & Settle, 2004).

Data Processing and Analysis

Data cleaning and editing was done by checking for incomplete information, where a call was made or a second visit to clarify important information in the questionnaires and necessary corrections were done. The data was then coded to enable meaningful analysis. Outliers were checked by examining the data based on the expected results to determine how good the data was. To protect the informants' identities, it was not mandatory to provide both names by the respondents as some of the milk bars were not registered and respondents were only required to provide the names they were comfortable with.

Analysis of data collected and the hypothesis testing was done using regression analysis. Bivariate analysis was used and involves testing the relationship between an independent variable and the dependent variable simultaneously. It was suitable and was used to analyze the correlation between two variables, that is, the change in the value of the dependent variable associated with a change in the independent variable (Flick, 2011). Pearson's correlation coefficient was used to determine the relationship between the independent variable and the dependent variable and is used in bivariate relationships (Levin, Fox & Forde, 2010). Pearson's correlation coefficient was suitable because likert scales were used in this study. According to Levin *et al.* (2010) likert scales are interval scales and where interval scales are used in a study, Pearson's correlation coefficient is the most appropriate tool for data analysis. The F-test was used to test the hypothesis.

Operational zing the Variables

To measure access to markets, likert type questions were used to assess the level of marketability of diversified dairy products as well as dairy entrepreneur perceptions on the extent to which customers may be willing to accept or fail to accept diversified products. Semi-structured questions were also used. To measure dairy enterprise performance, which is the dependent variable, structured and likert type questions as well as direct quantitative figures were elicited from the respondents. The structured and likert type questions were used to determine dairy

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entrepreneur's perceptions on the performance of their products over the last three years in terms of profits and sales. Quantitative percentage sales and profits figures based on estimates were also elicited from respondents. Consistent with Karanja (2003) and Kaitibie *et al.* (2010) studies on the informal dairy sector in Kenya, profit per litre of milk was used to capture information on level of profitability of the milk bars. Information on profit per litre of milk vis a vis that of value added dairy products over a three year period was elicited from the respondents. Information on percentage contribution of milk and other value added products to the total sales was also elicited from the respondents to capture information on sales.

Results

The objective of the study was to find out the influence of access to markets for diversified dairy products on dairy enterprise performance. The results of the study showed that the SSMVs had added value to their milk at varying degrees though the contribution of milk to the total sales was highest ($\bar{X}$ = 74.76, SD= 19.35), followed by *mala* (fermented milk) ($\bar{X}$ =16.39, SD= 9.94), milk based drinks (tea with milk) ($\bar{X}$ =14.68, SD= 13.40), yoghurt ($\bar{X}$ =14.33, SD= 9.50), ice cream ($\bar{X}$ =8.14, SD= 3.29), cream ($\bar{X}$ =7.37, SD= 4.68), Cheese ($\bar{X}$ =7.00,SD= 4.36) and lastly butter ($\bar{X}$ =5.25, SD=3.40). This is in line with findings that most of the milk, that is 84% is consumed raw with only a paltry 16% being processed to value added dairy products in the informal dairy sector in Kenya (Techno Serve, 2008). Similar statistics were also given by Muriuki (2011) who indicated that 85% of the milk in Kenya is consumed raw.

The findings seem to suggest that there is high demand for dairy products in the dairy enterprises with 90.4% of the respondents indicating that they had contracts with certain customers to supply diverse dairy products, 64.3% indicated that the products were purchased directly from the shop, 61.2% indicated that they run out of stock within a few hours of selling their products while 76.3% indicated that customers flocked to their shops to purchase the dairy products. This supports the findings on the preference by Kenyans for purchasing dairy products especially raw milk from the informal dairy sector due to the high butterfat content, easy accessibility and the fact that it can be sold in variable quantities (Muriuki, 2011; Techno Serve, 2008). However, 69.6% of the respondents indicated that their dairy products usually go bad which could be indicative of poor preservation habits or poor hygiene which makes the milk easily go bad as shown on table 1.1. This supports findings by Stichting Nederlandse Vrijwilligers (2013) who alluded that estimates point to 40% of raw milk produced being lost due to lack of proper cooling and bulking facilities. Further support is provided by Odero-Wanga *et al.* (2009) who found that 28.8% of the SSMVs in their study did not have any cooling or preservation equipment.

Table 1.1: Access to Markets

Access to Markets	Response	Frequency	Percent
I have contracts to supply dairy products with certain customers	Yes	226	90.4
	No	24	9.6
My dairy products are purchased directly from my	Yes	160	64.3

shop	No	89	35.7
My dairy products never go bad	Yes	76	30.4
	No	174	69.6
Most of the time, I run out of stock within a few hours of selling my dairy products	Yes	153	61.2
	No	97	38.8
Customers flock to my shop to sell my dairy products	Yes	190	76.3
	No	59	23.7

The respondents had adopted various methods to influence customer uptake of the dairy products. The majority, that is 59.6% of the respondents used displays, 49.2% used word of mouth, 19.2% offered quality products, 6.8% used posters, 3.6% sold at affordable prices, 3.2% maintained hygiene, 2.4% used free samples, 2.0% gave discounts to loyal customers, 2.0% used advertisement, 2.0% offered quality customer service and trust while 1.6% used public relations with a similar percentage using social media as shown on table 1.2. This supports the findings by Kurwijila and Bennet (2011) that in the absence of regulators to promote technology in East Africa, there was resistance in the use of improved methods for adding value in milk handling, processing and marketing. Displays and word of mouth were the most common methods used to influence customer adoption of value added dairy products while the least used methods were public relations and social media indicating that the respondents had not embraced technology as a way of promoting their dairy products. The results also support findings by Stichting Nederlandse Vrijwilligers (2013) that milk bars use Point of Sales (POS) materials to communicate about their competitive prices and that they use word of mouth on quality to grow their volumes. The results are indicative of the need to cut down costs as most of them had adopted marketing strategies that involved very little cost. Further support is provided by Odero-Wanga *et al.* (2009) that SSMVs, particularly those owned by women have limited marketing skills which hamper the performance of their dairy enterprises.

SSMVs should be assisted in embracing Information and Communication Technologies (ICT) which can help overcome physical, infrastructural and institutional obstacles facing smallholders that prevent them from integrating into modern value chains and hence improve market access (AGRA, 2017).

Table 1.2: Strategies to Influence Customer Uptake of Value Added Dairy Products

Strategies to Influence Customer Uptake of Value Added Dairy Products	**Frequency**	**Percent**
Displays	149	59.6
Word of mouth	123	49.2
Offering quality products	48	19.2
Posters	17	6.8
Selling at affordable prices	9	3.6
Hygiene maintenance	8	3.2

Giving free samples	6	2.4
Giving discounts to loyal customers	5	2.0
Advertisement	5	2.0
Quality customer Service and trust	5	2.0
Social media	4	1.6
Public Relations	4	1.6

Results on Regression Analysis on Access to Markets for Diversified Dairy Products

H_{03}: Access to markets for diverse dairy products does not influence performance of dairy enterprises in Kenya.

Table 1.3 shows the results of regression analysis on access to markets for diverse dairy products in relation to performance of the dairy enterprises. A linear regression F-test using ANOVA was carried out to test whether access to markets influences dairy enterprise performance. The linear regression model of access to markets against performance was found to be significant ($F(1,247) = 63.98$, $p < 0.001$) at 5% level of significance. The null hypothesis was therefore rejected and the alternative hypothesis that access to markets for diverse products influences performance of the dairy enterprises was accepted. The resulting goodness of fit was $R^2 = 0.206$ indicating that 20.6% of the variability in Y is explained by access to markets index while R= 45.4%. This indicates that there is a moderate relationship between access to markets and dairy enterprise performance. There was no multicollinearity in the model because the Variance Inflation Factor (VIF) = 1.00. The regression equation was:

Y= 0.93 +0.60 access to markets
where; Y= Dairy enterprise performance

Table 1.3: Regression Analysis between Access to Markets and Performance of Dairy Enterprises

Table 1.3a: Model Summary

Model	*R*	*R Square*	*Adjusted R Square*	*Std. Error of the Estimate*	*Change Statistics*				
					R Square Change	*F Change*	*df1*	*df2*	*Sig. F Change*
1	*.454[a]*	*.206*	*.203*	*.79191*	*.206*	*63.983*	*1*	*247*	*.000*
a. Predictors: (Constant), X3									

Table 1.3b: ANOVA[b]

Model	*Sum of Squares*	*Df*	*Mean Square*	*F*	*Sig.*

1	*Regression*	*40.125*	*1*	*40.125*	*63.983*	*.000[a]*
	Residual	*154.899*	*247*	*.627*		
	Total	*195.023*	*248*			
a. Predictors: (Constant), X3						
b. Dependent Variable: performance						

Table 1.3c: Coefficients[a]

Model		*Unstandardized Coefficients*		*Standardized Coefficients*	*T*	*Sig.*	*Collinearity Statistics*	
		B	*Std. Error*	*Beta*			*Tolerance*	*VIF*
1	*(Constant)*	*.934*	*.263*		*3.553*	*.000*		
		.599	*.075*	*.454*	*7.999*	*.000*	*1.000*	*1.000*
a. Dependent Variable: performance								

Discussion on Access to Markets for Diversified Dairy Products

Access to markets for diversified products had a positive linear relationship on dairy enterprise performance. The results were significant when access to markets was measured in terms of customers who purchase the dairy products. The findings are in line with Muriuki (2003) who indicated that to overcome the weakness of small-scale milk production and marketing in Kenya, smallholders had developed strategies that included selling dairy products directly through informal markets using milk traders for bulking and distribution. The findings are also supported by Christensen and Montgomery (1981) who alluded to the fact that firms that pursue related diversification tend to be profitable because they operate in very profitable, highly concentrated markets and are able to acquire large shares in those markets with successful performance being the outcome of market opportunity combined with taking advantage of that opportunity. Additional support for these findings were also provided by Capon,Hulbert, Farley and Martin (1988) who indicated that firms that concentrate on one market area, either consumer or industrial are likely to achieve superior performance. The findings were further supported by Baiya and Kithinji (2010) who indicated that markets and consumers drive the dairy sector and that when dealing with a commodity, the products offered must conform to what the consumer wants to purchase for there to be increased profitability of the enterprise. This provides credence to the assertion by Capon *et al.* (1988) that market based factors are critical for the success of organizations. Additional support is provided by Muriuki (2003) who indicated that milk consumption in Kenya can be increased through broadening the dairy product mix in the market

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and promoting the consumption of concentrated products targeting particular communities such as Asians who prefer products like cheese.

Muriuki (2003) indicated that there has been opposing views on whether Kenya's policies should aim at self sufficiency in milk and dairy products or should combine self sufficiency and surplus production for export to the region taking its current strength and advantage of its large dairy cattle production. The findings of this study suggest that it is important to incorporate surplus production in the policy framework with the purpose of marketing dairy products in the regional markets. Efforts should be made to incorporate the dairy products sold through informal channels based on their compliance with the stringent quality, health and hygiene requirements and based on support from various institutions. The value of R^2 was low (20.6%) which could be explained by the fact that customers have different tastes and preferences for various products and therefore if consumers do not prefer a certain value added product, it may fail to sell leading to decreased performance. This in line with the assertion by Lancaster (1966) that if a new good possesses characteristics in the same proportions as some existing good, it will simply fail to sell to anyone if its price is too high, or will completely replace the old good if its price is sufficiently low. Access to markets influences the performance of the dairy enterprises but when dealing with a commodity, the products offered must conform to what the consumer wants to purchase for there to be increased profitability of the enterprise.

Improving Market Access for SSMVs through Networks

Africa's agri-food economy is smallholder dominated comprising SMEs and millions of micro-entrepreneurs in the informal sector which large companies do not like, as it poses high risks under normal circumstances and has the potential to cause major disruptions (disruptive innovations) controlling more than 80% of all the value of food sold to consumers: the trend is projected to continue for the next two decades (AGRA, 2017). Interventions that address the needs and challenges that the SSMVs face in terms of access to markets cannot therefore be wished away. Markets and consumers drive the dairy sector and when dealing with a commodity, the products offered must conform to what the consumer wants to purchase for there to be increased profitability of the enterprise (Baiya & Kithinji, 2010). This study identified access to markets as crucial to diversification based on literature which revealed that market based factors are critical for the success of organizations.

This study recommends that the government of Kenya and key actors in the dairy sector in an effort to boost the economy and create employment especially in the informal sector, have a major role to play in helping the SSMVs find markets for their value added dairy products in order to encourage more of them to add value to milk. This must however be pegged on a supportive institutional framework that ensures that the SSMVs produce quality and safe dairy products. Emphasis must also be placed on quality packaging to ensure that the products are competitive in the market. Successful transition into the quality improvement phase must be pegged on targeted policy and regulatory interventions to protect and enforce quality norms and standards and encourage innovations (AGRA, 2017). In addition, the SSMVs can also be

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sensitized on the need to embrace technology such as social media in the marketing of their dairy products. An anchor model that combines technology, institutions and markets has seen the success of tea and horticultural products in Kenya based on institutional support through establishment of marketing boards, institution of favourable investment policies and institutional frameworks that took advantage of international prices and research collaboration (AGRA, 2017). Such a model can be customized to suit the needs of SSMVs dairy enterprises.

This study proposes that as an intervention for SSMVs in the dairy sector in Kenya, a new model based on establishing informal and formal networks should be explored as an option to increasing market access for their value added dairy products. This should be complemented by an advisory based institution that sensitizes the SSMVs on the need to form networks among themselves through formation of clusters and between various sectors players for them to reap the benefits and exploit full market potential for their value added dairy products at the domestic and regional front. This is supported by Tvedten, Hansen and Jeppesen (2014) who argued that among the coping strategies that African Business firms can adopt to deal with institutional voids is diversification and network strategies. Tvedten *et al* argued that firm capabilities to access and make use of external sources and relations are fundamental for growth and that network capabilities are often used to circumvent deficient or absent market and institutional structures through non-market interactions. Tvedten *et al.*(2014) asserted that among the crucial network capabilities is the ability to tap into clusters and foster relations with the state and authorities: state business relations (SBRs). The SBRs can have a positive impact on business performance by providing a solution to state, market and coordination failures, by providing efficient policies and institutions, improved quality and relevance of government expenditure and reduced policy uncertainty, Qureshi and Tevelde (as cited in Tvedten *et al.*, 2014). This is because small informal enterprises rarely have access to formal financial institutions, state resources and state protection (Pedersen and McCormick, 1999) which is crucial in accessing markets and in future business growth.

This study opines that the informal and formal networks created can help overcome some of the challenges and obstacles that SSMVs face as they try to grow and expand their businesses due to institutional voids. Success of these networks must be based on a mind shift away from blanket condemnation of the informal sector because the success of this sector can mean additional employment opportunities as well as more revenue for the government from incomes generated from national and regional sales of the value added dairy products. This move can also encourage more of the informal SSMVs that are not registered to formalize their businesses in an effort to reap the benefits from joining the clusters at local levels. Success of the networks must also be based on policy and institutional innovations cognizant of the need to take advantage of the opportunities created by the changing tastes and preferences of consumers, increased levels of urbanization, a growing middle class that is demanding processed, ready to consume, high quality, safe, healthy and nutritious food and the need to increase productivity and growth of the dairy sector in general. Embracing of these innovative informal and formal networks must also be pegged on the need to take advantage of opportunities created by the need to exploit the commercial potential that could be reaped from regional deficits in dairy products. This can also be a solution to the seasonal surplus production and losses of milk experienced in Kenya.

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Conclusion

A call has been made on the obligation to include the value of un-marketed and informally marketed livestock production in order to make an accurate assessment of the contribution of the sector to GDP estimates, besides the officially recorded sales figures, in order to contribute to evidence based discussions especially on the dairy policy in Kenya (Intergovernmental Authority on Development Center for Pastoral Areas and Livestock Development, 2013). Further, questions have been raised on the resilience of value chains given that smallholders who form a huge portion of the agri-food sector in Africa are simply not organized to have much voice in the political agenda and are faced with the practical realities of dealing with weak public institutions as they search for markets for their products (AGRA, 2017).This empirical investigation found that the SSMVs had added value to milk at varying degrees though most of the milk was still sold in raw form and had adopted various methods to influence customer uptake of the dairy products. Majority of them used displays and word of mouth, while the least used methods were social media and public relations. The SSMVs should therefore be sensitized on the need to increase value addition to milk as well as embrace technology such as social media in the marketing of their dairy products. Access to markets for diversified products had a positive linear relationship on dairy enterprise performance. The results were significant when access to markets was measured in terms of customers who purchase the dairy products. This study recommends that the government of Kenya and key actors in the dairy sector in an effort to boost the economy and create employment especially in the informal sector, have a major role to play in helping the SSMVs find markets for their value added dairy products in order to encourage more of them to add value to milk.The study proposes that an intervention for SSMVs in the dairy sector in Kenya based on innovative models anchored on establishing informal and formal networks should be explored as an option to increasing market access for their value added dairy products. These networks can be used to exploit opportunities in the growing urban food demand for processed, high value added, healthy, nutritious and ready to consume products as well as regional dairy product deficits. This will help in disposal of seasonal surpluses, reduce losses along the dairy chain and increase productivity and incomes of the SSMVs and the government.

Future research should be devoted to the role played by institutions in the success or failure of smallholder enterprises in Sub-Saharan Africa (SSA), focusing on specificities such as SSMVsin order to design relevant and appropriate interventions. This will help in avoiding sweeping generalizations and condemnation of the informal sector in SSA.

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