

Impact of Technology Transfer on the Performance of Women-Owned Micro Small Medium Enterprises (MSMES) In Kisii County, Kenya

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Abstract

The main objective of the study was to establish the impact of technology transfer on the performance of women-owned MSMEs in Kisii County, Kenya. To achieve this objective a sample size of 288 enterprises was selected based on Israel, G. D. (1992) sample size formula. A descriptive survey was employed to gather information. Primary data was collected from the indicated target women enterprises using questionnaires. The correlation analysis results revealed that technology transfer had a positive significant association with the performance of women-owned MSMEs in Kisii County, Kenya. The regression analysis results revealed that technology transfer significantly accounted for the positive variability in the performance of women-owned MSMEs in Kisii County, Kenya. The major setback of this study was the exclusive use of questionnaires to collect data. Future studies should consider employing interview guides and secondary information in order to come up with objective reliable findings on the impact of business development services on the performance of women-owned MSMEs. Future studies can also consider determining the moderating effect of the external business environment on the relationship between the business development services and organizational performance in women-owned or youth owned MSMEs.

Keywords: Technology transfer, women-owned enterprise, performance

Background of the Study

The state of women in enterprise development, the starting and growing of individual enterprises is a major concern among governments in most countries from the early days. One of the global impetuses in developing countries was the United Nations Decade for Women (1976-1985). In 1979, the General Assembly of the United Nations adopted the International Convention on the Elimination of All Forms of Discrimination against Women (CEDAW), and this paved the way for greater government attention everywhere on the role of women in development programmes and on strategies for eliminating discriminatory practices against women. During the 1980s, the question of how to integrate women effectively into development projects was more systematically researched, and the objective of development policies became more focused on how to increase women's access to education skills, training, credit, land and other productive resources to enable them to participate fully in economic activities. At the same time, there was a growing recognition that prevailing patriarchal structures and stereotypical

attitudes towards women's roles in society impacted negatively on the ability of women to function as economic agents in society. Women had been wrongly perceived as a marginal economic group, rather than as a positive socioeconomic force. As entrepreneurs they had significant untapped potential as wealth creators (Stevenson & St-Onge., 2005b).

The 2012 U.S census survey of small women-owned business indicated that, US women in the early days operated small businesses as a way of supplementing their income and some due to the loss of a spouse. At that time, the activities that these women undertook were not thought of being entrepreneurial since, the term entrepreneur was reserved for men (Gwinn-Becker & Michals, 2018). These women had; low levels of wealth, access to capital problems, racial discrimination and inadequate networks as barriers and continue to be barriers to women in MSMEs (Gwinn-Becker & Michals, 2018). But, in the 1980s and 1990s the public became more receptive and encouraging to the female entrepreneurs by acknowledging the valuable contribution they were making to the economy (Gwinn-Becker & Michals, 2018). Additionally in 1988, the National Association of Women Business Owners helped to push Congress to pass the *Women's Business Ownership Act*, which would end discrimination in lending

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and also strike down laws that required married women to acquire their husband's signature for all loans. This Act also gave women-owned businesses a chance to compete for government contracts GovTrack.us. (2019). Later on in 1989, Susan Engeleiter a woman was appointed as head of the US government's Small Business Administration whose main objective was to maintain and strengthen the nation's economy by enabling the establishment and viability of small businesses. This brought more opportunities in the world of women in MSMEs. Where, many opportunities came about to help those who were interested in starting up their own businesses. Support groups, organizations for educating the women in MSMEs, and other opportunities like seminars and help with financing came from many different sources, such as the Women's Business Development Center and Count Me In.

In 2000, the World Bank conducted a survey interviewing more than 20,000 poor people in 23 developing countries including Uganda. The respondents spoke of their marginalization their powerlessness, lack of a voice and little freedom of choice or action. No matter where they lived, the poor said the same thing: they could move up in society only by gaining greater employment options through a chance to earn steadier wages in a formal sector job. Most of these respondents were women (World Bank, 2001). Some scholars even argue that women entrepreneurs' contribution tends to be higher than that resulting from entrepreneurial activity of men (Minniti, 2010). Which is replicated in a new report released by MasterCard (2018), it was reported that 34.8 percent of businesses in Uganda are owned by women, making the East African nation the top performing country in Africa in terms of women entrepreneurship (Tan, 2018). The report is part of the MasterCard Index of Women's Entrepreneurship (MIWE), which is aimed at helping governments and other relevant bodies better understand and identify ways of bridging the gender gap among business owners in different economies. Similarly, The American financial services corporation examined 54 countries around the globe, including Botswana, Ethiopia, South Africa, and Uganda. "Uganda scored particularly well in terms of advancement outcomes: the women entrepreneurial activity rate was 100 percent, with its labor force participation rate at 93.9 percent, making the country the top in these areas worldwide," the report says. The report places Uganda ahead of giant economies, such as the United States, Spain, Austria, New Zealand, and Russia. These women are mainly tapping in to business opportunities that do not necessarily require special expertise and innovation, effectively enabling them to avoid any major regulatory, technical, and financial constraints, the report says.

Kenya has so far made milestones with many reforms having been made to see that women actively take up roles in the society that were previously viewed as male dominated. Two of the major milestones in place are,

Kenya's Vision 2030 and the New Constitution enacted in 2010 which has spelt out clearly the role of women. According to Mbogo (2011), women in the sector face a number of serious obstacles. Among these are: gender-blind or gender-insensitive macroeconomic policies, complex tax policies and compliance procedures, gender-based inequalities in employment policies and regulations, complex business registration and licensing procedures for the smallest micro-enterprises (where the majority of women are found), lack of cultural acceptance for the role of entrepreneurship for women, limited access to appropriate business premises, limited access to BDS (business development services), lack of collateral due to property ownership practices, lack of access to term loans and sufficient working capital to meet their needs and the limited organizational and management capacity among women's advocacy groups, (Adigwe, 2012). The Vision 2030 enabled the establishment of the government of Kenya introduced the Women Enterprise Fund and Uwezo Funds to empower women so that they are able to engage more in self-development and enhancing the country's economic development, distribute wealth across various social groups and allow them borrow money to engage in businesses and other activities at zero interest rates without the restrictions like collaterals and guarantors. This has been actualized through the establishment of Women Enterprise Fund (WEF) in 2007 and the Uwezo Fund in 2014 (Ndururi, Mukulu & Omwenga, 2019).

The growth of the proportion of women entrepreneurs in developing countries has drawn the attention of both the academic and the development sector. Donors, international public institutions, national and local governments, NGOs, private companies, charities, knowledge institutes and business associations have initiated programs or policies to promote and develop women's entrepreneurship. However, despite this growing number of initiatives and resources made available to promote and develop women's entrepreneurship in developing countries, women still earn less money in their businesses that have a slow growth, are more likely to fail and tend to be more necessity entrepreneurs.

Consequently, women are enthusiastic about their enterprises but social set up in which they operate present challenges which significantly impact on the growth of their businesses. The International Labor Organization, (ILO, 2007) mentions some of the challenges as social processes, institutional arrangements, credit systems, regulatory agencies and educational institutions. Specifically, the report observes growth of women enterprises as affected by cultural practices that deny women rights, financial constraints, lack of education and training, lack of social support, lack of managerial experience and absence of supportive policy. According to the 1999 National Micro and Small Enterprises (MSEs) Baseline Survey, there were 612,848 women in micro and small enterprises in Kenya

accounting for 47.4% of all MSEs (Mwobobia, 2012). Women groups operating MSEs in Kenya include those running small scale enterprises (Mwobobia, 2012). They are differentiated by their demographic profiles, extent of previous business practice, needs, access to resources and growth orientation (Mwobobia, 2012). These, many women entrepreneurs lack entrepreneurship skills, adequate management education and capital necessary for successful business (Nzomo, 2015).

Business Development Services

According to UNDP (2004) Business Development Services (BDS) are generally defined as: "services that improve the performance of the enterprise, its access to markets, and its ability to compete. The definition of 'business development service'... includes an array of business services [such as training, consultancy, marketing, information, technology development and transfer, business linkage promotion, etc.], both strategic [medium to long term issues that improve performance] and operational [day-to-day issues]. BDS are designed to serve individual businesses, as opposed to the larger business community." BDS are a very important means of supporting the development of micro, small and medium sized enterprises (MSMEs), which are known to create employment, generate income and contribute to economic development and growth. Employment and income generation are particularly important as far as impoverished rural areas, vulnerable communities and groups are concerned. In this sense, provision of quality BDS is an important means of achieving the Millennium Development Goals (MDGs) by addressing poverty and empowering the poor and vulnerable groups (UNDP, 2005).

These are business services that are applicable to enterprises in a variety of sectors and subsectors. The aim of many of these programs is to improve the competitiveness. Some of these programs are innovating interesting new business models for the delivery of cross sector business services to medium, small and even micro enterprises. One particular area of innovation is the integration of financial services with other business services. Practitioners have long understood that most enterprises need access to both financial services and other business services. However within the development community there has traditionally been a separation between financial services and business development services. Several organisations are now working to bridge that gap by promoting links between providers of financial and business services.

Impact of Technology Transfer on Organizational Performance

Technology transfer denotes the adoption of innovative practices, techniques and unique knowledge that has been developed by another business entity (Sazali &

Raduan, 2011). It can also be understood as the conception of new technology as a foundation of utilizing the existing technology with an aim of improving it (Dubickis & Gaile-Sarkane, 2015). For instance an entrepreneur can improve her French fries business by introducing a new spice that makes the product more attractive after learning from an innovative business friend who actually was selling her French fries with salad which had not been done yet it in the past. Innovation on the other hand, simply means the creation of ideas, its acceptance and the application of such ideas, which are either new or amendment of the current processes, products or services (Babalola, 2006). Technology transfer also entails the amendment or improvement of current business process and products hence similar to innovation. Though in some cases innovation denotes a development of a completely new idea. Hence technology transfer is the most appropriate term to be used since currently people do not completely invent a totally new idea but develops, improves and amends the existing approaches that are effective and efficient in addressing the changing needs of the market.

The accomplishment of technology dissemination is governed by business economic appropriateness and the ease of access to the available technology (Everts, 2017). The establishment of the appropriateness demands for feasible research and linkages between suppliers and the targeted consumers (Everts, 2017). Knowledge and technology transfer are crucial for economic development and wealth creation (Best, Sinell, & Heidingsfelder, 2016) moreover it is highly reliant on interactions (Zhang, 2008). Entrepreneurs seek to discover and implement innovative practices through social connections and exchanges (Dastourian et al., 2017). UNCTAD (2014) conducted a global survey on women's entrepreneurship and innovation. The study was conducted in 6 countries namely, Sweden, Switzerland, USA, Brazil, Jordan and Uganda. The study employed a quantitative survey and qualitative interviews to collect data. The findings revealed that women wishes to make innovative contributions in their societies. The findings of the study also revealed that most women always aim to make a significant improvement to a current product or service or to vend a completely new product or service that is of great quality. Besides that, a study conducted by Kamau (2016) in Nairobi County, Kenya revealed that technology transfer has a positive impact on business growth of SMEs among the youth driven initiatives.

On the other hand, Mwai, Ntale and Ngui (2018) who conducted a study to establish the effect of entrepreneurial orientation on the performance of family owned businesses in Nairobi County revealed that the culture of technology transfer enhances organizational performance. The study had employed multivariate regression model to test the relationship. Ozmutaf et al. (2015) critically examined how innovative features of women managers impacted business performance of food exporter firms in Aegean region. The study revealed

that innovative features comprising of research and high communication, great confidence, creativity, being solution orientated, embracing abstract thinking, being open to learning and being able to identify opportunities positively impacted business performance. This supports the notion that innovation is a vital tool for exploiting change as an opportunity to convert the available inputs in a profitable way (Balkiene & Jagminas, 2010).

Furthermore, Kiende, Mukulu & Odhiambo (2019) confirmed that technology transfer positively impacts on performance of women owned firms in Kenya. The findings concurred with research outcomes of (UNCTAD, 2014; Kamau, 2016; Mwai, Ntale & Ngui, 2018; Ozmutaf et al., 2015) who established similar findings. The findings of Kiende, Mukulu and Odhiambo (2019) also agreed with the research outcomes of Makanyeza and Dzvuke (2015) who had conducted a similar study on SMEs operating in Zimbabwe though the study found that marketing and process innovation that no significant impact on organizational performance. Conversely, Ndesaulwa and Kikula (2016) revealed that there were generally no consistent results that technology transfer impacts organizational performance of SMEs in Tanzania. The possible explanation as to why the findings were inconsistent to the findings of (Kiende, Mukulu & Odhiambo, 2019; UNCTAD, 2014; Kamau, 2016; Mwai, Ntale & Ngui, 2018; Ozmutaf et al., 2015) could be attributed to the notion that the business environment of Tanzania is unique and different when compared to other regions where similar studies were conducted.

Interestingly, Njenga (2015) found that technology transfer is hardly practiced in SMEs in Nairobi County even though its implementation leads to enhanced operational performance. The study recommended that SMEs have to frequently adopt innovation practices in order to achieve the desired organizational performance. Foster (2016) noted that when there is lack of technology transfer characterized by new products and access to greater value markets, then the possible success for SMEs will be considerably low. At the moment, based on the studies (Foster 2016; Kiende, Mukulu & Odhiambo, 2019; UNCTAD, 2014; Kamau, 2016; Mwai, Ntale & Ngui, 2018; Njenga, 2015; Ozmutaf et al., 2015) reviewed there were limited studies conducted to establish the impact of technology transfer on performance of women owned MSMEs in Kenya with specific reference to Kisii County. Accordingly, from the reviewed empirical literature, the following null hypothesis will be tested:

H₀₁: There is no significant relationship between technology transfer and the performance of women owned MSMEs in Kisii County.

Methodology

Hence this study adopted a cross-sectional research design since it studied all the variables of interest at only one point in time. This meant that data was collected

from the participants only once and not repeatedly. Cross-sectional research design was considered by the study since it permits data to be collected from a pool of respondents with different features and an assessment of the association between the variables in order to accept or reject the proposed hypotheses. The research study was undertaken in Kisii County Kenya, which constitutes of 9 Sub-counties. The study targeted women who have business enterprises within the County. This area of study was chosen because; According to National Geographic Almanac of Geography (2005) After Kisumu city, Kisii is the second most populous town in Nyanza. Whereas in Kenya, Kisii town is the eighth most populous town. The study targeted all the 1000 small enterprises ran by women within Kisii County (Kisii County Government, 2019). Stratified sampling design a probability technique was used to divide the targeted sample of the respondents into 9 stratum representing each of the 9 sub-counties in Kisii County. This sampling technique was employed since it permitted the researcher to choose equal proportion of the respondents from each of the sub-county in Kisii County to give a true representative picture of the whole population of the targeted respondents in Kisii County. Moreover convenience sampling a non-probability technique was employed to sample the targeted respondents from each of the 9 sub-counties in Kisii County. Therefore the researcher only targeted the participants whom she was able to find in their enterprise. A 5-point Likert scale questionnaire was used since it assisted in transforming qualitative responses to quantitative figures that could be statistically analyzed. The researcher personally administered the questionnaires to the respondents after getting permission to collect data from the panel and after getting the research permit letter.

Results

In regard to the research findings, 29.41% of the respondents indicated that they engaged in grocery business in Kisii County. Besides that 18.14% of the respondents indicated that they were solely involved in salon business while 15.69% revealed that they were primarily engaged in Mpesa business. On the other hand, 6.37% of the respondents indicated that they were involved in juice blending/fruit business while 2.94% revealed that they were engaged in Indigenous vegetable farming business. In addition, 10.29% of the respondents indicated that they were involved in cereals business, 13.24% were engaged in hotel business while 3.92% were involved in Mitumba (second clothes business). From the findings presented above, it can be established that most of the women-owned MSMEs are engaged in grocery farming in Kisii County.

In conclusion it can be established that most of the women-owned enterprises were located in Nyaribari Masaba (16.18%), Nyaribari Chache (6.86%) and Kitutu Chache (12.75%) South sub-counties. The probable

reasons could be that women-owned enterprises thrives in these sub-counties compared to other sub-counties or it could be probably be due to business networking initiatives. The information retrieved to address the impact of business development services on the performance of women-owned MSMEs was a true representative of the population in regard to each sub-county in Kisii County, Kenya. This meant that a response rate from one sub-county to another did not significantly vary which could have raised biasness issues.

The research findings established that 10.8% of the respondents indicated that their businesses have been in operation between 0-2 years. In addition, 14.2% of the respondents revealed that their businesses have been in operation between 3-5 years. Besides that 14.2% of the respondents recorded that their businesses have been in operation between 6-10 years. On the other hand, 30.9% of the respondents stipulated that their businesses have been in operation between 11-15 years. Additionally, 16.2% of the respondents indicated that their businesses have been in operation between 16-20 years. Finally, 13.7% of the respondents revealed that their businesses have been in operation for more than 20 years.

In a broad-spectrum, it can be established that most of the women-owned MSMEs in Kisii County have been in

operation between 11-15 years. This clearly reveals that most of the women-owned MSMEs in Kisii County are at a growth stage characterized by rapid sales turnover growth past the break-even point. This clearly explains why the profitability of most of the women-owned MSMEs in Kisii County ranged between 20%-50% and 50%-100% in all the quarters of the year. Hence the results informed the general objective of the study in terms of performance.

The research findings established that only one respondent (0.5%) had a PhD qualification while 3.4% had Masters qualification. On the other hand, 21.1% of the respondents recorded that they had a Bachelors’ degree qualification. Besides that, 37.7% of the respondents revealed that they had a Diploma qualification. Additionally, 21.1% of the respondents indicated that they possessed a Certificate qualification. Moreover, 12.7% of the respondents revealed that they had a Secondary education qualification while 3.4% of the respondents stipulated that they had a Primary education qualification. In general it can be established that most of the respondents were Diploma holders which clearly indicated that education was not really a key motivator for women to be entrepreneurs in Kisii County.

Descriptive Statistical Results of Technology Transfer

Table 4.6: Descriptive Statistical Results of Technology Transfer

| Technology Transfer Statements | | Mean | Standard Deviation |
|--------------------------------|---|--------------|--------------------|
| 1. | New enhanced modes of communication with customers have improved the organizational performance of my business. | 4.270 | 0.801 |
| 2. | Being open to learn and being able to identify new alternative opportunities has led to positive performance of my enterprise. | 4.270 | 0.801 |
| 3. | High level of creativity and research has made my business achieve financial growth and sustainability. | 4.270 | 0.723 |
| 4. | New marketing tactics like social media advertisement has improved the financial growth of my business. | 4.216 | 0.724 |
| 5. | My innovation skills realized through production of new products, unique service delivery and access to greater markets has enabled my business to achieve high returns and growth. | 4.216 | 0.724 |
| 6. | Introduction of new modes of payment such as MPESA, Airtel Money and Equitel has positively impacted on my business growth. | 4.211 | 0.702 |
| 7. | The inception of new channels of distribution for products and services has positively impacted on the productivity of my business. | 4.211 | 0.702 |
| Overall Score | | 4.238 | 0.740 |

Source: Field Data (2019)

In order to establish the impact of technology transfer on performance of women-owned MSMEs in Kisii County, Kenya, that addressed the first specific objective of the study. The respondents were requested to record the level to which they agreed or disagreed on each of the seven statements of technology transfer. The data retrieved was analyzed by the employment of mean scores and standard deviations and the results were displayed in Table 4.6 in the next page.

In Table 4.6 presented above, the respondents strongly agreed that new enhanced modes of communication with customers, being open to learn and

being able to identify new alternative opportunities led to positive performance of their enterprises. This was justified with mean scores of 4.270 and standard deviations of 0.801. The respondents also strongly agreed that high level of creativity and research has made their businesses achieve financial growth and sustainability with a mean score of 4.270 and a standard deviation of 0.723. Additionally, the respondents agreed that new marketing tactics like social media advertisement has improved the financial growth of their businesses with a mean score of 4.216 and a standard deviation of 0.724. They also agreed that their innovation skills realized

through production of new products, unique service delivery and access to greater markets has enabled their businesses to achieve high returns and growth with a mean score of 4.216 and a standard deviation of 0.724.

Furthermore, the respondents agreed that the introduction of new modes of payment such as MPESA, Airtel Money and Equitel has positively impacted on their business growth with a mean score of 4.211 and a standard deviation of 0.702. They also agreed the inception of new channels of distribution for products and services has positively impacted on the productivity of their business with a mean score 4.211 and a standard deviation of 0.702. The overall mean score of 4.238 signified a high level of agreement among the

respondents that technology transfer has a positive impact on women-owned MSMEs in Kisii County, Kenya.

Descriptive Statistical Results of Performance of Women-Owned MSMEs in Kisii County, Kenya

To establish the performance of women-owned MSMEs in Kisii County that helped address all the specific objectives of the study. The respondents were requested to record the percentage margin in the Numerical categorical scale of percentages ("0%-5%" = 1, "5%-10%" = 2, "10%-20%" = 3, "20%-50%" = 4, "50%-100%" = 5) based on each quarter of the year to establish the level of their profit margins, current assets and return on assets. The data retrieved was analyzed by the employment of mean scores and standard deviations and the results were presented in Table 4.11 in the next page.

Table 4.11: Descriptive Statistical Results of Performance of Women-owned MSMEs in Kisii County, Kenya

| Profit Margin | | Mean | Standard Deviation |
|---------------------------|---|--------------|--------------------|
| 1. | First quarter of the year (January, February and March). | 4.412 | 0.780 |
| 2. | Second quarter of the year (April, May and June). | 4.441 | 0.789 |
| 3. | Third quarter of the year (July, August and September) | 4.392 | 0.764 |
| 4. | Fourth quarter of the year (October, November and December) | 4.363 | 0.834 |
| Overall Mean Score | | 4.402 | 0.792 |
| Current Assets | | | |
| 1. | First quarter of the year (January, February and March). | 4.304 | 0.804 |
| 2. | Second quarter of the year (April, May and June). | 4.319 | 0.770 |
| 3. | Third quarter of the year (July, August and September) | 4.348 | 0.795 |
| 4. | Fourth quarter of the year (October, November and December) | 4.338 | 0.768 |
| Overall Mean Score | | 4.327 | 0.784 |
| Return on Assets | | | |
| 1. | First quarter of the year (January, February and March). | 4.275 | 0.718 |
| 2. | Second quarter of the year (April, May and June). | 4.172 | 0.705 |
| 3. | Third quarter of the year (July, August and September) | 4.113 | 0.855 |
| 4. | Fourth quarter of the year (October, November and December) | 4.029 | 0.920 |
| Overall Mean Score | | 4.080 | 0.856 |

Source: Field Data (2019)

In regard to profit margin as presented in Table 4.11 above. In the first quarter of the year the respondents recorded that their businesses experienced a profit margin ranging between 20%-50% and 50%-100% supported by a mean score of 4.412 and a standard deviation of 0.780. The respondents also stipulated that their businesses experienced a profit margin ranging between 20%-50% and 50%-100% in the second quarter of the year justified by a mean score of 4.441 and a standard deviation of 0.789. Moreover, they also recorded that their business experienced a profit margin ranging between 20%-50% and 50%-100% in the third quarter of the year supported with a mean score of 4.392 and a standard deviation of 0.764.

Finally, the respondents also documented that their business experienced a profit margin ranging between 20%-50% and 50%-100% in the fourth quarter of the year supported by a mean score of 4.363 and a standard deviation of 0.834. In general, the profit margin of the women-owned MSMEs in Kisii County ranged between 20%-50% and 50%-100% in a year supported by an aggregate mean score of 4.402.

In regard to current assets as presented in Table 4.11 in the previous page. In the first quarter of the year the respondents recorded that their businesses experienced an increase of current assets ranging between 20%-50% and 50%-100% supported by a mean score of 4.304 and a standard deviation of 0.804. The respondents also stipulated that their businesses experienced an increase of current assets ranging between 20%-50% and 50%-100% in the second quarter of the year justified by a mean score of 4.319 and a standard deviation of 0.770. Furthermore, they also recorded that their business experienced an increase of current assets ranging between 20%-50% and 50%-100% in the third quarter of the year supported with a mean score of 4.348 and a standard deviation of 0.795.

Finally, the respondents also documented that their business experienced an increase of current assets ranging between 20%-50% and 50%-100% in the fourth quarter of the year supported by a mean score of 4.338 and a standard deviation of 0.768. In a broad-spectrum, the increase of current assets of the women-owned MSMEs in Kisii County ranged between 20%-50% and 50%-100% in a year supported by an aggregate mean score of 4.327.

In Table 4.11 in the previous page, the findings on return on assets were as follows. In the first quarter of the year the respondents recorded that their businesses experienced an increase of return on assets ranging between 20%-50% and 50%-100% supported by a mean score of 4.275 and a standard deviation of 0.718. The respondents also stipulated that their businesses experienced an increase of return on assets ranging between 20%-50% and 50%-100% in the second quarter of the year justified by a mean score of 4.172 and a standard deviation of 0.705. Furthermore, they also recorded that their business experienced an increase of return on assets ranging between 20%-50% and 50%-100% in the third quarter of the year supported with a mean score of 4.113 and a standard deviation of 0.855. Finally, the respondents also documented that their business experienced an increase of return on assets ranging between 20%-50% and 50%-100% in the fourth quarter of the year supported by a mean score of 4.029

and a standard deviation of 0.920. In summary, the increase of current assets of the women-owned MSMEs in Kisii County ranged between 20%-50% and 50%-100% in a year supported by an aggregate mean score of 4.080.

Spearman’s rho Correlation Analysis Results

Spearman’s rho correlation analysis model was employed to establish the association between business development services and the performance of women owned MSMEs in Kisii County. It also sought to reveal if the association was significant. Additionally, Spearman’s rho correlation analysis model was employed to establish if there was a significant association between internal business environment and business development services and performance. The findings of the Spearman’s rho correlation analysis model were presented in Table 4.12 below.

Table 4.12 Spearman’s rho correlation analysis model

| Correlations | | | Technology Transfer |
|----------------|---------------------|-------------------------|---------------------|
| Spearman's rho | Technology Transfer | Correlation Coefficient | 1.000 |
| | | Sig. (2-tailed) | |
| | | N | 204 |
| | Performance | Correlation Coefficient | 0.220** |
| | | Sig. (2-tailed) | 0.002 |
| | | N | 204 |

Impact of Technology Transfer on the Performance of Women-Owned MSMEs in Kisii County, Kenya

In regard to addressing the first specific objective of the study, the findings of the correlation analysis revealed that technology transfer had a positive significant monotonic association with performance of women-owned MSMEs ($r_s = 0.220^{**}$; $p = 0.002 < 0.01$). Consequently, the study rejected the null hypothesis (H_01) that there is no significant relationship between technology transfer and the performance of women owned MSMEs in Kisii County. The findings meant that an increase in technology transfer was linked to enhanced performance of women-owned MSMEs in Kisii County, Kenya. The findings of this study concurred with the research outcomes of Kiende, Mukulu and Odhiambo (2019) which revealed that technology transfer positively impacts the performance of women-owned firms in Kenya. The findings also supported the argument made by Balkiene and Jagminas (2010) that innovation is a vital tool for exploiting change as an opportunity to transform the available resources in a profitable way.

In regard to addressing the first specific objective of the study, the findings of the X_1 regression co-efficient revealed that a unit increase of technology transfer would significantly escalate the performance of women-owned MSMEs by 44.4% ($\beta = 0.444$; $p\text{-value} = 0.000 < 0.05$). Consequently, the study rejected the null hypothesis

(H_01) that there is no significant relationship between technology transfer and the performance of women owned MSMEs in Kisii County. The findings meant that the women entrepreneurs being open to learn, identifying new alternative opportunities, employing new marketing tactics and using new enhanced modes of communication with customers had a positive impact on the profitability level of women-owned MSMEs. The findings of this study concurred with Kamau (2016) who established that technology transfer had a positive impact on business growth of SMEs owned by youths. The findings also agreed with Kiende, Mukulu and Odhiambo (2019) who established that technology transfer had a positive impact on the performance of women-owned business enterprises in Kenya.

Summary of Research Findings

The descriptive analysis results revealed that high level of creativity, research and new marketing tactics like social media advertisement boosts the financial growth of women-owned enterprises. It also revealed through production of new products, unique service delivery and access to greater markets has enabled women entrepreneurs in Kisii County to realize high returns and growth. The correlation analysis results revealed that technology transfer had a positive significant association with performance of women-owned MSMEs in Kisii

County. Additionally, the regression analysis results confirmed that technology transfer significantly explained the positive change in the performance of women-owned MSMEs in Kisii County. The findings meant that the women entrepreneurs being open to learn, identifying new alternative opportunities, employing new marketing tactics and using new enhanced modes of communication had a positive impact on the profitability of women-owned MSMEs.

The results of this research investigation agreed with Kiende, Mukulu and Odhiambo (2019) who revealed that technology transfer positively impacts the performance of women-owned organizations in Kenya. The research findings also agreed with Kamau (2016) who revealed that technology transfer has a positive impact on the business growth of SMEs owned by youths. Balkiene and Jagminas (2010) contended that innovation is a vital instrument for exploiting change as an opportunity to convert the available resources in a profitable way.

Conclusion

In regard to the objective of the study, the findings of the study revealed that technology transfer positively and significantly impact the performance of women-owned MSMEs in Kisii County, Kenya. Moreover, with reference to the second specific objective of the study that sought to establish the impact of access to credit on the performance of women-owned MSMEs in Kisii County, Kenya.

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