KiPPRA

The KENYA INSTITUTE for PUBLIC POLICY RESEARCH and ANALYSIS

Assessment of Factors Influencing Participation in Domestic Trade by Female- and Male-Owned Firms in Kenya

Paul Odhiambo
John Karanja
Kenneth Malot
Martin Wafula
Shadrack Mwatu

Assessment of Factors Influencing Participation in Domestic Trade by Female- and Male-Owned Firms in Kenya

Paul Odhiambo
John Karanja
Kenneth Malot
Martin Wafula
Shadrack Mwatu

Kenya Institute for Public Policy
Research and Analysis

KIPPRA in Brief

The Kenya Institute for Public Policy Research and Analysis (KIPPRA) is an autonomous institute whose primary mission is to conduct public policy research leading to policy advice. KIPPRA's mission is to produce consistently high-quality analysis of key issues of public policy and to contribute to the achievement of national long-term development objectives by positively influencing the decision-making process. These goals are met through effective dissemination of recommendations resulting from analysis and by training policy analysts in the public sector. KIPPRA therefore produces a body of well-researched and documented information on public policy, and in the process assists in formulating long-term strategic perspectives. KIPPRA serves as a centralized source from which the Government and the private sector may obtain information and advice on public policy issues.

Abstract

This paper sought to assess how firm-specific factors—size, regulatory factors— tax obligation, licensing requirements, and registration requirements, support factors—access to credit, piped water, electricity, mobile money platforms, Internet, on-job-training, road status, trade associations, and nature of trading premises, owner-specific factors—gender, and education attainment, and geographical factors—county economic blocs, influence domestic-trade participation by female-and male-owned firms in Kenya as an avenue for accelerated income generation, job creation, poverty alleviation, and economic growth and development as enshrined in the "Big Four" Agenda and the Kenya Vision 2030. Cross-sectional data obtained from the 2016 MSMEs Survey was used to undertake empirical analysis. Domestic trade participation was measured as a categorical variable identifying the main buyer of goods and services—MSMEs, non-MSMEs, government, and individual consumers. Estimation was done using multinomial logit. Gender, level of education attainment, tax obligation, licensing regulations, registration requirements, access to credit, access to mobile money platforms, nature of trading structure, on-job-training, membership to trade associations, status of roads, access to Internet and electricity, firm size, and regional county economic blocs were found to have statistically significant effect on various outcome categories of domestic trade participation. The findings point towards a need to undertake legislation to accord the regional county economic blocs legal and institutional status for ease of operationalization and administration, need to mainstream gender in domestic trade policy making and implementation with targeted incentives for women-owned firms especially in taxation, licensing, registration requirements, need to enforce legal provisions according women equal access to credit, land, and property, and fast-tracking implementation of the Land Laws (Amendment) Act, 2016 to unlock access to land property, which is an important collateral in accessing credit among women in Kenya for enhanced domestic trade participation. Reviewing the Micro and Small Enterprises Act (MSEA) 2012 to provide incentives to firms within the micro and small classification to have membership with the authority could enhance capacity building of firms while accumulating social capital,x which is important in accessing markets. Access to incubation and capacity building support for growth, specialization, and knowledge accumulation could enhance domestic trade participation.

Abbreviations and Acronyms

AfCFTA	African Continental Free Trade Area
CFA	Control Function Approach
CREB	Central Region Economic Bloc
Cum.	Cumulative
FCDC	Frontier Counties Development Council
ILO	International Labour Organization
JKP	Jumuiya ya Kaunti za Pwani
KIPPRA	Kenya Institute for Public Policy Research and Analysis
KNBS	Kenya National Bureau of Statistics
Ksh	Kenya Shilling
LREB	Lake Region Economic Bloc
MSEA	Micro and Small Enterprises Authority
MSME	Micro, Small and Medium Establishment
NAKAEB	Narok-Kajiado Economic Bloc
NOREB	North Rift Economic Bloc
OECD	Organization for Economic Cooperation and Development
OLS	Ordinary Least Squares
SEKEB	South-eastern Kenya Economic Bloc
UNDP	United Nations Development Programme
VIF	Variance Inflation Factor

Table of Contents

List of Tables

List of Figures

1.   Introduction

Article 27(3) of the Constitution of Kenya provides that women and men have the right to equal treatment, including the right to equal opportunities in the economic sphere (Constitution of Kenya, 2010). This notwithstanding, it remains unknown how various factors disproportionately influence harnessing of domestic trade opportunities by men and women in Kenya. Domestic trade plays a crucial role in alleviating poverty through creation of employment opportunities and provision of micro, small, and medium-sized enterprises with opportunity to sell their goods and services to consumers in the domestic market. Particularly, promoting creation of gender-responsive trade policy is important in development of an efficient and competitive domestic market that supports domestic trade as envisioned in the Kenya Vision 2030. Indeed, the Vision puts emphasis on policies that empower vulnerable groups such as women with an aim of unlocking their potential to contribute to the country's development through enhanced participation in domestic trade as an economic activity.

Over the past decade, Kenya has embraced policy reforms[1] to support domestic trade[2], creating incentive for male-owned and female-owned firms to embrace domestic trade as a source of income generation, job creation, poverty alleviation, equity in accessing trade opportunities, welfare improvement, and economic development. The 2017 National Trade Policy, for instance, aspires to transform Kenya into a competitive and prosperous trading nation that harnesses opportunities in the domestic, regional, and global market to accelerate the contribution of trade towards realization of the "Big Four" agenda, and the Kenya Vision 2030[3].

Particularly, the country's domestic trade policy aims at improving the trade environment with focus on the distribution and wholesale, retail, and informal trade (Government of Kenya, 2017). This notwithstanding, the contribution of domestic trade to Kenya's GDP has been shrinking, implying that firms are participating less in domestic trade today than they did a decade ago. This is partly due to Kenya's policy environment being gender insensitive. Domestic trade currently contributes an average of 7 per cent to Kenya's GDP (KNBS, 2019). Specifically, the contribution of domestic trade to GDP was below 10 per cent between 2003 and 2006 before rising to 10 per cent between 2007 and 2011. Between 2012 and 2013, however, the contribution of domestic trade to GDP rose

---

[1] See the National Trade Policy, 2017, Integrated National Export Development and Promotion Strategy, 2018, Kenya National AGOA Strategy, 2018, *Buy Kenyan Build Kenya Strategy*, 2018, and Kenya Trade Remedies Act, 2017.

[2] Domestic trade comprises of wholesale and retail trade.

[3] The Kenya Vision 2030 envisages trade as critical in growing the economy and thus creating jobs for Kenyans.

Figure 1.1: Trend of the contribution of domestic trade to Kenya's GDP

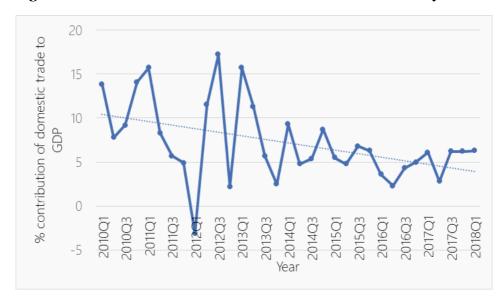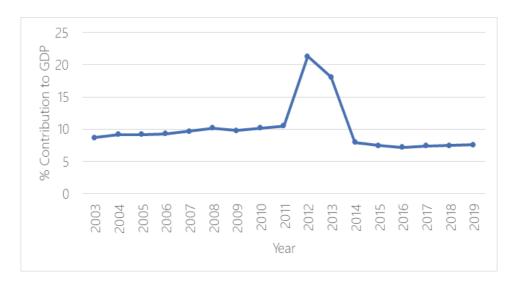**Figure 1.2: Contribution of domestic trade to GDP in Kenya**

to a high of 20 per cent before falling below 10 per cent again between 2014 and 2019.

The decline signifies a shrinkage in domestic trade activity linked to a multiplicity of factors that include complex licensing and regulatory framework, high cost of transportation, insufficient logistics and information, technological skills,

inaccessibility of affordable credit, inadequate business management skills, weak supply chains, and poor servicing of business premises.

Further, disparities in levels of education attainment between men and women inhibit unlocking full benefits from domestic trade. UNDP (2019) concurs by noting that majority of female-owned enterprises in East Africa encounter challenges on business regulation, inadequate skills and limited training, and credit inaccessibility. Specifically, World Bank (2016) posits that female-owned firms[4] hold less than 10 per cent of credit available for trade expansion. Further, the 2017 National Trade Policy observes that creating an enabling environment for domestic trade to thrive requires addressing challenges on legal and regulatory framework, trading structures, access to credit, and access to capacity building opportunities such as training (Government of Kenya, 2017). These factors disproportionately affect the likelihood of women and men to start enterprises, formalize them, and subsequently engage in meaningful domestic trade. For instance, male-owned firms are more likely to participate in domestic trade compared to female-owned ones (KNBS, 2016).

The scenario motivates carrying out a study to explain why firms are participating less in domestic trade and understand how mainstreaming gender in domestic trade policy could incentivize female-owned firms to participate more in domestic trade. Indeed, if Kenya is to fully tap into her immense unexploited domestic trade potential, understanding how firm-specific factors (size), regulatory factors (tax regime, licenses, and firm registration status), support factors (credit, water, electricity, trade associations, road status, Internet, mobile money platform, on-job-training, and nature of the trading structure), owner-specific factors (gender, education attainment—no education, primary, polytechnic, secondary, diploma, undergraduate and post-graduate levels), and geographical factors (county economic blocs) influence domestic trade participation by female-and male-owned firms as an avenue for accelerating income generation, job creation, poverty alleviation, equity in accessing trade opportunity, welfare improvement, and economic growth and development as enshrined in the "Big Four" agenda and the Kenya Vision 2030 could inform gender mainstreaming in Kenya's trade policy.

Against this background, this paper examines how targeting these factors could inform formulation of gender-responsive trade policy and thus unlock the potential of women to participate more in domestic trade for improved growth and development driven more by trade. Particularly, the paper identifies and quantifies the impact of the factors on domestic trade participation by female-and

---

[4] In this paper, a firm refers to micro, small and medium enterprises as provided by the MSEs Act 2012. We further borrow from Coase (1937) that a firm consists of the systems of relationships, which come into existence when the direction of allocation of resources is dependent on the entrepreneur

male-owned firms and recommends policies that mainstream gender in domestic policy formulation and implementation in the country.

The rest of the paper is organized as follows: section 2 provides an assessment of the factors that influence domestic trade participation by female-and male-owned firms, and reviews supportive theoretical and empirical literature. Section 3 details the methodology, while sections 4 and 5 present empirical results and policy implications.

2.   Gendered Participation in Domestic Trade in Kenya

According to the 2019 National Population and Housing Census by the KNBS, Kenya has a total population of 47.6 million persons. The majority are women at 50.49 per cent compared to 49.51 per cent men (KNBS, 2019). Despite women being the majority in Kenya, data shows that majority of the firms in the country are owned by men. For instance, the 2016 MSME Survey shows that out of the 24,164 firms surveyed, 49.38 per cent (11,932) were male-owned, 26.94 per cent (6,509) were female-owned, while 23.68 per cent (5,723) were owned by both males and females. Whereas only 26.94 per cent of MSMEs were owned by females in 2016, the 1999 National MSEs Baseline Survey shows that female-owned firms accounted for 47.4 per cent of all MSEs in the country (ILO, 2008). This represents a decline in domestic trade participation by women over the two decades. This study examines the factors that disproportionately explain the decline in domestic trade participation by women in Kenya, with a view to informing mainstreaming of gender in Kenya's domestic trade policy.

Further, the survey showed that female-owned firms tend to engage in roles that have traditionally been associated with women, such as hairstyling, restaurants, hotels, retail shops, and wholesale outlets. What could be done to empower female-owned firms to participate more in sophisticated trade activities? The 2016 MSME Survey further shows that out of 23,850 firms participating in domestic trade, 49.40 per cent (11,783) were male-owned, 27.11 per cent (6,466) were female-owned while 23.48 per cent (5,601) were owned by both females and males (KNBS, 2016). The broad image that emerges from these data is that most of the firms participating in domestic trade in Kenya are owned by males. What factors explain the higher participation in domestic trade by male-owned firms in Kenya compared to female-owned ones? How could targeted trade policy around those factors improve participation in domestic trade by female-owned firms?

According to KNBS (2019), cultural and institutional structures have created gender relationships that have led to subordination of women in various social spheres, leading to gender inequalities. Indeed, some of the mechanisms that tend to perpetuate poverty are connected to gender inequality in accessing economic opportunity in domestic trade. Despite women comprising more than half of the country's population, challenges related to equal access to health, education, earning power and representation limit their chances to participate in domestic trade. ILO (2008) concurs with this observation by noting that women tend to operate smaller enterprises than men, with the average number of employees in a female-owned firm being 1.54 compared to 2.1 in male-owned firms. Indeed, about 86 per cent of workers in female-owned firms are the female-owners themselves, 4 per cent hired workers, and 10 per cent comprise of unpaid family members.

Among male-owned firms, the trend changes drastically as 68 per cent of workers are the male-owners themselves, 17 per cent are hired workers while 15 per cent are unpaid family members.

In 2016, a male-owned firm earned an average monthly revenue of Ksh 200,058[5] compared to Ksh 41,167 earned by female-owned firms (KNBS, 2016). In 1999[6], male-owned firms earned an average monthly revenue of Ksh 7,627 while female-owned ones earned Ksh 4,344. Whereas male-owned firms earned 2623 per cent more in 2016 than they earned in 1999, female-owned firms earned only 948 per cent more in the same year than they did in 1999. Although the average revenue earned by both male-and female-owned firms has increased tremendously over the last two decades, earnings by male-owned firms are nearly three-fold the earnings realized by female-owned firms. This means that male-owned firms are on average larger than female-owned ones in terms of revenue earnings[7]. In terms of the number of employees, male-owned firms were on average 1.3 times larger than female-owned firms in 2016. In terms of access to credit, only 6.89 per cent of male-owned and 5.78 per cent of female-owned firms had access to credit in 1999 compared to 25.09 per cent of male-owned and 30.97 per cent of female-owned firms in 2016.

The average expenditure on water by male and female-owned firms in Kenya in 2016 was Ksh 459 and Ksh 183, respectively, compared to Ksh 877 and Ksh 514 in 1999. Expenditure on water among male-owned firms had fallen by 52.3 per cent in 2016 compared to 35.6 per cent among female-owned firms. Expenditure on electricity by male-owned and female-owned firms in 1999 was Ksh 2,131 and 1,863, respectively, compared to Ksh 3,869 and Ksh 448 in 2016. It means that expenditure on electricity by male-owned firms had increased by 181.6 per cent in 2016 while it had fallen by 24.0 per cent among female-owned firms. Further, whereas only 54 per cent of male-owned and 44 per cent of female-owned firms had access to electricity in 1999, about 87 per cent and 81 per cent had access to electricity in 2016, respectively.

Regarding the type of structure in which firms traded, 32.2, 36.5, and 31.3 per cent of the male-owned enterprises traded in permanent, temporary and semi-permanent structures, respectively in 1999 compared to 23.1, 38.2, and 38.8 per cent of the female-owned firms, respectively. In 2016, 82, 4, and 13 per cent of the male-owned firms were trading in permanent, temporary, and semi-permanent

---

[5] The denomination is Kenyan shilling. The low values may be explained by various factors such as time value of money between 1999 and 2016. The fact that majority of the firms considered in the study lie in the category of micro and small enterprises, according to the 2012 MSE Act, and the likelihood that majority of the surveyed firms engage in petty trade activities.

[6] Before the 2016 MSMEs Survey, the last comprehensive survey on the sector was the 1999 National Micro and Small Enterprise (MSE) Baseline Survey. This section therefore provides an analysis of how the MSME sector has evolved over a period of nearly two decades before the current MSMEs Survey was carried out in 2016.

[7] The MSE Act 2012 categorizes firm size in terms of annual turnover.

structures, respectively, compared to 79.6, 2.7, and 16.8 per cent of female-owned firms that traded in permanent, temporary, and semi-permanent structures, respectively. In terms of the status of the road used to get goods and services to the domestic market, 69.8 per cent and 30.2 per cent of the male-owned firms reported that the roads were in good and bad state in 1999, respectively, compared to 68.6 per cent and 31.4 per cent of the female-owned firms that reported that the roads were in good and bad status, respectively. In 2016, 72.3 per cent and 27.3 per cent of male-owned firms reported that the roads were in good and bad state, respectively, compared to 71.1 per cent and 28.9 per cent of female-owned firms that reported that the roads were in good and bad state, respectively. In terms of firm registration status, 18.8 per cent of the male-owned firms were formally registered while 81.2 per cent were unregistered in 1999 compared to 8.0 per cent of female-owned firms that were registered and 92.0 per cent that were unregistered. Nearly 20 years later in 2016, 26.7 per cent of the male-owned firms were formally registered while 73.3 per cent were unregistered compared to 16.5 per cent of the female-owned firms that were registered and 83.5 per cent that were not registered. In terms of licenses and taxes, male and female-owned firms spent an average of Ksh 2,088 and Ksh 964, respectively, in 1999 compared to Ksh 10,656 and Ksh 5,249 spent by male and female-owned firms, respectively, in 2016.

In terms of the cost of transport, male-owned firms spent an average of Ksh 4,588 to transport goods and services to the market while female-owned firms spent an average of Ksh 1,582 on transport in 1999. In 2016, male-owned firms spent an average of Ksh 4,065 on transport while female-owned firms spent an average of Ksh 908 on transport per month. On membership to trade associations, 96.97 per cent of the male-owned firms were members of a trade association in 1999 while 3.03 per cent were not, compared to 97.3 per cent of female-owned ones that were members of a trade association and 2.7 per cent that were not. In 2016, only 17.6 per cent of male-owned firms were members of a trade association while 82.43 per cent were not members compared to 34.4 per cent of female-owned firms that were members and 65.7 per cent that were non-members, respectively. On training, 97.8 per cent of the male-owned firms had training support in 1999 while 2.2 per cent had not received training support compared to 97.5 per cent of the female-owned firms that had received training support and 2.53 per cent that had not received any form of training. In 2016, only 2.7 per cent of the male-owned firms had received training support while the majority (97.3%) having not received any form of training compared to 3.1 per cent of the female-owned firms that had received training support and 96.9 per cent that had not undergone training. In 1999, whereas the average age of a male-owned firm was 6 years, a female-owned

firm had an average age of 5 years. In 2016, however, male-owned firms had an average age of 8 years while those owned by females had an average age of 7 years. In 1999, majority of males owning firms had schooled up to secondary school level (45.8%) compared to majority of the females owning enterprises who had schooled up to the primary school level (52.6%). In 2016, majority of the males and females owning firms had secondary level of education (32.5%) and (36.8%), respectively. This analysis shows that various factors disproportionately affected domestic trade participation by male and female-owned firms in Kenya. How could mainstreaming gender in trade policy enhance domestic trade participation by female-owned firms?

3. Literature Review

3.1 Theoretical Literature

3.1.1 Heckscher-Ohlin theory

A firm's resource endowment is one of the key factors that influences the likelihood that a firm participates in trade. Resources accessible to female-and male-owned firms may include information that bridges and links firms to available domestic trade opportunities, labour, capital, trade facilitation support from trade associations, water, electricity, Internet, mobile money platforms, credit, land and mineral resources (Hecksher, 1919). Borrowing from the Heckscher-Ohlin theory, this paper undertakes to examine whether disparities in domestic trade participation between female-and male-owned firms in Kenya could be due to differentials in resources accessible to individual firms. Importantly, the comparative advantage that may exist between female-and male-owned firms in the country could arise due to differentials pertaining to accessibility of resources and production technology that may influence the efficiency with which female-and male-owned firms transform accessible resources to final goods and services for sell in the domestic market (Ohlin, 1933).

That participation in domestic trade could be driven by differentials in the amount of resources accessible to both female-and male-owned firms, an important domestic trade policy issue that if used effectively could improve Kenya's fortunes from trade and drive realization of the "Big Four" agenda and the Kenya Vision 2030. Indeed, the proportions in which the aforementioned factors are available and the proportions in which they are used to produce and distribute goods and services to the domestic market could be the main reason why differentials between female-and male-owned firms exist regarding participation in domestic trade.

3.1.2 Ricardian theory of trade

According to this theory, differentials in domestic trade participation by female-and male-owned firms in Kenya may exist because firms are different from each other. In this case, firms are likely to participate in domestic trade if differentials in comparative advantage exist among them. For example, labour productivity may be a cause of observed differentials in domestic trade participation between female-and male-owned firms in Kenya. If, for example, productivity of labour is higher among male-owned firms than it is among female-owned ones, then a rational conclusion is that male-owned firms would have a higher likelihood of participating in domestic trade compared to female-owned ones, and vice versa

(Krugman et al., 2017). Disparities in education attainment as a measure of human capital stock that determines productivity of labour among female-and male-owned firms could influence the likelihood of firms participating in domestic trade.

The paper therefore strives to examine how comparative advantage that is associated with differentials in labour productivity emanating from disparities in the level of education could disproportionately influence participation in domestic trade by female-and male-owned firms in Kenya.

3.2 Empirical Literature

3.2.1 Support factors

Networking differences and domestic trade participation

Watson (2011) carried out a study to determine how networking differences between male-owned and female-owned firms influence their likelihood to participate in domestic trade. Networks embody information as a resource that bridges and links firms to available domestic trade opportunities (Mwatu, 2019). Coleman (1990) further posits that networks are a resource that is embodied in formal organizations, such as membership to a trade association, which relays information on trade opportunities and change in government regulatory framework to firms. While information is crucial in decision-making among female and male-owned firms, it is usually costly to obtain it. Networking through having membership to trade associations therefore provides a means through which firms can access information on available trade opportunities cost-effectively. Using a sample of 2,919 male and 181 female-owned firms, Watson (2011) found that networking had a positive effect on domestic trade participation after controlling for education, age, and size of the firms.

Sengupta (2010) further notes that networking is beneficial to female and male-owned firms participating in domestic trade because the firms gain support, reference, and goodwill that consequently promote participation in domestic trade. Shaw (2006) concurs by observing that trade networks provide market information and advice to female and male-owned firms on where to sell their goods and services. Access to competitive trade information is important to firms in making informed decisions that translate to enhanced participation in domestic trade.

This paper thus endeavors to find out whether trade networking derived from membership to trade associations explains differentials in domestic trade participation by female-and male-owned firms in Kenya. The findings could

inform domestic trade policy reforms that seek to incentivize firms owned by women and men to have membership with trade associations in Kenya with an aim of benefiting from the resource of information that links and bridges the firms to domestic trade opportunities.

Nature of trading structure and domestic trade participation

KIPPRA (2019) reports that 63 per cent of MSEs in Kenya trade in formal worksites while 37 per cent trade in informal premises. The implication is that a sizeable number of MSEs trade in fear and uncertainty of anticipated demolitions by government. Further, the formal worksites are permanent in nature while the informal worksites are mostly semi-permanent or temporary. Inadequate funding of MSEA, which has a mandate to support trading structures for trading MSMEs, inadequate land for developing trading structures, location of formal trading structures far away from popular market centres, and cost of renting trading premises may explain the existence of temporary and semi-permanent trading worksites. KNBS (2016) further corroborates this observation by noting that over 78 per cent of formal[8] firms trade in permanent structures. The firms trade mainly in rented structures at commercial centres and residential areas. Further, 40.6 per cent of the informal[9] firms trade in open areas compared to 44.1 per cent that trade in either temporary or semi-permanent structures.

KIPPRA (2005) notes that physical infrastructure related to trading structures create an enabling environment that promotes participation in domestic trade. If differences exist between female and male-owned firms in accessing trading structures, then participation in domestic trade could be inhibited, with adverse consequences on job creation, poverty reduction and welfare improvement. Particularly, effective, and reliable trading structures are important in enhancing productivity and competitiveness of female and male-owned firms in domestic trade participation. Unreliability of trading structures is a main concern among firms owned by women and men in Kenya as it limits their expansion in terms of domestic trade participation. Long-term strategic planning is even difficult when firms trade in temporary or semi-temporary structures, as risk and uncertainty are high. The paper thus aims to undertake a gender-disaggregated analysis on how the type of trading structure limits or promotes the likelihood of female and male-owned firms to participate in domestic trade in Kenya.

Internet, mobile money, and domestic trade participation

Jack and Suri (2014) argue that access to mobile money platforms plays an important role in reducing transaction costs and potential risks while engaging

---

[8] A firm is deemed to be trading formally if it is licensed.

[9] Informal firms were those trading without licenses

in economic activities such as trade. Mobile money platforms create convenience and enhance efficiency and effectiveness of firm operations. Particularly, access to mobile money platforms enhances receipt of payments from selling goods and services in the domestic market. Differentials in accessing mobile money platforms between female-and male-owned firms could thus be a source of disparities in domestic trade participation. Mainstreaming gender in domestic trade policy with a view to minimizing disparities in access to mobile money platforms could foster domestic trade participation for improved welfare and development of the country.

Paunov and Rollo (2015) posit that access to Internet by firms improves access to information on market opportunities and improves coordination of delivering goods and services to the market. Absorption capacity for Internet also supports performance of firms for improved participation in economic activities, especially domestic trade. Zhong et al. (2020) further argue that Internet significantly reduces transactions costs, enhances performance and productivity, and trading efficiency of firms. If female-and male-owned firms experience differentials in accessing and absorbing the Internet, there are likely to be disparities in domestic trade participation. Further, firms that have access to the Internet are likely to have better knowledge on requirements for participating in domestic trade and are more likely to make well-informed decisions that enhance participation in domestic trade.

Access to credit and domestic trade participation

Pablo et al. (2020) use a sample of 80,000 Spanish firms between 2004 and 2014 to determine demand for credit, credit approval ratio, and credit performance among male and female entrepreneurs. It is found that female-owned firms are less likely to apply for credit. Further, female-owned firms were less likely to secure credit compared to male-owned firms operating in the same industry. The gender gap in accessing credit is due to double standards driven by unconscious discrimination. Alesina et al. (2013) further opine that women in Italy pay more for credit than men despite existence of no evidence that females are riskier than males. Particularly, financial institutions were found to charge different rates to women and men after controlling for business type, structure of the financial market, and individual characteristics of the borrower.

Bellucci et al. (2010) observe that female-owned firms experience tighter access to credit despite charged interest rates unchanging. Further, the gender of the loaning officer influences access to credit in that female officers are more likely to be risk averse or less self-confident compared to male officers. Female loaning officers are more likely to constrain access to credit to new and unestablished

female borrowers compared to male loaning officers. Hansen and Rand (2014) concur that female-owned firms experience stiffer credit constraints compared to those owned by males. Cole and Mehran (2018) corroborate observations by Hansen and Rand (2014) arguing that female-owned firms are significantly smaller compared to male-owned firms in terms of sales, assets, and employment, are much younger in terms of years in trade, are more likely to trade as sole proprietorships as opposed to corporations, are more likely to operate in retail trade and services as opposed to construction, manufacturing, and wholesale trade, and have fewer banking relationships. Additionally, females owning firms are more likely to be inexperienced and less educated.

Road status and domestic trade participation

Barzin et al. (2018) investigated the effect of transportation infrastructure on firm performance among Colombian manufacturing firms using pseudo-panel data spanning between 2000-2009. They obtain output elasticities of road infrastructure ranging from 0.13-0.15 per cent. The findings indicate that the status of roads plays an important role in influencing out of firms from engaging in economic activities such as domestic trade. Importantly, the role of the transport infrastructure in influencing performance of firms is more important among developing economies compared to the already developed countries. The findings indicate a one-year time lag within which performance of firms reacts to changes in road status. It indicates that firms require time to adjust their economic activities to changes in status of roads as a means of getting goods and services to the market. Aschauer (1989) concurs by arguing that public expenditure on core infrastructure that comprises of streets, highways, airports, mass transit, sewers, and reliable water systems bears the highest explanatory power on productivity of firms.

Duranton (2015) examines how road status influences trade in Columbia. The findings point that distance between cities, which is a major factor in determining cost of transportation, is a major barrier to trade. The major roads within cities are key in influencing domestic trade in terms of ease and efficiency of moving goods and services to desired destinations, with an elasticity of up 0.20. The better the state of the roads, the higher the value of traded goods and services. Road status plays a significant role in shifting economic activity in various cities towards production of goods that are tradable. Thompson and Chandra (2000) corroborate the findings by Duranton (2015) by holding that expenditure on development of road networks encourages certain industries to emerge and grow due to reduced cost of transporting goods and services to the market while other sectors shrink because of relocation of economic activity. Importantly, highways

influence spatial allocation of economic activities, with activity rising in areas with better, reliable, and efficient road network.

Access to electricity and domestic trade participation

Geginat and Ramalho (2018) examined time and costs associated with electricity connections among small, energy-intensive firms in 183 countries. There were significant differences in time and cost of obtaining electricity connection among countries. Among low-income countries, for example, the cost of securing electricity connection was more than 70 times higher compared to high income countries. They hold that the procedures, time, and cost of obtaining electricity connection are correlated with firm income levels. Further, poor quality of supplied electricity and bribery payments to secure electricity connection led to increased costs that ate into firm's cash flows. In countries, where regulatory processes were complex and excessively bureaucratic, procedures for electricity connection were so cumbersome that they drove up costs incurred to secure electricity connection. Importantly, electricity connection procedures and processes that are simpler, less bureaucratic, and less costly were associated with better performance of firms with higher electricity needs especially those in manufacturing of motor vehicles. Foster and Steinbuks (2009) corroborate the findings by Geginat and Ramalho (2018), arguing that due to increased cost of electricity, own firm power generation in Sub-Saharan Africa has risen to 20 per cent of the installed power capacity, with larger concentration among larger firms compared to small ones.

Allcott et al. (2016) estimate that electricity shortages reduce revenues earned by firms, with producer surplus shrinking by 10 per cent. Losses from firm productivity are, however, lower because inputs are easily storable during electricity outages. Shrinkage in revenues due to power outages were found to be lower among firms with generators compared to firms without generators. Issuance of interruptible retail electricity contracts was thought as bearing potential to reduce impacts associated with electricity shortages. Alby et al. (2013) corroborate the observation by Allcott et al. (2016) in their argument that developing countries grapple with inability to secure reliable electricity for industrial sectors. In effect, firms experience unreliable and insufficient supply of electricity.

3.2.2   Owner-specific factors

Human capital[10] and domestic trade participation

Human capital comprises of education, innate and acquired skills from training,

---

[10] Education, training support and firm age in our empirical analysis are used to measure human capital.

knowledge, and experience[11] of female and male-owned firms[12] (Unger et al., 2011). Firms whose owners have lower stock of human capital are less likely to participate in domestic trade compared to those with higher human capital stock (Khan and Quaddus, 2018). Particularly, higher human capital signifies higher capability, experience, knowledge, and skills. Shrader and Siegel (2007) posit that obtaining necessary training supports female and male-owned firms with essential abilities and skills that promote making informed managerial, operational, and strategic decisions for enhanced participation in domestic trade. ILO (2009) reports that the level of education attainment has explicit relationship with the capability of female and male-owned firms to make financial and managerial choices that enhance the firm's participation in domestic trade. Particularly, firms that have better abilities and skills participate more in domestic trade compared to those with low abilities and skills. Kabukuru and Ofunya (2016) agree with this observation by noting that improved levels of education attainment reflect better understanding of trade ideas and concepts. The outcome is enhanced participation in domestic trade. Female and male-owned firms may report huge differentials in domestic trade participation because of disparities in the amount of human capital stock embedded in them. Differentials in human capital stock— education attainment, skills acquired from training, knowledge, and experience among female and male-owned firms in the country could inform government action to mainstream gender in domestic trade formulation.

A firm's age in years is an important measure of the firm's experience. Ouimet and Zarutskie (2014) observe that young firms are characterized with high failure rates and exhibit subpar performance and growth compared to older ones. Inexperience highly explains higher failure rates among female and male-owned firms participating in domestic trade. Particularly, young firms are likely to have poor trade networks and are likely to make uninformed management, strategic, and operational decisions compared to older firms. Cressy (2006) further opines that inexperience among young female and male-owned firms contributes to higher failure rates due to poor management of risk and uncertainty associated with predicting domestic market trends.

Does human capital—training support, education attainment and experience disproportionately influence the likelihood of female and male-owned firms to participate in domestic trade in Kenya? Empirical analysis will provide answers to the question and inform policy recommendations that mainstream gender in domestic trade formulation.

---

[11] In our empirical analysis, the age of the firm is used as a measure of firm's experience.

[12] Spence (1973) opines that human capital, which comprises of innated and acquired skills and knowledge, is important for successful participation in domestic trade as it serves as a filter that selects female and male-owned firms to sell their goods and services in the domestic market based on their intrinsic abilities.

3.2.3   Firm-specific factors

Firm size and domestic trade participation

Lawrenz and Oberndorfer (2018) examined how size influences survival of firms following the financial crisis experienced in 2007/8. They conclude that SMEs are less likely to withstand crises compared to large firms due to liquidity challenges that constrain participation in domestic trade. Raguseo et al. (2020) concurs that firm size is a significant factor in explaining firm performance. Particularly, large firms enjoy scale of economies, have extensive experience from specialization, and have larger social capital stock than smaller firms. Because of economies of scale, larger firms are likely to have lower costs of engaging in trade compared to smaller firms, a factor that enhances participation in domestic trade.

Wang and Zhao (2020) argue that firm size is positively related with ISO 14001 certification and the financial performance. Larger firms are more likely to perform better financially compared to smaller firms. This study endeavours to examine how the size of firm may influence performance in terms of participation in domestic trade. Larger firms are also likely to have board of directors and better governance structures, which support making informed decisions on which trade opportunities to invest in for higher fortunes (Raguseo et al., 2020). Medase (2020) opines that the size of the firm effectively influences the slack-performance relationship that supports innovation. Digitization as a trade information, for instance, is important in enhancing firm's fortunes from engaging in domestic trade. Larger firms are therefore more likely to create innovations that support and enhance the likelihood of participating in domestic trade compared to smaller firms.

3.2.4   Regulatory factors[13]

Registration, licenses, taxes, and domestic trade participation

Mashenene and Rumanyika (2014) examined constraints limiting potential growth of small and medium enterprises in Tanzania. The constraints include high taxes and bureaucracy in business registration. Taxes influence the direction and size of trade flows (Whalley, 2002). Higher consumption and sales taxes, for instance, are highly likely to be barriers to participation in domestic trade than lower taxes. Further, higher taxes raise production costs incurred by firms, decreasing the volume of goods and services available for trading domestically (Beck and Chaves, 2011). Registration for taxes has heterogeneous effects on profitability of firms

---

[13] On regulatory factors, the paper focuses on how licenses, taxes, and registration status influence both female-and male-owned firms to participate in domestic trade.

(McKenzie and Sakho, 2010). Tax registration translates to higher profits among mid-sized firms and lower profits on marginally small and larger ones. Pablo et al. (2011) examined whether high tax rates and complex tax regulations are a barrier to formalization of micro-firms and observe that simplification of tax procedures enhances participation in trade.

Demenet et al. (2016) hold that firms leaving informality by obtaining registration report a significant effect of 20 per cent on annual value added. However, the effect on annual value addition is trivial among the smallest firms. Further, registration unlocks access to better trading equipment, expansion of operation scale, and makes the trading environment more competitive. However, higher registration costs may hinder formalization of firms and consequently disincentivize domestic trade participation. Further, informal firms operate illegally more because of registration legislations that are unconcise, than because of the choice to evade the regulations (Cling et al., 2012).

Governments issue licenses as an indication that firms have met certain requirements to engage in a certain trade activity. They create confidence and trust among consumers that goods and services traded by firms are lawful and do not pose adverse health effects. If efficient, licenses could then nudge firms to engage in trade. If inefficient, like being too expensive or the process being excessively bureaucratic, licenses could deter firms from trading. Hersoug et al. (2019) for instance, hold that licensing of the salmon aquaculture in Norway was undertaken with an aim of managing risks and impacts associated with salmon trade. Inderberg et al. (2019) concur that licenses influence how traders behave, the economic activity they engage in, and the predictability and transparency of the trading process.

3.2.5 Geographical factors

According to Krugman (1991), economic geography concerns itself with allocation of factors of production in space and specialization across regions for a given distribution of productive factors, and the long-run location of the factors across regions, especially regional county economic blocs in Kenya. At the core is spatial allocation of economic activity and how the same could serve as a signal for demand for goods and services in various regions and the resultant improvement of trade activity. Ohlin (1933) further posits that there is connection between geography, location of industries, and concentration of trade activity. Krugman (1999) corroborates by arguing that the immense advantages of producing a large quantity of a single commodity instead of a little of all commodities leads to specialization and concentration of economic activities in regions based on economies of scale

and returns from trade. For Kenya, the regional county economic blocs specialize in production of goods and services for which they have comparative advantage, then exchange them through intra-national trade. Indeed, specialization that is driven by differences in factor endowments is further reinforced by the incentive to enjoy benefits of large-scale production. Geographical availability and mobility of productive factors, and final tradeable goods and services may thus drive interregional domestic trade in Kenya.

4. Methodology

4.1 Theoretical Framework

This study employs the Heckscher-Ohlin model, which hypothesizes that trade participation is explained by differences in resource[14] endowment (Krugman et al., 2017). Specifically, if female-and male-owned firms have limited access to resources,[15] they are expected to participate less in domestic trade, and vice versa. Comparative advantage in domestic trade participation is influenced by the relative accessibility of resources as factors[16] that influence whether female-and male-owned firms participate more in trade or otherwise.

Borrowing from Heckscher (1919) and Ohlin (1933), we examine how the identified factors influence participation in domestic trade by female and male-owned firms. The factors considered in the paper are further informed by review of theoretical literature from section 2.2, and observability of the specific variables in the 2016 MSME dataset. Disparities in domestic trade participation between female-and male-owned firms in the country are thought to be driven by differentials in access and utilization of the factors. Particularly, the paper hypothesizes that these factors—firm-specific factors (size), regulatory factors (tax regime, licenses, and firm registration status), support factors (credit, water, electricity, trade associations, road status, Internet, mobile money platform, on-job-training, and nature of the trading structure), owner-specific factors (education attainment—primary, polytechnic, secondary, college, undergraduate and post-graduate levels), and geographical factors (county economic blocs) have disproportionate effect on female-and male-owned firms in Kenya and this either promotes or inhibits the likelihood of the firms to participate in domestic trade. The regulatory factors create incentive to firms to engage in legal and lawful trade activities, while the support factors enable and facilitate firms to engage in domestic trade. The owner-specific factors related to skills, competence, and knowledge to engage in trade activities while geographical factors are related to concentration of market opportunities in certain county economic blocs.

Borrowing from the theoretical framework, we obtain an analytical model as in (4.1) where domestic trade is a function of owner-specific, regulatory, support, firm-specific, and geographical factors.

---

[14] Resources are inputs used to produce and distribute goods and services to the market. Economic resources include human resources such as management and labour and nonhuman resources like credit, Internet, electricity, water, road infrastructure, among others.

[15] Resources here are the factors that influence the likelihood of female and male-owned firms participating in domestic trade in Kenya.

[16] In this paper, resources and factors are used interchangeably.

(Domestic Trade Participation) = f (Owner$_{specific}$ Factors, Regulatory factors , Support factors, Firm$_{specific}$ Factors, Geographical factors)   *(4.1)*

4.2   Econometric Equation

We measure domestic trade participation by identifying the main buyer of goods and services sold by female-and male-owned firms in Kenya. We identify four main types of buyers—MSMEs, non-MSMEs[17], government, and individual consumers. We proceed to assign a value of "1" if buyer of goods and services is an MSME, "2" if the buyer is a non-MSME, "3" if the buyer is government, and "4" if the buyer is an individual consumer. The econometric equation that will be estimated is as in (4.2).

Domestic trade participation=β_o+β_iOwner$_{specific}$factors+β_jRegulatory factors+β_k Support factors+β_lFirm$_{\_specific}$factors+β_m Geographical factors+μ   *(4.2)*

Where, μ is a stochastic error term that measures the effect of other variables that influence domestic trade participation by female-and male-owned firms but are unobservable in the 2016 MSME dataset. β_i, β_j, β_k, β_l and β_m represent vectors for parameters being estimated.

4.3   Measurement of Variables

Table 4.1: Measurement of variables

Variables	Measurement	Observations
Domestic trade participation	1 if buyer of goods and services is an MSME; 2 if buyer is a non-MSME; 3 if buyer is government; and 4 if buyer is an individual consumer.	18,249
Owner specific factors		
Gender	1 if firm-owner is male; 0 if firm-owner is female	18,249
Education	1 if firm-owner has not education attainment; 2 if education level if primary; 3 if education level is polytechnic; 4 if secondary; 5 if diploma; 6 if undergraduate; and 7 if post-graduate	18,249
Regulatory factors		
Tax obligation	Firm's monthly expenditure on taxes in Kenyan shillings	18,249

---

[17] Non-MSMEs are deemed to be corporations.

Licenses obligation	Firm's monthly expenditure on licenses in Kenyan shillings	18,249
Registration status	1 if firm is registered by registrar of companies, 0 if not registered	18,249
Support factors		
Access to credit	1 if firm applied for credit in the last three years; 0 if firm did not apply for credit	18,249
Mobile money platform	1 if firm uses mobile money platform; 0 if not	18,249
Firm structure	1 if firm trades in an area where there is no structure; 2 if firm trades in a permanent structure; and 3 if firm trades in a semi-permanent structure	18,249
On-job-training	1 if firm has employees who have undergone on-job-training; 0 if not	18,249
Trade association	1 if firm is a member of a trade association, 0 if not.	18,249
Road status	1 if the road used to transport goods and services to market is in good status; 0 if road is in poor status	18,249
Internet access	Firm's monthly expenditure on Internet in Kenyan shillings	18,249
Water access	Firm's monthly expenditure on water in Kenyan shillings	18,249
Electricity	Firm's monthly expenditure on electricity in Kenyan shillings	18,249
Firm-specific factors		
Firm size	1 if firm is micro, 2 if firm is small, 3 if firm is medium.	18,249
Geographical factors		
County economic bloc	1 if firm trades in Nairobi; 2 if NOREB; 3 if LREB; 4 if JKP; 5 if NAKAEB; 6 if CREB; 7 if SEKEB; and 8 if FCDC	18,249

4.4   Data

4.4.1   Description and sample size

The paper uses data obtained from the 2016 Micro, Small and Medium Enterprises (MSME) Survey. It is the most recent dataset by the Kenya National Bureau of Statistics (KNBS) on the factors that influence the likelihood of female-and male-owned firms participating in domestic trade in Kenya. The survey was conducted over a 12-month period to obtain data on a range of factors that influence the

establishment of MSMEs, challenges, ownership, and support needed to foster the firms' participation in domestic trade. Indeed, the dataset captures the most recent development in the MSMEs sector since the 1999 National Micro and Small Enterprises (MSEs) Baseline Survey.

The firm is the unit of analysis for this study. The survey was cross-sectional and used a representative probability sample design. We use a sample of only 18,249 firms which were selling their goods to MSMEs, non-MSMEs, government, and individual consumers and were either owned by females or males.

4.4.2   Summary statistics

Table 4.2: Descriptive statistics

Variables	Obs.	Mean/ Proportion[19]	SD/Cum[20]	Min	Max
Domestic trade participation					
i. MSMEs	1,562	0.0855937	0.0856		1
ii. Non-MSMEs	506	0.0277275	0.0856		2
iii. Individual consumers	16,101	0.8822949	0.9956		3
iv. Government	80	0.0043838	0.10000		4
Owner-specific factors					
Gender	18,249	0.6456792	0.4783201		1
Education					
i. None	2,685	0.1471313	0.1471		1
ii. Primary	4,443	0.2434654	0. 3906		2
iii. Polytechnic	270	0.0147953	0.4054		3
iv. Secondary	6,223	0.341005	0.7464		4
v. Diploma	2,978	0.163187	0.9096		5
vi. Undergraduate	**1,317**	0.0721683	0.9818		6
vii. Post-graduate	333	0.0182476	0.10000		7
Regulatory factors					
Tax obligation	18,249	6,930.176	267,168.9	0	21,000,000
Licenses obligation	18,249	1,245.183	34,685.28	0	2,400,004
Registration	18,249	0.2282865	0.4197397	0	1
Support factors					

[19] Proportions are for the dummy and categorical variables while mean is for the continuous variables

[20] The standard deviation is for the continuous variables while cumulative is for the categorical variables

Access to credit	18,249	0.2722341	0.4451219	0	1
Mobile money platform	18,249	.4441339	.4968828	0	1
Firm structure					
i. No structure	753	.0412625	.0413	1	
ii. Permanent	13,094	.7175188	.7588	2	
iii. Semi-permanent	4,402	.2412187	.10000	3	
On job training	18,249	.0838402	.2771556	0	1
Trade association	18,249	.3503754	.4771006	0	1
Road status	18,249	.7181215	.4499268	0	1
Internet access	18,249	203.7802	5607.103		429581.1
Water access	18,249	.1032933	.30435	0	1
Electricity	18,249	2588.158	133275.4	0	10300000
Firm-specific factors					
Firm size					
i Micro	17,892	.9804373	.98.4	1	
ii Small	303	.0166036	.9970	2	
iii. Medium	54	.0029591	.10000	3	
Geographical factors— Economic blocs					
i. Nairobi	1,029	.0563867	.0564	1	
ii NOREB	3,138	.1719546	.2283	2	
iii LREB	3,991	.2186969	.4470	3	
iv JKP	2,151	.1178695	.5649	4	
v NAKAEB	680	.0372623	.6022	5	
vi CREB	4,203	.230314	.8325	6	
vii SEKEB	1,402	.0768261	.9093	7	
Viii FCDC	1,655	.0906899	.10000	8	

Table 4.2 presents summary statistics for the variables used in the analysis. Among the buyers of goods and services, 8.6 per cent were MSMEs, 2.8 per cent were non-MSMEs, 88.2 per cent were individual consumers, and 0.4 per cent constituted of the government.

Among the owner-specific factors, 64.6 per cent of firm-owners were males while 35.4 per cent were females. On education, 14.7 per cent of firm-owners had no education attainment, 24.3 per cent had primary level of education, 1.5 per

cent had polytechnic level, 34.1 per cent had secondary level, 16.3 per cent had diploma, 7.2 per cent had undergraduate level of education, while 1.8 per cent had post-graduate level of education attainment.

Among the regulatory factors, the mean monthly expenditure on taxes was Ksh 6,930 with a minimum of Ksh 0 and a maximum of Ksh 21,000,000. The mean monthly expenditure on licenses was Ksh 1,245 with a minimum of Ksh 0 and a maximum of Ksh 2,400,004. 22.8 per cent of firms were registered by the Registrar of Companies compared to 77.2 per cent unregistered.

Among the support factors, 27.2 per cent of firms had applied for credit in the last three years compared to 72.8 per cent who had not made an application. 44.4 per cent of the firms were using mobile money platforms for transactions compared to 55.6 per cent not using mobile money platforms. Regarding the nature of trading structure, 4.1 per cent of the firms were trading in an open place, 71.8 per cent were trading in a permanent structure, and 24.1 per cent were trading in a semi-permanent structure. 8.4 per cent of firms had employees undertaking on-job-training compared to 91.6 per cent whose employees had not undertaken any form of on-job-training. 35.0 per cent of the firms were members of a trade association compared to 65.0 per cent with no membership with a trade association. 71.8 per cent of the firms reported roads used to transport goods and services were in good condition compared to 28.2 per cent reporting that roads were in poor status. Further, the average monthly expenditure on Internet was Ksh 203 with a minimum of Ksh 0 and a maximum of Ksh 429,581. 10.3 per cent of the firms had access to piped water compared to 89.7 per cent which did not have access to piped water. The average monthly expenditure on electricity was Ksh 2,588 with a minimum of Ksh 0 and a maximum of Ksh 10,300,000.

Among the firm-specific factors, 98.0 per cent of the firms were micro, 1.7 per cent were small, and 0.3 per cent were medium. Among the geographical factors, 5.6 per cent of the firms were trading in Nairobi, 17.2 per cent in NOREB, 21.9 per cent in LREB , 11.8 per cent in JKP, 3.7 per cent in NAKAEB, 23.0 per cent in CREB, 7.7 per cent in SEKEB, and 9.1 per cent in FCDC .

4.4.3   Diagnostic tests

The residuals for the estimated model followed a normal distribution (p<.05). Multicollinearity was not a major problem as the mean VIF was 1.17, which was less than the VIF of 10. Robust standard errors were used to control for heteroscedasticity.

The multinomial logit regression uses maximum likelihood estimation. A key assumption of the estimator is that the outcome categories of the model have

the property of independence of irrelevant alternatives (IIA). MSMEs and non-MSMEs are close substitutes, meaning exclusion of any of them affects the relative likelihood of the remaining alternatives. Using the Hausman specification test (Hausman and McFadden, 1984), we established no evidence that the IIA assumption had been violated, and proceeded to estimate equation (4.2) using multinomial logit after Stata selected the individual consumers category to be the reference group.

5.   Results and Discussions

5.1   Introduction

The fitted model had a p-value of 0.0000, indicating that all the regression coefficients across the three fitted models were simultaneously not equal to zero. Further, the estimated model had a Pseudo R^2 of .0767, meaning the estimated model was 7.67 per cent better than the null model .

5.2   Empirical Results

We interpret the relative risk ratios for the equation estimated in (3.2). The significance of the results is determined at the 5 and 10 per cent levels of statistical significance. Further, interpretation of the results is only done for factors with significant effect on domestic trade participation.

5.2.1   Owner-specific factors

Male-owned firms were 1.91 times more likely to sell goods and services to MSMEs, 4.96 times more likely to sell to non-MSMEs, and 832.77 times more likely to sell to the government as opposed to individual consumers compared to firms owned by females.

On education, male-owned firms were 0.81 times less likely to sell their goods and services to MSMEs and 0.52 times less likely to sell to non-MSMEs if the owners had primary level of education as opposed to selling to individual consumers compared to female-owned firms. Firms owned by males with polytechnic, secondary, and diploma levels of education were 0.17, 0.46, and 0.39 times less likely to sell their goods and services to MSMEs as opposed to individual consumers, respectively, compared to females with the same level of education attainment. Firms whose owners were male and had undergraduate level of education were 0.48 times less likely to sell to MSMEs, but 1.64 times more likely to sell to non-MSMEs as opposed to individual consumers compared to those owned by females possessing the same level of education. Lastly, firms whose owners were males and possessed post-graduate level of education were 0.29 times less likely to sell their goods and services to MSMEs as opposed to individual consumers compared to those owned by females with post-graduate education.

5.2.2 Regulatory factors

On tax obligation, male-owned firms were 1.06 and 1.11 times more likely to sell goods and services to non-MSMEs and the government if the firm's monthly tax obligation increased by 1 per cent compared to the amount they would sell to individual consumers. On licenses obligation, female-owned firms were 1.84 times more likely to sell goods and services to the government if the monthly obligation on licenses increased by 1 per cent compared to what would be sold to individual consumers. In contrast, male-owned firms were 1.12 times more likely and 0.89 less likely to sell goods and services to MSMEs and non-MSMEs, respectively, if the monthly licenses obligation increased by 1 per cent compared to would be purchased by individual consumers.

On firm registration, female-owned firms were 1.89 times more likely to sell goods and services to non-MSMEs if they were registered compared to what would be sold to individual consumers. Male-owned firms were 2.61 and 14.51 times more likely to sell goods and services to non-MSMEs and the government, respectively, if they were formerly registered compared to what would be sold to individual consumers.

5.2.3 Support factors

On access to credit, male-owned firms were 2.82 times more likely to sell goods and services to the government if they had access to credit compared to what would be sold to individual consumers.

On access to mobile money, female-owned firms were 0.68, 0.54, and 0.08 times less likely to sell goods and services to MSMEs, non-MSMEs, and the government, respectively, if they had access to mobile money platform compared to what would be sold to individual consumers. In contrast, male-owned firms were 0.72 times less likely and 2.17 times more likely to sell goods and services to MSMEs and non-MSMEs, respectively, if they had access to a mobile platform compared to the amount that would be sold to individual consumers.

On nature of the trading structure, male-owned firms were 1.35 times more likely and 0.37 times less likely to sell goods and services to non-MSMEs and the government, respectively, if they traded in a permanent structure as opposed to trading in an open place compared to firms owned by females. Similarly, male-owned firms were 0.72 times less likely, 2.17 times more likely, and 0.28 times less likely to sell goods and services to MSMEs, non-MSMEs, and the government, respectively, if they traded in a semi-permanent structure as opposed to trading in an open place compared to female-owned firms.

Pertaining job training, male-owned firms were 0.41 times less likely to sell goods and services to non-MSMEs if employees had undergone on-job-training compared to the amount they would sell to individual consumers.

On membership to trade associations, female-owned firms were 1.47 times more likely to sell goods and services to non-MSMEs if they were members of a trade association compared to what they would sell to individual consumers. Male-owned firms were 1.22 times more likely and 0.74 times less likely to sell goods and services to MSMEs and non-MSMEs, respectively, if they had membership with trade associations compared to what would be sold to individual consumers.

On road status, female-owned firms were 2.08 times more likely to sell goods and services to non-MSMEs if the roads used to transport goods and services were in good condition compared to what would be sold to individual consumers. Male-owned firms were 0.88 and 0.60 times less likely to sell goods and services to MSMEs and non-MSMEs if the roads used to transport goods were in good condition compared to what would be sold to individual consumers.

On access to Internet, female-owned firms were 1.08 and 1.32 times more likely to sell goods and services to MSMEs and non-MSMEs if monthly expenditure on Internet increased by 1 per cent compared to what would be sold to individual consumers. Male-owned firms were 1.04, 1.15, and 1.16 times more likely to sell goods and services to MSMEs, non-MSMEs, and the government if the monthly expenditure on Internet increased by 1 per cent compared to what would be purchased by individual consumers.

On access to electricity, female-owned firms were 0.94 times less likely to sell goods and services to non-MSMEs if firm's monthly expenditure on electricity increased by 1 per cent compared to what would be sold to individual consumers. Similarly, male-owned firms were 0.96, 0.88, and 0.79 times less likely to sell goods and services to MSMEs, non-MSMEs, and the government if monthly electricity expenditure increased by 1 per cent compared to what would be sold to individual consumers.

5.2.4 Firm-specific factors

Small firms were 2.21 and 1.91 times more likely to sell goods and services to MSMEs, and non-MSMEs, respectively, if they were owned by males as opposed to individual consumers compared to what would be sold by firms owned by females. Similarly, medium firms were 4.24 times more likely to sell goods and services to non-MSMEs if they were owned by males as opposed to individual consumers compared to what female-owned firms would sell.

5.2.5 Geographical factors

We examine how belonging to the various proposed economic blocs in Kenya influences the likelihood of firms to participate in domestic trade. We find male-owned firms are 1.92 times more, 0.57 times less, 0.43 times less, 0.35 times less, and 2.73 times more likely to sell goods and services to non-MSMEs if the firms are domiciled in NOREB, LREB, NAKEB, CEREB and FCDC economic blocs, respectively, as opposed to individual consumers compared to firms owned by females. Similarly, we find male-owned firms from SEKEB are 0.64 times less likely to sell goods and services to MSMEs as opposed to individual consumers compared to those owned by females.

5.2.6 Tabular presentation of results

Table 5.1: Multinomial logistic regression results

Variable	MSMEs			Non-MSMEs			Government		
	RRR	Robust SE β	P-value	RRR	Robust SE β	P-value	RRR	Robust SE β	P-value
Owner-specific factors									
Gender	1.9112	.6095 (2.03)	0.042**	4.9654	3.1538 (2.52)	0.012*	354.418	832.7665 (2.50)	0.012*
Education #c. Gender									
Primary	.8133	.0931 (-1.81)	0.071***	.5168	.0846 (-4.03)	0.000**	.9624	.5881 (-0.06)	0.950
Secondary	.9251	.0988 (-0.73)	0.466	.4564	.0695 (-5.15)	0.000**	1.4090	.6859 (0.70)	0.481
Polytechnic	.7109	.2263 (-1.07)	0.284	.1743	.1807 (-1.68)	0.092***	2.7151	3.2946 (0.82)	0.410
Diploma	.8811	.1068 (-1.04)	0.296	.3908	.0757 (-4.85)	0.000**	1.6320	.8035 (0.99)	0.320
Undergraduate	.9737	.1351 (-0.19)	0.848	.4781	.1018 (-3.46)	0.001**	3.4609	1.6425 (2.62)	0.009**
Post-graduate	.8342	.1351 (-0.19)	0.416	.2869	1185 (-3.02)	0.003**	1.6609	1.0778 (0.78)	0.434
Regulatory factors									

Gender #LogTax obligation—females	.9835	.0307 (-0.53)	0.593	.9915	.0733 (-0.11)	0.908	1.0479	.1145 (0.43)	0.669
Gender #LogTax obligation—males	1.0219	.0152 (1.45)	0.146	1.0605	.0260 (2.39)	0.017**	1.1096	.0443 (2.61)	0.009**
Gender #LogLicenses obligation—females	1.0526	.0403 (1.34)	0.180	1.0362	.0901 (0.41)	0.682	1.8377	.4727 (2.37)	0.018**
Gender #LogLicenses obligation—males	1.1159	0272 (4.51)	0.000**	.8969	.0318 (-3.07)	0.002**	1.0602	.0883 (0.70)	0.483
Firm registration status—females	1.0605	.1387 (0.45)	0.654	1.8971	.4590 (2.65)	0.008**	3.0207	3.1116 (1.07)	0.283
Firm registration status—males	.9023	.0731 (-1.27)	0.204	2.6085	.2777 (9.01)	0.000**	14.5116	6.0068 (6.46)	0.000**
Support factors									
Gender #Access to credit—females	.8949	.0967 (-1.03)	0.304	.9139	.1845 (-0.45)	0.656	2.3538	1.5176 (1.33)	0.184
Gender #Access to credit—males	1.0165	.0777 (0.21)	0.830	.9756	.1556 (-0.16)	0.877	2.8175	.6878 (4.24)	0.000**
Access to mobile money platform—females	.6813	.0707 (-3.70)	0.000**	.5405	.1101 (-3.02)	0.003**	.1256	.0834 (-3.13)	0.002**
Access to mobile money platform—males	.7168	.0495 (-4.82)	0.000**	1.2217	.1343 (1.82)	0.069***	1.0183	.2758 (0.07)	0.947

Firm structure #c. Gender									
Permanent	1.0057	.1511 (0.04)	0.970	3.2699	1.3500 (2.87)	0.004**	.3696	.1466 (-2.51)	0.012**
Semi-permanent	.7202	.1140 (-2.07)	0.038**	2.1679	.9082 (1.85)	0.065**	.2766	.1427 (-2.49)	0.013**
Gender #On-job training—females	.8827	.1942 (-0.57)	0.571	.6604	.2757 (-0.99)	0.320	1.2754	1.1726 (0.26)	0.791
Gender #On-job training—males	.9892	.1152 (-0.09)	0.926	.4088	.0927 (-3.94)	0.000**	.5829	.2255 (-1.40)	0.163
Gender #Membership to trade association—females	1.0797	.1059 (0.78)	0.435	1.4709	.2727 (2.08)	0.037**	2.2706	1.6511 (1.13)	0.259
Gender #Membership to trade association—males	1.2229	.0874 (2.82)	0.005**	.7376	.1049 (-2.14)	0.032**	.6474	.2248 (-1.25)	0.211
Gender #Road status—females	1.1482	.1247 (1.27)	0.203	2.0761	.5008 (3.03)	0.002**	1.9989	2.5168 (0.55)	0.582
Gender #Road status—males	.8788	.0636 (-1.79)	0.074***	.6006	.0640 (-4.78)	0.000**	.8701	.2617 (-0.46)	0.644
Gender #LogInternet access—females	1.0808	.0359 (2.34)	0.019**	1.0381	.0687 (0.57)	0.572	1.3237	.1605 (2.31)	0.021**

Gender #Internet access—males	1.0359	.0185 (1.97)	0.049**	1.1509	.0288 (5.61)	0.000**	1.1559	.0595 (2.82)	0.005**
Gender #LogWater—females	1.0111	.0195 (0.57)	0.568	1.0448	.0379 (1.21)	0.227	1.0580	.1664 (0.36)	0.720
Gender #LogWater—males	.9805	.0127 (-1.52)	0.129	.9742	.0234 (-1.09)	0.276	.9901	.0479 (-0.21)	0.837
Gender # Log electricity—females	1.0234	.0198 (1.19)	0.232	.9407	.0331 (-1.74)	0.082***	1.0441	.1375 (0.33)	0.743
Gender # Log electricity—males	.9629	.0130 (-2.78)	0.005**	.8762	.0196 (-5.92)	0.000**	.7984	.0341 (-5.27)	0.000**
Firm-specific factors									
Size #c. Gender									
Small	2.2138	.3982 (4.42)	0.000**	1.9062	.5687 (2.16)	0.031**	1.4305	.6663 (0.77)	0.442
Medium	.8155	.4449 (-0.37)	0.709	4.2447	2.6157 (2.35)	0.019**	1.1124	1.3614 (0.09)	0.931
Other factors									
County Economic Blocs #c. Gender									
NOREB	1.2526	.1915 (1.47)	0.141	1.9196	.4359 (2.87)	0.004**	1.3686	.6134 (0.70)	0.484

LREB	.8286	.1236 (-1.26)	0.208	.5709	.1486 (-2.15)	0.031**	.9694	.4005 (-0.08)	0.940
JKP	1.2227	.1917 (1.28)	0.200	.6560	.1929 (-1.43)	0.152	1.1979	.5126 (0.42)	0.673
NAKEB	1.0055	.2111 (0.03)	0.979	.4347	.1808 (-2.00)	0.045**	.6082	.4656 (-0.65)	0.516
CREB	.7861	.1193 (-1.59)	0.113	.3535	.1026 (-3.58)	0.000**	.5038	.2549 (-1.36)	0.175
SEKEB	.6423	.1283 (-2.22)	0.027**	.7264	.2424 (-0.96)	0.338	.3846	.4309 (-0.85)	0.394
FCDC	.8142	.1457 (-1.15)	0.251	2.7288	.5759 (4.76)	0.000**	1.8757	1.1191 (1.05)	0.292
Constant	.0582	.0116 (-14.27)	0.000**	.0108	.0048 (-10.16)	0.000**	0.0000075	.000016 (-5.42)	0.000
Observations	18,249								
Wald chi2(120)	1831.36								
Prob > chi²	0.0000								
Pseudo R²	0.0767								

*Note: ** and ** mean statistically significant at the 5% and 10% levels of significance. # Means interaction between variables i.e Education #c.Gender means interaction between education and gender*

34

5.3   Discussions

The paper sought to assess how firm-specific factors (size), regulatory factors (tax obligation, licenses, and firm registration status), support factors (credit, water, electricity, trade associations, road status, Internet, mobile money platform, on-job-training, nature of the trading structure (open space, permanent, semi-permanent), owner-specific factors (gender, education attainment—no education, primary, polytechnic, secondary, diploma, undergraduate and post-graduate levels), and geographical factors (county economic blocs) influence domestic trade participation by female-and male-owned firms as a source of accelerated income-generation, job creation, poverty alleviation, welfare improvement, and economic growth and development as enshrined in the "Big Four" agenda and the Kenya Vision 2030.

Among the firm-specific factors, small firms owned by men were more likely to trade with MSMEs and non-MSMEs compared to those owned by women. Further, medium enterprises owned by men were more likely to trade with non-MSMEs compared to what would happen if they were owned by women. The findings reflect those by Lawrenz and Oberndorfer (2018) who hold that SMEs are less likely to withstand crises compared to large firms due to liquidity challenges that constrain participation in domestic trade. Raguseo et al. (2020) also corroborate our findings in that they observe that firm size is a significant factor in explaining firm performance. Particularly, large firms enjoy scale of economies, have extensive experience from specialization, and have larger social capital stock than smaller firms. Because of economies of scale, larger firms are likely to have lower costs of engaging in trade compared to smaller firms, a factor that enhances participation in domestic trade. Wang and Zhao (2020) further support our findings in that larger firms are more likely to perform better financially compared to smaller firms. Larger firms are likely to have board of directors and better governance structures, which support making informed decisions on which trade opportunities to invest in for higher returns (Raguseo et al., 2020). Medase (2020) opines that the size of the firm effectively influences the slack-performance relationship that supports innovation. Digitization as a trade information, for instance, is important in enhancing firm's fortunes from engaging in domestic trade. Larger firms are therefore more likely to create innovations that support and enhance the likelihood of participating in domestic trade compared to smaller firms.

Among the support factors, male-owned firms were more likely to trade with government if they had access to credit. Female-owned firms were found to be more likely to sell goods and services to individual consumers if they had access

to mobile platforms. Male-owned firms were particularly more likely to trade with individual consumers and non-MSMEs if they had access to mobile platforms. Male-owned firms were more likely to trade with non-MSMEs and the government if they traded in a permanent structure compared to those owned by females. In contrast, male-owned firms were more likely to trade with individual consumers, and non-MSMEs, if they traded in a semi-permanent structure. Firms owned by males were more likely to trade with individual consumers if their employees obtained on-job-training. Female-owned firms were more likely to trade with non-MSMEs if they had membership with trade associations compared to those owned by men, which were both more likely to trade with MSMEs and individual consumers if they had membership with trade associations. Those owned by women were more likely to trade with non-MSMEs if the road used to transport goods and services was in good status compared to those owned by men, which were more likely to trade with individual consumers if the road was in good condition. With access to Internet connectivity, female-owned firms were found to be more likely to trade with MSMEs and the government while male owned-firms were more likely to trade with MSMEs, non-MSMEs, and the government. Female-and male-owned firms were more likely to trade with individual consumers if they had access to electricity. The findings reflect those by Pablo et al. (2020), who found that female-owned firms are less likely to apply for credit. Further, female-owned firms were less likely to secure credit compared to male-owned firms operating in the same industry. The gender gap in accessing credit is due to double standards driven by unconscious discrimination. Alesina et al. (2013) further opine that women in Italy pay more for credit than men despite existence of no evidence that females are riskier than males. Particularly, financial institutions were found to charge different rates to women and men after controlling for business type, structure of the financial market, and individual characteristics of the borrower. Bellucci et al. (2010) further observe that female-owned firms experience tighter access to credit despite charged interest rates unchanging. Further, the gender of the loaning officer influences access to credit in that female officers are more likely to be risk averse or less self-confident compared to male officers. Female loaning officers are more likely to constrain access to credit to new and unestablished female borrowers compared to male loaning officers. Hansen and Rand (2014) concur that female-owned firms experience stiffer credit constraints compared to those owned by males. Cole and Mehran (2018) further argue that female-owned firms are significantly smaller compared to male-owned firms in terms of sales, assets, and employment, are much younger in terms of years in trade, are more likely to trade as sole proprietorships as opposed to corporations, are more likely to operate in retail trade and services as opposed to construction, manufacturing,

and wholesale trade, and have fewer banking relationships. Females owning firms are more likely to be inexperienced and less educated.

Among the regulatory factors, the business tax, licensing, and registration regime had highly disproportionate effect on domestic trade participation among firms owned by males and females. Particularly, it is only male-owned firms that were more likely to trade with non-MSMEs and the government if the tax burden increased by one percentage point. In contrast, for every one percentage point increase in licensing burden, female-owned firms were found to be more likely to trade with the government compared to male-owned firms which would be more likely to trade with MSMEs and individual consumers only. Additionally, female-owned firms were only more likely to trade with non-MSMEs if they were registered compared to male-owned firms which were more likely to trade with both non-MSMEs and the government when formally registered with the registrar of companies. Mashenene and Rumanyika (2014) corroborate our findings by arguing that constraints faced by firms include high taxes and bureaucracy in business registration. Taxes influence the direction and size of trade flows (Whalley, 2002). Higher consumption and sales taxes, for instance, are highly likely to constrain participation in domestic trade than lower taxes. Further, higher taxes raise production costs incurred by firms, decreasing the volume of goods and services available for trading domestically (Beck and Chaves, 2011). Pablo et al. (2011) further argue that high tax rates and complex tax regulations are a barrier to formalization of micro-firms, and observe that simplification of tax procedures enhances participation in trade. Demenet et al. (2016) hold that firms leaving informality by obtaining registration report a significant effect of 20 per cent on annual value added. However, the effect on annual value addition is trivial among the smallest firms. Further, registration unlocks access to better trading equipment, expansion of operation scale, and makes the trading environment more competitive. However, higher registration costs may hinder formalization of firms and consequently disincentivize domestic trade participation. Inderberg et al. (2019) concur that licenses influence how traders behave, the economic activity they engage in, and the predictability and transparency of the trading process.

Among the owner-specific factors, male-owned firms are more likely to sell goods and services to MSMEs, non-MSMEs, and the government compared to those owned by women. Further, firms owned by males with primary, polytechnic, secondary, diploma, and post-graduate education were more likely to sell goods and services to individual consumers compared to those owned by women. Firms owned by males with undergraduate level of education were more likely to sell goods and services to both non-MSMEs and the government compared to those owned by females. Education embodies skills obtained from training, knowledge, and experience that is important in efficiently participating in trade activities.

The findings support those by Khan and Quaddus (2018) in that owners who have lower stock of human capital are less likely to participate in domestic trade compared to those with higher human capital stock. Particularly, higher human capital signifies higher capability, experience, knowledge, and skills. Shrader and Siegel (2007) posit that obtaining necessary training supports female and male-owned firms with essential abilities and skills that promote making informed managerial, operational, and strategic decisions for enhanced participation in domestic trade. ILO (2009) reports that the level of education attainment has explicit relationship with the capability of female and male-owned firms to make financial and managerial choices that enhance the firm's participation in domestic trade. Particularly, firms that have better abilities and skills participate more in domestic trade compared to those with low abilities and skills. Kabukuru and Ofunya (2016) agree with this observation in that improved levels of education attainment reflect better understanding of trade ideas and concepts. The outcome is enhanced participation in domestic trade.

Among the geographical factors, the findings indicate that male-owned firms located in NOREB and FCDC are more likely to sell goods and services to non-MSMEs compared to those owned by females. In contrast, male-owned firms located in LREB, NAKAEB, CREB and SEKEB are more likely to sell goods and services to individual consumers compared to those owned by women. The findings reflect work by Krugman (1991), who posits that spatial endowment of factors of production in space and specialization across regions is key in driving trade activity. Ohlin (1933) supports the findings by arguing that there is a connection between geography, location of industries, and concentration of trade activity. Krugman (1999) corroborates this in his argument that firms reap benefits of specialization and economies of scale associated with concentration of economic activities in regions based on comparative advantage.

6.   Conclusion and Policy Implications

6.1   Conclusion

The paper finds that owner-specific factors—gender and education, regulatory factors—taxes, licenses, and registration status, support factors—credit, mobile money platforms, trading structure, on-the-job training, membership to trade associations, road status, Internet, and access to electricity, firm-specific factors—size, and county economic blocs significantly influence participation in domestic trade by female-and male-owned firms in Kenya.

6.2   Policy Implications

Evidence supports the significance of the proposed regional county economic blocs. However, the economic blocs are currently not defined by any clear legal and institutional framework. Thus, there is need to undertake legislation to accord the blocs legal and institutional status for ease of operationalization.

Evidence indicates that women-owned firms lag those owned by men in domestic trade participation. There is need to mainstream gender in domestic trade policy making and implementation with targeted incentives for women-owned firms. The regulatory space is a potential area for reforms to entrench targeted incentives especially in taxation, licensing, and licensing requirements.

There is need to enforce legal provisions that accord women equal access to land and property as prerequisites to accessing credit. Implementation of the Land Laws (Amendment) Act 2016 should be fast-tracked with a view to unlocking collateral, which is necessary in securing access to credit for enhanced domestic trade participation by female-owned firms in Kenya.

There is need to review the Micro and Small Enterprises Act (MSEA) 2012 to provide incentives to firms within the classification of Micro and Small Enterprises (MSEs) to have membership with the authority. Since the authority is mandated to support and capacity-build MSEs, incentivizing membership with the authority could incubate most MSEs to grow in size, gain experience, become more specialized, trade formally by meeting necessary registration requirements, and nurture social capital of the firms.

References

Alby, P., Dethier, J. and Straub, S. (2013), "Firms operating under electricity constraints in developing countries". *World Bank Economic Review, 27(1)*: 109-132.

Alesina, A., Lotti, F., Mistrulli, P. (2013), "Do women pay more for credit? Evidence from Italy". *Journal of the European Economic Association*, 11(1): 45-66.

Allcott, H., Allan, C. and Stephen, D. (2016), How do electricity shortages affect industry? Evidence from India". *American Economic Review*, 106(3): 587-624.

Aschauer, D. (1989), "Is public expenditure productive?" *Journal of Monetary Economics*, 23(2): 177-200.

Barzin, S., Sabine, D. and Graham, D. (2018), "A pseudo-panel approach to estimating dynamic effects of road infrastructure on firm performance in a developing country context". *Regional Science and Urban Economics*, 70: 20-34.

Beck, S. and Chaves, A. (2011), The impact of taxes on trade competitiveness.Working Papers 11-09, University of Delaware, Department of Economics.

Bellucci, A., Borisov, A. and Zazzaro, A. (2010), "Does gender matter in bank-firm relationship? Evidence from small business lending". *Journal of Banking and Finance*, 34(12): 2968-2984.

Cling, J., Roubaud, F. and Mireille, R. (2012), "To be or not to be registered? Explanatory factors behind formalizing non-farm household businesses in Vietnam". *Journal of the Asia Pacific Economy*, 17(4): 632-652.

Cole, R. and Mehran, H. (2018), Gender and availability of credit to privately held firms: Evidence from the surveys of small business finances. Federal Reserve Bank of New York, 383, 1-31.

Coleman, J. (1990), *Foundation of social capital theory*. Cambridge, MA: Harvard University Press.

Constitution of Kenya (2010), The Constitution of Kenya, 2010. Kenya Law Report. Available at http://www.kenyalaw.org/kl/index.php?id=398.

Cressy, R. (2006), "Why do most firms die young?" *Small Business Economics*, 26(2): 103-116.

Demenet, A., Mireille, R. and Roubaud, F. (2016), "Do informal businesses gain from registration? Panel Data Evidence from Vietnam". *World Development*, 84: 326-341.

Duranton, G. (2015), "Roads and trade in Columbia". *Economics of Transportation*, 4: 16-36.

Foster, V. and Steinbuks, J. (2009), Paying the price for unreliable power supplies: In-house generation of electricity by firms in Africa. Policy Research Working Papers, 4913. Washington, DC: World Bank.

Geginat, C. and Ramalho, R. (2018), "Electricity connections and firm performance in 183 countries". *Energy Economics*, 76: 344-366.

Hansen, H. and Rand, J. (2014), "Estimates of gender differences in firm's access to credit in Sub-Saharan Africa". *Economics Letters*, 123(3): 374-377.

Hausman, A. and McFadden, L. (1984), "Specification tests for the multinomial logit model". *Econometrica*, 52: 1219-1240.

Heckscher, E. (1919), "The effect of foreign trade on the distribution of income". *Ekonomisk Tidskrift*, Vol. 21: 497-512.

Hersoug, B., Mikkelsen, E. and Karlsen, K. (2019), "Great expectations—allocating licenses with special requirements in Norwegian salmon farming". *Marine Policy*, 100: 152-162.

ILO (2008), Factors affecting women entrepreneurs in micro and small enterprises in Kenya. https://www.ilo.org/wcmsp5/groups/public/---ed_emp/---emp_ent/---ifp_seed/documents/publication/wcms_107507.pdf.

ILO (2008), Women entrepreneurs in Kenya: Factors affecting women entrepreneurs in micro and small enterprises. Ethiopia: ILO.

ILO (2009), Labour force survey. Accessed on 25th September 2020 at: https://www.ilo.org/surveyLib/index.php/catalog/1124/study-description.

Inderberg, T., Rognstad, H., Saglie, I. and Gulbrandsen, L. (2019), "Who influences windpower licensing decisions in Norway? Formal requirements and informal practices". *Energy Research and Social Science*, 52: 181-191.

Jack, W. and Suri, T. (2014), "Risk sharing and transaction costs: Evidence from Kenya's mobile money revolution". *American Economic Review*, 104(1): 183-223.

Kabukuru, A. and Ofunya, F. (2016), "Analysis of challenges faced by women entrepreneurs in accessing finance in Kenya". *Journal of Poverty, Investment and Development* (24).

Kenya National Bureau of Statistics - KNBS. (2016), Micro, small and medium enterprises (MSME) survey. Nairobi: Kenya National Bureau of Statistics.

Kenya National Bureau of Statistics - KNBS. (2019), Kenya Population and Housing Census. Nairobi: Kenya National Bureau of Statistics.

Khan, E. and Quaddus, M. (2018), "Dimensions of human capital and firm performance: Micro-firm context". *IIMB Management Review*, 30(1): 229-241.

KIPPRA (2019), Factors that determine choice of products market for businesses in the informal sector in the informal sector in Kenya. Nairobi: Kenya Institute for Public Policy Research and Analysis.

Krugman, P. (1991), "Increasing returns and economic geography". *Journal of Political Economy*, 99: 483-499.

Krugman, P. (1999), Was it all in Ohlin? http://web.mit.edu/krugman/www/ohlin.html.

Krugman, P., Obstfeld, M. and Melitz, M. (2017), *International trade: Theory and policy*, 11th edition. New York: Pearson.

Lawrenz, J. and Oberndorfer, J. (2018), "Firm size effects in trade credit supply and demand". *Journal of Banking and Finance*, 93: 1-20.

Mashenene, R. and Rumanyika, J. (2014), "Business constraints and potential growth of small and medium enterprises in Tanzania: A review". *European Journal of Business and Management,* 6(32): 72-79.

McKenzie, D. and Sakho, Y. (2010), "Does it pay firms to register for taxes? The impact of informality on firm profitability". *Journal of Development Economics*, 91: 15-24.

Medase, S. (2020), "Product innovation and employee's slack time: The moderating role of firm age and size". *Journal of Innovation and Knowledge*, 5: 151-174.

Mwatu, S. (2019), Effect of social capital on labour force participation in Kenya (Postgraduate). University of Nairobi. http://erepository.uonbi.ac.ke/handle/11295/107209.

Ohlin, B. (1933), *Interregional and international trade*. Cambridge: Harvard University Press.

Pablo, A., Gimeno, R. and Ruth, C. (2020), "The gender gap in bank credit access". *Journal of Corporate Finance*, 1: 1-17.

Pablo, F., Maloney, W. and Gabriel, M. (2011), "Does formality improve micro-firm performance? Evidence from the Brazilian SIMPLES programme". *Journal of Development Economics*, 94: 262-276.

Paunov, C. and Rollo, V. (2015), "Overcoming obstacles: The Internet contribution to firm development". *World Bank Economic Review*, 29(1): 192-204.

Raguseo, E., Vitari, C. and Pigni, F. (2020), "Profiting from big data analytics: The moderating roles of industry concentration and firm size". *International Journal of Production Economics*, 229: 1-10.

Sengupta, A. (2010), "Social capital and entrepreneurship: An analysis of methodological issues". *Indian Sociological Society*, 59(3): 323-344.

Shaw, E. (2006), "Small firm networking: An insight into contents and motivating factors". *International Small Business Journal*, 24(1): 5-29.

Shrader, R. and Siegel, D. (2007), "Assessing the relationship between human capital and firm performance: Evidence from technology-based new ventures". *Entrepreneurship Theory and Practice*, 31(1): 893-908.

Thompson, E. and Chandra, A. (2000), "Does public infrastructure affect economic activity? Evidence from the rural interstate highway system". *Regional Science and Urban Economics*, 30(4): 457-490.

UNDP (2019), Advocating inclusive and gender-sensitive economic development on a global level. Division on International Trade in Goods and Services, and Commodities. Geneva.

Unger, J., Rauch, A., Frese, M. and Rosenbusch, N. (2011), "Human capital and entrepreneurial success: A meta-analytical review". *Journal of Business Venturing*, 26(1): 341-358.

Wang, J. and Zhao, M. (2020), "Economic impacts of ISO 14001 certification in China and the moderating role of firm size and age". *Journal of Cleaner Production*, 274: 1-10.

Whalley, J. (2002), Taxes and trade, NBER, 1-32.

World Bank (2016), Gender statistics database. Washington DC: World Bank.

Zhong, S., Qiu, L. and Sun, B. (2020), "Internet and firm development". *International Journal of Crowd Science*, 4(2): 171-187.