

Social networks and business investment in emerging urban centres in rural Tanzania



Authors:

Stephen A. Nyaki^{1,2,3} 
Marianne N. Larsen² 
Fredy T. Kilima⁴ 
Yonas T. Bahta³ 

Affiliations:

¹Department of Agricultural Economics and Agribusiness, School of Agricultural Economics and Business Studies, Sokoine University of Agriculture, Morogoro, Tanzania, South Africa

²Department of Geoscience and Natural Resource Management, Faculty of Science, University of Copenhagen, Copenhagen, Denmark

³Department of Agricultural Economics, Faculty of Natural and Agricultural Sciences, University of the Free State, Bloemfontein, South Africa

⁴Department of Economics and Statistics, Moshi Co-operative University, Kilimanjaro, Tanzania

Corresponding author:

Stephen Nyaki,
nyaki.sa@ufs.ac.za

Dates:

Received: 13 Feb. 2025
Accepted: 23 Apr. 2025
Published: 17 July 2025

How to cite this article:

Nyaki, S.A., Larsen, M.N., Kilima, F.T. & Bahta, Y.T., 2025, 'Social networks and business investment in emerging urban centres in rural Tanzania', *Southern African Journal of Entrepreneurship and Small Business Management* 17(1), a1094. <https://doi.org/10.4102/sajesbm.v17i1.1094>

Read online:



Scan this QR code with your smart phone or mobile device to read online.

Background: Business investments in rural areas of developing countries have been constrained by limited infrastructure and financial, institutional and policy support. Proximate social networks have emerged as decision-making support structures; however, empirical evidence is limited to formal companies in urban areas.

Aim: This study examines how strong and weak social networks influence business investment decisions in emerging urban centres (EUCs) in rural areas.

Setting: This study was undertaken in Ilula and Madizini, which are small towns in rural areas of the Iringa and Morogoro regions in Tanzania.

Methods: Quantitative methods employing Gephi Geolayout and a bivariate probit model, supported by qualitative data, were used to examine spatiality and the influence of social networks on business investment decisions based on a random sample of 755 businesses.

Results: The study found that both strong and weak social network ties influenced investment decisions in general wholesale-retail trading, food crop trading and transportation businesses. Institutions, however, deterred these investment decisions. Additionally, the reliance on strong and weak social ties in decision-making decreased as business owners' experience, education and capital size increased.

Conclusion: Transportation routes and exchange hotspots are instrumental in shaping the spatial nature of EUC business social networks. Social networks of strong and weak ties influence the choices of business investment. However, the importance of social network relations varies depending on human capital endowment and business-specific characteristics.

Contribution: This study endorses strengthening social networking and institutional environment as a base to support rural business investment and networks, especially around agricultural value chains.

Keywords: investment; small business; emerging urban centres; rural; social networks.

Introduction

The economic prosperity of fast-growing economies globally has been supported through the urbanisation process, which attracts investment in specialised ventures that aid structural transformation (Onjala & Akumu 2016; Turok & McGranahan 2019). While the attention of the vast literature has been on cities, urbanisation has also led to the growth of urban centres in rural areas across the globe (Tacoli 2022). This process has integrated secondary and tertiary sectors with agriculture, which is popularly known to be the mainstay of 70% of the rural population. Often, rural areas are accounted for as small-scale and subsistence production and urban areas are accounted for as commerce and consumption. This context has underplayed the role of rural areas in attracting investment in the industrial and service sectors (Tacoli 2022; Tefft & Jonasova 2020). Exacerbated by an inadequately skilled population, weak infrastructure, institutional arrangements and government policy, many developing countries, especially in sub-Saharan Africa, have paid disproportionate attention to the potential of rural spaces for economic transformation (Tacoli & Agergaard 2017).

Despite limited attention, emerging urban centres (EUCs), which are fast-growing urban spaces in rural areas, have gained renewed attention as focal centres for business investment that

Copyright: © 2025. The Authors. Licensee: AOSIS. This work is licensed under the Creative Commons Attribution License.

accommodate the emergence and development of specialised business investments in the industry and service sectors spearheading rural transformation (Kironyi, Makindara & Birch-Thomsen 2023; Lazaro et al. 2019). With agriculture being a dominant sector, these EUCs sprouted as market centres for dominant crops and investment hotspots for value addition and business development. However, most of these EUCs are characterised by a large informal sector and weak institutions. They are still undergoing governance/administrative changes in a state that is yet to create a significant investment multiplier effect to support fast rural transformation (eds. Lazaro & Birch-Thomsen 2013; Lotto 2023; Tacoli 2022).

Amid these hurdles, there are fast-growing sectoral linkages between the primary agriculture/farm sector and manufacturing, services and commerce, which present opportunities for the resource-constrained rural poor to find employment in other service-based investments such as food, restaurants and transportation in small towns (Haggbblade, Hazell & Reardon 2010; Kironyi et al. 2023). Access to capital, credit, inputs, stocks, markets and information are critical success factors for business investment. However, many rural populations need more access to these resources. While the environment creates a hurdle for business investment in small rural towns, social networks, which are inherent and dominant, have been documented to play an essential role in creating access to resources and aiding business development (Kristiansen 2003; Muange 2014). The decision on the choice of viable investments around EUCs, therefore, relies on the depth of the social network structure that will aid access to the needed resources, such as capital and market information, with the function of other enablers. Despite their importance, limited information exists on how social networks that span close family and friendship ties (also known as strong ties) and strategic/business-specific acquaintances (weak ties) shape investment decisions around the EUCs in rural areas.

The existing literature by Anderson, Jack and Dodd (2016) and Aldrich et al. (2021) shows that family (strong ties) play a crucial role in entrepreneurial networks, extending beyond the traditional boundaries of family-operated businesses. A study by Gupta and Sharma (2011) shows that small businesses are highly vulnerable to social influence, as their decisions often reflect those of their peers (weak ties). This underscores the importance of social validation in investment choices. These studies were, however, not strongly centred on the influence of tie strength and were specifically focused on family-operated firms, lacking a strategic focus on rural spaces of the developing world.

On the other hand, Nguyen et al. (2023) demonstrated that the geographical structure of social networks influences investments and reduces the likelihood of business exit. However, their focus was primarily on venture capital firms with broad national coverage. Similarly, Nguyen (2022a, 2022b) and Pandya and Leblang (2017) found that social

networks facilitate access to informal finance and investment for firms, and that business-specific networks with banks and government institutions can mitigate the inefficiencies of weaker institutions. These studies were, however, based on panel data of small and medium-scale firms in Vietnam, with a macro focus on networks of foreign direct investment. Small businesses in rural Tanzania, however, have a significantly different institutional setup and business dynamics. Contemplating the nature of rural small businesses around EUCs, institutional setup and geography, this study aims to address this gap in the literature by providing empirical evidence on the role of social networks in influencing business investment decisions within EUCs in rural Tanzania.

This study perceives business owners' investment decisions to be guided by the proximate social environments to which they relate, such as family, friends, other businesses, social groups and other casual acquaintances, as well as the weight of such relations. The decision-making process, choice of business venture and financing options are presumed to be determined by individuals' characteristics and the structure of the network in which they are embedded. Thus, while this study examines the role of social networks in influencing EUC business owners' investment decisions, it also analyses the factors determining reliance on social networks and the influence of such networks on finance/capital acquisition. These are tested using the following hypotheses:

H1: Individual characteristics of business owners and business-specific features do not affect the use of strong and weak social ties to make business investment decisions.

H2: Strong ties of family and friendship networks and weak ties of business acquaintance networks and institutional characteristics do not significantly influence the choice of business investment in the EUCs.

Literature review

Theoretical foundation

The social network theory that underpins this study is perceived as a system of interconnected dyadic relationships with nodes and ties of relations (Borgatti & Lopez-Kidwell 2014). The nodes represent the actors, which are businesses, while the relationships represent connections between businesses through which resources and information flow. Actors'/individual rate of interaction on the social web can be assessed through attribute and relational perspectives, where network density and centralities test the strength of directed or undirected ties in a network based on the number of connections.

From a relational perspective, actors' social networks are studied based on tie strength: strong ties encompassing close interactions/relations with family, relatives and friends, and weak ties making relations with business friends, acquaintances and institutions (Borgatti et al. 2009). This study uses social network theory from both relational and attribute perspectives to analyse networks in which business

owners are treated as social agents whose operations depend on and affect the surrounding social structure. Thus, social and business-specific networks are intertwined and perceived as part of enterprise development.

According to Ratten (ed. 2022), doing business is a social role embedded in society's social, political and cultural contexts. Therefore, the operations and decisions of social actors (business owners) and their structural positions in the social fabric affect the setup, opportunities and workings of an enterprise in terms of the information, resources and support it acquires. This argument is supported by the classic view that economic actions are structured and affected by the social relations in which they are embedded (Czernek-marszałek 2020). Thus, the business investment and development processes are primarily immersed in investors' existing social networks. According to Dyer, Gregersen and Christensen (2017), businessmen and businesswomen tend to be uncertain with respect to investing in and where to invest because they usually have imperfect market information. To reduce the uncertainty and risks associated with such decisions, agents tend to rely on their social networks to gain access to critical resources and business information (Hoang & Antoncic 2003).

Soetanto, Huang and Jack (2018) further discuss how social networks assist businesses in addressing the hurdles of newness and its associated challenges when exploring markets and engaging with new agents. According to Klyver and Schøtt (2011), business owners use resources from social networks to strike a balance between demand and supply. On the demand side, business owners use social networks to establish connections with the markets. On the supply side, these networks are used to identify new suppliers of critical resources, including business capital, and to strengthen their business relationships with those they trust and trade (Cuyppers et al. 2020; Kerr & Mandorff 2021).

In the literature (Berrou & Combarnous 2011; Lai, Lin & Lin 2015), the relationship between business investments and social networks is primarily based on the social capital theory. This theory interprets social relations as investments with expected returns. This is because the exchange is built mainly around social actors whose attachments and emotions tend to affect economic choices. The social capital theory within the realm of social networks revolves around Granovetter's strength of weak ties theory (SWT), which claims that strong ties have less ability to provide novel business information than weak ties (Kim & Fernandez 2023). This is because, unlike weak ties, stronger ties tend to exist in the same social world (creating transitivity in relations) and tend to possess similar characteristics (homophily), thus creating few opportunities for information to be differentiated.

According to Burt's structural hole theory of social capital (SHT) (Lin et al. 2021), weak connections between groups create holes in the social structure, where actors linking

different groups act as bridges, giving an actor whose network spans the bridge a competitive advantage. The relationship between groups provides additive rather than overlapping network benefits. The knowledge SWT and SHT bring to the understanding of business investment is that bridging ties are instrumental in acquiring novel information to inform individual business investment choices. However, better endowment of human capital in terms of skills and experience and financial capital or ability alone cannot make one's business competitive because social capital enables an individual to access resources outside their human and financial capital capabilities. Businesses acquire such resources through weak and strong ties. This study makes an empirical contribution to the theory by examining the influence of weak and strong ties on shaping business investment decisions, choice of business and source of capital in rural areas where formal governance/institutional and finance are weak to support investment.

Empirical foundation

The influence of social networks on business investment has attracted growing attention in the literature. A study by Ostrovsky and Howard (2019) states that social networks have a more significant influence on going for high-risk investments. Liang and Yuan (2013), using an experimental model, also show that investors are social animals who primarily rely on their strong ties to make investment decisions. İlhan-Nas and Duran (2022) also demonstrate that social networks influence foreign direct investment decisions, using degree centrality and betweenness as social network attributes. A similar study by Kuchler et al. (2022), Nguyen (2022a); Eesley and Wang (2017) and Peng, Wang and Zhou (2022) demonstrates that strong ties significantly influence financing options. Investors tend to prefer regions and ventures where these ties are stronger. However, most of these studies concluded that strong ties are more influential. They were conducted with formal companies in urban settings characterised by well-resourced environments with extensive information access and robust capital markets.

In a developing economy where agriculture is the primary sector, and the growth of industry and service-based firms relies on the transformation of agriculture value chains, social networks are perceived to have a bigger role to play (eds. Haggblade, Hazell & Reardon 2007; Tacoli 2022). Guerrero-Ocampo and Díaz-Puente (2023) and Ncube and Pittock (2025) identified that social networks are influential in identifying individuals and bridging connections, guiding information flow, upgrading market access, and increasing innovation and investment targeting in rural areas. While Guerrero-Ocampo and Díaz-Puente (2023) provide a general review of social network effects on rural innovation, Ncube and Pittock (2025) and Magala, Najjingo Mangheni and Miiro (2019) focus specifically on irrigation schemes and coffee platforms, and these studies alienated the general composition of the rural business landscape which encompasses all kinds of business operations.

Similarly, the geographical location of EUCs provides a key ingredient in fostering rural business investment through social networking. Sheresheva et al. (2022) employ social network analysis to evaluate industry clusters within and outside regions in Moscow. Sorenson (2018) and Glückler and Doreian (2016) also show that firms tend to cluster in geographical spaces with stronger social networks, which facilitate resource access. While these studies provide an underlying statement of firm placement and the role of social networks in fostering investment, more empirical work is still needed, particularly for businesses in rural spaces. While the gap in the literature is evident, this study intends to fill it by first displaying the geographical clustering of businesses influenced by a network of relations and evaluating how social networks of both weak and strong ties influence investment decisions and capital acquisition among all kinds of businesses in EUCs in rural areas of the Global South.

As presented in Figure 1, the study conceptualises that because of resource limitations, relational social networks of strong ties (family, relatives and friendship) and weak ties (business acquaintances and organisations) play a central role in generating investment capital and informing decisions to invest and the choice of a specific business to invest. However, these decisions and choices of businesses are also dependent on individual/personal characteristics like level of education and experience.

Methodology

Study design and study sites

The study adopted a cross-sectional research design, which was limited to business-to-business networks and business owners, guided by the boundaries of Ilula and Madizini EUCs. A custom area for each EUC was marked, enclosing

an area with a high population and settlement in the township. This is because most of these small towns are made up of vast areas of agricultural land with dispersed populations and settlements that do not mimic the urban structure. Ilula and Madizini (Figure 2) were purposefully selected to represent many other EUCs that registered fast growth in business investment in rural areas (Lazaro et al. 2019). Geographically, the Ilula and Madizini EUCs are in rural parts of the Iringa and Morogoro regions, respectively. The Ilula EUC comprises Ilula and Nyalumbu wards, while the Madizini EUC is part of the Mtibwa ward. The sub-villages surveyed in Ilula EUC were Ilula Mwaya, Mtua, Sokoni, Matalawe, Igunga, Itunda/Isele, Ding'inayo/Ilala, Masukanzi, Itabali, Nyakilomo, Madizini and Majengo Mapya. At the same time, Madizini A, Barabarani, Mpingoni, Kwa Kibwaite, Mji Mpya, Mpingoni and KKKT were the sub-villages surveyed in Madizini EUC.

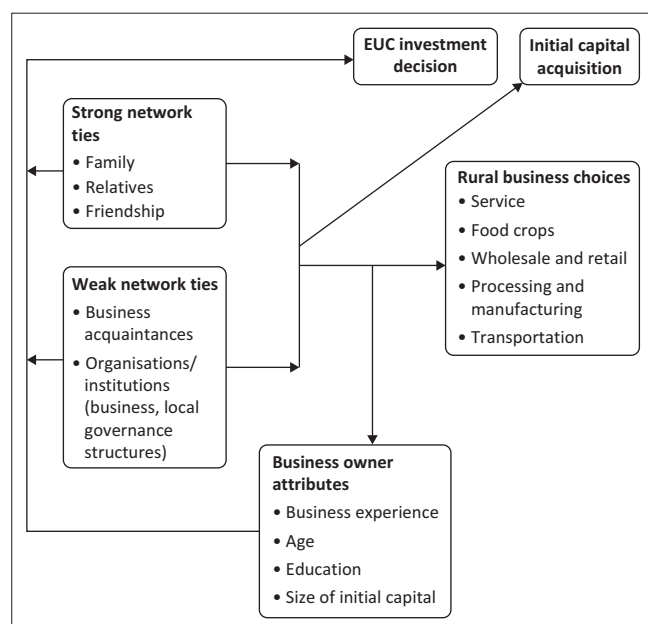
Sampling and data collection

Business categories were formulated based on registered business data obtained from district trade officers and the Tanzania Revenue Authority (TRA) to create the study sample. The categories included (Nyaki, Kilima & Larsen 2022):

- Services, which encompassed businesses such as restaurants, hotels and shops
- Trading food crops, which consisted of food crop retail and wholesale traders, brokers and food stores
- Wholesale and retail trading, which included both formal and informal shops and stalls selling mixed products
- Manufacturing and processing, which featured businesses such as tailoring, tomato and paddy processing, brickmaking and carpentry
- Transportation, which comprised trucking, *bodaboda* (motorcycle taxis) and tricycle businesses.

Later, the selection of respondents was guided by network boundaries established during fieldwork, which were product and information ties within the predefined boundaries of the EUCs. To identify the boundaries, Google Maps and satellite maps sourced from the African¹ urbanisation database of Africa, which identifies growing towns over time (Africapolis 2019), were used to delineate the geographical areas of the EUCs with high built-up areas and zones where most businesses were located.

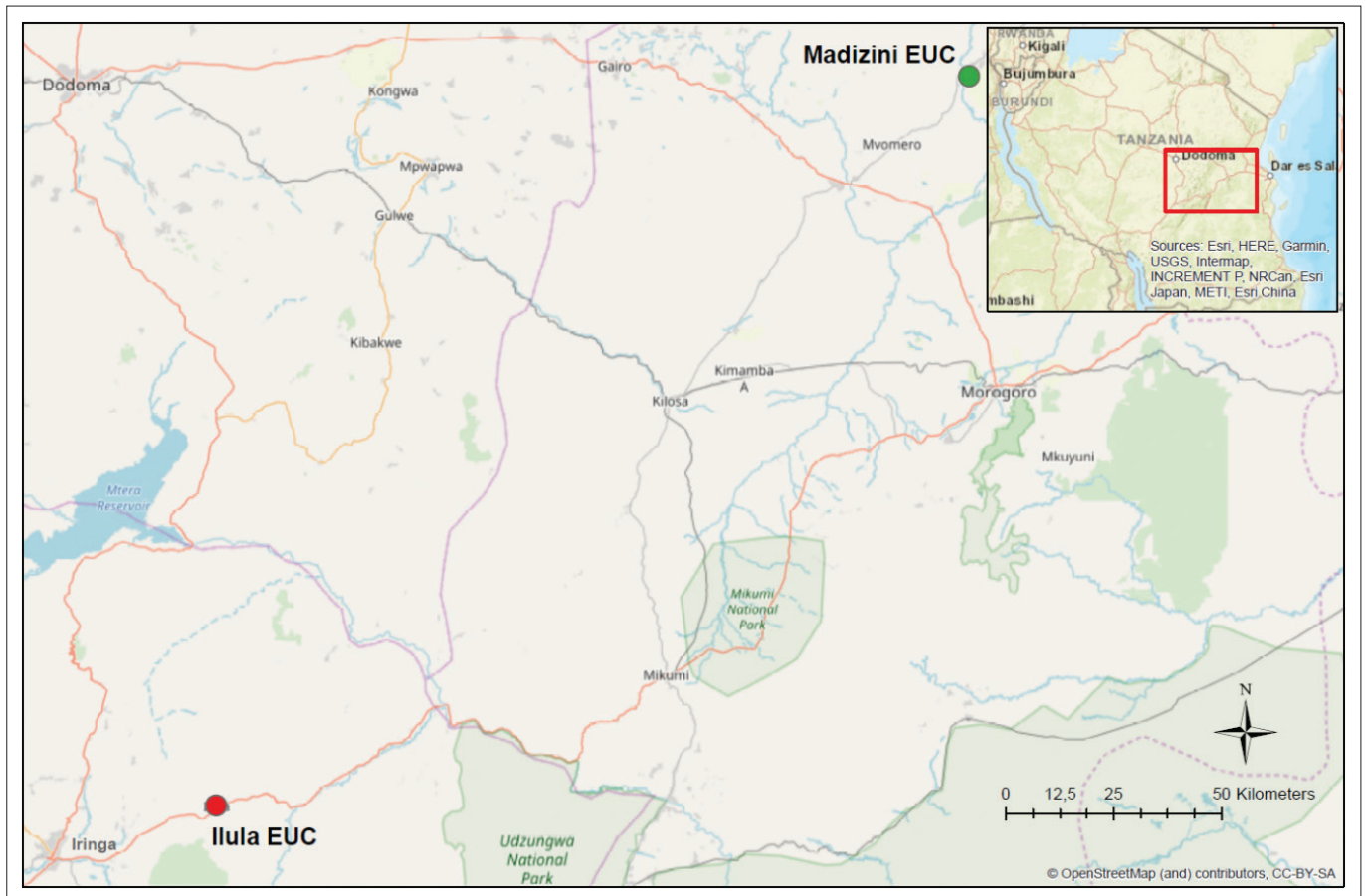
Using a spatial-random design, as in Brønd (2018), businesses were randomly selected within each predetermined category and geocoded based on their location. Quantitative information was obtained using a structured questionnaire with name generators and guided by their spatiality to gather business owners' social network information, where businesses were asked to name at most eight people with



EUC, emerging urban centre.

FIGURE 1: Conceptual framework of the study.

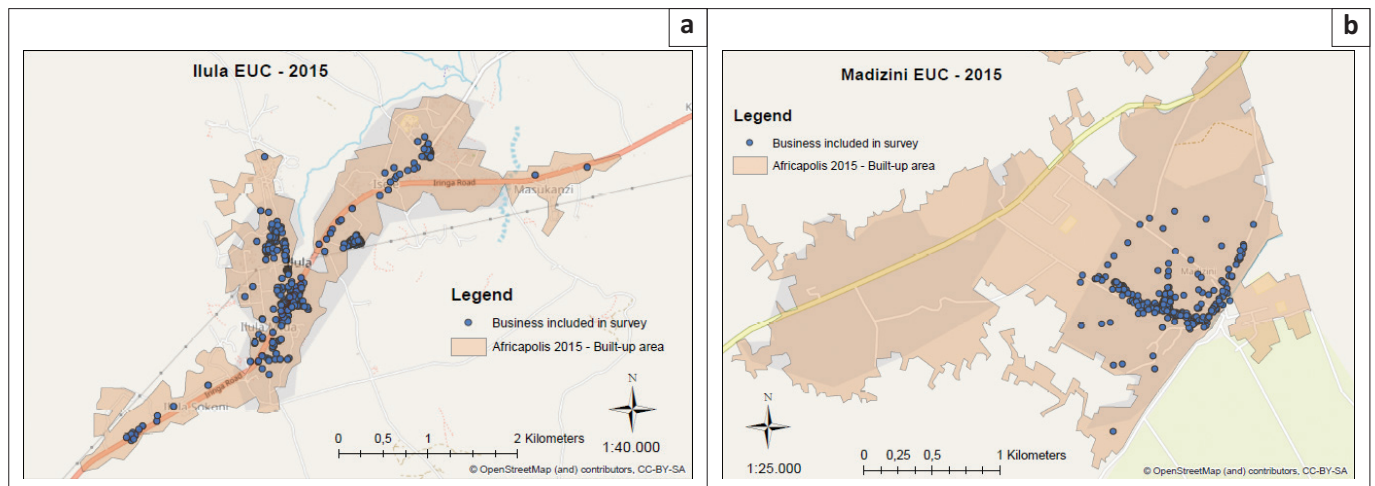
1. Africapolis is a comprehensive and standardised geospatial database on cities and urbanisation in Africa, and it combines demographic data, satellite and aerial imagery and other cartographic sources to generate long-term comparative and urban dynamics analyses for about 7500 agglomerations in 50 countries. See www.africapolis.org



Source: Birch-Thomsen T. & Larsen M.N., 2019, 'Rural-urban (land) transformation -emergence of urban centres in Tanzania. Session: "Land use change processes and interactions along the urban-rural gradient"', in *Proceeding of the Open Science Meeting of the Global Land Programme Conference*, University of Bern, Bern, April 24–26, 2019, pp. 1–26.

EUC, emerging urban centre.

FIGURE 2: Map of Tanzania showing Ilula and Madizini's emerging urban centres.



Source: Adapted from Birch-Thomsen T. & Larsen M.N., 2019, 'Rural-urban (land) transformation -emergence of urban centres in Tanzania. Session: "Land use change processes and interactions along the urban-rural gradient"', in *Proceeding of the Open Science Meeting of the Global Land Programme Conference*, University of Bern, Bern, April 24–26, 2019, pp. 1–26.

EUC, emerging urban centre.

FIGURE 3: (a) The location of surveyed businesses in Ilula's emerging urban centre, (b) The location of surveyed businesses in Madizini's emerging urban centre.

whom they frequently traded and shared information (Nyaki et al. 2022). With ethical clearance for the project number 13-P02-TAN obtained from the Sokoine University of Agriculture and local authorities, the survey was extensively conducted to provide spatial coverage of all kinds of businesses in the EUC area, with the intent of

uncovering the existing network of products and information exchange. A total of 459 businesses in Ilula and 296 businesses in Madizini were surveyed. The scope of this study is limited to business-to-business ties and businesses within the custom-established boundaries of the EUCs (Birch-Thomsen & Larsen 2019). The locations of the sampled businesses in

Ilula and Madizini, illustrated in Figures 3a and 3b, were generated using the Sentinel maps of Africapolis (2015).

Qualitative data were collected through key informant interviews with 23 individuals and 11 focus group discussions comprising 6 to 10 participants each. This approach aimed to support and complement the networks and investment information. Interviews were conducted with township and ward administrations, elders and representatives from financial institutions. Focus group discussions involved members of business associations. All interviews were conducted with the aid of semi-structured interview guides that contained questions related to the historical development of businesses, investment choices and capital acquisition options.

Analytical framework

The network of businesses was plotted on a Google Earth map and graphed in Geolayout format, where the size of each node is represented by its degree of centrality and a colour representing its business category. To ascertain social network influence in sourcing initial capital for investment, the list of main sources was assessed using descriptive statistics. Subsequently, a bivariate probit model was estimated to understand the factors that influenced the role of social networks in business investment decisions. A probit model was used because the dependent variables had binary outcomes. In the form of a latent variable, the probit model can be expressed as Equation 1:

$$Y^* = X'\beta + \varepsilon \quad [\text{Eqn 1}]$$

where Y^* represents the latent variable that lies behind having used social networks in making investment decisions, ε is the error term, β_i represents the vector of unknown parameters to be estimated and X represents the vector of explanatory variables that affect the outcome variable. It can also be written as Equation 2:

$$Y_{ij} = a + \sum X_i \beta + \varepsilon \quad [\text{Eqn 2}]$$

where Y_{ij} stands for the binary outcome variable, which has a social network influence on investing in the current business. $Y^* = 0$ if Y^* is less than 0, and $Y^* = 1$ when Y^* is greater than 0 as shown (Equation 3):

$$\text{more significant } Y_{ij} = \begin{cases} 1 & \text{if } Y^* > 0 \\ 0 & \text{otherwise} \end{cases} \quad [\text{Eqn 3}]$$

The dependent variable (Y) is defined as $Y_i = 1$ if the business owner's decision to invest in the current business was supported by his social networks, and $Y_i = 0$ if otherwise. The regressors that discriminate the choices are human capital variables such as age and educational level (years of schooling); household size calculated as the number of people under the same roof, sub-sector and industry-specific experience in years; and

a dummy for having operated a business before. Other control variables were a migration dummy and dummy variables for the business categories of food crop trading, wholesale and retail trading, manufacturing and processing, and transportation, with services as a reference category. To obtain the actual effect of the regressors, the marginal effects at their mean were estimated and the significant regressors were interpreted.

Logit and probit models are the best-known specifications used to model binary choices, as they provide efficient estimators for multi-attribute equations compared with ordinary least squares (OLS) regression (Gensch & Recker 1979). The logit and probit models are identical and produce similar estimates of the underlying latent variables. The difference is that the logit model uses a cumulative distribution function of a standard logistic random variable, whereas the probit model uses a standard normal cumulative distribution function (CDF).

A multinomial logit model (MNLM) of choice was estimated to evaluate the role played by strong and weak social network ties in influencing choices of business investment in the EUCs. Trading food crops, operating general wholesale and retail trading, manufacturing, processing and transportation were selected as choice variables, with services used as a base category. Bonding variables, such as the influences of parents, relatives and friends, and bridging ties, such as business friends and organisations' influences, were treated as social network regressors affecting the choice of business investments. The business owners' specific variables included in the model were education and skill levels, a dummy for having operated a business previously, and household size. Moreover, the size of one's capital during startup, a migration dummy and the induced effects of poor farm harvest, income diversification and market availability were introduced as other control variables.

An MNLM is best suited to model the utility of choosing the best-fit business type out of unordered alternatives. The study perceives business owners as making decisions about what kinds of business to pursue and where to invest based on their individual, household and business attributes. The multinomial logit model may be used to estimate binary logit regressions simultaneously for all business categories (Nagler & Naudé 2014). Thus, the study hypothesises that an individual's utility for a specific choice of business category is separable into two components: (1) a deterministic component measured in terms of expressed attitude towards the business category and (2) an unobserved random component that captures variation from unlisted variables that also affect the utility of choosing a business, expressed as Equation 4:

$$U_i^k = V_i^k + \varepsilon_i^k \quad [\text{Eqn 4}]$$

where U_i^k is the utility derived from a particular business category (k) by i th business owner, V_i^k is the deterministic

component and ϵ_i^k is a random component. After breaking the utility into random and deterministic components, the MNLM to be estimated using the McFadden maximum likelihood technique (Gensch & Recker 1979) is specified as Equation 5:

$$P_i(k : A_i) = 1 / \left(1 + \sum_{l \neq k} \exp(V_i^k - V_i^l) \right) \quad [\text{Eqn 5}]$$

where $P_i(k : A_i)$ is the probability that the i th business owner will prefer the k th business category from the set of all available business categories/alternatives, and V_i^k and V_i^l are the deterministic components.

The content validity of the study's survey and instruments was ensured through social network and investment literature, along with third-party evaluations addressing the completeness and relevance of these instruments. Exploratory and correlation analyses were also conducted to assess the appropriateness and associations of network attributes and variables. Reliability was tested using Cronbach's alpha with an accepted alpha level. The study tools were pre-tested in Morogoro on a subset of 50 businesses, and feedback was utilised to refine the final survey instruments. The triangulation of qualitative data from key informants and focus groups with quantitative data on a business scale served as a reliability indicator for validating the findings.

Ethical considerations

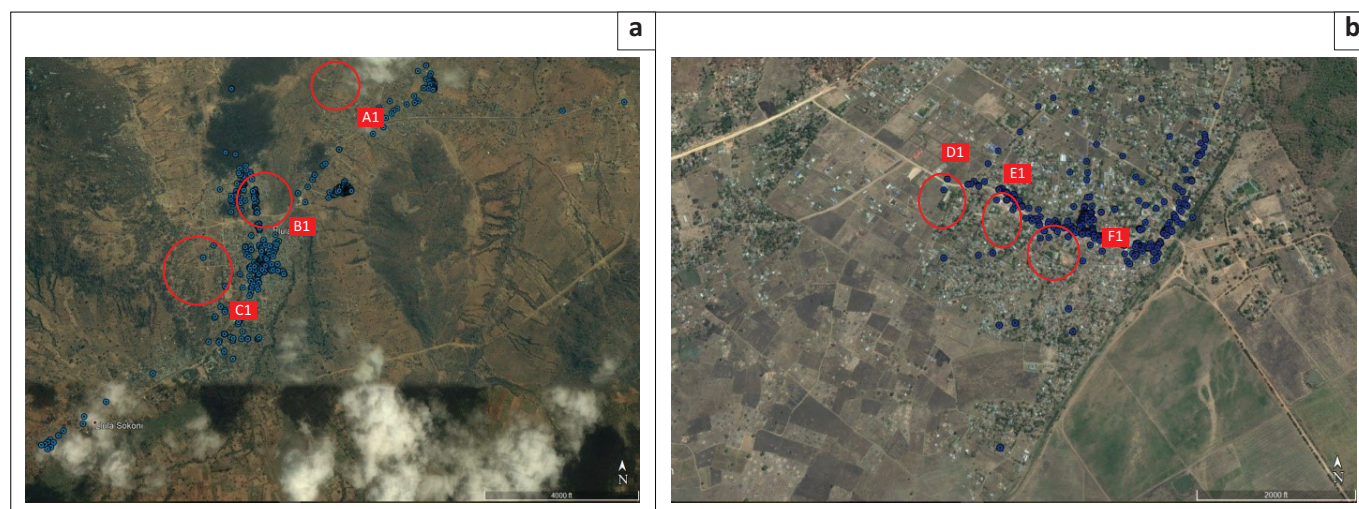
The project was in conjunction with the values and principles outlined in the ethical clearance obtained from the Research Ethics Review Committee of the Sokoine University of Agriculture and the University of Copenhagen (Project research no. 13-P02-TAN). Before the survey, the researcher obtained necessary approvals from the Tanzania Ministry of Education, Iringa and Morogoro regional commissioners, office of district commissioners, ward and township officers.

Results

Descriptive analysis

Spatial clustering of businesses in the emerging urban centres

Geospatial analysis of the structure of business networks using geographical data in the Ilula and Madizini EUCs (Figure 4 and Figure 5) showed that these networks were dominated by wholesale and retail trade as well as food crop distribution (high degree of centrality). Connections among network ties gravitated towards the centre of the two EUCs, reflecting their central business districts (CBD). Most of these businesses were spatially organised along major transport routes, while other smaller or less connected businesses were unevenly distributed across the EUC (Figure 4). Roads facilitated access to products and customers, both within and beyond the EUCs. The red circles identify business hotspots that align the Google Maps in Figure 4 with the geo layout network map in Figure 5. Another clustering factor was the location, including proximity to market centres (red circles B1 and E1) and a bus stand, where specific types of businesses were concentrated. The concentration of tomato traders was notably high in the Tasaf market (red circles B1 and B2), Mtua (red circles C1 and C2) and Itunda/Isele (red circles A1 and A2) bus stands in Ilula (Figure 4 and Figure 5). The Madizini food crop markets (red circles E1 and E2) and old bus terminals (red circles F1 and F2) feature distinct business clusters (Figure 4 and Figure 5). The new bus terminal in Madizini (red circles D1 and D2) and the tomato market in Ilula are expected to be hotspots for attracting further business investments and supporting the transformation of the EUC. These patterns of geospatial interaction align with interview responses by Ilula Township Executive Officer (TEO), and the installation of electricity along the highway in Ilula was a key determinant of the observed pattern of settlements and businesses. Informal social networks based on trust reinforced the clustering, which enabled resource sharing and risk mitigation in the hubs.



Google Earth, 2019, Ilula, viewed 15 April 2019, from <https://earth.google.com/web>

FIGURE 4: (a) Google Earth aerial shot of the distribution of the businesses surveyed in Ilula, (b) Google Earth aerial shot of the distribution of the businesses surveyed in Madizini.



FIGURE 5: (a) Ilula business network graphs plotted using geo layout with degree represented by node size and business category represented by colour, (b) Madizini business network graphs plotted using geo layout with degree represented by node size and business category represented by colour.

TABLE 1: Sources of startup capital among small businesses in the two emerging urban centres in percentages.

Factors	Name of the EUC									
	Ilula (N = 459)					Madizini (N = 296)				
	Services	Food crops trading	Wholesale and retail trading	Manufacturing and processing	Transport	Services	Food crops trading	Wholesale and retail trading	Manufacturing and processing	Transport
Personal savings	91.7	92.9	92.7	92.3	78.3	74.5	63.5	74.1	62.5	64.7
From parents	6.7	6.5	1.8	3.8	24.6	5.5	7.7	10.1	6.3	5.9
From relatives	6.7	4.1	0.9	7.7	1.4	14.5	3.8	6.5	15.6	0.0
From friends	0.0	0.6	0.0	0.0	2.9	0.0	0.0	1.4	6.3	5.9
Loan from the bank	8.3	7.1	8.3	7.7	2.9	1.8	1.9	10.8	6.3	0.0
Loan from SACCOS	3.3	2.4	0.9	5.8	4.3	1.8	0.0	2.2	6.3	0.0
Loan from VICOBA	3.3	1.2	1.8	0.0	0.0	3.6	0.0	2.2	6.3	5.9
Farm proceeds	6.7	28.8	19.3	13.5	11.6	25.5	50.0	34.5	31.3	17.6
Formal employment	0.0	2.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
From business	5.0	1.2	6.4	15.4	14.5	0.0	1.9	1.4	0.0	0.0
Retirement benefits/pension	0.0	0.0	0.0	1.9	0.0	0.0	0.0	0.0	0.0	0.0
Partnership	0.0	0.0	0.0	0.0	11.6	0.0	0.0	0.0	0.0	17.6
Non-monetary loan/loan of goods (Mali Kauli)	0.0	0.0	0.0	0.0	0.0	1.8	0.0	0.0	0.0	0.0

EUC, emerging urban centre; SACCOS, Savings and Credit Cooperatives; VICOBA, Village Community Banking.

Social network influence in sourcing initial capital

Startup capital is a critical determinant of business entry, especially in EUCs where the informal economy is dominant. As presented in Table 1, personal savings, primarily from farm proceeds, casual employment wages and savings from prior ventures were the primary source of initial funding for the majority of businesses in Ilula (78%) and Madizini (63%). Notably, farm proceeds/revenue alone accounted for 50% and 54.5% of startup capital for food crop traders and wholesale-retail businesses in Madizini, respectively, and 29% for Ilula's food crop traders.

The predominance of unregistered, informal businesses limited access to formal financial institutions, necessitating reliance on informal networks. Strong ties, such as family support (24% in Ilula) and kinship or friendship networks (14.5% and 15.6% in Madizini), were crucial for accessing startup capital in transportation, services and manufacturing. Conversely, formal credit systems through commercial banks, Savings and Credit Cooperatives (SACCOS) and Village

Community Banking (VICOBA) remained underutilised, only accessible to a minority of wholesale and industry/processing businesses. This underscores the marginal role of formal institutions in EUC business investment development and highlights the centrality of social networks in bridging the credit gap. This is a scenario emblematic of rural economies in the Global South, where trust-based relations supersede structured financial mechanisms.

These results are supported by the response from an interview with the chairman of the Madizini business, who said:

'Most people who migrate to Madizini started with farming and reinvested the proceeds into a business, and some started from nothing. For instance, I moved from Mwanza to Madizini with no capital at all; however, I managed to link up with familiar people who helped me with capital goods on credit. After you sell them, you return some of the money and take more goods. In that process, I managed to accumulate enough capital for my cereal trading business' (An interview was conducted in April 2017 in Madizini)

Several financial institutions in Madizini, including CRDB and NMB Bank, as well as non-bank financial institutions such as Vision Fund, BRAC, VICCOBA, SISA and SACCOS, are present in the area. However, access to formal credit was highly skewed towards medium and large businesses. Stringent conditionalities/requirements including a taxpayer registration number (TIN), evidence of stable business and immovable collateral systematically exclude most small businesses from formal lending. In contrast, small businesses in Ilula benefit marginally from tailored services offered by Mufindi Commercial Bank (MUCOBA), which was formed to primarily serve low-income earning people and petty/small and micro businesses that are mainly outside the financial system using the Gramin model of group guarantee. However, MUCOBA services are constrained by seasonal volatility, particularly in agriculture-dependent seasons, where loan uptake peaks during farming cycles and repayments coincide with harvests. In an interview with the MUCOBA bank manager, he said:

‘... Here, the financial system is unstable because most loans are sought between July and October in a farming period and are repaid between April and June during harvest, and because of climate change, tomato irrigation schemes along the river valleys are prohibited, so banks and businesses struggle in off-seasons. Thus, you will find businesses sell their assets or rely on family and friends to remain floating...’ (An interview with a MUCOBA bank branch manager in March 2027 in Ilula)

Empirical results

Probit model – Business investment and the role of social networks

The results of the probit model presented in Table 2 underscore how personal and business-specific characteristics moderate reliance on social networks for investment decisions in EUCs. The marginal effects at the mean revealed human capital as a critical mitigating factor; in Ilula, a percentage increase in business educational attainment and startup capital reduced dependence on strong ties (relatives/friends) influencing investment decisions by 14.7% and 4%, respectively. Similarly, an increase in category-specific years of business experience and having operated a business before significantly reduced the likelihood of strong ties influencing investment decisions by 11.7% and 15.4 %, respectively.

A percentage increase in category-specific business experience, along with a distinct change reflecting previous business operations, diminished the likelihood of parental influence on investment decisions by 5% and 16.2%, respectively. Additionally, for Madizini business owners, having prior business experience and enhanced category-specific business expertise were found to lower the probability that investment decisions would be swayed by strong and weak ties by 7.5% and 8%, respectively.

Sectoral dynamics further shaped network reliance: Ilula’s food crop traders, wholesalers and transport operators exhibited probabilities of leveraging strong ties that were 22.3%, 20% and 16.5% higher, respectively, reflecting the risk-

TABLE 2: Marginal effects of a probit model for factors that influence the probability of seeking support from strong and weak ties.

Variables	Ilula				Madizini			
	Strong ties		Weak ties		Strong ties		Weak ties	
	Parents	Relatives/friends	Business friends	Organisation	Parents	Relatives/friends	Business friends	Organisation
Log age	-0.10 (-0.76)	0.17 (1.31)	0.22 (1.45)	-0.02 (-0.42)	-0.06 (-0.66)	-0.12 (-1.19)	0.05 (0.35)	-0.00 (-0.01)
Log household size	-0.01 (-0.20)	-0.06 (-1.21)	-0.08 (-1.29)	-0.00 (-0.27)	-0.03 (-0.87)	-0.05 (-1.39)	-0.02 (-0.35)	-0.02 (-0.97)
Log education	-0.05 (-0.61)	-0.15* (-1.85)	-0.05 (-0.58)	0.01 (0.39)	0.20*** (2.63)	-0.12 (-1.45)	0.22* (1.83)	0.02 (0.69)
Log startup capital	-0.01 (-0.83)	-0.04*** (-2.72)	-0.01 (-0.60)	-0.01 (-1.54)	-0.0 (-0.75)	0.01 (0.81)	0.03 (1.31)	0.01 (1.29)
Log experience	-0.05* (-1.65)	-0.12*** (-3.43)	-0.02 (-0.42)	0.00 (0.43)	0.00 (0.08)	-0.00 (-0.09)	-0.08** (-2.29)	0.01 (0.66)
Had business	-0.16*** (-3.74)	-0.15*** (-3.54)	-0.09 (-1.46)	-0.00 (-0.30)	0.04 (0.87)	-0.07* (-1.73)	-0.02 (-0.31)	-0.01 (-0.33)
Food crop trading	0.06 (0.89)	0.22*** (4.08)	0.38*** (5.10)	- -	0.10 (1.50)	0.01 (0.18)	0.06 (0.62)	- -
Wholesale and retail trading	0.11 (1.48)	0.20*** (3.16)	0.36*** (4.31)	- -	0.05 (1.11)	0.03 (0.58)	0.11 (1.33)	- -
Manufacturing and processing	-0.06 (-0.75)	-0.04 (-0.66)	0.07 (0.70)	- -	0.03 (0.41)	0.04 (0.48)	-0.06 (-0.64)	- -
Transport	0.15 (1.56)	0.16** (1.96)	0.43*** (4.31)	- -	-0.01 (-0.11)	- -	0.00 (0.03)	- -
Migration	0.06 (1.41)	0.01 (0.23)	-0.09 (-1.59)	0.00 (0.31)	-0.01 (-0.18)	0.02 (0.29)	-0.04 (-0.61)	0.05 (1.07)
Number of cases	386	386	386	244	216	207	216	144

*, Denotes that the means are significantly different at 10%; **, at 5% and ***, at 1%. The Z-values are in parentheses.

TABLE 3: Marginal effects of a multinomial logit model for factors that influenced the choice of business.

Variables	Ilula					Madizini				
	Service	Food crops trading	General wholesale and retail	Manufacturing and processing	Transportation	Service	Food crops trading	General wholesale and retail	Manufacturing and processing	Transportation
Log age	0.08 (0.79)	0.23** (1.98)	0.13 (1.03)	0.14* (1.81)	-0.58*** (-8.44)	0.04 (0.34)	0.05 (0.45)	-0.06 (-0.47)	0.08 (0.85)	-0.11 (-1.57)
Log household size	-0.04 (-1.06)	0.13** (2.16)	-0.02 (-0.32)	-0.03 (-0.71)	-0.04* (-1.72)	-0.06 (-1.21)	0.02 (0.43)	0.02 (0.25)	0.04 (0.84)	-0.01 (-0.69)
Log education	-0.01 (-0.20)	0.02 (0.25)	-0.05 (-0.91)	0.03 (0.92)	0.02 (0.36)	0.16* (1.77)	-0.20** (-1.97)	0.04 (0.30)	-0.03 (-0.40)	0.03 (0.94)
Log startup capital	-0.03*** (-3.93)	-0.07*** (-5.71)	0.03*** (2.81)	0.01 (1.41)	0.06*** (6.78)	-0.03** (-2.07)	-0.04*** (-3.06)	0.07*** (3.80)	-0.01 (-0.69)	0.02** (2.24)
Log experience	-0.01 (-0.52)	0.02 (0.59)	0.00 (0.11)	-0.03 (-1.52)	0.03 (1.33)	-0.04 (-1.25)	0.03 (1.11)	0.01 (0.28)	0.01 (0.34)	-0.01 (-0.70)
Had business history	-0.05 (-1.21)	0.05 (1.05)	0.01 (0.19)	-0.01 (-0.46)	-0.00 (-0.08)	-0.00 (-0.06)	-0.08 (-1.44)	0.09 (1.29)	0.01 (0.32)	-0.02 (-0.52)
Migration	0.01 (0.28)	-0.07 (-1.44)	0.05 (1.10)	-0.03 (-1.07)	0.03 (1.48)	-0.06 (-1.00)	0.06 (0.96)	-0.04 (-0.58)	-0.00 (-0.10)	0.05* (1.77)
Parents' influence	-0.03 (-0.60)	0.00 (0.02)	0.02 (0.39)	-0.05 (-1.10)	0.05* (1.89)	-0.07 (-0.760)	0.23*** (3.19)	-0.10 (-0.90)	-0.00 (-0.03)	-0.05* (-1.76)
Relatives/ friends	-0.09 (-1.56)	0.06 (0.89)	0.14** (2.36)	-0.10 (-1.45)	-0.01 (-0.19)	-0.10 (-0.90)	-0.02 (-0.28)	0.14 (1.44)	-0.03 (-0.45)	0.01 (0.45)
Business friends	-0.02 (-0.66)	0.10** (2.35)	-0.07 (-1.60)	-0.06* (-1.95)	0.05* (1.89)	-0.04 (-0.60)	-0.01 (-0.10)	0.13* (1.72)	-0.08 (-1.29)	-0.01 (-0.39)
Organisation	-0.98*** (-6.89)	1.14*** (7.61)	0.90*** (6.36)	-0.47*** (-4.20)	-0.58*** (-5.38)	-1.09*** (-5.12)	-1.09*** (-5.64)	3.09*** (13.31)	-0.69*** (-4.02)	-0.22** (-2.31)
Business Opportunities	-0.11*** (-2.94)	0.15** (2.53)	-0.00 (-0.06)	-0.05* (-1.93)	0.02 (0.49)	0.04 (0.64)	-0.03 (-0.38)	0.03 (0.35)	-0.00 (-0.09)	-0.05 (-1.37)
Poor farm harvest	-0.15 (-1.14)	0.17 (1.44)	0.03 (0.27)	-0.07 (-0.99)	0.02 (0.41)	0.13 (1.39)	0.06 (0.58)	0.11 (0.76)	0.04 (0.54)	-0.35*** (-2.81)
Income diversification	-0.10** (-2.53)	0.08* (1.86)	0.06 (1.47)	-0.03 (-1.00)	-0.02 (-0.78)	-0.03 (-0.53)	0.01 (0.12)	-0.04 (-0.59)	0.04 (0.75)	0.03 (0.74)
Had training	-0.05 (-0.73)	0.15** (1.98)	-0.15 (-1.42)	0.03 (0.68)	0.02 (0.51)	0.05 (0.78)	-0.16* (-1.84)	-0.10 (-1.19)	0.18*** (4.18)	0.04 (1.28)
Ready market	0.02 (0.65)	-0.09* (-1.90)	0.03 (0.63)	0.04 (1.58)	0.00 (0.06)	-0.10** (-2.10)	0.08* (1.65)	0.04 (0.54)	0.01 (0.16)	-0.02 (-0.48)

*, Denotes that the means are significantly different at 10%; **, at 5% and ***, at 1%. The Z-values are in parentheses.

averse nature of agriculture-linked ventures. Conversely, in Madizini, educated entrepreneurs showed an increase in their propensity to utilise strong and weak ties, suggesting that skill enhancement amplifies strategic network exploitation. These results collectively highlight a duality: while human capital fosters autonomy from kinship networks, sector-specific risks and institutional gaps perpetuate reliance on localised trust-based ties, reinforcing Granovetter's paradigm of embeddedness in informal economies.

Multinomial logit model – Influence of social networks on the choice of business investment

The marginal effect of the maximum likelihood estimates of a multinomial logit model presented in Table 3 shows that both strong and weak ties played a role in influencing choices of business investments in the two EUCs. In Ilula, reliance on strong ties of parental and kinship/friendship networks increased the likelihood of investing in transportation and wholesale/retail ventures by 5.4% and 14.2%, respectively, underscoring familial trust as a catalyst for low-risk, traditional sectors. Conversely, in Madizini, parental support amplified investments in food crop trading by 23% but discouraged transportation ventures by 5.4%, suggesting geographic variation in risk perception and resource allocation.

Weak ties, particularly business friends and organisations, exhibited complementary yet divergent impacts: in Ilula, such networks raised the likelihood of food crop trading (9.7%) and transportation (5%) but reduced manufacturing investments (6%), while in Madizini, they boosted wholesale/retail participation by 13.4%. These patterns align with Granovetter's assertion that weak ties bridge structural holes, enabling access to non-redundant market information and product sourcing channels, a dynamic critical in institutionally sparse rural economies where formal intermediaries are limited. These results are supported by an interview with the leader of tomato traders in Ilula, who said:

'To better understand the market structure and obtain networks of information linking people within the business is inevitable. You cannot come from Dar es Salaam (the largest commercial city in Tanzania) and choose to become a tomato broker or trader without learning and linking the local people and present traders. Their networks are important for you to find products, trusted transporters, and trusted handlers who will take care of your goods in the destined market. This will help you in the future when you could be absent, but you can buy and transport your goods based on the trust vested in the network...' (interview done on 13th March 2017, in Ilula)

Being a member of an organisation, social group or association significantly influences business investment choices. In Ilula, organisation membership was associated with a 90% higher likelihood of selecting general wholesale and retail shops and a 114.2 percentage point increase in the likelihood of engaging in food crops trading. However, it deterred investment choices in services, manufacturing and transportation by 98, 47.2 and 58.4 percentage points, respectively. In Madizini, the outcome was more pronounced, where organisation/group membership increased the likelihood of investing in general wholesale and retail trading by 309.1 percentage points. Meanwhile, it also reduced the propensity of investing in service, food crop trading, manufacturing and transportation by 109.4, 109, 69 and 22 percentage points, respectively.

An analysis of other control factors underscores a nuanced demographic and financial influence on investment choices. In Ilula, older business owners were more likely to invest in food crops trading (23%) and manufacturing (14.5%), while being less likely to invest in transportation (58%), likely because of liquidity and mobility demands. Similarly, larger households were less likely to invest in transportation businesses by 4 percentage points.

Financial capital has divergent spatial impacts: in Ilula, a percentage increase in the size of startup capital increased the likelihood of venturing into transportation and general wholesale and retail businesses in Ilula by 6.2 and 3.3 percentage points, respectively. In Madizini, the likelihood increased by 1.6 and 7 percentage points, respectively. Increase in startup capital disincentivised Ilula's service (3.5%) and food crop (7.1%) business investment choices, while incentivising investment in Madizini by 3.3 and 4.4 percentage points, respectively. Migration further shaped sectoral entry, with migrants in Madizini favouring transportation (4.7%), likely leveraging mobility to access niche markets.

Having received training increased the likelihood of choosing to invest in manufacturing, processing or food crop trading in Madizini and Ilula by 18.1 and 15.1 percentage points, respectively. However, this decreased investment in food crop trading in Madizini and service businesses in Ilula by 16.2 and 9.6 percentage points. Perceived market opportunities in the EUCs further influenced investment choices, where it lowered the likelihood of investing in food crops trading, service and manufacturing/processing in Ilula by 9.5, 10.8 and 5.3 percentage points, respectively, and investment in service businesses by 10.4 percentage points in Madizini. A decline in farm harvests was observed to be a disincentive for investing in transportation in Madizini, as the likelihood of investment declined by 34.6 percentage points.

Discussion

An analysis of the structure of product exchange networks plotted using location data in Ilula and Madizini revealed that businesses were spatially distributed according to the nature of the transportation routes. It also showed market

centres and bus terminals to be core centres of current and future business investments and exchanges. The pattern of distribution was ungoverned, as businesses were established in an unordered structure based on proximate business opportunities. The random nature of business investment is also related to established institutions and institutional arrangements that govern EUC business investment. Lu et al. (2022) discussed that road infrastructure facilitates labour mobility and access to job markets, which is conducive to the establishment of distribution of small businesses. While creating access to markets, Lupak and Kunytska-Iliash (2019) also showed that developed road infrastructure positively influences the distribution of small businesses as it is also a prerequisite to economic and social development.

Social networks have been revealed to largely influence business owners' decisions, particularly in determining what and where to invest. However, the role played by social networks, especially by strong ties (family and friends) in informing and coining investment decisions, decreased as one improved their financial and human capital. This is because, as the capital base increases, the type, scale and requirements of the business change. Similarly, skills acquired through training and experience contribute to a set of requirements that strong ties cannot fulfil. This aligns with the findings of Davidsson and Honig (2003), who identified a high endowment of human capital, along with other factors such as finance and experience, as key resources supporting individuals' investment decisions. Unlike the businesses surveyed in Ilula, the relevance of strong and weak ties improved with an increase in the education levels of business owners in Madizini. The reduced relevance of the social networks of business owners in Madizini can be attributed to the poor nature of network connectivity. Thus, information from weak and strong ties is important to validate investment choices. The findings align with studies by Alhazmi and Gokhale (2016), Collar (2022) and Nguyen (2022a) where strong ties are characterised by trust and close contacts and weak ties ensure accessing the right market information and building social capital influence investment decisions through their brokerage triads.

The choice of specific business investments within Ilula and Madizini among the business owners surveyed was determined by their proximate social networks. The high level of informality of investment in crop trading, retail and vending of food and non-food businesses, which form the majority of small businesses in the EUC, relied on social networks to guide business owners' investment decisions. Social network resources such as information, market networks, experience accrued from parents and other relatives, and friendship networks are crucial to navigating an uncertain rural business environment. One of the key observations was that formal institutions/organisations and social groups appeared to discourage business investment choices, particularly among those investing in services, manufacturing and processing, and transportation businesses. This could be because of a lack of formal

institutional arrangements to guide investment in the EUCs, particularly for significant/high-capital investments such as manufacturing. This is supported by North (1990), who identified institutions (both organisations and rules/regulations) to be crucial in reducing uncertainties in business networks. Thus, creating a supportive institutional environment is pertinent, especially in supporting the current economic transformation.

Non-redundant information provided by business ties of friendship and acquaintance appeared to exert an influence on business owners' investment choices in food crop trading and transportation in Ilula, as well as in wholesale and retail trading in Madizini. The role of business friendship network ties in Ilula could be attributed to the effect of the tomato economy, where access to inputs, markets and means of transportation largely relies on one's social network base. This also justifies the disincentive for the influence of business friends with respect to investment in manufacturing and processing, which the high capital requirements for such investments could outweigh. These findings are also supported by studies conducted by Kuchler et al. (2022), which show that strong ties are instrumental in providing information about familiar industries, while weak ties have been established. However, LinkedIn and Facebook were influential in gaining novel information and opportunities to invest in more high-risk ventures.

Other factors that supported the investment drives in the EUCs were age, capital, household size, migration, demand for income diversification, the existence of a ready market, low farm harvests and seasonality. Age and capital were key variables that inculcated experience and the ability to diversify into wholesale, transportation and manufacturing businesses. The negative effect of increases in capital on investments in food crops and service businesses reflects a shift in investments from service businesses, such as food and stall-vending, to wholesale and transportation businesses in both EUCs. An incentive for this shift is created by increasing rates of population growth, coupled with flourishing business opportunities from crop value chains that favour transportation, wholesale and retail businesses. While capital appeared to structure business investments, businesses in both EUCs relied primarily on agricultural proceeds as a key source of startup capital, with formal lending institutions such as banks and SACCOS being avoided because of the lack of an asset base or collateral and the fear of bankruptcy. Strong network ties of parents, relatives and friends played a crucial role in supporting businesses with capital, provided mainly in monetary form or as goods on credit, popularly known as 'mali kauli'. This underscores the importance of social networks in the underdeveloped world, where the role of formal financial institutions in supporting rural business investment is minimal and yet to be realised. This is supported by Brühwiler (2014), Ogawa (2006) and Susomrith and Suseno (2017), who point out that social capital vested in bonding social ties acts as security for most small businesses whose access to formal

credit sources is limited. This reflects the potential of social networks around EUCs to support informal businesses alienated from formal sources of finance.

Conclusion and recommendations

The EUCs in Ilula and Madizini have been shown to play a central role in supporting business investments. This study examined the innate role of social networks in shaping business investments. While assessing how social networks influence business investment, this study deduced that transportation routes and exchange hotspots are instrumental in shaping the spatial nature of EUC business social networks.

The significant deduction from the study was that social networks of strong and weak ties influenced the choices of business investment in both EUCs. However, the importance of social network relations varies depending on human capital endowment and business-specific characteristics. Moreover, formal institutional arrangement organisations were pertinent in aiding networks of EUC businesses, although its role could have been more realised.

Establishing a business investment in the rural areas of sub-Saharan Africa has been difficult because of constrained access to information, capital, input/products, market and infrastructure. These constraints are detrimental to small businesses within the large informal sector, thus making them less competitive. As a prerequisite to informed decisions, social networks have been the main gateway to obtaining market information and capital for businesses, particularly around the EUC. To aid the speed of EUC business investment and networks, the study recommends strengthening formal institutions both as a rule of the game (rules and regulations) to guide EUC investment and as organisations, both private and public, to be primary.

This will aid the growth of local businesses' networks, the fast flow of market information and a subsequent increase in business investment. Public and private sector support is also called for to support the creation of cost-effective capital sources for strategic business ventures, such as manufacturing and transportation, which have a high multiplier effect in fuelling business investment and employment creation, considering the potential of existing crop value chain business opportunities.

This study has some limitations, as it was conducted with business owners of EUCs who were purposefully targeted; therefore, the inferences drawn cannot be generalised to other EUCs. As an area for further study, a large breadth of information can be generated if social networks are evaluated along the rural-urban continuum and extract how the growth of online social networks/media like Facebook, Instagram and LinkedIn assists in influencing rural investment opportunities. This study was conducted at a single point in time; however, networks evolve over time and across different locations. It is essential to pursue further research that examines how networks of rural

businesses develop over time and as they transition to urban centres. This will provide new insights into how networks respond to opportunities in both urban and rural areas.

Acknowledgements

This article is partially based on the author, S.A.N.'s doctoral thesis entitled 'The Role of Social Networks in Business Development, Investment and Employment Creation in Tanzania's Emerging Urban Centres', towards the double degree of PhD at Sokoine University of Agriculture, Tanzania, and University of Copenhagen, Denmark, with supervisors Professor Fredy T.M. Kilima and Associate Professor Marianne Nylandsted Larsen, received in 2022. It is available here, <https://www.suaire.sua.ac.tz/server/api/core/bitstreams/9c1d5707-0900-4dc5-89b6-0410d3869ecc/content>.

The authors thank all enumerators for their enormous efforts in collecting data from Ilula and Madizini. They also thank Kilolo and Mvomero district officials and the offices of the Township Executive Officer (TEO) in Ilula and the VEO in Madizini for their support during fieldwork. They would also like to thank Associate Professor Torben Birch-Thomsen of the University of Copenhagen for compiling the quality maps of both EUCs.

Competing interests

The authors reported that they received funding from a South-driven research project entitled 'Rural-Urban Transformation' (RUT) funded by the Danish International Development Agency (DANIDA) (13-P02-TAN) and coordinated by Sokoine University of Agriculture in Tanzania and the University of Copenhagen in Denmark, which may be affected by the research reported in the enclosed publication. The authors have disclosed those interests fully and have implemented an approved plan for managing any potential conflicts arising from their involvement. The terms of these funding arrangements have been reviewed and approved by the affiliated university in accordance with its policy on objectivity in research.

Authors' contributions

S.A.N. was involved in project conceptualisation, investigation, supervision, providing resources, funding acquisition, writing of the original draft, validation, data curation, writing of review and editing. M.N.L. was involved in conceptualisation, methodology, formal analysis, project administration, investigation, writing of the original draft, visualisation, software, validation, writing of review and editing. F.T.K. was involved in conceptualisation, methodology, formal analysis, investigation, writing of the original draft, visualisation, software, validation, writing of review and editing. Y.T.B. was involved in methodology, formal analysis, software, visualisation, writing of review and editing.

Funding information

This work is part of a South-driven research project entitled 'Rural-Urban Transformation' (RUT) funded by the Danish International Development Agency (DANIDA) (13-P02-TAN) and coordinated by Sokoine University of Agriculture in Tanzania and the University of Copenhagen in Denmark.

Data availability

The data that support the findings of this study are available from the corresponding author, S.A.N., upon reasonable request.

Disclaimer

The views and opinions expressed in this article are those of the authors and are the product of professional research. It does not necessarily reflect the official policy or position of any affiliated institution, funder, agency or that of the publisher. The authors are responsible for this article's results, findings and content.

References

- Africapolis, 2015, *Urban population statistics*, viewed 12 December 2015, from <https://africapolis.org/en/explore?agglomeration=Ilula&country=East%20Africa&poprange=1,2,3,4,5,6,7&year=2015>.
- Africapolis, 2019, *Africapolis: Visualise urbanisation in Africa*, viewed 15 October 2019, from <https://www.africapolis.org/explore>.
- Aldrich, H.E., Brumana, M., Campopiano, G. & Minola, T., 2021, 'Embedded but not asleep: Entrepreneurship and family business research in the 21st century', *Journal of Family Business Strategy* 12(1), 100390. <https://doi.org/10.1109/OBD.2016.9>
- Alhazmi, H. & Gokhale, S.S., 2016, 'Mining social capital on online social networks with strong and weak ties', in I. Awan & M. Younas (eds.), *2016 2nd International Conference on Open and Big Data OBD*, The Institute of Electrical and Electronics Engineers, Inc., Vienna, August 22–24, 2016, pp. 9–16.
- Anderson, A.R., Jack, S.L. & Dodd, S.D., 2016, 'The role of family members in entrepreneurial networks: Beyond the boundaries of the family firm', in A. Fayolle, S.L. Jack, W. Lamine & D. Chabaud (eds.), *Entrepreneurial process and social networks*, pp. 236–262, Edward Elgar Publishing, Cheltenham.
- Berrou, J.P. & Combarous, F., 2011, 'Testing Lin's social capital theory in an informal African Urban economy', *Journal of Development Studies* 478, 1216–1240. <https://doi.org/10.1080/00220388.2010.547937>
- Birch-Thomsen T. & Larsen M.N., 2019, 'Rural-urban (land) transformation -emergence of urban centres in Tanzania. Session: "Land use change processes and interactions along the urban-rural gradient"', in *Proceeding of the Open Science Meeting of the Global Land Programme Conference*, University of Bern, Bern, April 24–26, 2019, pp. 1–26.
- Borgatti, S.P. & Lopez-Kidwell, V., 2014, 'Network theory', in J. Scott & P.J. Carrington (eds.), *The SAGE handbook of social network analysis*, p. 23, Sage, Thousand Oaks, CA.
- Borgatti, S.P., Mehra, A., Brass, D.J. & Labianca, G., 2009, 'Network analysis in the social sciences', *Science (New York, N.Y.)* 323(5916), 892–895. <https://doi.org/10.1126/science.1165821>
- Brühwiler, B., 2014, 'Trustworthy trader or creditworthy debtor? Competing moralities and trader subjectivities at the Kariakoo Market in Dar es Salaam', *Stichproben – Vienna Journal for African Studies* 1427, 27–53.
- Brønd, F., 2018, 'Territory and trade networks in the small-scale oil-palm industry in rural Ghana', *Applied Geography* 100, 90–100. <https://doi.org/10.1016/j.apgeog.2018.10.002>
- Collar, A., 2022, 'Strong ties, social networks, and the diffusion of new ideas: Who do you trust?', in A. Collar (ed.), *Networks and the spread of ideas in the past*, pp. 1–28, Routledge, London, UK.
- Cuyppers, I.R.P., Ertug, G., Cantwell, J., Zaheer, A. & Kilduff, M., 2020, 'Making connections: Social networks in international business', *Journal of International Business Studies* 515, 714–736. <https://doi.org/10.1057/s41267-020-00319-9>
- Czernek-marszałek, K., 2020, 'Social embeddedness and its benefits for cooperation in a tourism destination', *Journal of Destination Marketing and Management* 15, 100401. <https://doi.org/10.1016/j.jdmm.2019.100401>
- Davidsson, P. & Honig, B., 2003, 'The role of social and human capital among nascent entrepreneurs', *Journal of Business Venturing* 18(3), 301–331. [https://doi.org/10.1016/S0883-9026\(02\)00097-6](https://doi.org/10.1016/S0883-9026(02)00097-6)

- Dyer, J.H., Gregersen, H.B. & Christensen, C., 2017, 'Entrepreneur behaviors, opportunity recognition, and the origins of innovative ventures', *Strategic Entrepreneurship Journal* 2, 317–338. <https://doi.org/10.1002/sej.59>
- Easley, C. & Wang, Y., 2017, 'Social influence in career choice: Evidence from a randomized field experiment on entrepreneurial mentorship', *Research Policy* 46(3), 636–650. <https://doi.org/10.1016/j.respol.2017.01.010>
- Gensch, D.H. & Recker, W.W., 1979, 'The multinomial, multiattribute logit choice model', *Journal of Marketing Research* 16(1), 124–132. <https://doi.org/10.2307/3150883>
- Glückler, J. & Doreian, P., 2016, 'Social network analysis and economic geography – Positional, evolutionary and multi-level approaches', *Journal of Economic Geography* 16(6), 1123–1134.
- Google Earth, 2019, *Ilula*, viewed 15 April 2019, from <https://earth.google.com/web>.
- Guerrero-Ocampo, S.B. & Díaz-Puente, J.M., 2023, 'Social network analysis uses and contributions to innovation initiatives in rural areas: A review', *Sustainability* 15(18), 14018. <https://doi.org/10.3390/su151814018>
- Gupta, S. & Sharma, M., 2011, 'Investigating the role of social influence and self-experience in the investment decision of a casual investor', *International Journal of Financial Services Management* 5(2), 139–158. <https://doi.org/10.1504/IJFSM.2011.041921>
- Hagblade, S., Hazell, P.B. & Reardon, T. (eds.), 2007, *Transforming the rural nonfarm economy: Opportunities and threats in the developing world*, International Food Policy Research Institute, Washington, D.C.
- Hagblade, S., Hazell, P. & Reardon, T., 2010, 'The rural non-farm economy: Prospects for growth and poverty reduction', *World Development* 38(10), 1429–1441. <https://doi.org/10.1016/j.worlddev.2009.06.008>
- Hoang, H. & Antoncic, B., 2003, 'Network-based research in entrepreneurship: A critical review', *Journal of Business Venturing* 18(2), 165–187. [https://doi.org/10.1016/S0883-9026\(02\)00081-2](https://doi.org/10.1016/S0883-9026(02)00081-2)
- İlhan-Nas, T. & Duran, Ş., 2022, 'The role of social networks in foreign direct investments: The case of Turkish Business groups', *Kafkas Üniversitesi İktisadi ve İdari Bilimler Fakültesi Dergisi* 13, 280–304.
- Kerr, W.R. & Mandorff, M., 2021, 'Social networks, ethnicity, and entrepreneurship', *Journal of Human Resources* Downloaded 581, 183–220. <https://doi.org/10.3368/jhr.58.3.0719-10306R2>
- Kim, M. & Fernandez, R.M., 2023, 'What makes weak ties strong?', *Annual Review of Sociology* 49, 177–193. <https://doi.org/10.1146/annurev-soc-030921-034152>
- Kironyi, L., Makindara, J. & Birch-Thomsen, T., 2023, 'Domestic practices for accessing water and rural-urban transformations: Example of emerging urban centres in Tanzania', *International Journal of Water Resources Development* 39(5), 869–894. <https://doi.org/10.1080/07900627.2023.2207684>
- Klyver, K. & Schøtt, T., 2011, 'How social network structure shapes entrepreneurial intentions?', *Journal of Global Entrepreneurship Research* 1(1), 3–19. <https://doi.org/10.1016/j.celrep.2016.10.040>
- Kristiansen, S., 2003, *Linkages and rural non-farm employment creation: Changing challenges and policies in Indonesia*, No. 03-22; ESA Working Paper, Issue 03.
- Kuchler, T., Li, Y., Peng, L., Stroebel, J. & Zhou, D., 2022, 'Social proximity to capital: Implications for investors and firms', *Review of Financial Studies* 35(6), 2743–2789. <https://doi.org/10.1093/rfs/hhab111>
- Lai, Y., Lin, F. & Lin, Y., 2015, 'Factors affecting firm's R and D investment decisions', *Journal of Business Research* 68, 840–844. <https://doi.org/10.1016/j.jbusres.2014.11.038>
- Lazaro, E., Agergaard, J., Larsen, M.N., Makindara, J. & Birch-Thomsen, T., 2019, 'Urbanisation in rural regions: The emergence of urban centres in Tanzania', *European Journal of Development Research* 31(1), 72–94. <https://doi.org/10.1057/s41287-018-0185-9>
- Lazaro, E. & Birch-Thomsen, T. (eds.), 2013, 'Complementarities for the reduction of poverty RUCROP', in *Identifying the contribution of savings and credit facilities*, University of Copenhagen, Copenhagen.
- Liang, E. & Daphne Yuan, S.-T., 2013, 'Investors are social animals: Predicting investor behavior using social network features via supervised learning approach', in *Proceedings of the Workshop on Mining and Learning with Graphs MLG-2013*, viewed 02 May 2021, from <http://www.crunchbase.com/person/bret-taylor>.
- Lin, Z., Zhang, Y., Gong, Q., Chen, Y., Oksanen, A. & Ding, A.Y., 2021, 'Structural hole theory in social network analysis: A review', *IEEE Transactions on Computational Social Systems* 9(3), 724–739. <https://doi.org/10.1109/TCSS.2021.3070321>
- Lotto, J., 2023, 'Demographic and socio-economic factors influencing households and investment choices in Tanzania', *Cogent Business and Management* 10(1), 1–13. <https://doi.org/10.1080/23311975.2023.2176276>
- Lu, H., Zhao, P., Hu, H., Zeng, L., Wu, K.S. & Lv, D., 2022, 'Transport infrastructure and urban-rural income disparity: A municipal-level analysis in China', *Journal of Transport Geography* 99, 1–12. <https://doi.org/10.1016/j.jtrangeo.2022.103292>
- Lupak, R.L. & Kunytska-Iliash, M.V., 2019, 'Development of road transport infrastructure as a factor restoration of economic potential development of rural areas in Ukraine', *Scientific Messenger of LNU of Veterinary Medicine and Biotechnologies* 21(92), 96–100. <https://doi.org/10.32718/nvvet-e9215>
- Magala, D.B., Najjingo Mangheni, M. & Miiro, R.F., 2019, 'Actor social networks as knowledge sharing mechanisms in multi-stakeholder processes: A case of coffee innovation platforms of Uganda', *Journal of Agricultural Education and Extension* 25(4), 323–336. <https://doi.org/10.1080/1389224X.2019.1629971>
- Muange, E.N., 2014, *Social networks, technology adoption and technical efficiency in smallholder agriculture: The case of cereal growers in Central Tanzania*, Georg-August-University Göttingen, Göttingen.
- Nagler, P. & Naudé, W., 2014, *Performance and survival of non-farm entrepreneurship in rural Africa: Evidence from the LSMS-ISA surveys*, The World Bank Economic Review, University, UNU-MERIT, Maastricht.
- Ncube, X. & Pittcock, J., 2025, 'Application of social network analysis in determining innovation information exchange at irrigation schemes in Zimbabwe', *International Journal of Water Resources Development* 41(2), 1–19. <https://doi.org/10.1080/07900627.2024.2443765>
- Nguyen, B., 2022a, 'Networking in weak institutions: When is it good for small business investment? The case of Vietnam', *Management and Organization Review* 18(3), 583–620. <https://doi.org/10.1017/mor.2020.85>
- Nguyen, B., 2022b, 'Small business investment: The importance of financing strategies and social networks', *International Journal of Finance and Economics* 27(3), 2849–2872. <https://doi.org/10.1002/ijfe.2302>
- Nguyen, G., Nguyen, M., Pham, A.V. & Pham, M.D.M., 2023, 'Navigating investment decisions with social connectedness: Implications for venture capital', *Journal of Banking & Finance* 155, 106979. <https://doi.org/10.1016/j.jbankfin.2023.106979>
- North, D.C., 1990, *Institutions, institutional change, and economic performance*, Cambridge University Press, Cambridge.
- Nyaki, S.A., Kilima, F.T. & Larsen, M.N., 2022, 'Employment creation through social networks in emerging urban centres in Rural Tanzania', *Eastern and Southern Africa Journal of Agricultural Economics and Development* 12(1), 56–90, viewed 02 May 2021, from <https://www.jaede.sua.ac.tz/index.php/jaede/issue/view/1>.
- Ogawa, S., 2006, '“Earning among friends”: Business practices and creed among petty traders in Tanzania', *African Studies Quarterly* 9(1–2), 23–38.
- Onjala, J. & Akumu, O.A.K., 2016, 'Relational patterns of urbanisation and economic growth in sub-Saharan Africa', *Development Southern Africa* 33(2), 234–246. <https://doi.org/10.1080/0376835X.2015.1120655>
- Ostrovsky, E. & Howard, B., 2019, 'Social network and financial risk tolerance among investors nearing and during retirement', *Journal of Family and Economic Issues* 40(2), 237–249. <https://doi.org/10.1007/s10834-018-9592-5>
- Pandya, S. & Leblang, D., 2017, 'Risky business: Institutions vs. social networks in FDI', *Economics & Politics* 29(2), 91–117. <https://doi.org/10.1111/ecpo.12088>
- Peng, L., Wang, Q. & Zhou, D., 2022, 'Social networks, trading, and liquidity', *Journal of Portfolio Management* 48(6), 196–215. <https://doi.org/10.3905/jpm.2022.1.367>
- Ratten, V. (ed.), 2022, 'The role of entrepreneurship in society', in *Analyse, ideate and grow: The role of creativity and entrepreneurship*, pp. 1–13, Springer Nature Singapore, Vanessa Ratten La Trobe University Bundoora, VIC.
- Sheresheva, M.Y., Valitova, L.A., Sharko, E.R. & Buzulukova, E.V., 2022, 'Application of social network analysis to visualization and description of industrial clusters: A case of the textile industry', *Journal of Risk and Financial Management* 15(3), 129. <https://doi.org/10.3390/jrfm15030129>
- Soetanto, D., Huang, Q. & Jack, S., 2018, 'Obstacles, networking approaches and entrepreneurial network changes', *European Management Review* 15(2), 171–189. <https://doi.org/10.1111/emre.12183>
- Sorenson, O., 2018, 'Social networks and the geography of entrepreneurship', *Small Business Economics* 51, 527–537. <https://doi.org/10.1007/s11187-018-0076-7>
- Susomrith, P. & Suseno, Y., 2017, 'Chapter 12 – Social capital and the social context of business networks: The case of Thailand', in J. Nolan, C. Rpwley & M. Warner (eds.), *Business Networks in East Asian Capitalisms*, pp. 269–288, Elsevier, Cambridge.
- Tacoli, C., 2022, 'Why small towns matter: Rural-urban linkages and food systems in the global south', in A.D. Ana Moragues-Faus, J.K. Clark, J. Battersby (eds.), *Routledge handbook of urban food governance*, 1st edn., p. 506, Routledge, Abingdon.
- Tacoli, C. & Agergaard, J., 2017, *Urbanisation, rural transformations and food systems. The role of small towns*, viewed from <http://pubs.iied.org/10806IIED/>.
- Tefft, J. & Jonasova, M., 2020, 'Food systems transformation in an urbanizing world', in J. Crush, B. Frayne & G. Haysom (eds.), *Handbook on urban food security in the global south*, pp. 34–61, Edward Elgar Publishing, Cheltenham.
- Turok, I. & Mcgrnahan, G., 2019, 'Urbanisation and economic growth: The arguments and evidence for Africa and Asia', *Urbanization* 04(02), 109–125. <https://doi.org/10.1177/2455747119890450>